consistent with the Figure 2 device being able to transfer files of digital data in response to commands from at least one software driver that is provided with the PC when it is initially purchased by an end user. One example of the claimed "parameter" is the fact that the ADGPD may be regarded by a PC to which it is connected as a mass storage device such as a hard disk drive, which signals to the PC that hard disk drive driver software should be utilized for file transfer purposes. The new claims cover but are not limited to this structure.

A camera that would be known today as a "web cam," which merely provides a video input to be shown on a monitor after the camera has been operatively coupled thereto, is one example of a product that does not include structure corresponding to the above-quoted claim language. A specific example of such a "web cam" is shown in the Kerigan patent, where a camera sends an "input" (current video data) to a PC so that the PC can change the "display data" (column 3, lines 30-35 of Kerigan). In contrast to the claimed invention, it is not the processor in the Kerigan patent that causes the camera to be recognized by the PC, it is the monitor processor that sends the DEDID signal to the PC.

Fifth, another aspect of the *multi-use automatic processor* claim feature is that the at least one parameter is sent to the MPI of the PC

> "before a time when the PC is able to receive data files that are transferred to it from the ADGPD."

This claim feature reads on, for example, the device shown in Figure 2 of the instant application. In accordance with this exemplary embodiment, the Figure 2 device is adapted to provide the PC with a response to one or more device identification inquiry signals. When the PC sends such signals out to a peripheral device, the PC is not yet ready to have files transferred to it from that peripheral device. Instead, after the PC receives and processes the at least one parameter regarding the Figure 2 device, the PC is then able to select at least one software drivers that are used to handle file transfers from the Figure 2 device. The new claims cover but are not limited to this exemplary embodiment.

The camera disclosed in the Hashimoto patent is one example of a product that does not include structure corresponding to the above-quoted claim language. As discussed in greater detail hereinafter, it is impossible for the Hashimoto camera to be able to send signals to a PC to which it is connected before the PC sends the camera a DTR signal, which indicates that the PC is ready for camera related communication with the camera. At that time, the PC already has recognized how to communicate with the camera.

It should be emphasized that the new claims cover but are not limited to the above-described embodiments of the claimed invention that are illustrated in the specification (*e.g.*, DSP 1300 being a single digital signal processor chip having a single CPU that directly causes the at least one parameter to be sent and that controls at least the processing of analog data that is generated). Rather, it is the applicant's specific intention that the new claims cover all modes of practicing the claimed invention, not just the above-described exemplary embodiments. For example, the new claims should be interpreted to cover an "ADGPD processor" that is formed by, for example, a cluster of two or more single processors (*e.g.*, digital signal processor(s) or microprocessor(s) each having a single CPU and program memory) that are formed on the same or different wafers of a semi-conductor material such as silicon. Consistent with this is the fact that col. 8, lines 66-67 of Hashimoto state that the camera CPU 23 (Figure 8) "may either be a single chip [*e.g.*, a single microprocessor] or be composed of multiple components."

The Patentability Issues

The October 1st Office Action identifies four different prior art references: the Hashimoto patent, the Smith patent, the Kerigan patent, and U.S. Patent No. 5,724,934 to Shinohara (the "Shinohara patent"). It is respectfully submitted that, for a number of different reasons, any purported combination of these references *does not* teach or suggest, for example, the *multi-use automatic processor* claim feature and, therefore, that the new claims should be found to be patentable over any such purported combination. An analysis of exemplary reasons why each patent does not teach the *multi-use automatic processor* claim feature follows after a brief discussion of four fallacies in the Office Action, the recognition of any one or more of which should lead one to the conclusion that the new claims should not be found to be subject to rejection on the grounds stated in the Office Action.

The Rejections Fail Because Prior Art "Plug and Play" Cameras Require User Intervention Via A PC Such As With User Loaded Software

In connection with an appeal of an adverse decision in this case, the Federal Circuit should determine whether or not substantial evidence supports the factual findings underlying the legal conclusion on the non-obviousness issues. *In re John B. Sullivan and Findlay E. Russell*, 498 F.3d 1345, 1350 (Fed. Cir. 2007). One factual finding on which all of the obviousness rejections are based is that the Kerigan patent teaches a camera having "plug and play functionality" that purportedly allows a user to transfer pictures from the camera to a PC without requiring a user to load software onto the PC. Because this factual finding is not supported by substantial evidence as discussed in greater detail hereinafter, it is respectfully submitted that any rejection of the new claims on the grounds stated in the Office Action would be overturned on appeal and, therefore, that the new claims should be found to be patentable and in condition for allowance.

Kerigan's purported teachings about the applicability of "plug and play functionality" to a camera are inconsistent with information that was publicly available before the March 4, 1997 earliest filing date of the new claims. For example, Exhibit A hereto is an article dated April 15, 1996 entitled "Photography Goes . . . Under $1,000" which concerns the Canon Powershot 600 digital camera. On page 2 of the article, it is stated that the camera includes "Plug and Play support:"

> "Powershot 600 is compatible with Microsoft Windows 95 and the camera's **Plug and Play support** ensures easy image integration with Windows 95 applications." (emphasis added).

The capitalization of the words plug and play is a reference to the Powershot 600 camera complying with the then existing Plug and Play standards. If the "Plug and Play" standards truly did allow pictures or video to be transferred from a camera to a PC without any user intervention by means of the PC (*e.g.*, user loaded software) as alleged in the Office Action, then the article should not reference a need for any such user intervention. However, this is not the case. The article clearly states further down on page 2 that the camera "comes with a selection of software including a Twain driver." If this software is not loaded on a PC, then no pictures can be transferred to the PC from the Powershot 600 camera. See, for example, page 17 of the manual for the Canon Powershot 600 camera that is identified in the IDS submitted herewith, which states,

> "You should install the software application [on the disk sold with the camera] that enables you to transfer images to your computer and to work with your images."

Because this information stands in direct contrast to the Office Action's statements about Kerigan, the Office Action's factual findings about Kerigan's purported camera with "plug and play functionality" are clearly erroneous, not supported by substantial evidence, and would not be affirmed on appeal.

The obviousness rejections also are based on a mischaracterization of a citation to Kerigan (column 6, lines 3-10). The second sentence of this portion of Kerigan states that "**[t]his** allows such features as plug and play interface components and video drivers" (emphasis added). For the Office Action's contentions about Kerigan to be correct, the word "this" should reference some structure or capability of a camera that allows it to have the purported "plug and play functionality." However, this is not the case. "This" references the specific structure of the Kerigan interface which can vary based upon the "actual connector used." As discussed in greater detail hereinafter in the patentability section of this document, a user is required to load interface enabling software onto the PC so that the PC can be informed about what signals are present on the pins of the "actual connector used." The "plug and play functionality" of the Kerigan camera obviously does not allow a user to use a camera without user intervention by means of the PC because, for example, the portion of Kerigan cited in the Office Action references a need for user loaded interface enabling software. For this reason alone, any rejections of the new claims on the grounds stated in the Office Action would not be supported by substantial evidence and, therefore, would be overturned on appeal.

Other information contradicts the Office Action's factual findings about Kerigan. The QuickCam by Connectix is one example of a camera that was commercially available before March 4, 1997, and that could be used in the manner taught by Kerigan to provide video input. A copy of a manual for a QuickCam camera is included in the IDS filed herewith. Page 3-7 of the manual states that the installation disk provided with the QuickCam camera copies two applications onto a user's hard drive, "Quickmovie" and "Quickpict." These end user added applications allowed a user to record and store both movies and still images, respectively. A user loaded software requirement for these purposes belies the Office Action's contentions about the camera "plug and play functionality" purportedly taught in Kerigan. For this additional reason, for example, the Office Action's factual findings about the applicability of "plug and play" cameras in Kerigan are clearly erroneous, not supported by substantial evidence, and would not be affirmed on appeal.

Moreover, the QuickCam camera cannot be used for video capture purposes without significant user intervention by means of the PC. In this regard, a publication entitled "Mini FAQ Again" dated September 8, 1996 is being submitted herewith. On page 3, the article identifies "the steps to take to install a QuickCam with Windows 95." As one example, a user must "run the QuickCam installer" program, access the advanced section of the Windows 95 control panel for multimedia, double click on the "Video Capture Devices" icon, double click on the QuickCam icon, make sure that the "use the video capture device" choice is selected, and then restart Windows 95. User intervention of this sort is the antithesis of the *multi-use automatic processor* claim feature. For this reason, for example, the alleged camera "plug and play functionality" of Kerigan cannot mean what the Office Action says that it does and, therefore, the rejections stated in the Office Action are not supported by substantial evidence as required by *In re John B. Sullivan and Findlay E. Russell.*

Publicly Available Information From The Assignee Of Hashimoto Contradicts The Factual Findings Underlying The Rejections Stated In The Office Action

Exhibit B hereto is a copy of an article dated February 11, 1997 concerning Ricoh's "award winning" RDC-2 digital camera, together with a portion of the manual for the RDC-2 camera. While the article describes the cable of the RDC-2 camera as having a "**plug 'n play** serial connection cable," the RDC-2 manual clearly states that "**Ricoh Utility Software**" is required for "file transmission to a PC" (emphasis added). These documents are further confirmation that the Office Action's factual findings about Kerigan allegedly teaching a camera having "plug and play functionality" with no user-loaded software required are clearly erroneous and not supported by substantial evidence.

These documents are especially significant because they were made public by the same company to which Hashimoto is assigned, Ricoh Company, Ltd., well after the Hashimoto patent was originally filed in Japan. If pictures truly could be transferred to a PC from a digital camera without a user having to load software onto the PC as alleged in the Office Action, then surely Ricoh would be publicizing that at least one of its cameras had that capability. Instead of acting in a manner consistent with what is alleged in the Office Action, Ricoh instead was actively promoting its "PhotoStudio" user-loaded software that, as stated in the February 24, 1997 article attached hereto as Exhibit C, includes "a 'direct connection' feature that allows users to upload or download images directly to and from the camera." The Exhibits B and C documents belie the Office Action's factual findings about Kerigan allegedly teaching a camera having a purported "plug and play functionality." For at least this reason, it is respectfully submitted that any rejection of the new claims on the grounds stated in the Office Action would not be supported by substantial evidence, and would be overturned on appeal.

<u>The Rejections Fail Because The Office Action's Factual Findings About Kerigan Are Not Consistent With Publicly Available Information About The "Plug And Play" Standards</u>

Submitted in connection with the IDS filed herewith are portions of a book published in 1995 that is entitled "Plug And Play System Architecture." The book provides a user with an overview of the then existing plug and play technology. For the Office Action's factual finding about Kerigan's camera with "plug and play functionality" to be correct, there should be some reference in the book about how a digital camera can include "plug and play functionality." However, this is not the case. As can be seen, for example, from the index of the book that is submitted herewith, the words "digital camera" or "camera" are not referenced anywhere in the book. For this reason alone, the Office Action's factual finding that Kerigan's camera can be used without a having to load software onto a PC is not supported by substantial evidence, is clearly erroneous, and would not be affirmed on appeal.

<u>The Rejections Fail For The Additional Reason That Hashimoto's Figure 14 References A PC's Ability To Send A DTR Signal That Is Provided By User Loaded Software</u>

Figure 14 of Hashimoto is a flow chart that illustrates the steps of the process by which a Hashimoto camera communicates with an external device such as a PC. All of the rejections stated in the Office Action are based on the factual finding that these program steps do not teach or suggest that a user must load software onto the PC for file transfer purposes (see, page 7, the end of paragraph 4). As this is not the case at least for the reasons discussed in greater detail hereinafter, any rejection of the new claims on the grounds stated in the Office Action would not be supported by substantial evidence and, therefore, would be overturned on appeal if such rejections were made. An analysis in support of this conclusion follows.

Column 51-65 of Hashimoto states that, in step 304 of Figure 14, the Hashimoto camera detects whether it is connected to a PC by the camera detecting a Data Terminal Ready signal of an RS-232 protocol (or some other equivalent signal of another communications protocol) that is sent to it from a PC. The Office Action's factual findings assume that, during the relevant time frame, PCs have the ability to send such signals to indicate a PC's readiness to have picture files transferred to it from a digital camera. However, this is not the case.

Identified in the IDS sent herewith are a number of manuals and other spec sheets for various PCs made by Compaq and Apple that were available for purchase by consumers before March 4, 1997. None of these documents reference that a computer, when initially sold to an end user, contained software on them that allowed the computers to send a DTR or other equivalent signal to a PC to indicate the PC's picture transfer readiness. As such, it is respectfully submitted that the ability to send these signals was given to a PC by a user loading software onto the PC, which is the antithesis of the *multi-use automatic processor* claim feature. Because this information stands in direct contrast to what is alleged in the Office Action, it is respectfully submitted that the Office Action's factual findings about Hashimoto's purported lack of end user added software is clearly erroneous, not supported by substantial evidence, and would not be affirmed on appeal.

Moreover, it appears that the standard used in the Office Action to determine whether or not Hashimoto requires user loaded software is whether or not Hashimoto contains a specific reference to a user loaded software requirement. The relevant issue is not whether Hashimoto contains a specific reference to a user loaded software requirement. Instead, the appropriate and legally correct test is whether or not one of ordinary skill would understand from the text and drawings of Hashimoto if user loaded software were required. As discussed above, and as further explained hereinafter, Hashimoto contains a number of explicit teachings that would lead one of ordinary skill to understand that user loaded software is required. Because this stands in direct contrast to the Office Action's factual findings about Hashimoto, any rejection of the new claims on the grounds stated in the Office Action would not be supported by substantial evidence, would be clearly erroneous, and would be overturned on appeal.

The Claims Are Patentable Over Hashimoto

Regarding the Hashimoto patent, please note that one aspect of the *multi-use automatic processor* claim feature is an "automatic recognition process" with which the ADGPD processor is involved. In accordance with this aspect of the *multi-use automatic processor* claim feature, at least one parameter is sent to the MPI of the PC before the PC is able to have files transferred to it from the ADGPD to which the PC is connected.

Hashimoto teaches that, when the PC sends the DTR signal to the Hashimoto camera, the PC is ready to have files transferred to it from the camera. It is impossible for the CPU inside the Hashimoto camera to communicate with the PC before the PC sends the DTR signal because the signal level conversion circuit that connects the PC to the camera is in "standby mode" until the DTR signal is received (col. 12, line 65 o col. 13, line 14). Consistent with this is the fact that Hashimoto clearly states that it's CPU "monitors a data terminal ready (DTR) signal of an RS-232" or equivalent signal protocol (col. 10, lines 41-65) (emphasis added). This stands in direct contrast to the *multi-use automatic processor* claim feature which requires that a multi-use automatic processor be involved with an "automatic recognition" process as well as at least initiating a "data generation" process. For this reason, for example, Hashimoto does not disclose, teach or suggest at least the *multi-use automatic processor* claim feature and, therefore, the new claims should be found to be patentable over Hashimoto by itself.

The Hashimoto patent does not teach or suggest the *multi-use automatic processor* claim feature for other reasons. For example, while the new claims require the automatic recognition process take place "without any type of user intervention at any time by means of the PC," portions of Hashimoto not previously discussed with the Examiner evidence that Hashimoto requires user loaded applications software for at least three different reasons. For this additional reason, for example, the new claims should be found to be patentable over Hashimoto by itself.

First, the brief description of Figure 16 of Hashimoto states that Figure 16 is a flowchart that illustrates the process by which the Hashimoto camera is able to receive information from an "external device." Col. 10, lines 42-43 of Hashimoto state that one example of such an external device is a "computer" or PC. Step 340 of Figure 16 states that the Hashimoto camera receives "combined image and audio files" from the PC. It is respectfully submitted that, based on the references of record, no PC commercially available on or before the earliest priority date (March 4, 1997) included the capability of sending "combined image and audio files" when initially purchased by an end user. Rather, any such capability had to have been provided by a suitable application that an end user would load onto the PC. It is noted that the Office Action does not make any showing that any PC during any time frame had the ability to send such "combined image and audio files" without application level software. For these reasons, for example, it is respectfully submitted that the ability of sending these types of files is provided by a user loaded applications program, which is the antithesis of the *multi-use automatic processor* feature.

Second, column 7, lines 50-55 of Hashimoto state that various types of "information" (*e.g.*, "exposure controlling information) are created by the CPU 23 shown in Figure 8, and that automatic "control of the camera is performed using this information." One of the devices that can "control" the Hashimoto camera is a PC. Hashimoto contains no disclosure whatsoever that a PC can "control" the Hashimoto camera by means of the "exposure controlling information" without the use of an end user added applications program. It is respectfully submitted that, based on the references of record, no PC that was commercially available on or before the earliest priority date (March 4, 1997) had this ability without the utilization of end user added software.

Third, column 7, lines 57-62 of Hashimoto state that the information referenced in the immediately preceding paragraph can be used "when monitoring the camera in order to determine if an abnormal state exists." A PC is an example of a device that may be used to monitor the Hashimoto camera in this manner. It is respectfully submitted that, based on the references of record, no PC that was commercially available on or before the earliest priority date (March 4, 1997) had the ability to "monitor" a PC in this manner without also requiring end user added software.

Smith Does Not Provide The Missing Teachings

The Smith patent does not provide the teachings missing from Hashimoto to render the new claims obvious for a number of different reasons. Assuming, for the sake of argument, that the Examiner's comments about the "plug and play peripheral" purportedly disclosed in Smith's background are correct, Smith does not disclose, teach or suggest that such a device would have a processor that is able to initiate the claimed "data generation process" in which, for example, a sensor generates analog data and the generated analog data is processed. There is no evidence in Smith that would lead one of ordinary skill in the art to take the programming of the "single use" processor arguably disclosed in Smith and apply it to Hashimoto's processor that is not capable of being involved in the automatic recognition process since it is impossible for it to send signals to the PC during the relevant time frame. Smith simply does not teach a physical component that can be inserted or programmed into the Hashimoto camera to render the new claims obvious and, therefore, Smith does not disclose, teach or suggest an aspect of the *multi-use automatic processor* claim feature of the new claims that is missing from Hashimoto. For this reason alone, for example, the new claims should be found to be patentable over a purported combination of Hashimoto and Smith.

Smith does not provide the teachings missing from Hashimoto for at least the following additional reason. As discussed above, the *multi-use automatic processor* claim feature requires that "at least one parameter regarding the ADGPD" be sent to an MPI of a PC "without any type of user intervention at any time by means of the PC." The purported Smith device is not capable of generating files of digitized analog data and, therefore, is not an "analog data generating and processing device." As such, the purported Smith device is incapable of automatically sending at least one parameter "regarding the ADGPD" because it is not an "ADGPD." For at least this additional reason, Smith does not disclose, teach or suggest at least one aspect of the *multi-use automatic processor* claim feature missing from Hashimoto and, therefore, the new claims should be found to be patentable over a purported combination of Hashimoto and Smith.

It should be emphasized, however, that, by making this argument, no legitimate basis is provided to read subject matter into any claim that does not specifically recite relevant claim language. As one example, it is the applicant's specific intention that it is not proper to read the subject matter of dependent claim 199 (which recites that the parameter "does not indicate that the ADGPD includes the sensor") into independent claim 183 from which it depends.

Kerigan Does Not Provide The Missing Teachings

The Kerigan patent does not provide the teachings missing from either Hashimoto or Smith to render the amended claims obvious for a number of reasons. First, as discussed above, neither Hashimoto nor Smith disclose, teach or suggest the *multi-use automatic processor* claim feature which requires that "at least one parameter regarding the ADGPD" be sent to an MPI of a PC "without any type of user intervention at any time by means of the PC." In contrast to this, the camera disclosed in Kerigan is not involved in identifying itself to the PC. Rather, col. 3, lines 4-9 of Kerigan clearly states that the "display device" (and not the camera) "will at this time send a digital extended display identification (DEDID) to host device" that "provides the host information on the display device's functional capabilities" and interface capabilities." This means that it is the display device, and not any processor inside of the Kerigan camera, that sends the DEDID signal to the PC and, therefore, that any processor inside of the camera is only capable of a single use – the provision of streaming video data to a PC. In view of the foregoing, the processor inside of the Kerigan camera is not a multi-use automatic processor, and is incapable of causing at least one parameter to be automatically sent to the PC. For at least this reason, for example, the new claims should be found to be patentable over a purported combination of Kerigan, Smith and Hashimoto.

Second, an aspect of the *multi-use automatic processor* claim feature that is missing from both Hashimoto and Smith is that at least one parameter "regarding the ADGPD" and that is "consistent with the ADGPD being capable of transferring files of digital data in response to commands from the at least one software driver" be sent to the PC. In direct contrast to this, the camera disclosed in Kerigan merely is what is known today as a "web cam" as implied by Kerigan Table 1 referring to "video in" in which currently streaming video is provided to a PC. Such cameras *do not* have the capability of transferring files of digital data to the PC without an end user loaded applications program. Consistent with this is the fact that Kerigan references the use of "video drivers" (column 6, line 10) that are not operative to transfer picture files from a camera to a PC. For at least this additional reason, for example, the new claims should be found to be patentable over the purported combination stated in the Office Action.

Third, an aspect of the *multi-use automatic processor* claim feature that is missing from both Hashimoto and Smith is one or more instructions sets are executed to cause a parameter "regarding the ADGPD" to be sent "without any type of user intervention at any time by means of the PC." This claim language means that, for example, a user does not have to load any software onto the PC for file transfer enabling purposes from an ADGPD to a PC. On the other hand, a user must load interface enabling software onto a PC to which a Kerigan interface is coupled at least for the reasons discussed in the following paragraph.

Kerigan teaches that any number of different connectors can be used to implement the "interface" that is disclosed and claimed in Kerigan. See, for example, column 5, lines 45-46 of Kerigan which specify that the "mechanical physical level can be configured in several ways." As such, there is no standard set of pins contained inside a connector that can be accessed in a known way by a standard program that is provided with a PC when it is sold to an end user during the relevant time frame (before March 4, 1997). To allow the Kerigan interface to be used with a particular PC that an end user may have, the end user is required to load interface enabling software onto the PC which is "configured to access the signals" on the actual connector that is utilized in a particular embodiment of the Kerigan interface (see col. 5, lines 47-51 of Kerigan). A user loaded software requirement of this sort is the antithesis of the *multi-use automatic processor* claim feature that is not taught by either Hashimoto or Smith.

Moreover, the Office Action's contention that Kerigan purportedly provides a basis to read Smith's alleged teachings into Hashimoto is inconsistent with the fact that products commercially available before March 4, 1997 that are capable of functioning as the Kerigan camera require a user to load camera enabling software onto a PC. One such camera is the QuickCam by Connectix. As discussed previously in this preliminary amendment, a user is required to load a "Quickmovie" and "Quickpict" applications onto a PC in order to be able to use the QuickCam to record movies or still images. Moreover, and as discussed previously, at least significant user intervention by means of the PC is required in order to allow a user to use the QuickCam camera for video capture purposes. A user intervention requirement (*e.g.*, user loaded software) of this sort is the antithesis of the *multi-use automatic processor* claim feature that is missing from both Hashimoto and Smith. For this reason alone, for example, the new claims should be found to be patentable over a purported combination of Kerigan, Smith and Hashimoto.

Video conceivably could be streamed from a video camera and a video card that is designed to be affixed in a card slot of a PC. However, Kerigan contains no information as to how such a video card could be connected to the Kerigan interface that is part of a computer monitor or attached thereto. In any event, video cards that were available during the relevant time frame required a user to load software onto the PC in order for the PC to be able to show the video signals from the video card on the PC's monitor. A user loaded software requirement of this type is wholly inconsistent with the *multi-use automatic processor* claim feature that is missing from both Hashimoto and Smith. For this additional reason, the new claims should be found to be patentable over a purported combination of Hashimoto, Smith and Kerigan.

Other portions of Kerigan support the conclusion that an end user is required to load software onto a PC to which the Kerigan interface is connected. The description of step 24 shown in Figure 2 of Kerigan is to "identify capabilities of each peripheral." Kerigan discloses that a camera is one type of peripheral that can be connected to a PC via the Kerigan monitor interface connection. Based on the references of record, no PC that was commercially available as of March 3, 1997 was capable of identifying the "capabilities" of a camera without requiring a user to load software onto the PC to provide the PC with that ability. This capability identification function must have, therefore, been provided by user loaded camera enabling software, which stands in direct contrast to the aspects of the *multi-use automatic processor* claim feature that is missing from both Hashimoto and Smith.

Shinohara Does Not Provide The Missing Teachings

The Shinohara patent does not provide the teachings missing from Hashimoto, Smith and Kerigan for a number of different reasons. As discussed above, one aspect of the *multi-use processor* feature of the new claims is that one or more instructions sets are executed by the "ADGPD processor" to cause the at least one parameter to be sent. This means that it is the execution of these instruction sets, not any processing power provided by an external source, that causes the at least one parameter to be sent. In contrast to this, all of the memory cards disclosed in Shinohara affirmatively require that processing power be provided by the "card services" program of a PC in order for the Shinohara devices to be recognized by the PC. For this reason alone, the currently pending claims should be found to be patentable over the purported combination stated in the Office Action.

Shinohara fails to provide the missing teachings for other reasons. For example, the memory cards disclosed in Shinohara include some kind of interface chip that is capable of carrying out the commands that are issued to it from the "card services" program running on the PC. Such interface chips are capable of only being used for that task and, therefore, merely are "single use" chips. This stands in direct contrast to the affirmatively recited claim language that requires an ADGPD processor be able to initiate a data generation process and be involved in an automatic recognition process. For this additional reason, the new claims should be found to be patentable over the purported combination of references stated in the Office Action.

In summary, the new claims should be found to be patentable because, for example, neither Hashimoto, Smith, Kerigan or Shinohara disclose, teach or suggest the *multi-use automatic processor* claim feature that requires the execution of one or more instruction sets to cause at least one parameter regarding an ADGPD and its file transfer capability to be automatically sent to an MPI of a PC without any type of user intervention at any time by means of the PC and at a point in time before the PC is able to have files transferred to it from the ADGPD.

Hindsight Reconstruction – In General

It is respectfully submitted that the Office Action does not make out a *prima facie* case of obviousness because, just like what happened in *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000), the Office Action falls "into the hindsight trap." *Id.* In *Kotzab*, the Federal Circuit recited that "a rejection cannot be predicated on the mere identification in [the prior art] of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *Id.* Neither *KSR* nor post-*KSR* cases have affected the *Kotzab* ruling in respect to this issue.

Unlike *Kotzab* where a combination of "components" having definite structure was at issue, the Office Action in the application involves a combination of various "functionalities." It respectfully submitted that no case law exists that stands for the proposition that ethereal "functionalities" divorced from any particular structure can be combined together to make a proper rejection. Because the rejections stated in the Office Action are wholly based on ethereal and nebulous "functionalities" as opposed to concrete structural components, it is respectfully submitted that the Office Action falls "into the hindsight trap" and, therefore, fails to state a proper combination of references. For this reason alone, for example, the new claims should be found to be patentable over the purported combination of the references cited in the Office Action.

<u>"Lack of Particular Findings" Regarding Hashimoto</u>

It is respectfully submitted that, in order to make the purported reference combination of Hashimoto, Smith, Kerigan and Shinohara proper under *Kotzab*, the Office Action must show that one of ordinary skill, with no knowledge of the invention, would be able to answer each one of the following questions in the affirmative about the Hashimoto patent:

1) Can the Hashimoto camera be used without requiring a user to have previously loaded an applications level program on the PC to which the camera is connected?

2) Do prior art PCs before March 4, 1997, when initially sold to an end user, have the capability of sending a DTR signal of an RS-232 connection (see Hashimoto's abstract) without using an end user added applications program for purposes of indicating a readiness for camera file transfer purposes?

3) Do prior art PCs before March 4, 1997, when initially sold to an end user, have the capability of sending "combined image and audio files" (step 340 in Figure 16 of Hashimoto) without using an end user added application program?

4) Why would one of ordinary skill delete the required signal level conversion circuit (item 28 in Figure 8 of Hashimoto) that is kept in a standby mode to save battery power until the DTR signal is received from the PC?

5) Do prior art PCs before March 4, 1997, when initially sold to an end user, have the capability of "controlling" the Hashimoto camera by means of, for example, "exposure controlling information" without requiring a user to load an applications program on the PC?

6) Do prior art PCs before March 4, 1997, when initially sold to an end user, have the capability of "monitoring" the Hashimoto camera by means of, for example, "exposure controlling information" without requiring a user to load an applications program on the PC?

7) Why would one of ordinary skill look to the Kerigan camera as a basis for putting Smith's purported plug and play functionality into Hashimoto when Hashimoto's background of the invention states that no "universal standard" exists for exporting images from digital cameras?

Since the Office Action is silent on these issues, it is respectfully submitted that the Office Action has fallen into the "hindsight trap" and is using knowledge of the instant application to make the purported combination of references stated in the Office Action. Thus, the purported combination of references is not proper and, therefore, the new claims should be found to be patentable over the purported reference combination. A detailed analysis in support of the above-noted points follows.

As a preliminary matter, however, it must be reiterated that a purported combination of Hashimoto, Smith, Kerigan and Shinohara does not teach or suggest the *multi-use automatic processor* claim feature at least for the aforementioned reasons. At least for this reason, the new claims should be found to be patentable over a purported combination of such patents assuming, for the sake of argument, that it were proper to combine them together in the manner asserted in the Office Action, even though it is not proper to do so as discussed in greater detail hereinafter.

Regarding point 1, it appears that the only basis stated in the Office Action in support of the proposition that Hashimoto allegedly does not require applications level programming is the absence of a specific statement in the patent's specification to that effect. The absence of such an explicit statement does not mean that Hashimoto does not require the use of such a program. The Office Action's confusing and hard to understand statements about a "product by process" do not provide a proper basis for ignoring what the undersigned attorney contends is Hashimoto's application software requirement. The Office Action should provide some legitimate basis as to why Hashimoto allegedly requires no applications level programming or other software which is consistent with the state of the art (see, for example, the document attached to Supplemental Notice filed April 22, 2008, in which Casio, Inc. admits that the Casio QV-10 camera and the Kodak DCS200 camera both need "a software driver to retrieve images in the camera's memory"). Since the Office Action fails to state a basis as to why Hashimoto allegedly does not require user loaded software, it is not proper to make the combination of references stated therein.

Regarding point 2, Hashimoto's abstract clearly states that the "camera monitors a data terminal ready (DTR) signal of an RS-232 connection in order to determine that the external device is properly connected and in a state which permits communication." The Office Action is completely silent on the issue of whether PCs, before March 4, 1997, when initially sold to an end user, have the capability of sending a DTR signal of an RS-232 connection (see Hashimoto's abstract) for the purpose of indicating a readiness to have files transferred to it from a camera without requiring an end user added applications program. Since the Office Action fails to address this issue, it is respectfully submitted that the combination of references stated therein is not proper.

Regarding point 3, reference is made to the discussion in the "patentability" section of this document in which evidence is provided that one of ordinary skill would understand that a PC's ability to send "combined image and audio files" (item 340, Figure 16 of Hashimoto) means that an end user is required to load an applications level program onto a PC in order to cause such files to be able to be transferred to the PC. The Office Action contains no showing whatsoever that PCs as of the March 4, 1997 filing date of the new claims had the ability to send "combined image and audio files" without an applications program being added by an end user. Without this showing, it is respectfully submitted that it is not proper to combine Hashimoto in the manner asserted in the Office Action.

Regarding point 4, the Examiner is respectfully requested to revisit the propriety of combining Hashimoto with the other references stated in the Office Action in view of the new claim language that requires the "at least one parameter" to be sent "before the PC is able to have files transferred to it from the ADGPD." As discussed above, Hashimoto requires a signal level conversion circuit to convert voltage values from RS-232 levels to levels that are suitable for the camera. This circuit is kept in standby mode to conserve battery power until the DTR signal is received from the PC and, therefore, the camera is not able to send signals to the PC until the DTR signal is received. When the PC sends this signal, it indicates that it is ready to have files transferred to it from the camera. Since the Office Action fails to address why one of ordinary skill would be led to ignore the signal level conversion circuit, it is respectfully submitted that the combination of references stated therein is improper.

Regarding point 5, reference is made to the argument in the patentability section in this preliminary amendment with respect to the contention that an end user is required to load an applications level program onto a PC commercially available before March 4, 1997 to provide the PC with the ability to "control" the Hashimoto camera by means of, for example, "exposure controlling information." The Office Action provides no evidence whatsoever to support the position that the Hashimoto camera can be controlled by a PC in this manner without also requiring a user to load an application on the PC. Since the Office Action fails to address this issue, it is respectfully submitted that the combination of references stated therein is not proper.

Regarding point 6, reference is made to the argument in the patentability section in this preliminary amendment with respect to the contention that an end user is required to load an applications level program onto a PC commercially available before March 4, 1997 to provide the PC with the ability to "monitor" the Hashimoto camera by means of, for example, "exposure controlling information." The Office Action provides no evidence whatsoever to support the position that the Hashimoto camera can be "monitored" by a PC in this manner without also requiring a user to load an application on the PC. Since the Office Action fails to address this issue, it is respectfully submitted that the combination of references stated therein is not proper.

Regarding point 7, column 1, lines 43-46 of Hashimoto state that there is no "universal standard for exporting or producing images from digital cameras." This means that, for example, there is no generic driver software that can be utilized to allow a digital camera to export images to a PC to which the camera is connected. If no such generic software exists, then each camera must have unique software that a user must load onto a PC in order for images to be exported from the camera to the PC. It necessarily follows from this that the Kerigan "web cam" and the

Hashimoto digital camera must use different software. Because the Office Action fails to address this statement from Hashimoto, it is respectfully submitted that the requisite "particular findings" under *Kotzab* have not been made as to why one of ordinary skill would look to Kerigan as a basis for putting Smith's purported plug and play functionality into Hashimoto and, therefore, that the purported combination of references in the Office Action is not proper.

Moreover, the Office Action fails to address the fact that the plug and play standards referenced in Kerigan and Smith were issued well prior to the date when the Hashimoto patent was originally filed in Japan. The fact that the lack of a picture export "universal standard" statement was made after the issuance of the plug and play standards belies the assertions in the Office Actions that the plug and play references made in Kerigan with respect to its "web cam" provide a legitimate basis for reading Smith's purported plug and play functionality into Hashimoto. Since the Office Action is silent on this issue, it is respectfully submitted that the purported combination of references in the Office Action is not proper.

"Lack of Particular Findings" Regarding Smith

It is respectfully submitted that, in order to make the purported reference combination of Hashimoto, Smith, Kerigan and Shinohara proper under *Kotzab*, the Office Action must show that one of ordinary skill, with no knowledge of the invention, would be able to answer the following question in the affirmative about the Smith patent:

8) Why would one or ordinary skill find it obvious to adapt Smith's purported "single use" non-camera related processor with the camera processor shown in Hashimoto that is incapable of communicating with the PC before the DTR signal is received?

Since the Office Action is silent on this issue, it is respectfully submitted that the Office Action has fallen into the "hindsight trap" and is using knowledge of the instant application to make the purported combination of references stated in the Office Action. For this reason, for example, it is respectfully submitted that the reference combination is not proper and, therefore, that the new claims should be found to be patentable over the reference combination.

As a preliminary matter, however, it must be reiterated that a purported combination of Hashimoto, Smith, Kerigan and Shinohara does not teach or suggest the *multi-use automatic processor* claim feature at least for the aforementioned reasons. At least for this reason, the new claims should be found to be patentable over a purported combination of such patents assuming, for the sake of argument, that it were proper to combine them together in the manner asserted in the Office Action, even though it is not proper to do so as discussed in greater detail hereinafter.

Regarding point 8, the Office Action glosses over the fact that the processor contained inside of the plug and play peripheral that the Office Action contends is taught in the background of the Smith patent is a single use processor – it is not capable of handling or being involved with an analog data generation process. The Office Action contains insufficient "particular findings" as to why the skilled artisan would find it obvious to adapt Smith's purported single use processor with the processor shown in Hashimoto that is incapable of communicating with the PC before the DTR signal is received by the Hashimoto camera only processor. Since the Office Action fails to address this issue, it is respectfully submitted that the combination of references stated therein is not proper.

"Lack of Particular Findings" Regarding Kerigan

It is respectfully submitted that, in order to make the purported reference combination of

Hashimoto, Smith, Kerigan and Shinohara proper under *Kotzab*, the Office Action must show that one of ordinary skill, with no knowledge of the invention, would be able to answer each one of the following questions in the affirmative about the Kerigan patent:

9) Since Kerigan discloses a "web cam" that merely provides streaming video (and not picture files), why would one of ordinary skill rely on Kerigan's "web cam" as a basis to read Smith's purported plug and play functionality into Hashimoto's digital still camera that is capable of transferring picture files?

10) Why would one of ordinary skill rely on the web cam to monitor connection disclosed in Kerigan as a basis for combining Smith's purported single use processor with Hashimoto's camera processor that cannot send signals to the PC until after the PC sends it the DTR signal?

11) Why would one of ordinary skill rely on Kerigan which specifically mentions the use of a "video driver" as a basis to modify a digital still camera that must use entirely different software?

12) Are the Office Action's references to the statements in Kerigan about "plug and play" inconsistent with the fact that one of ordinary skill would understand that, to use the Kerigan interface and the "camera" disclosed therein, an end user must load at least interface enabling software onto a PC to which the Kerigan interface is connected?

Since the Office Action is silent on these issues, it is respectfully submitted that the Office Action has fallen into the "hindsight trap" and is using knowledge of the instant application to make the purported combination of references stated in the Office Action. For this reason, for example, it is respectfully submitted that the reference combination is not proper and, therefore, that the new claims should be found to be patentable over the reference combination.

As a preliminary matter, however, it must be reiterated that a purported combination of Hashimoto, Smith, Kerigan and Shinohara does not teach or suggest the *multi-use automatic processor* claim feature at least for the aforementioned reasons. At least for this reason, the new claims should be found to be patentable over a purported combination of such patents assuming, for the sake of argument, that it were proper to combine them together in the manner asserted in the Office Action, even though it is not proper to do so as discussed in greater detail hereinafter.

Regarding point 9, the Examiner is respectfully requested to reconsider the propriety of relying on Kerigan in combination with the other references. The portions of Kerigan cited in the Office Action (col. 3, lines 29-33 and col. 6, lines 3-10) merely reference that a "video driver" can be used, and that an "input" of a camera can be sent to a "host system" which then changes the "display data" to account for the new inputs. All that this means is that the Kerigan camera is a simple "web cam" that provides current video to a computer after the web cam has been plugged into the PC. Consistent with this is the fact that Table I in Kerigan references a statement about "Camera video in." There is no statement or disclosure in Kerigan whatsoever of a digital still camera that is capable of transferring files of self-generated picture data. Since the Office Action provides no support for the proposition that one of ordinary skill would look to the teachings of a "web cam" to modify a digital still camera, it is respectfully submitted that the combination of references stated in the Office Action is not proper.

Regarding point 10, the Kerigan patent shows a web cam that is coupled to an interface on a monitor that is then coupled to a monitor input of a PC. A monitor input of a PC is a single use interface, not a multipurpose interface as required by the new claims. The Office Action provides no particular findings as to why the camera to monitor interface of Kerigan provides a basis for taking the purported plug and play "functionality" of the single-use processor from Smith and then putting those ethereal and nebulous concepts into the Hashimoto camera. In the absence of such findings, the new claims should not be rejected over Kerigan by itself or in combination with the other references stated in the Office Action.

Regarding point 11, Kerigan teaches the use of a "video driver" so that a PC can receive video that is streamed to it from a "web cam." Such "video drivers" cannot be used to transfer files of still image data from a digital still camera to a PC. The Office Action states no evidence as to why one of ordinary skill would look to a reference that uses a "video driver" to modify a reference that would be inoperative if it used Kerigan's video driver. As such, it is respectfully submitted that the combination of references cited in the Office Action is not proper.

Regarding point twelve, reference is made to the patentability section of this document, in which an analysis is presented as to why an end user is required to load at least interface enabling software onto a PC to which the Kerigan interface is connected. The Office Action contains no analysis or evidence as to how the camera referenced in Kerigan can be implemented without requiring a user to load software onto the PC so that the PC can understand what to do with the signals that are provided on the varying arrangement of pins inside of the actual connector that may be used in a particular embodiment of the Kerigan interface. As such, it is respectfully submitted that the Office Action relies on knowledge of the applicant's invention in making the asserted combination of references, which is improper hindsight reconstruction.

"Lack of Particular Findings" Regarding Shinohara

It is respectfully submitted that, in order to make the purported reference combination of Hashimoto, Smith, Kerigan and Shinohara proper under *Kotzab*, the Office Action must show that one of ordinary skill, with no knowledge of the invention, would be able to answer each one of the following questions in the affirmative about the Shinohara patent:

13) While Shinohara arguably discloses hard disk drive emulation in the context of the transfer of data from a memory to a PC, why would one of ordinary skill apply the arguably disclosed hard disk drive emulation concept in a wholly different context of device recognition as claimed in the new claims?

14) While Shinohara teaches a memory card that responds to commands issued by a PC's card services program, why would one of ordinary skill apply Shinohara in the context of the claimed invention which requires the execution of program steps by a multi-use automatic processor?

Since the Office Action is silent on these issues, it is respectfully submitted that the Office Action has fallen into the "hindsight trap" and is using knowledge of the instant application to make the purported combination of references stated in the Office Action. For this reason, for example, it is respectfully submitted that the reference combination is not proper and, therefore, that the new claims should be found to be patentable over the reference combination.

As a preliminary matter, however, it must be reiterated that a purported combination of Hashimoto, Smith, Kerigan and Shinohara does not teach or suggest the *multi-use automatic processor* claim feature at least for the aforementioned reasons. At least for this reason, the new claims should be found to be patentable over a purported combination of such patents assuming, for the sake of argument, that it were proper to combine them together in the manner asserted in the Office Action, even though it is not proper to do so as discussed in greater detail hereinafter.

Regarding point 13, Shinohara arguably discloses the emulation of a hard disk drive in the context of being able to transfer data to a PC in response to commands issued from the PC's card services program. On the other hand, one exemplary embodiment for practicing the invention of the new claims concerns the emulation of a hard disk drive in the context of an automatic device recognition process (although most of the new claims cover but are not limited in this manner) that, when run, causes a signal to be sent to a PC that, when received and processed by the PC, allows the PC to select for file transfer purposes at least software driver that is a part of the PC when it is initially sold to an end user. The Office Action provides no evidence as to why one of ordinary skill would apply Shinohara's hard disk drive emulation to a purpose (device recognition) that is nowhere mentioned in the patent. For this reason, for example, it is respectfully submitted that the Office Action relies on the teachings of the instant application for it to be applied in this context and, therefore, that the purported combination is not proper.

Regarding point 14 Shinohara teaches a memory card having a controller that responds to commands issued from a PC's card services program. On the other hand, the new claims recite that an ADGPD processor executes one or more instructions sets in connection with an automatic recognition process. The Office Action provides no evidence as to why one of ordinary skill would apply Shinohara in the manner asserted when Shinohara contains no disclosure that is relevant to the claimed concept of the execution of program steps as opposed to following orders from the PC's card services program. For this additional reason, it is respectfully submitted that the Office Action relies on the teachings of the instant application to apply Shinohara in the manner asserted and, therefore, that the purported combination is not proper.

<u>The Purported Combination Would Not Be Made</u>

Combining Smith with Hashimoto in the manner asserted in the Office Action is contrary to the teachings of Hashimoto at least for the following reason. Hashimoto states at column 10, lines 57-61 that, by "monitoring the electric signal" from the "computer, the switch which places the camera in a communication mode can be eliminated, thus reducing the weight and complexity of the camera." If the Hashimoto camera were modified to execute the purported Smith "plug and play" protocol as opposed to the disclosed monitoring of the DTR signal, then the communication mode switch would have to be included in the camera which would necessarily increase the camera's complexity and weight. It is respectfully submitted that one of ordinary skill in the art would not make the combination because it is contrary to Hashimoto's stated goal of weight and complexity reduction. For at least this additional reason, the new claims should be found to be patentable over the references cited in the Office Action.

Combining Smith with Hashimoto in the manner asserted in the Office Action is contrary to the teachings of Hashimoto for at least one additional reason. Hashimoto states at column 12, lines 50-55 that

> "In order to extend the battery life of the camera by not wasting power unnecessarily powering the signal level conversion chip 234, the present invention employs a power conservation feature which places the signal level conversion chip 234 in a low-power mode or standby mode."

The communication circuitry is not reenergized until after the DTR signal is sent as, for example, discussed at the top of column 13 and as shown in Figure 18. By incorporating Smith into Hashimoto, the resulting combination would necessarily require the signal level conversion chip to be powered before the DTR signal is received. This would necessarily increase the drain on the battery thereby decreasing its useful life. Since maximizing battery life is a stated goal of Hashimoto, it is respectfully submitted that one of ordinary skill without knowledge of the invention would not attempt to modify it in a manner inconsistent with that goal as is the case with the Office Action. For this additional reason, it is respectfully submitted that the purported combination of references stated in the Office Action is not proper.

It is respectfully submitted that using Kerigan as a basis to combine Smith with Hashimoto is contrary to the teachings of Kerigan. Column 3, lines 13-15 of Kerigan state that connecting "peripherals through the display device prevents extra cables and allows for ease of connection and disconnection." This means that one goal of Kerigan is to use one cable to connect the PC to the monitor. By connecting the camera to the PC in the manner asserted in the Office Action, the camera is connected to the PC by an additional wire over and above the cable connecting the monitor to the PC. Since a goal of Kerigan is to minimize the number of cables and thereby increase the aesthetics of the resulting system, it is respectfully submitted that one of ordinary skill would not rely on Kerigan as a basis to put the "single use" processor of Smith's purported plug and play peripheral into Hashimoto's camera that is not capable of sending signals to the PC before the DTR signal is received.

Moreover, in using the Kerigan camera as a basis to read Smith's purported plug and play functionality into the Hashimoto camera, the Office Action makes the unwarranted assumption that the plug and play standards referenced in Kerigan allow a user to "plug" different cameras into a PC and have them "play" without doing anything to the PC. However, this unwarranted assumption is directly contradicted by the reference in Hashimoto's background that the "field of technology" regarding "digital cameras" is "relatively new and there is not a universal standard for exporting or producing images from digital cameras." If no such "universal standard" exists, then it is not possible to "plug" different cameras into a PC and have them "play" without also requiring a user to load software such as an applications program onto the PC. For this reason alone, for example, it is respectfully submitted that one of ordinary skill in the art would not make the purported combination stated in the Office Action.

Furthermore, the above-noted unwarranted assumption is further contradicted by the fact that, to implement a camera in the manner disclosed in Kerigan, an end user is required to load at least interface enabling software onto the PC so that the PC knows what signals are supplied on the pins of the connector used in a particular Kerigan embodiment. It makes no sense for one of ordinary skill to look to a "web cam" reference that requires at least interface enabling software (Kerigan) as a purported basis to read Smith's purported "plug and play" functionality into a digital still camera reference (Hashimoto) that requires an end user to load camera enabling software onto a PC to which it is connected. The purported combination in the Office Action would not be made because, for example, it improperly omits the software required by Kerigan.

In view of the foregoing, it is respectfully submitted that the Office Action relies on the teachings of the instant application to make the purported reference combination, which is improper hindsight reconstruction.

Closing

In summary, neither Hashimoto, Smith, Kerigan nor Shinohara disclose, teach or suggest the *multi-use automatic processor* claim feature that requires the execution of one or more instruction sets to cause at least one parameter regarding an ADGPD and its file transfer capability to be automatically sent to an MPI of a PC without any type of user intervention at any time by means of the PC and before a time when the PC is ready to have files transferred to it from the ADGPD. For this reason, it is respectfully submitted that the instant application is in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited.

Dated: December 30, 2008

Respectfully submitted,

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Exhibit A

PR Newswire

April 15, 1996, Monday - 09:00 Eastern Time

PHOTOGRAPHY GOES FROM THE DARK ROOM TO THE DESKTOP; CANON INTRODUCES ITS FIRST 'POINT-AND-SHOOT' DIGITAL CAMERA;
PowerShot(TM) 600 Takes Advantage of Canon's Camera Expertise To Produce Highest-Resolution Digital Camera Under $1,000

SECTION: Financial News

LENGTH: 1444 words

Canon's first "point- and-shoot" digital camera was announced today by Canon Computer Systems Inc. (CCSI). The PowerShot 600 offers the look and feel of a traditional camera as well as a superior lens and image sensor design that enables it to produce the highest quality image rivaling digital cameras costing $3,000 to $10,000.

"The PowerShot 600 represents another Canon camera achievement -- in terms of digital camera image quality, this product is a major breakthrough," says Peter Bergman, vice president of marketing and customer care for CCSI. "The PowerShot 600 is an easy-to-use and invaluable tool for real estate agents, insurance adjusters, law enforcement officials, graphic designers and others who need to capture high-quality color photographs immediately for use with their PC-based applications."

The camera's 570,000 pixel CCD sensor produces a 24-bit image in 16.7 million colors at an optical resolution of 832 x 608. Combined with Canon's high-resolution optical system, the PowerShot 600 delivers the best color resolution and fidelity in its price class.

COSTA MESA, Calif., April 15

PowerShot Camera Features

PowerShot 600 uses a Canon auto-focus f/2.5 7.5mm lens (equivalent to a 50mm lens in a 35mm camera) for sharp images from corner to corner. Superior image quality is based on Canon's glass lens optical technology perfected through 50 years as the world's leading camera company. Exposure settings are handled by programmed automatic exposure. The camera has an equivalent ISO speed of 100, with shutter speeds of 1/30 to 1/500 second.

The PowerShot 600 offers through-the-lens (TTL) autofocusing and a built-in automatic flash from eight inches to 12 feet. Additionally, users can shoot in "Macro" mode which enables them to automatically focus down to four inches and capture brilliant color and vivid details. Besides shooting 24-bit color images, users can select "Text" mode to capture high-resolution 8-bit images of objects as small as business cards.

Exhibit A

An optional wide angle converter (equivalent to 28mm) provides a greater field of view for shooting building exteriors, interior scenes, large groups or other subjects that could not be captured with a normal lens.

PowerShot Digital Features

In place of conventional film, the PowerShot 600 uses 1MB of internal memory to store up to 18 images and can store up to 72 images with an optional 4MB compact flash memory PC (PCMCIA) Card. An optional 170MB hard disk drive PC Card makes it possible to store up to 900 photos at 832 x 608 resolution. By supporting ATA-compatible PC Cards in the PowerShot 600, Canon has created the equivalent of "digital film" that permits users to remove cards loaded with images and insert a fresh card to continue shooting without having to stop to transfer images from the camera to the PC. Unlike conventional film, the PC Cards are reusable once the images have been downloaded and erased.

Images can be easily downloaded to a portable computer via a PCMCIA card slot or desktop PC with the camera's included parallel interface computer docking station. The PowerShot 600 is compatible with Microsoft(R) Windows(R) 95 and the camera's Plug and Play support ensures easy image integration with Windows 95 applications.

The PowerShot 600 is the only digital camera under $1,000 that allows users to add a voice recording or comment which is attached to each image as a sound file. User-selectable JPEG image compression (fine, normal, economy) is also offered on the PowerShot 600 to enhance image storage and transmission speed. If desired, users can select an uncompressed mode which provides a 1.5MB image file.

Pricing and Options

The PowerShot 600 camera has an estimated street at price of $949*. The camera ships with a battery holder (for six AA alkaline batteries), computer docking station, neck strap and software including PowerShot TWAIN driver v. 1.0, and ULEAD's PhotoImpact 3.0 and ImagePals 2.0. An array of options are available for the PowerShot 600 including the 28mm equivalent wide-angle converter (estimated street price $99*), the 4MB flash memory PC Card (estimated street price $229*), the 170MB HDD PC Card (estimated street price $380*), a Ni-cad battery pack (estimated street price $35*) and charger (estimated street price $79*), and a soft camera case (estimated street price $20*).

Software Applications

The PowerShot 600 comes with a selection of software including a TWAIN driver with time/date set-up, image viewing, transfer and sound playback features, as well as ULEAD's ImagePals and PhotoImpact photo management software for Microsoft Windows 3.1 and Windows 95, respectively. The photo management applications support image browsing in camera, image cataloging and extensive image editing. The 32-bit PhotoImpact application is designed to give Microsoft Office 95 users a powerful tool for image editing and processing. One of PhotoImpact's innovative new features is "guided workflow tools," which logically

Exhibit A

organizes imaging tools and guides users from image capture, through quality enhancements, to studio-like results.

"Digital cameras are emerging as powerful and critical communication tools fueled by the need for instant input solutions," says Bergman. "The PowerShot 600 eliminates the barriers facing other competitors in this category -- bringing affordability and superior image quality together for an extremely attractive addition to CCSI's computing package."

Reliability Backed by Unmatched Customer Support

The PowerShot 600 is backed by Canon's industry-leading customer service and support through the Canon Customer Care Center (seven-days-a-week, 18-hours-a-day toll-free technical support) and an InstantExchange warranty program which offers a cost-free, one-year, 24-hour replacement unit. Canon's service and support was recently given an "A" rating by PC Magazine.

Visual Communications Strategy

The PowerShot 600 is integral to Canon's Visual Communications strategy dedicated to providing all the tools to enhance communications for business or pleasure, whether that communication is displayed, printed or transmitted. The essence of CCSI's Visual Communications strategy is help customers become more productive, personalize their communications, look more professional and be more successful.

Canon Imaging Technologies

Since introducing its first camera more than 50 years ago, Canon's accumulated technologies in imaging have led to the creation of many sophisticated, high-technology products that enhance communication, including analog copiers, digital monochrome and color copiers facsimiles, laser and Bubble Jet(TM) printers and scanners. As the world's largest manufacturer of optical lenses, Canon's precision-molded aspherical glass lenses are used on more than 60 percent of the world's professional television cameras as well as Canon brand cameras, camcorders and office machines.

About CCSI

Since 1992, Canon Computer Systems Inc. has led Canon's activities in the U.S. computing market with the following product lines: Bubble Jet and laser printers, CanoScan(TM) scanners, Innova(R) multimedia desktop and notebook computers, as well as the integrated computer/printer product, the NoteJet(R). Small office/home office (SOHO) and small office/home (SOHOME) customers are reached via the mass market channel -- a network of computer dealers, superstores and mass merchants who represent more than 7,000 storefronts nationwide. CCSI also offers Innova Pro(TM) advanced systems based on Windows NT and Intel technologies targeted for medium to large corporate customers.

Canon is recognized as the world's largest computer printer manufacturer, a leader in imaging technology and a top worldwide patent holder. For more information, customers can call 800-848-4123 or visit

Exhibit A

the CCSI web site at http://www.ccsi.canon.com.

* Street prices are estimates only. Actual prices are determined by individual dealers and may vary.

NOTE: Canon, Innova, NoteJet, BJC, FAXPHONE and BJ are registered Trademarks, Bubble Jet, Innova Media, Innova Pro, PowerShot, CanoScan, MultiPASS and Canon Convertible are trademarks of Canon Inc. All other trademarks are properties of their respective owners.

CONTACT: Alejandro Hernandez of Golin

LOAD-DATE: April 16, 1996

LANGUAGE: ENGLISH

DISTRIBUTION: TO BUSINESS EDITOR

Exhibit B

Business Wire

February 11, 1997, Tuesday

Ricoh Offers Highest Resolution Digital Camera with Lowest Price in its Class

LENGTH: 977 words

DATELINE: SPARKS, NV

February 11, 1997--Continuing to strengthen its leadership position in the digital camera marketplace, the Ricoh Consumer Products Group announced today a major price adjustment on its award-winning RDC-2 digital camera. Offering the highest resolution in its class, the RDC-2 is setting a new standard for digital affordability by retailing for under $ 800. This new package includes the camera, the easily removable color LCD monitor and a 2MB PC memory card. "We lowered the price of the RDC-2 to meet the growing demand from consumer and business users who are looking for both better quality and more affordable digital camera," said Joseph Bollentini, senior vice president of Ricoh Consumer Products Group. Built on the same technology as Ricoh's award-winning RDC-1 digital camera, the RDC-2 offers full multimedia capabilities; it can record and play back still images, continuous motion scenes and sound. Applications range from brochure production and presentations to multimedia Web publishing. "The RDC-2 is an extremely versatile product with unlimited applications," Bollentini added. "For example, it's an excellent presentation device, and users can easily incorporate text into images and play back a full multimedia presentation right off the camera." The RDC-2 has already been selected for a "PEI Cool2 Award" for the "Most Desirable Imaging Products of 1996" from Photo Electronic Imaging Magazine and was a finalist for Byte Magazine's "Best of COMDEX" Award in 1996. Small enough to fit in a shirt pocket, the RDC-2 measures only 143 mm wide x 27 mm deep x 76 mm high. It uses standard, inexpensive AA alkaline batteries and weighs approximately 286 g (without batteries). A full multimedia camera, the RDC-2 offers users a variety of recording modes -- stills, still images with sound, continuous mode, sound only and text mode for document capture, the RDC-2 serves as an excellent presentation system because of its high storage capacity and playback capabilities. With the optional remote control, users can easily take pictures from a distance or play back images for a presentation remotely. Additionally, the RDC-2's unique video out capability allows the camera to be used as an ideal video conferencing device.

Ricoh PhotoStudio

The exclusive Ricoh multimedia software allows users to manage and manipulate images and sound files on Windows and Macintosh systems. The software offers three integrated features for powerful yet easy cataloging, photo editing and photo enhancement capabilities. Files can be saved in any number of popular formats, including TIFF, GIF, GIF 89A, PCX, JPEG, AVI, WAVE and other file formats. With PhotoStudio, transferring the data from the RDC-2 to a personal computer is effortless and takes only 10 seconds per image in economy mode. PhotoStudio also allows users to attach memos and classify their images for easy cataloging. Using a 410,000-pixel charge coupled device (CCD), the RDC-2 records high-resolution images at 768 x 576 pixel images in 24 bit color. It is equipped with 2MB of internal memory that can store up to 38 still images (economy mode), 19 still images with 10 seconds of sound each or approximately 8 minutes of sound alone. The RDC-2 accepts industry-standard ATA PC memory cards that are read by computers. Users can transfer images and information directly to a PC or Macintosh computer using the "plug 'n play" serial connection cable or the optional PC cards. Images or presentations running from the camera can be viewed from

Exhibit B

a television, optional LCD monitor or computer monitor. Hard-copy output can be obtained from a video printer or directly from the computer to a printer.

Powerful Features

The RDC-2 is equipped with a number of powerful features, including a switchable 35mm/55mm telephoto lens that enables users to snap images close-up or at a distance. Using the document mode, pictures of documents can be taken with perfect sharpness, while an autofocus macro permits users to take pictures as close as 1 cm away. Other features include an adjustable exposure control with an exposure compensation switch of EV +/- 5 stops in .3 increments. The RDC-2 also supports autofocus, autoexposure and auto white balance features.

About the Ricoh Consumer Products Group

The Ricoh Consumer Products Group, based in Sparks, NV, designs, manufacturers and sells single-lens reflex, 35mm point-and-shoot and digital cameras as well as optical storage devices and media. The company is one of the top six manufacturers of 35mm cameras worldwide with leading technology in electronics, optics and plastics. Ricoh Corporation is also a leading manufacturer of copiers, fax machines and digital products. Information about Ricoh's complete range of products and services can be accessed on the World Wide Web at http://www.ricohcpg.com. For more information on purchasing cameras from Ricoh's Consumer Products Group, call (800) 225-1899.

CONTACT: Randy Savicky/Sam Sheckman
Ruder-Finn
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LOAD-DATE: February 12, 1997

LANGUAGE: ENGLISH

DISTRIBUTION: Business Editors

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RICOH

Digital Camera

RDC-2

Operation Manual

Before using your digital camera, read this manual carefully to understand the proper use of the camera. Please keep this manual handy for easy reference.

Introduction

Thank you for purchasing the Ricoh RDC-2 Digital Camera.
This manual contains instructions on the proper use of your camera as well necessary as handling precautions. Read this manual carefully to understand the proper use of the camera. Please keep this manual handy for easy reference.

- Ricoh Co., Ltd.

Testing the camera
Test the camera by taking several sample pictures to confirm that the pictures are correctly recorded.

Respecting copyrights
Reproduction or alteration of copyrighted documents, magazines and music, other than for personal or family use or to a similarly limited extent, without the consent of the author, is prohibited.

About digital audiovisual files
We regret that we cannot be responsible for files lost due to any malfunction of the camera or any failure of a memory card.

About the warranty
This product is made to local specifications. Should it malfunction while you are abroad, we cannot be responsible for the cost or availability of servicing in other countries.

Radio-frequency interference
Using the digital camera near electronic devices could inhibit the performance of both the camera and nearby devices. Interference is likely to occur when the camera is placed near a radio or television. If such occurs, complete the following proceedures:
- Relocated the camera as far as possible from the interference source.
- Change the orientation of the radio or television antenna.
- Plug the camera into a different electrical outlet.

- The contents of this manual are subject to change without notice.
- Considerable care was taken in the preparation of this manual. However, if any part of the manual is unclear or incorrect, please contact us at the address indicated on the back cover.

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Connecting to a Personal Computer

Exclusive Attachment Cables ~~and Software~~ for personal computers allow you to directly transmit data from the camera to a personal computer.

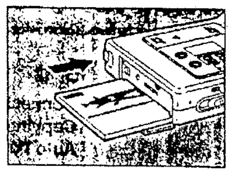
Copying Images

This section explains how to copy all images recorded in the internal memory to a Memory Card.

Notes: Images on memory cards cannot be copied to the internal memory.

❶ **Insert a memory card into the camera.**

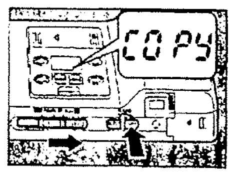
For details, see p. 16, "Inserting a Memory Card."



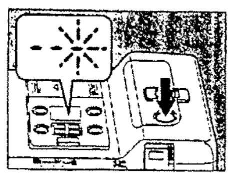
❷ **Slide the main switch to [PLAY (PC)].**

❸ **Press the COPY button.**
COPY appears on the display panel.

To interrupt copying
Press the COPY button again.



❹ **Press the shutter release button.**
The camera starts copying. A series of illuminated bars (–) appear on the display panel to show the progress of the copying operation.



Notes:
- *One bar flashes until all images are copied.*
- *The indicator on the monitor counts down the copying of each frame.*
- *As copying progresses, one bar stops flashing but remains illuminated. Another bar then appears on the display panel.*
- *Once all images have been copied, six bars will have appeared on the panel. The camera then returns to image playback mode.*

Auto Power-Off and Buzzer Settings

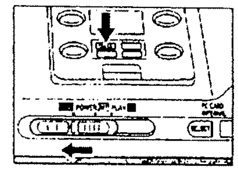
This section explains how to change the Auto Power-Off and buzzer settings.

Setting/canceling Auto Power-Off

If no buttons or levers are operated for approximately 5 minutes while the main switch is set to recording mode or playback mode, temorarily turns off the main power to save power.

■Canceling Auto Power-Off in Recording Mode

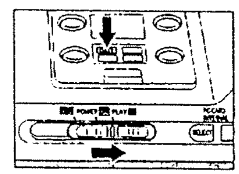
❶ **Turn the power off. Hold down the DATE button while sliding the main switch to [REC].**
A slightly longer buzzer sound indicates that the Auto Power-Off function is canceled.



To reactivate Auto Power-Off
Repeat the above operation. A shorter buzzer sound tells you that the Auto Power-Off function is activated.

■Canceling Auto Power-Off in Playback Mode

❶ **Turn the power off. Hold down the DATE button while sliding the main switch to [PLAY (PC)].**
A slightly longer buzzer sound tells you that the Auto Power-Off function is canceled.



To reactivate Auto Power-Off
Repeat the above operation. A shorter buzzer sound tells you that the Auto Power-Off function is activated.

Notes: If the display panel is turned off by the Auto Power-Off system, turn on the power again.

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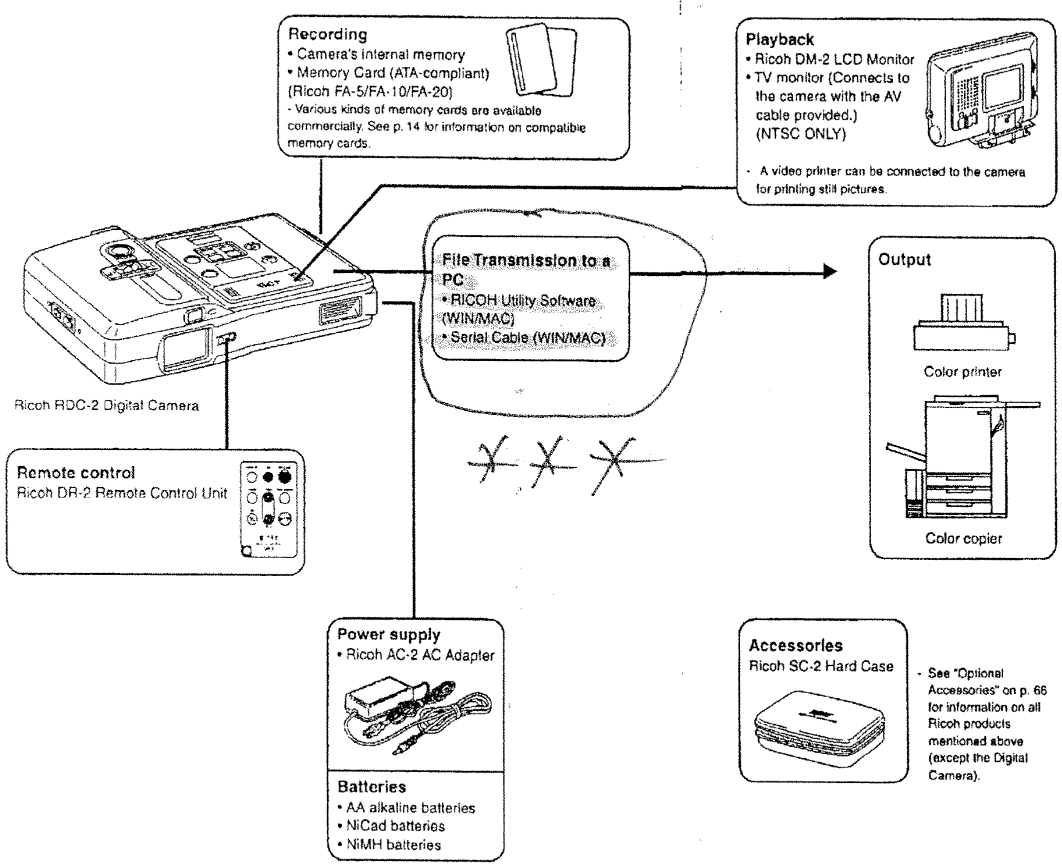
System Configuration Chart



Supplying power
Install common AA alkaline batteries. Alternatively, rechargeable NiCad batteries or NiMH batteries can be used. For extended use, the Ricoh AC Adapter is recommended.

Recording
The camera's internal memory ensures that the camera is always ready to record. No memory card is required. For high-volume recording, however, Ricoh's high-performance PCMCIA Memory Cards offer convenient storage options.

Viewing
You can connect the camera to an LCD Monitor to immediately play back Still Pictures, Still-Pictures with Audio, Audio, and Continuous shots. With the supplied AV Cable, you can connect the camera to a TV monitor to view a recorded image immediately. (NTSC only)

Image transmission to a PC
You can transmit your images to a PC with connector cable included as the interface between the camera and PC. You can also transmit data recorded on a memory card simply by inserting the card directly into the PC card slot of a personal computer. The PC card slot is a popular feature of many notebook PCs.

Output
Once data is sent to your PC, you can print it with a color printer or color copier.

Exhibit C

Newsbytes

February 24, 1997, Monday

Ricoh Camera Software Speeds Images To PC

LENGTH: 357 words

DATELINE: FREMONT, CALIFORNIA, U.S.A.

(NB) -- By Jim Mallory. Ricoh announced recently it will bundle PhotoStudio, a Windows-based image-editing and special effects software program, with its RDC-2 digital camera.

A company spokesman said images can move from the camera to a PC up to 10 times as fast as other units. An explanation of the technology that makes that transfer speed possible was not available.

ArcSoft, the maker of PhotoStudio, said the software includes a "direct connection" feature that allows users to upload or download images directly to and from the camera, since the image appears directly in PhotoStudio without any intermediate conversion.

ArcSoft spokesman Mike Adams said while the two-way transfer feature might not be used frequently, it is a way to move images from one PC to another.

In addition to its own editing and retouching tools PhotoStudio supports plug-ins like Kai's Power Tools for additional editing control. Users get photo management capabilities like thumbnail image viewing, drag-and-drop arranging, a searchable image index and multiple file retrieving. The software supports popular image file formats including BMP, GIF, JPEG, PCD, PCX, TGA and TIFF.

Ricoh's RDC-2 can record and play back still and moving images as well as sound and runs on AA batteries. Images are captured at 768 by 576 pixel resolution in 24-bit color. "It infringes a bit on a camcorder," said Adams. However, the RDC-2 is no substitute for a conventional video camera, since it is able to store only a few frames of video.

The camera comes with two megabytes of built-in flash memory, a case, the software and serial and A/V cables. Available options include an LCD monitor and PC memory cards.

The bundling deal saves consumers about $99, the typical street price of PhotoStudio. The Ricoh RDC-2 digital camera has a suggested retail price of $995, said Adams.

(19970224/Press contact: Mike Adams, Arial Public Relations for ArcSoft, 503-646-4515, e-mail mike.adams@arialmktg.com; Public contact: Ricoh, 8800-225-189/Reported by Newsbytes News Network at http://www.newsbytes.com/ARCSOFT970224/PHOTO

LOAD-DATE: July 7, 1998

LANGUAGE: ENGLISH

Exhibit C

TYPE: NEWS

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: September 12, 2008 Signature: (Jeffrey Salmon)

Docket No.: 31436/43993
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Michael Tasler

Application No.: 11/467,092 Confirmation No.: 3038

Filed: August 24, 2006 Art Unit: 2181

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER

Examiner: C. K. Lee

AMENDMENT

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated September 4, 2008, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

AMENDMENTS TO THE CLAIMS

WE CLAIM:

Please cancel claims 1-151 and amend claims 152-182 as noted hereinafter:

1-151. (cancelled).

152. (new) An analog data generating and processing device (ADGPD) having an i/o connector that is capable of receiving one or more device identification inquiry signals, one or more file system inquiry signals, and one or more file transfer requests from a personal computer (PC) when the i/o connector is disposed in a coupled state with respect to the PC, the ADGPD comprising:

an i/o connector that is adapted to be put in a coupled state and a de-coupled state so that, when the i/o connector is put in the coupled state, the i/o connector is not substantially located within an interior of a PC;

an ADGPD processor that is operatively coupled to the i/o connector;

a data storage memory that is operatively coupled to the ADGPD processor;

a program memory that is operatively coupled to the ADGPD processor;

a sensor that is operatively coupled to the ADGPD processor and that is designed to generate analog data from one or more analog waves which to which the sensor is exposed;

wherein the ADGPD is configured by the ADGPD processor and the program memory to include an automatic recognition command interpreter, an automatic file system command interpreter, and a file transfer command interpreter;

wherein the ADGPD processor and the program memory are configured to cause, when the i/o connector is in a de-coupled state, the sensor to generate analog data from one or more analog waves to which the sensor is exposed, to cause the analog data to be processed, and to cause the processed analog data to be stored in the data storage memory as one or more files of digitized analog data;

wherein the automatic recognition command interpreter is to be executed after both of the following conditions have been met, (a) while the i/o connector is disposed in the coupled state but is not contained within an interior of a PC and (b) after one or more of the device identification inquiry signals has been received by the i/o connector of the ADGPD;

wherein the automatic recognition command interpreter, when executed, causes a first response signal to be automatically generated (a) without any type of user intervention at any time by means of a PC and (b) without any type of processing intervention by means of any software running on a PC after the one or more device identification inquiry signals has been received by the i/o connector of the ADGPD;

wherein the automatic recognition command interpreter, when executed, causes the first response signal to be automatically sent through the i/o connector (a) without any type of user intervention at any time by means of a PC and (b) without any type of processing intervention by means of any software running on a PC after the one or more device identification inquiry signals has been received by the i/o connector of the ADGPD;

wherein the first response signal contains file transfer and communications enabling data that is consistent with the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol, the file transfer and communications enabling data not directly indicating that the data storage memory contains any files of digitized analog data stored therein;

wherein the automatic file system command interpreter is to be executed after both of the following conditions have been met, (a) while the i/o connector is in a coupled state but is not contained within an interior of a PC and (b) after one or more file system inquiry signals have been received by the i/o connector of the ADGPD;

wherein the automatic file system command interpreter, when executed, causes a second response signal to be automatically generated (a) without any type of user intervention at any time by means of a PC and (b) without any type of processing intervention by means of any software running on a PC after the one or more file system inquiry signals has been received by the i/o connector of the ADGPD;

wherein the automatic file system command interpreter, when executed, causes the second response signal to be automatically sent through the i/o connector (a) without any type of user intervention at any time by means of a PC and (b) without any type of processing intervention by means of any software running on a PC after the one or more file system inquiry signals has been received by the i/o connector of the ADGPD;

wherein the second response signal contains file system information that generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector of the ADGPD; and wherein the file transfer command interpreter is to be executed after both of the following conditions have been met, (a) while the i/o connector is in a coupled state but is not located within an interior of a PC and (b) after one of the file transfer requests has been received by the i/o connector of the ADGPD, the file transfer command interpreter, when executed, causing a transfer of one or more of the files of digitized analog data from the data storage memory and through the i/o connector.

153. (new) The ADGPD of claim 152, further comprising an output device that is operatively coupled to the ADGPD processor, the output device being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the sensor.

154. (new) The ADGPD of claim 152, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if the ADGPD were a mass storage device.

155. (new) The ADGPD of claim 154,

wherein the ADGPD processor and the program memory are configured to cause at least some of the one or more files of digitized data to be transferred to the i/o connector in a mass storage format.

156. (new) The ADGPD of claim 155,

wherein the ADGPD processor and the program memory are configured to cause, after the first response signal has been sent to the i/o connector, file allocation table information to be sent to the i/o connector, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an apparatus that operates in a manner consistent with a hard disk storage unit,

wherein the ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk,

wherein the file allocation table information includes at least a start location of a file allocation table, and

wherein the mass storage format is consistent with a data transfer format used in a hard disk drive.

157. (new) The ADGPD of claim 156, wherein the ADGPD processor includes a central processing unit (CPU), and wherein the CPU of the ADGPD processor and the program memory are configured to cause, after the first response signal has been sent to the i/o connector, the file allocation table information to be sent to the i/o connector.

158. (new) The ADGPD of claim 157, wherein the CPU of the ADGPD processor and the program memory to cause the virtual boot sequence to be sent to the i/o connector.

159. (new) The ADGPD of claim 152, wherein the ADGPD processor and the program memory are configured to cause one or more files of digitized analog data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector.

160. (new) The ADGPD of claim 159, wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation of the ADGPD other than the transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector to be controlled by means of an external article that is separate from the ADGPD.

161. (new) The ADGPD of claim 152, wherein the communications protocol comprises a SCSI command set.

162. (new) The ADGPD of claim 152, wherein the sensor is designed to be de-coupled from the ADGPD processor.

163. (new) The ADGPD of claim 152, wherein the file transfer and communications enabling data of the first response signal is not consistent with the true nature of the ADGPD.

164. (new) The ADGPD of claim 152, wherein the sensor is designed to have two-way communication with a PC.

165. (new) The ADGPD of claim 152, wherein the ADGPD includes a flexible interface.

166. (new) The ADGPD of claim 152, wherein the ADGPD includes a universal interface.

167. (new) The ADGPD of claim 152, wherein the file system information comprises at least an indication of the type of a file system that is used to store each one of the one or more files of digitized analog data in the data storage memory.

168. (new) The ADGPD of claim 152, wherein the ADGPD comprises at least a portion of a medical device.

169. (new) The ADGPD of claim 152, wherein the i/o connector comprises a parallel port.

170. (new) The ADGPD of claim 152, wherein the ADGPD is designed for use with a PC that has an operating system that is designed by a particular software company.

171. (new) The ADGPD of claim 152, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an input/output device that is customary in a host device.

172. (new) The ADGPD of claim 152, wherein the i/o connector is adapted to be operatively coupled to a cable.

173. (new) The ADGPD of claim 152, wherein the ADGPD processor includes a central processing unit (CPU), and wherein one or more of the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are configured by the CPU of the ADGPD processor and the program memory.

174. (new) The ADGPD of claim 173, wherein the ADGPD processor and the CPU of the ADGPD processor are formed in the same chip.

175. (new) The ADGPD of claim 152, further comprising an ADGPD interface that is operatively coupled between the i/o connector and the ADGPD processor.

176. (new) The ADGPD of claim 175, wherein the ADGPD interface and the ADGPD processor are not formed in the same chip.

177. (new) The ADGPD of claim 175, wherein the ADGPD interface comprises a SCSI interface.

178. (new) The ADGPD of claim 152, wherein one or more of the one or more files of digitized analog data stored in the data storage memory comprise contiguous files.

179. (new) The ADGPD of claim 152, wherein the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are physically separate from each other in the program memory of the ADGPD.

180. (new) A combination comprising the ADGPD of claim 152 and a PC.

181. (new) The combination of claim 180, wherein at least one software driver is a part of the PC and is adapted to issue commands in accordance with the communications protocol.

182. (new) The combination of claim 181, wherein the at least one software driver is located in a BIOS of the PC.

REMARKS

This responds to the Office Action dated September 4, 2008.

At the upcoming personal interview, the undersigned attorney will give the Examiner a memory stick that contains the Markman Briefing of the camera manufacturers in the ongoing MDL of which the Examiner already has been made aware. This briefing relates to the parent patents of the instant application.

The Examiner is respectfully requested to consider only the remarks and amendments made in this Amendment A, and any remarks made in an interview regarding the same, when considering the patentability of the currently pending claims. Please disregard all remarks and amendments made in all other papers previously filed or discussed in this application or previously filed in any application related to the instant application unless specifically asked to consider any such previously made remarks or amendments.

The new claims incorporate the subject matter that will be discussed with the Examiner at the upcoming interview. It is respectfully submitted that the new claims are fully enabled by and described in the originally filed specification at least for the reasons that are summarized in the paragraph of the September 4th Office Action that reflects communications with the undersigned attorney.

Please review all of the prior art that is of record when considering the patentability of the currently pending claims.

Amendments have been made to both the *automatic processing for device recognition* feature as well as the *automatic processing for file system recognition* feature in an attempt to address the Examiner's comment that "PC processing is very much different than user intervention." In this regard, the words "without any type of processing intervention by means of any software running on a PC after" the relevant signals have been sent to the claimed device have been added into the claims. For purposes of clarity, the following four numbered paragraphs provide definitions for the "user intervention" and "processing intervention" language that is used to further describe the "automatic recognition" and the "automatic file system" command interpreters:

1) The use of the phrase "without any type of user intervention at any time by means of a PC" in the claims presented in this Amendment A to describe the "automatic recognition command interpreter" means that:

- no user has to load an applications level program or a software driver onto a PC at any time in order to allow a peripheral device to be able to generate and thereafter send "file transfer and communications enabling data" to a PC that, when received and processed by the PC, allows the PC to understand that the ADGPD is "capable of transferring files of digital data" in "accordance with a communications protocol" as quoted in the claims; or

- no user has to interact with a PC (*e.g.*, setting up a file system) at any time in order to allow a peripheral device to be able to generate and thereafter send "file transfer and communications enabling data" to a PC that, when received and processed by the PC, allows the PC to understand that the ADGPD is "capable of transferring files of digital data" in "accordance with a communications protocol" as quoted in the claims.

2) The use of the phrase "without any type of processing intervention at any time by means of a PC after the one or more device identification inquiry signals has been received by the i/o connector of the ADGPD" in the new claims to describe the "automatic recognition command interpreter" means that:

- it is the execution of the claimed second set of instructions, and not any processing power provided by any program (*e.g.*, the "card services" program) running on the PC, that causes the claimed "first response signal" to be able to be automatically generated and thereafter automatically sent to the PC.

3) The use of the phrase "without any type of user intervention at any time by means of a PC" in the new claims to describe the "automatic file system command interpreter" means that:

- no user has to load an applications level program or a software driver onto a PC at any time in order to allow a peripheral device to be able to generate and thereafter send "file system information" to a PC that "generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector" as quoted in the claims; or

- no user has to interact with a PC (*e.g.*, setting up a file system) at any time in order to allow a peripheral device to be able to generate and thereafter send "file system information" to a PC that "generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector" as quoted in the claims.

4) The use of the phrase "without any type of processing intervention at any time by means of a PC after the one or more file system identification inquiry signals has been received by the i/o port of the ADGPD" in the new claims to describe the "automatic file system command interpreter" means that:

- it is the execution of the claimed third set of instructions, and not any processing power provided by any program (*e.g.*, the "card services" program) running on the PC, that causes the claimed "second response signal" to be generated and thereafter sent to the PC.

The September 4th Office Action identifies a number of different prior art references. It is respectfully submitted that, for a number of different reasons, any combination of these references will not teach or suggest all of the claim elements and, therefore, that the amended claims should be found to be patentable over any purported combination of such references by themselves or with any other reference of record. An exemplary analysis in this regard follows

The Primary Reference – US Patent No. 6,111,604

It is respectfully submitted that the *automatic processing for device recognition* claim feature covers software that is executed by a processor of a peripheral device (and not a processor of a PC) and that causes "data transfer and communications enabling data" to be automatically generated and thereafter to be sent to a PC. This software is run by the peripheral without any user intervention and without any processing intervention via the PC.

In direct contrast to this claim element, the text of US Patent No. 6,111,604 ("Hashimoto") affirmatively requires that, in order for the camera disclosed therein to be used, the camera user must first load applications software onto the PC to which the Hashimoto camera is to be connected. See, for example, the first sentence of Hashimoto's field of the invention, which states,

> "The present invention relates to a digital electronic camera and the interfacing of the camera to an **external processing device which** monitors, receives images and/or audio, and/or **controls the camera** through an input/output interface." (column 1, lines 27-30) (emphasis added).

All of the alternatives presented in this quotation involve a camera controlled by an external processing device. In order for an "external processing device" such as a PC to be able to "control" the Hashimoto "camera," a user is required to load applications software onto the PC. See, for example, US Patent No. 6,400,903, which is not prior art, and which states at column 10, lines 14-17,

> "A camera command to take a photo is initiated by application software running on local host computer 40. The command has been formatted by the camera vendor software in accordance with the protocols required by the specific digital camera being used."

At least for the above-noted reasons, the Hashimoto camera requires the use of user loaded software, which is the antithesis of the *automatic processing for device* and *file system recognition* features. As discussed in greater detail hereinafter, no other reference identified in the September 4th Office Action provides the teachings missing from Hashimoto to render the new claims obvious. For this reason alone, the new claims should be found to be patentable over, for example, the combination of references cited in the September 4th Office Action.

Other portions of the text of Hashimoto support the position that Hashimoto affirmatively requires user intervention. See, for example, column 10, lines 46-52, which state,

> "After starting, the user connects the camera to a communications device such as a computer in step 302. At this time or prior to this time, the user will select the type of communication protocol which is to be utilized such as, for example, the RS-232 protocol or the RS-422 protocol."

It is respectfully submitted that one of ordinary skill in the art would understand that the way a user "selects the type of communications protocol" to use with the Hashimoto camera is by opening up or running an applications program that the user previously loaded on the PC. For this additional reason, there can be no showing of prima facie obviousness and, therefore, the new claims should be found to be patentable over the prior art of record.

The position that Hasimoto requires applications software is consistent with information that is publicly available from Ricoh, which apparently is the owner of the Hashimoto patent. In this regard, previously submitted to the Examiner was a portion of a manual describing Ricoh

Corporation's digital camera model no. RDC-7, which bears a copyright date of 2000. The camera illustrated in the manual looks strikingly similar to the camera illustrated in Hashimoto. In contrast to the claimed invention, page 96 of the manual that states that "you can transfer recorded files to a personal computer by using a serial cable and software bundled with the camera." A user loaded software requirement of this sort is the antithesis of the *automatic processing for device and file system recognition* claim elements.

The position that Hashimoto affirmatively requires user-loaded software is consistent with the state of the art at the time of the earliest effective filing date of March 4, 1997 and for several years after. In this regard, numerous camera manuals have been submitted to the Examiner for his review. All such manuals evidence that a user is required to load application software that comes bundled with the camera on the PC (*e.g.*, Casio and Kodak cameras) or affirmatively require intervention by the PC's "card services" program as is the case with, for example, the Nikon Coolpix camera. If Hashimoto really did not require an applications program as alleged in the Office Action, then surely an affirmative statement to that effect would be included in the patent, given that such a hypothetical camera capability would be a significant deviation away from the state of the art. The absence of any such statement in Hashimoto is evidence that Hashimoto affirmatively requires user intervention by a user-loaded application program. For this reason alone, for example, the new claims should be found to be patentable.

Not only is the statement in the Office Action that Hashimoto allegedly does not require applications software inconsistent with its text as discussed above, the statement does not make any technological sense. If one were to plug a Hashimoto camera into a serial port of an IBM PC using Windows 95 that was purchased on March 3, 1997 (the day before the earliest effective filing date), nothing would happen. Without the applications software, there would be no means to cause the DTR-ready signal to be sent from the PC to the Hashimoto camera without extensive user intervention by means of the PC. In this regard, Exhibit A hereto is a printout from Microsoft's TechNet website that describes the basics of modems and communications tools provided by Windows 95. As can be seen from this printout, a user is required to extensively interact with the PC in order to configure a modem that uses the same RS-232 or equivalent protocol disclosed in Hashimoto. User intervention of this sort is the antithesis of the *automatic processing for device and file system recognition* claim limitations. For this additional reason, it is respectfully submitted that the premise on which all rejections stated in the Office Action is erroneous and, therefore, that the new claims should be found to be patentable over the purported combination of references cited in the Office Action. These references simply do not teach or suggest all claim limitations which is required to sustain an obviousness rejection of the new claims.

US Patent No. 5,634,075

The September 4th Office Action mischaracterizes the teachings of US Patent No. 5,634,075 ("Smith"). At best, Smith merely teaches devices that can be added to a PC to eliminate the need for additional software that must be run when the PC detects plug and play signals from a peripheral device to which it is connected. Automatic arbitration of DMA channels, IRQ channels and i/o addresses as taught by Smith has absolutely nothing to do with providing the PC with information that allows the PC to pick a driver to handle file transfers from a peripheral device to which it is connected in accordance with the claimed invention. Smith contains no disclosure with respect to the provision of information from a peripheral to a PC that allows the PC to pick a driver to handle file transfers. For this reason, for example, Smith does not provide the teachings missing from Hashimoto and, therefore, the new claims should be found to be patentable over the purported combination of references in the September 4th Office Action.

Moreover, Smith does not teach or suggest, for example, the *automatic processing for device recognition* or the *automatic processing for file system recognition* features of the currently pending claims at least the following additional reasons:

1) The claim elements concern certain software that is executed by a peripheral device that may be attached to a PC. On the other hand, Smith teaches various devices that can be incorporated into a PC to implement certain plug and play functionality in the PC. Examples of such devices are disclosed at column 8, lines 27-43 of Smith.

2) The software or program steps covered by the two above-noted claim features are designed to react to signals that a PC sends to a peripheral device that executes the software or program steps. On the other hand, the devices disclosed in Smith react to signals that a peripheral device sends to a PC.

At least for any one or more of the above-noted additional reasons, the new claims should be found to be patentable over, for example, the purported combination of references stated in the September 4th Office Action.

US Patent No. 5,724,934

As discussed above, the *automatic processing for device recognition* claim element as well as the *automatic processing for file system recognition* claim elements concern the execution of software by a peripheral device (not by a PC) "without any type of processing intervention at any time by means of any software running on a PC" after certain signals are sent to the claimed device. In contrast to this, all of the memory cards disclosed in US Patent No. 5,742,934 ("Shinohara") affirmatively require that processing power be provided by the "card services" program of a PC in order for the Shinohara devices to be recognized by the PC. For this reason alone, the currently pending claims should be found to be patentable over a purported combination of Shinohara with all of the previously discussed references.

Hindsight Reconstruction

It is respectfully submitted that the Office Action does not make out a *prima facie* case of obviousness because, just like what happened in *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000), the Office Action fals "into the hindsight trap." *Id.* In *Kotzab*, the Federal Circuit recited that "a rejection cannot be predicated on the mere identification in [the prior art] of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *Id.* Neither *KSR* nor post-*KSR* cases have affected the *Kotzab* ruling in respect to this issue.

As discussed above, Hashimoto affirmatively requires user-loaded applications software, Smith deals with modifications to a PC to effect automatic arbitration of characteristics that have nothing to do with providing a PC with information that allows the PC to select a driver to handle file transfers, and Shinohara affirmatively requires outside processing intervention by a PC's card services programs. Irrespective of the fact that a purported combination of these references does not result in the new claims, no "particular findings" have been made in the Office Action as to why the skilled artisan would combine the references in the manner asserted as is required to be done under the relevant case law as discussed above. The skilled artisan would not combine these references together because, for example, the references are directed to totally different problems. Moreover, it would be much simpler and more convenient to simply remove the Shinohara memory card from a camera and then physically place it in a PC card reader.

It is respectfully submitted that the Office Action relies on the teachings of the instant application to provide a basis to combine Hashimoto with Smith with Shinohara, which is improper hindsight reconstruction. For this additional reason, it is respectfully submitted that the new claims should be found to be patentable over the combination of references cited in the Office Action, as well as every other prior art reference of record.

Closing

It is respectfully submitted that the instant application is in condition for allowance. A formal notice to that effect is earnestly solicited.

Dated: September 12, 2008

Respectfully submitted,

By [signature]

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EXAMINER	
LEE, CHUN KUAN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No. 11/467,092	Applicant(s) TASLER, MICHAEL	
	Examiner Chun-Kuan Lee	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *121-151* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *121-151* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/7/08 & 8/18/08*.

4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *20080825* .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

CONTINUED EXAMINATION UNDER 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/07/2008 has been entered.

INTERVIEW SUMMARY

2. Base on the applicant's explanation, via a number of interviews (e.g. dated 3/4/2008, 4/2/2008, 5/12/2008, 5/5/2008 and 8/25/2008) and emails, pertaining to the instant invention, the core novelty of the resulting product for the instant invention is to allow a peripheral device to be connected to and recognized by a computer via plug-and-play standard without any user intervention via the computer, and to enable the peripheral device to emulate a hard disk drive for transferring of data from the peripheral device to the computer without any user intervention via the computer.

RESPONSE TO ARGUMENTS

3. Applicant's arguments with respect to claims 121-151 have been considered but are moot in view of the new ground(s) of rejection. Please note

that because the applicant did not specify a specific claim as to which the arguments presented on 08/18/2008 and 08/21/2008 are directed towards, the examiner will assume all the arguments presented are directed towards the new independent claim 121, as the applicant cited claim limitations of independent claim 121 in applicant's arguments (on pages 10-12 in applicant's remarks dated 8/18/2008). Currently, claims 1-120 are canceled, and claims 121-151 are pending for examination.

4. In response to applicant's arguments (on page 11, dated 8/18/2008) with regard to the claim feature of automatic processing for device recognition that the phrase "without any type of user intervention at any time by mean of the PC" means that the PC's "card services" program provides no processing power; applicant's arguments have fully been considered, but are not found to be persuasive.

As the applicant above argument appears to be equating the PC processing the to the user intervention, the examiner respectfully disagrees, because PC processing is very much different from user intervention, as the PC processing is execution done by the PC and the user intervention is execution done by the user.

As similar argument is also presented on pages 12-13 (dated 8/18/2008) for the claim feature of automatic processing for file system recognition, the examiner will also apply the above response towards the claim feature of automatic processing for file system recognition.

5. In response to applicant's arguments (on pages 10-11, dated 08/21/2008 from co-pending application 11/467,073) with regard to the new independent claim 121 rejected under 35 U.S.C. 103(a) that the combination of references does not teach/suggest the claimed feature of execution of programs for data transfer and communication enabling purposes; applicant's arguments have fully been considered, but are not found to be persuasive.

Please note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The examiner respectfully disagrees, because the product resulted from the process of executing the program steps is to enable the invention's transferring of data and establishing of communication, which are taught by Hashimoto's transferring of data after a peripheral device is connected without any user intervention by mean of a PC (Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14), and Smith's establishing communication via proper selection of a driver for the connected peripheral device without any user intervention by means of a PC (Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62).

6. In response to applicant’s arguments (on pages 10-11, dated 08/21/2008 from co-pending application 11/467,073) with regard to the new independent claim 121 rejected under 35 U.S.C. 103(a) that the combination of references does not teach/suggest the claimed feature of software that is executed by a peripheral device and that cause information to be send out to indicate what type of file system is employed by the peripheral device; applicant's arguments have fully been considered, but are not found to be persuasive.

Please note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Shinohara teaches the above claimed features in accordance to “Product-by-Process" as the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation would be accomplished by the process of execution of software to cause information to be send out to indicate what type of file system is employed by the peripheral device (col. 1, ll. 48-60 and col. 3, l. 56 to col. 4, l. 49).

7. In response to applicant’s arguments (on pages 10-11, dated 08/21/2008 from co-pending application 11/467,073) with regard to the new independent claim 121 rejected under 35 U.S.C. 103(a) that the combination of references do not teach/suggest the claimed feature because Hashimoto teaches a user to load programming onto the PC to which it is connected in order to cause PC to be

able to send the DTR signal; applicant's arguments have fully been considered, but are not found to be persuasive.

Applicant's above arguments appears to be directing towards the instant claim invention's feature of without user intervention by means of a PC; wherein the examiner respectfully disagrees that Hashimoto requires user intervention to load a program, because no where in Hashimoto's reference utilizes the languages that would teach such requirement. Furthermore, if the examiner were to assume that applicant's arguments were correct, Smith's references expressly teaches the peripheral device to be connected to and recognized by the PC as the proper driver is selected for the connected peripheral device without any user intervention by means of the PC (Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62).

8. In response to applicant's arguments (on pages 11-12, dated 08/21/2008 from co-pending application 11/467,073) with regard to the new independent claim 121 rejected under 35 U.S.C. 103(a) that Smith does not teach certain software that is executed by a peripheral device that may be connected to a PC; applicant's arguments have fully been considered, but are not found to be persuasive.

Please note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As the examiner relied on Hashimoto for the teaching of execution of software by the peripheral device that may be connected to the PC (Fig. 1A-2C; Fig. 8-9; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 67; col. 5, ll. 43-57; col. 6, l. 16 to col. 9, l. 17 and col. 10, l. 41 to col. 11, l. 42).

9. In response to applicant’s arguments (on pages 11-12, dated 08/21/2008 from co-pending application 11/467,073) with regard to the new independent claim 121 rejected under 35 U.S.C. 103(a) that Smith does not teach the peripheral device reacting to signals received from the PC, then data is sent to the PC that, when received and processed by the PC, allow the PC to select a software driver, and the peripheral device reacting to signals received from the PC then data is sent to the PC that, when received and processed by the PC, allow the PC to understand what type of file system is implemented; applicant's arguments have fully been considered, but are not found to be persuasive.

Please note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The examiner respectfully disagrees, as in accordance “Product-by-Process,” the resulting product of the PC selecting a software driver for the connected peripheral device, as taught by Smith (Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62), would be accomplish by the process of receiving signals from the PC then sending data (e.g. device recognition data) to the PC for processing; and the resulting product of mimicking how the hard disk drive works (e.g. understand what type of file system is implemented) via the hard disk drive emulation, as taught by Shinohara (col. 1, ll. 48-60 and col. 3, l. 56 to col. 4, l. 49), would be accomplished by the process of receiving signals from the PC then sending data (e.g. file system recognition data) to the PC for processing.

10. In responding to applicant's arguments (on page 12, dated 08/21/2008 from co-pending application 11/467,073) with regard to the independent claim 121 rejected under 35 U.S.C. 103(a) that Kerigan has nothing to do about how the camera is recognized by the PC or how the PC is informed as to what type of file system that the camera utilizes; applicant's arguments have fully been considered, but are not found to be persuasive.

Please note that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As explained by the examiner above, Smith is replied upon for the teaching of how a peripheral device is recognized by the PC (e.g. via plug-and-play) and Shinohara is relied upon for the teaching of the PC is informed as to what type of file system that the peripheral device utilizes (e.g. via hard disk drive emulation); the examiner is relying on Kerigan to clearly demonstrate the desire to implementing the plug and play functionality for external camera type peripheral device.

11. On pages 12-13 of applicant's remarks dated 08/21/2008 from co-pending application 11/467,073, with regard to the independent claim 121 rejected under 35 U.S.C. 103(a), applicant appears to be arguing that "user intervention" is equivalent to intervention by PC's processing power, as applicant argued that the claimed invention do not require processing that is provided by a source external to the peripheral device (e.g. “card service” program of the PC); applicant’s arguments have fully been considered, but are not found to be persuasive.

The examiner respectfully disagrees, as presented in the previous response, because PC processing is very much different from user intervention, as the PC processing is execution done by the PC and the user intervention is execution done by the user.

I. ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

12. As required by **M.P.E.P. 609(C)**, the applicant’s submissions of the Information Disclosure Statement dated August 07, 2008 and August 18, 2008 are acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by **M.P.E.P 609 C(2)**, a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

II. SPECIFICATION

13. The use of the trademark "Windows" and "Unix" has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

III. REJECTIONS BASED ON 35 U.S.C. 112

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claim 121-151 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 121, in line 6, it is not fully clear if "an i/o connector" is the same/different i/o connector previously recited; the examiner will assume "the i/o connector" for the current examination.

As per claim 137, it is not fully clear as to the scope of the claim because of the utilization of "Windows" trademark for identifying the operating system product.

As per claims 122-136 and 138-151, dependent claims 122-136 and 138-151 are also rejected at least due to direct/indirect dependency on the rejected independent claim 121.

IV. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 121-128 and 130-151 rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US Patent 6,111,604) in view of Smith et al. (US Patent 5,634,075), Kerigan et al. (US Patent 5,948,091) and Shinohara (US Patent 5,742,934).

16. As per claim 121, Hashimoto teaches an analog data generating and processing device (ADGPD) (Fig. 1A-1B and Fig. 8) having an i/o connector that is capable of receiving one or more file transfer requests from an external device (Fig. 8, ref. 29) that is separate from the ADGPD when the i/o connector is disposed in a coupled state with respect to the external device, the ADGPD comprising:

the i/o connector that is adapted to be put in a coupled state and a de-coupled state so that, when the i/o connector is put in the coupled state, the i/o connector is not substantially located within an interior of any external device that is separate from the ADGPD (Fig. 1A-1B; Fig. 8; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 67; col. 5, ll. 43-57; col. 6, l. 16 to col. 9, l. 17; col. 10, l. 41 to col. 11, l. 42 and col. 12, l. 16 to col. 13, l. 14);

an ADGPD processor that is operatively coupled to the i/o connector (Fig. 8, ref. 11, 23; Fig. 9; col. 6, l. 16 to col. 9, l. 17 and col. 10, l. 41 to col. 11, l. 42);

a data storage memory that is operatively coupled to the ADGPD processor (Fig. 8, ref. 16; Fig. 10; col. 6, l. 16 to col. 8, l. 47 and col. 9, ll. 18-45);

a program memory that is operatively coupled to the ADGPD processor (Fig. 9, ref. 52, 54-55 and col. 8, l. 48 to col. 9, l. 17);

a sensor that is operatively coupled to the ADGPD processor and that is designed to generate analog data (e.g. audio and visual analog wave) from one or more analog waves which to which the sensor is exposed (Fig. 8, ref. 1, 9 and col. 6, l. 16 to col. 8, l. 47);

wherein the ADGPD is configured by the ADGPD processor and the program memory to include a file transfer command interpreter (Fig. 1A-1B; Fig. 8; Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14), as in accordance to “Product-by-Process” the resulting product for transferring the data from the peripheral device to the PC (as taught by Hashimoto) would be accomplished by the process of the ADGPD’s file transfer command interpreter receiving file transfer requests;

wherein the ADGPD processor and the program memory are configured to cause, when the i/o connector is in a de-coupled state, the sensor to generate analog data from one or more analog waves to which the sensor is exposed, to cause the analog data to be processed, and to cause the processed analog data to be stored in the data storage memory (Fig. 8, ref. 16 and Fig. 10) as one or more files of digitized analog data (Fig. 12) (Fig. 1A-1B; Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 5, ll. 43-57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 10, l. 16);

the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol (Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14);

files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector (Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14), as the digitized analog data is transferred to the computer; and

wherein the file transfer command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not located within an interior of any external device that is separate from the ADGPD and (ii) after one of the file transfer requests has been received by the i/o connector, the file transfer command interpreter, when executed, causing a transfer of one or more of the files of digitized analog data from the data storage memory, through the i/o connector and to the PC (Fig. 1A-

1B; Fig. 8; Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14), as in accordance to "Product-by-Process" the resulting product for transferring the data from the peripheral device to the PC (as taught by Hashimoto) would be accomplished by the process of receiving the file transfer requests to be executed by the ADGPD's file transfer command interpreter.

Hashimoto does not teach the ADGPD comprising:

an automatic recognition command interpreter is to be executed after … one or more of device identification inquiry signals has been received … causing a first response signal to be automatically generated … sent through the i/o connector … the first response signal containing file transfer and communications enabling data …; and

an automatic file system command interpreter is to be executed … after one or more file system inquiry signals have been received … causing a second response signal to be automatically generated … sent through the i/o connector … the second response signal containing file system information that generally associated with data transferring to the PC.

Smith teaches a system and a method comprising an automatic recognition command interpreter is to be executed after both of the following conditions have been met, (i) while an i/o connector is disposed in the coupled state but is not contained within an interior of any external device that is separate from a peripheral device and (ii) after one or more of device identification inquiry signals has been received by the i/o connector, the automatic recognition command interpreter, when executed, causing a first response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the peripheral device (e.g. wherein without any type of user intervention at any time by means of the PC is associated with plug-and-play functionality), the automatic recognition command interpreter, when executed, also causing the first response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the peripheral device, the first response signal containing file transfer and communications enabling data that is consistent with the communications protocol, the file transfer and communications enabling data not directly indicating that the data storage memory contains any files of digitized analog data stored therein (Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62), as in combination with Kerigan's teaching of implementing the plug and play functionality for external camera type peripheral device (Kerigan, col. 3, ll. 29-33 and col. 6, ll. 3-10) and Hashimoto's external camera type peripheral device, the resulting combination further teaches the external camera to include plug-and-play function; as in accordance to "Product-by-Process" the resulting product of the PC able to pick the driver (e.g. driver for the communication protocol) for the connected external peripheral device for data transferring (as taught by the combination of Hashimoto, Smith and Kerigan) would be accomplished by the process of receiving the device recognition inquiry signals, and generating and forwarding the first response signal including the file transfer and communications enabling data to the PC.

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Smith's plug and play functionality into Hashimoto's ADGPD for the benefit of simplifying the installation of the peripheral device for the user as the peripheral device may be installed without the need for the user to install software or configure the peripheral device other then just connecting the peripheral device to the computer (Smith, col. 2, ll. 40-67 and col. 5, ll. 41-51 and col. 6, ll. 63-65); additionally, Kerigan also teaches the implementation of the plug and play functionality for camera type peripheral device (Kerigan, col. 3, ll. 29-33 and col. 6, ll. 3-10) to obtain the invention as specified in claim 121.

Hashimoto, Smith and Kerigan do not teach the ADGPD comprising an automatic file system command interpreter is to be executed … after one or more file system inquiry signals have been received … causing a second response signal to be automatically generated … sent through the i/o connector … the second response signal containing file system information that generally associated with data transferring to the PC.

Shinohara teaches a system and a method comprising an automatic file system command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more file system inquiry signals have been received by the i/o connector, the automatic file system command interpreter, when executed, causing a second response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic file system command interpreter, when executed, also causing the second response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the second response signal containing file system information (e.g. hard disk drive file system information) that generally associated with data transferring to the PC (col. 1, ll. 48-60 and col. 3, l. 56 to col. 4, l. 49), as in combination with Hashimoto, Smith and Kerigan's plug-and-play external camera, the resulting combination further teaches plug-and-play hard drive emulation for the external camera's flash memory to transfer data to the PC; as in accordance to "Product-by-Process" the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation (as taught by the combination of Hashimoto, Smith, Kerigan and Shinohara) would be accomplished by the process of receiving the file system inquiry signals, and generating and forwarding the second response signal including the file system information to the PC.

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Shinohara's emulation into Hashimoto, Smith and Kerigan's ADGPD's memory card for the benefit of expanding the use of the memory card to function as hard disk and also expanding the lifetime usage of the memory card (Shinohara, col. 2, ll. 7-8) to obtain the invention as specified in claim 121.

17. As per claim 122, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD further comprising an output device (e.g. speaker) that is operatively coupled to the ADGPD processor, the output device being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the sensor (Hashimoto, Fig. 8 and col. 6, ll. 16-39).

18. As per claim 123, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto, Smith and Shinohara further teach the ADGPD comprising wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if the ADGPD were a mass storage device (e.g. emulating the hard disk drive for transferring files of digital data from a memory card) (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1; Smith, Fig 2-5; col. 1, ll. 9-22; col. 2, ll. 40-67; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62, and Shinohara, col. 1, ll. 48-60).

19. As per claim 124, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 123 as discussed above, where Hashimoto and Shinohara further teach the ADGPD comprising wherein the automatic recognition

command interpreter is configured by the ADGPD processor and the program memory to cause at least some of the one or more files of digitized data to be transferred to the i/o connector in a mass storage format (e.g. hard disk drive format) (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1, and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

20. As per claim 125, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 124 as discussed above, where Hashimoto, Smith and Shinohara further teach the ADGPD comprising:

wherein the ADGPD processor and the program memory are configured to cause, after the first response signal has been sent to the i/o connector, file allocation table (FAT) information to be sent to the i/o connector (Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation would be accomplished by the process of forwarding FAT information, in order for the PC to know essential information (e.g. storing position and structure of files) to properly enable data transferring between the PC and the emulated hard disk drive,

wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an apparatus that operates in a manner consistent with a hard disk storage unit (e.g. plug-and-play hard drive emulation) (Smith, Fig. 2-

5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62, and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49),

wherein the ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk (Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation would be accomplished by the process of forwarding the virtual boot sequence,

wherein the file allocation table information includes at least a start location of a file allocation table (Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation would be accomplished by the process of forwarding the FAT information with start location of the FAT, in order for the PC to know essential information to properly transfer data between the PC and the emulated hard disk drive, and

wherein the mass storage format is consistent with a data transfer format used in a hard disk drive (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1, and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

21. As per claim 126, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches

the ADGPD comprising wherein the ADGPD processor and the program memory are configured to cause one or more files of digitized analog data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector (Hashimoto, Fig. 8; Fig. 12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 11, l. 42).

22. As per claim 127, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 126 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation (e.g. updating control program) of the ADGPD other than the transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector to be controlled by means of an external article that is separate from the ADGPD (Hashimoto, col. 6, l. 16 to col. 9, l. 17), such as the PC directly update the control program in the ADGPD.

23. As per claim 128, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Smith further teaches the ADGPD comprising wherein the communications protocol comprises a SCSI command set (Smith, col. 1, ll. 9-22), as the interconnection between the peripheral device and the PC is implemented via SCSI interface, SCSI command set would be needed.

24. As per claim 130, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the file transfer and communications enabling data of the first response signal is not consistent with the true nature of the ADGPD (Hashimoto, Fig. 8; col. 6, l. 16 to col. 9, l. 17 and col. 10, l. 41 to col. 11, l. 42), as ADGPD operate analog signaling and the other operate in accordance with the communication protocol connected to the computer.

25. As per claim 131, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the sensor is designed to have two-way communication with an external apparatus that is separate from the ADGPD (Hashimoto, Fig. 8; col. 6, l. 16 to col. 9, l. 17 and col. 10, l. 41 to col. 11, l. 19), such as the PC receiving audiovisual information from the camera and communicating to the camera for updating control program to control the sensor.

26. As per claim 132, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto and Smith further teach the ADGPD comprising wherein the ADGPD includes a flexible interface (Hashimoto, Fig. 1A-1B; Fig. 8; Fig. 17; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 19, and Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 ; col. 6, ll. 63-62; col. 11, ll. 52-61).

27. As per claim 133, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto and Smith further teach the ADGPD comprising wherein the ADGPD includes a universal interface (Hashimoto, col. 1, ll. 35-57 and Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62).

28. As per claim 134, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Shinohara further teaches the ADGPD comprising wherein the file system information comprises at least an indication of the type of a file system that is used to store each one of the one or more files of digitized analog data in the data storage memory (Shinohara, col. 1, ll. 48-60 and col. 3, l. 56 to col. 4, l. 49).

29. As per claim 135, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the ADGPD comprises a medical device (Hashimoto, Fig. 1A-1B; Fig. 8; Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14), such as pictures taken for medical use.

30. As per claim 136, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Smith further teaches the

ADGPD comprising wherein the i/o connector comprises a parallel port (Smith, col. 1, ll. 9-22).

31. As per claim 137, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Smith further teaches the ADGPD comprising wherein the ADGPD is designed for use with an external computer that utilizes a Windows based operating system (Smith, col. 3, ll. 48-51).

32. As per claim 138, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Smith and Shinohara further teach the ADGPD comprising wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an input/output device that is customary in a host device (Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

33. As per claim 139, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the i/o connector is adapted to be operatively coupled to a cable (Hashimoto, 1A-1B; Fig. 8; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 10, l. 16).

34. As per claim 140, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto, Smith, and Shinohara further teach the ADGPD comprising wherein the ADGPD processor includes a central processing unit (CPU), and wherein one or more of the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are configured by the CPU of the ADGPD processor and the program memory (Hashimoto, Fig. 8-9; Fig. 12; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 10, l. 16; Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62, and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

35. As per claim 141, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 140 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the ADGPD processor and the CPU of the ADGPD processor are formed in the same chip (Hashimoto, Fig. 8-9; Fig. 12; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 10, l. 16).

36. As per claim 142, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD comprising an ADGPD interface (Hashimoto, Fig. 8, ref. 28 and Fig.

17) that is operatively coupled between the i/o connector and the ADGPD processor (Hashimoto, Fig. 8, ref. 11, 23).

37. As per claim 143, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 142 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the ADGPD interface (Hashimoto, Fig. 8, ref. 28 and Fig. 17) and the ADGPD processor (Hashimoto, Fig. 8, ref. 11, 23) are not formed in the same chip (e.g. separate chips).

38. As per claim 144, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 142 as discussed above, where Smith further teaches the ADGPD comprising wherein the ADGPD interface comprises a SCSI interface (Smith, col. 1, ll. 9-22).

39. As per claim 145, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein one or more of the one or more files of digitized analog data stored in the data storage memory comprise contiguous files (e.g. contiguous audiovisual data) (Hashimoto, 1A-1B; Fig. 8; Fig. 12; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 10, l. 16).

40. As per claim 146, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto, Smith, and Shinohara further teach the ADGPD comprising wherein the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are physically separate from each other in the program memory of the ADGPD (Hashimoto, Fig. 8-9; Fig. 12; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 10, l. 16; Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62, and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as each interpreter is accomplishing a different task, the interpreters would be physically separate from each other.

41. As per claim 147, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, where Hashimoto, Smith, and Shinohara further teach the ADGPD comprising a combination comprising the ADGPD of claim 121 and a personal computer (PC) (Hashimoto, Fig. 8-9; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 10, l. 16; Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62, and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

42. As per claim 148, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 147 as discussed above, where Hashimoto and Smith further

teach the ADGPD comprising wherein at least one software driver is a part of the PC and is adapted to issue commands in accordance with the communications protocol (Hashimoto, Fig. 8-9; Fig. 12; Fig. 14-16; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 10, l. 16 and Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62), as the plug-and-play protocol enable proper selection of the driver by the PC for the connected peripheral protocol.

43. As per claim 149, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 148 as discussed above, where Smith further teaches the ADGPD comprising wherein the at least one software driver is located in a BIOS of the PC (Smith, Fig. 2-5; col. 1, ll. 9-22; col. 2, l. 40 to col. 3, l. 8; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51; col. 6, ll. 63-62), as storing of the software drive in the BIOS of the PC is need to operate in accordance to the plug-and-play standard.

44. As per claim 150, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 125 as discussed above, where Hashimoto and Shinohara further teach the ADGPD comprising wherein the ADGPD processor includes a central processing unit (CPU), and wherein the CPU of the ADGPD processor and the program memory are configured to cause, after the first response signal has been sent to the i/o connector, file allocation table information to be sent to the i/o connector (Hashimoto, Fig. 8-9; Fig. 14-16; col. 1, ll. 35-57; col. 6, l. 16 to

col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation would be accomplished by the process of sending the first response signal and forwarding FAT information to the PC, in order for the PC to know essential information (e.g. storing position and structure of files) to properly enable data transferring between the PC and the emulated hard disk drive.

45. As per claim 151, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 150 as discussed above, where Shinohara further teaches the ADGPD comprising wherein the CPU of the ADGPD processor and the program memory to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk (Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the resulting product of mimicking how the hard disk drive works via the hard disk drive emulation would be accomplished by the process of forwarding the virtual boot sequence.

46. Claim 129 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US Patent 6,111,604) in view of Smith et al. (US Patent 5,634,075), Kerigan et al. (US Patent 5,948,091) and Shinohara (US Patent 5,742,934) as applied to claim 121 above, and further in view of Endo et al. (US Patent 4,652,928).

Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 121 as discussed above, wherein Hashimoto further teaches the ADGPD comprising wherein the sensor (Hashimoto, Fig. 8, ref. 6, 9) is designed to be operatively coupled to the ADGPD processor (Hashimoto, Fig. 8).

Hashimoto, Smith, Kerigan and Shinohara do not expressly teach the ADGPD comprising wherein the sensor is designed to be de-coupled.

Endo teaches the ADGPD (e.g. digital camera) comprising wherein a sensor (e.g. CCD) is designed to be de-coupled (e.g. de-coupled when interchanging) (col. 1, ll. 18-25 and col. 13, ll. 57-58).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Endo's interchangeable sensor into Hashimoto, Smith, Kerigan and Shinohara's ADGPD for the benefit of adaptively increase the resolution of the camera to obtaining a better quality image (Endo, col. 1, ll. 18-20) to obtain the invention as specified in claim 129.

V. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

Per the instant office action, claims 121-151 have received a first action on the merits and are subject of a first action non-final.

b. DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

IMPORTANT NOTE

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C.K.L./

August 29, 2008

Chun-Kuan (Mike) Lee
Examiner
Art Unit 2181

/Alford W. Kindred/

Supervisory Patent Examiner, Art Unit 2181

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: August 21,2008 Signature: (Jeffrey Salmon)

Docket No.: 31436/43993
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Michael Tasler

Application No.: 11/467,092 | Confirmation No.: 3038

Filed: August 24, 2006 | Art Unit: 2181

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER | Examiner: C. K. Lee

SECOND PRELIMINARY AMENDMENT

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

Prior to examination on the merits, and as a supplement to the First Preliminary Amendment filed on Monday, August 18, 2008, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

Please cancel claims 1-120, amend claim 125, and add new claims 150-151 as follows:

1-120. (cancelled).

121. (previously presented) An analog data generating and processing device (ADGPD) having an i/o connector that is capable of receiving one or more device identification inquiry signals, one or more file system inquiry signals, and one or more file transfer requests from an external device that is separate from the ADGPD when the i/o connector is disposed in a coupled state with respect to the external device, the ADGPD comprising:

an i/o connector that is adapted to be put in a coupled state and a de-coupled state so that, when the i/o connector is put in the coupled state, the i/o connector is not substantially located within an interior of any external device that is separate from the ADGPD;

an ADGPD processor that is operatively coupled to the i/o connector;

a data storage memory that is operatively coupled to the ADGPD processor;

a program memory that is operatively coupled to the ADGPD processor;

a sensor that is operatively coupled to the ADGPD processor and that is designed to generate analog data from one or more analog waves which to which the sensor is exposed;

wherein the ADGPD is configured by the ADGPD processor and the program memory to include an automatic recognition command interpreter, an automatic file system command interpreter, and a file transfer command interpreter;

wherein the ADGPD processor and the program memory are configured to cause, when the i/o connector is in a de-coupled state, the sensor to generate analog data from one or more analog waves to which the sensor is exposed, to cause the analog data to be processed, and to cause the processed analog data to be stored in the data storage memory as one or more files of digitized analog data;

wherein the automatic recognition command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is disposed in the coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more of the device identification inquiry signals has been received by the i/o connector, the automatic recognition command interpreter, when executed, causing a first response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic recognition command interpreter, when executed, also causing the first response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the first response signal containing file transfer and communications enabling data that is consistent with the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol, the file transfer and communications enabling data not directly indicating that the data storage memory contains any files of digitized analog data stored therein;

wherein the automatic file system command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more file system inquiry signals have been received by the i/o connector, the automatic file system command interpreter, when executed, causing a second response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic file system command interpreter, when executed, also causing the second response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the second response signal containing file system information that generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector; and

wherein the file transfer command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not located within an interior of any external device that is separate from the ADGPD and (ii) after one of the file transfer requests has been received by the i/o connector, the file transfer command interpreter, when executed, causing a transfer of one or more of the files of digitized analog data from the data storage memory, through the i/o connector and to the PC.

122. (previously presented) The ADGPD of claim 121, further comprising an output device that is operatively coupled to the ADGPD processor, the output device being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the sensor.

123. (previously presented) The ADGPD of claim 121, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if the ADGPD were a mass storage device.

124. (previously presented) The ADGPD of claim 123,

wherein the automatic recognition command interpreter is configured by the ADGPD processor and the program memory to cause at least some of the one or more files of digitized data to be transferred to the i/o connector in a mass storage format.

125. (currently amended) The ADGPD of claim 124,

wherein ~~the automatic recognition command interpreter is configured by~~ the ADGPD processor and the program memory are configured to cause, after the first response signal has been sent to the i/o connector, file allocation table information to be sent to the i/o connector,

wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an apparatus that operates in a manner consistent with a hard disk storage unit,

wherein the ~~automatic recognition command interpreter is configured by the~~ ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk,

wherein the file allocation table information includes at least a start location of a file allocation table, and

wherein the mass storage format is consistent with a data transfer format used in a hard disk drive.

126. (previously presented) The ADGPD of claim 121, wherein the ADGPD processor and the program memory are configured to cause one or more files of digitized analog data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector.

127. (previously presented) The ADGPD of claim 126, wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation of the ADGPD other than the transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector to be controlled by means of an external article that is separate from the ADGPD.

128. (previously presented) The ADGPD of claim 121, wherein the communications protocol comprises a SCSI command set.

129. (previously presented) The ADGPD of claim 121, wherein the sensor is designed to be de-coupled from the ADGPD processor.

130. (previously presented) The ADGPD of claim 121, wherein the file transfer and communications enabling data of the first response signal is not consistent with the true nature of the ADGPD.

131. (previously presented) The ADGPD of claim 121, wherein the sensor is designed to have two-way communication with an external apparatus that is separate from the ADGPD.

132. (previously presented) The ADGPD of claim 121, wherein the ADGPD includes a flexible interface.

133. (previously presented) The ADGPD of claim 121, wherein the ADGPD includes a universal interface.

134. (previously presented) The ADGPD of claim 121, wherein the file system information comprises at least an indication of the type of a file system that is used to store each one of the one or more files of digitized analog data in the data storage memory.

135. (previously presented) The ADGPD of claim 121, wherein the ADGPD comprises a medical device.

136. (previously presented) The ADGPD of claim 121, wherein the i/o connector comprises a parallel port.

137. (previously presented) The ADGPD of claim 121, wherein the ADGPD is designed for use with an external computer that utilizes a Windows based operating system.

138. (previously presented) The ADGPD of claim 121, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an input/output device that is customary in a host device.

139. (previously presented) The ADGPD of claim 121, wherein the i/o connector is adapted to be operatively coupled to a cable.

140. (previously presented) The ADGPD of claim 121, wherein the ADGPD processor includes a central processing unit (CPU), and wherein one or more of the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer

command interpreter are configured by the CPU of the ADGPD processor and the program memory.

141. (previously presented) The ADGPD of claim 140, wherein the ADGPD processor and the CPU of the ADGPD processor are formed in the same chip.

142. (previously presented) The ADGPD of claim 121, further comprising an ADGPD interface that is operatively coupled between the i/o connector and the ADGPD processor.

143. (previously presented) The ADGPD of claim 142, wherein the ADGPD interface and the ADGPD processor are not formed in the same chip.

144. (previously presented) The ADGPD of claim 142, wherein the ADGPD interface comprises a SCSI interface.

145. (previously presented) The ADGPD of claim 121, wherein one or more of the one or more files of digitized analog data stored in the data storage memory comprise contiguous files.

146. (previously presented) The ADGPD of claim 121, wherein the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are physically separate from each other in the program memory of the ADGPD.

147. (previously presented) A combination comprising the ADGPD of claim 121 and a personal computer (PC).

148. (previously presented) The combination of claim 147, wherein at least one software driver is a part of the PC and is adapted to issue commands in accordance with the communications protocol.

149. (previously presented) The combination of claim 148, wherein the at least one software driver is located in a BIOS of the PC.

150. (new) The ADGPD of claim 125, wherein the ADGPD processor includes a central processing unit (CPU), and wherein the CPU of the ADGPD processor and the program memory are configured to cause, after the first response signal has been sent to the i/o connector, file allocation table information to be sent to the i/o connector.

151. (new) The ADGPD of claim 150, wherein the CPU of the ADGPD processor and the program memory to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk.

REMARKS

This Second Preliminary Amendment is a supplement to the First Preliminary Amendment that was filed on Monday, August 18, 2009. One purpose of this filing is to correct inadvertent errors to claim 125 contained in the First Preliminary Amendment, and to add new claims 150-151. Another purpose of this document is to provide the Examiner with an exemplary analysis in support of the position that the currently pending claims are patentable over all prior art of record.

For purposes of completeness, the following requests of the Examiner stated in the First Preliminary Amendment are reiterated:

1) Please consider only the remarks made at the recent personal interview and the remarks made in the First and Second Preliminary Amendments when considering the patentability of the currently pending claims. Please disregard all remarks and amendments made in all other papers previously filed in this application or previously filed in any application related to the instant application.

2) Please review all of the prior art that is of record when considering the patentability of the currently pending claims.

As stated in the First Preliminary Amendment, all of the currently pending claims recite an *automatic processing for device recognition* feature, as well as an *automatic processing for file system recognition* feature. It is respectfully submitted that no prior art reference of record, either taken alone or in any purported combination, teaches or suggests, for example, either or both of these claim features and, therefore, that all of the currently pending claims should be found to be patentable.

The claims of the instant application are believed to be patentable for reasons that are substantially the same as those presented in the remarks section of the Second Preliminary Amendment filed in Application Ser. No. 11/467,073 today. For purposes of brevity, those remarks are not reiterated here.

It is respectfully submitted that the instant application is in condition for allowance. A formal notice to that effect is earnestly solicited.

Dated: August 21, 2008

Respectfully submitted,

By ______________________

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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: August 18, 2008 Signature: (Jeffrey Salmon)

Docket No.: 31436/43993
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Michael Tasler

Application No.: 11/467,092

Confirmation No.: 3038

Filed: August 24, 2006

Art Unit: 2181

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER

Examiner: C. K. Lee

FIRST PRELIMINARY AMENDMENT

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

WE CLAIM:

1-120. (cancelled).

121. (new) An analog data generating and processing device (ADGPD) having an i/o connector that is capable of receiving one or more device identification inquiry signals, one or more file system inquiry signals, and one or more file transfer requests from an external device that is separate from the ADGPD when the i/o connector is disposed in a coupled state with respect to the external device, the ADGPD comprising:

an i/o connector that is adapted to be put in a coupled state and a de-coupled state so that, when the i/o connector is put in the coupled state, the i/o connector is not substantially located within an interior of any external device that is separate from the ADGPD;

an ADGPD processor that is operatively coupled to the i/o connector;

a data storage memory that is operatively coupled to the ADGPD processor;

a program memory that is operatively coupled to the ADGPD processor;

a sensor that is operatively coupled to the ADGPD processor and that is designed to generate analog data from one or more analog waves which to which the sensor is exposed;

wherein the ADGPD is configured by the ADGPD processor and the program memory to include an automatic recognition command interpreter, an automatic file system command interpreter, and a file transfer command interpreter;

wherein the ADGPD processor and the program memory are configured to cause, when the i/o connector is in a de-coupled state, the sensor to generate analog data from one or more analog waves to which the sensor is exposed, to cause the analog data to be processed, and to cause the processed analog data to be stored in the data storage memory as one or more files of digitized analog data;

wherein the automatic recognition command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is disposed in the coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more of the device identification inquiry signals has been received by the i/o connector, the automatic recognition command interpreter, when executed, causing a first response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic recognition command interpreter, when executed, also causing the first response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the first response signal containing file transfer and communications enabling data that is consistent with the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol, the file transfer and communications enabling data not directly indicating that the data storage memory contains any files of digitized analog data stored therein;

wherein the automatic file system command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more file system inquiry signals have been received by the i/o connector, the automatic file system command interpreter, when executed, causing a second response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic file system command interpreter, when executed, also causing the second response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the second response signal containing file system information that generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector; and

wherein the file transfer command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not located within an interior of any external device that is separate from the ADGPD and (ii) after one of the file transfer requests has been received by the i/o connector, the file transfer command interpreter, when executed, causing a transfer of one or more of the files of digitized analog data from the data storage memory, through the i/o connector and to the PC.

122. (new) The ADGPD of claim 121, further comprising an output device that is operatively coupled to the ADGPD processor, the output device being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the sensor.

123. (new) The ADGPD of claim 121, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if the ADGPD were a mass storage device.

124. (new) The ADGPD of claim 123,

wherein the automatic recognition command interpreter is configured by the ADGPD processor and the program memory to cause at least some of the one or more files of digitized data to be transferred to the i/o connector in a mass storage format.

125. (new) The ADGPD of claim 124,

wherein the automatic recognition command interpreter is configured by the ADGPD processor and the program memory to cause, after the first response signal has been sent to the i/o connector, file allocation table information to be sent to the i/o connector,

wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an apparatus that operates in a manner consistent with a hard disk storage unit,

wherein the automatic recognition command interpreter is configured by the ADGPD processor and the program memory to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk,

wherein the file allocation table information includes at least a start location of a file allocation table, and

wherein the mass storage format is consistent with a data transfer format used in a hard disk drive.

126. (new) The ADGPD of claim 121, wherein the ADGPD processor and the program memory are configured to cause one or more files of digitized analog data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector.

127. (new) The ADGPD of claim 126, wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation of the ADGPD other than the transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector to be controlled by means of an external article that is separate from the ADGPD.

128. (new) The ADGPD of claim 121, wherein the communications protocol comprises a SCSI command set.

129. (new) The ADGPD of claim 121, wherein the sensor is designed to be de-coupled from the ADGPD processor.

130. (new) The ADGPD of claim 121, wherein the file transfer and communications enabling data of the first response signal is not consistent with the true nature of the ADGPD.

131. (new) The ADGPD of claim 121, wherein the sensor is designed to have two-way communication with an external apparatus that is separate from the ADGPD.

132. (new) The ADGPD of claim 121, wherein the ADGPD includes a flexible interface.

133. (new) The ADGPD of claim 121, wherein the ADGPD includes a universal interface.

134. (new) The ADGPD of claim 121, wherein the file system information comprises at least an indication of the type of a file system that is used to store each one of the one or more files of digitized analog data in the data storage memory.

135. (new) The ADGPD of claim 121, wherein the ADGPD comprises a medical device.

136. (new) The ADGPD of claim 121, wherein the i/o connector comprises a parallel port.

137. (new) The ADGPD of claim 121, wherein the ADGPD is designed for use with an external computer that utilizes a Windows based operating system.

138. (new) The ADGPD of claim 121, wherein the file transfer and communications enabling data of the first response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an input/output device that is customary in a host device.

139. (new) The ADGPD of claim 121, wherein the i/o connector is adapted to be operatively coupled to a cable.

140. (new) The ADGPD of claim 121, wherein the ADGPD processor includes a central processing unit (CPU), and wherein one or more of the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are configured by the CPU of the ADGPD processor and the program memory.

141. (new) The ADGPD of claim 140, wherein the ADGPD processor and the CPU of the ADGPD processor are formed in the same chip.

142. (new) The ADGPD of claim 121, further comprising an ADGPD interface that is operatively coupled between the i/o connector and the ADGPD processor.

143. (new) The ADGPD of claim 142, wherein the ADGPD interface and the ADGPD processor are not formed in the same chip.

144. (new) The ADGPD of claim 142, wherein the ADGPD interface comprises a SCSI interface.

145. (new) The ADGPD of claim 121, wherein one or more of the one or more files of digitized analog data stored in the data storage memory comprise contiguous files.

146. (new) The ADGPD of claim 121, wherein the automatic recognition command interpreter, the automatic file system command interpreter, and the file transfer command interpreter are physically separate from each other in the program memory of the ADGPD.

147. (new) A combination comprising the ADGPD of claim 121 and a personal computer (PC).

148. (new) The combination of claim 147, wherein at least one software driver is a part of the PC and is adapted to issue commands in accordance with the communications protocol.

149. (new) The combination of claim 148, wherein the at least one software driver is located in a BIOS of the PC.

REMARKS

New claims 121-149 are submitted herewith for the Examiner's consideration. A further preliminary amendment will be filed by no later than the close of business on Wednesday, August 20th to provide the Examiner with remarks addressing the patentability issues with respect to the newly submitted claims.

It is the specific intention of the applicant that new claims 121-146 *do not* read on the combination of a personal computer ("PC") and an analog data generating and processing device ("ADGPD"). Rather, such claims read on an infringing ADGPD by itself. It also is the specific intention of the applicant that claims 147-149 do, in fact, read on the combination of a PC and an ADGPD that meets the limitations of the claims.

The Examiner is respectfully requested to consider only the remarks made at the recent personal interview, the remarks made in this preliminary amendment, and the remarks that will be made in the above-referenced further preliminary amendment when considering the patentability of the new claims submitted in this preliminary amendment. In this regard, the Examiner is respectfully asked to disregard all remarks and amendments made in all papers previously filed in this application or previously filed in any application related to the instant application.

Regarding the patentability issues, the Examiner is respectfully requested to review all of the prior art that is of record when considering the patentability of the new claims submitted herewith.

The newly submitted claims have been drafted to further clarify and better define the claimed subject matter. In particular, all of the newly submitted claims include an *automatic* *processing for device recognition* feature, as well as an *automatic processing for file system recognition* feature. A brief description of both of these claim elements follows.

Automatic Processing For Device Recognition Claim Element

Regarding the new claims, please note that each new claim recites the following *automatic processing for device recognition* feature:

> "wherein the automatic recognition command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is disposed in the coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more of the device identification inquiry signals has been received by the i/o connector, the automatic recognition command interpreter, when executed, causing a first response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic recognition command interpreter, when executed, also causing the first response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the first response signal containing file transfer and communications enabling data that is consistent with the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol, the file transfer and communications enabling data not directly indicating that the data storage memory contains any files of digitized analog data stored therein."

Exemplary support for this claim element can be found in Figure 2 of the subject application, which shows an EPROM 1400 that contains software code that corresponds to the "automatic recognition command interpreter." These instructions are executed by the DSP 1300 to cause a response signal containing "file transfer and communications enabling data" to be generated and thereafter to be sent to the PC to which the Figure 2 device is connected. No user intervention by means of a PC's "card services" program is required for this to happen. Receipt and processing by the PC of this data allows the PC to be able to select appropriate software that is adapted to handle file transfers from the Figure 2 device to the PC in accordance with the claimed communications protocol.

The claim requires that the "automatic recognition command interpreter" be executed while "the i/o connector is disposed in the coupled state but is not contained within an interior of any external device that is separate from the ADGPD." This reads on, for example, the device shown in Figure 2 of the instant application, wherein the SCSI connector 1240 is adapted to be operatively coupled to a multi-purpose interface of a PC without being contained within an interior of the PC. This also reads on, for example, a device that is capable of wirelessly transferring files of digitized analog data to a PC that is physically separated away from the device.

The use of the phrase "without any type of user intervention at any time by means of any external device that is separate from the ADGPD" in the new claims to describe the "automatic recognition command interpreter" means that:

- no user has to load an applications level program or a software driver onto a PC at any time in order to allow a peripheral device to be able to generate and thereafter send "file transfer and communications enabling data" that is "consistent with the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol" as quoted in the claims; or

- no user has to interact with a PC (*e.g.*, setting up a file system) at any time in order to allow a peripheral device to generate and thereafter send "file transfer and communications enabling data" that is "consistent with the ADGPD being capable of transferring files of digital data through the i/o connector in accordance with a communications protocol" as quoted in the claims; or

- it is the execution of the claimed automatic recognition command interpreter, and not any processing power provided by a "card services" program on the PC, that causes the claimed "first response signal" to be generated and thereafter sent to the PC.

Automatic Processing For File System Recognition Claim Element

Regarding the new claims, please note that each new claim recites the following *automatic processing for file system recognition* feature:

> "wherein the automatic file system command interpreter is to be executed after both of the following conditions have been met, (i) while the i/o connector is in a coupled state but is not contained within an interior of any external device that is separate from the ADGPD and (ii) after one or more file system inquiry signals have been received by the i/o connector, the automatic file system command interpreter, when executed, causing a second response signal to be automatically generated without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the automatic file system command interpreter, when executed, also causing the second response signal to be automatically sent through the i/o connector without any type of user intervention at any time by means of any external device that is separate from the ADGPD, the second response signal containing file system information that generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector."

Exemplary support for this claim element can be found in Figure 2 of the subject application, which shows an EPROM 1400 that contains software code that corresponds to the "automatic file system command interpreter." These instructions are executed by the DSP 1300 to cause a response signal containing "file system information" to generated and thereafter sent to the PC to which the Figure 2 device is connected. No intervention by a PC's "card services" program is required for this to happen. Receipt and processing by the PC of this information allows the PC be able to generally understand how to use its file manager can be used to access and retrieve files digital date from the Figure 2 device.

The claim requires that the "automatic file system command interpreter" be executed while "the i/o connector is disposed in the coupled state but is not contained within an interior of any external device that is separate from the ADGPD." This reads on, for example, the device shown in Figure 2 of the instant application, wherein the SCSI connector 1240 is adapted to be operatively coupled to a multi-purpose interface of a PC without being contained within an interior of the PC. This also reads on, for example, a device that is capable of wirelessly transferring files of digitized analog data to a PC that is physically separated away from the device.

The use of the phrase "without any type of user intervention at any time by means of any external device that is separate from the ADGPD" in the new claims to describe the "automatic file system command interpreter" means that:

- no user has to load an applications level program or a software driver onto a PC at any time in order to allow a peripheral device to generate and thereafter send "file system information" to a PC that "generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector" as quoted in the claims; or

- no user has to interact with a PC (*e.g.*, setting up a file system) at any time in order to allow a peripheral device to generate and thereafter send "file system information" to a PC that "generally indicates how the files of digitized analog data stored in the data storage memory are to be accessed and retrieved via the i/o connector" as quoted in the claims; or

- it is the execution of the claimed *automatic processing for file system recognition*, and not any processing power provided by a "card services" program on the PC, that causes the claimed "second response signal" to be generated and thereafter sent to a device external to and physically separated from the ADGPD.

<u>Devices Not Covered By The Newly Submitted Claims</u>

Regarding the scope of the new claims submitted herewith, please note that none of the new claims read on any of the following products, such products having only the below-described file transfer abilities:

a) a digital camera built around a memory card that affirmatively requires processing power to be provided by the "card services" program of the PC to which the camera is connected in order for the camera to be able to transfer pictures to it (*e.g.*, the Nikon Coolpix 100 camera and the camera disclosed in JP Publication H8-13072);

b) a digital camera or scanner that requires a user to interact with a PC (*e.g.*, use the PC to set up a file system in the digital camera or scanner) in order to be able to transfer images from the digital camera or scanner to the PC (see, for example, US Patent No. 6,256,452, which relates to a storage device for an electronic camera, and which requires that the storage device be "beforehand formatted" before it is attached to the camera (column 2, line 59 of the '452 patent) (see also, for example, US Patent No. 6,088,532, the HDD of which is believed to operate in a manner consistent with the HDD that is used with the camera disclosed in the '452 patent – the '532 patent is discussed in the document attached to the Supplemental Notice filed April 22, 2008));

c) a digital camera or scanner that requires a user to remove a storage device such as a memory card from the digital camera or scanner and then place the memory card in a PC card reader in order to be able to transfer images from the digital camera or scanner to the PC (see, for example, the Figure 4A embodiment of the primary reference cited by the Examiner in the May, 2008 Office Action);

d) a digital camera or scanner that requires a user to load a software driver and/or applications level program onto a PC in order to be able to transfer images from the digital camera or scanner to the PC (see, for example, the document attached to Supplemental Notice filed April 22, 2008, in which Casio, Inc. admits that the Casio QV-10 camera and the Kodak DCS200 camera both need "a software driver to retrieve images in the camera's memory"; and

e) a data acquisition system that requires a user to load an applications level program onto a PC in order to be able to transfer digitized analog data to the PC (see, for example, the two references cited on page 15 of this Amendment A.

All of the above-referenced products affirmatively require "user intervention" (*e.g.*, processing power provided by the PC's "card services" program or loading software onto a PC) in order for a user to be able to transfer files of digitized analog data from the devices to the PC. "User intervention" of this sort is the antithesis of the *automatic processing for device identification* and the *automatic processing for file system recognition* feature of each newly submitted claim.

A further preliminary amendment addressing the patentability issues will be submitted by no later than the close of business on Wednesday, August 20th.

Dated: August 18, 2008

Respectfully submitted,

By ______________________

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EXAMINER	
LEE, CHUN KUAN	

ART UNIT	PAPER NUMBER
2181	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No.	Applicant(s)	
	11/467,092	TASLER, MICHAEL	
	Examiner	**Art Unit**	
	Chun-Kuan Lee	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *109-120* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *109-120* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/7/08; 6/4/08; 7/2/08; 7/3/08, 7/7/08, 7/9/08, 7/14/08 & 7/15/08.

DETAILED ACTION

RESPONSE TO ARGUMENTS

1. Applicant's arguments with respect to claims 109-120 have been considered but are moot in view of the new ground(s) of rejection. Rejection of claims 97-108 under 35 U.S.C. 112 first and second paragraph is withdrawn. Currently, claims 1-108 are canceled and claims 109-120 are pending for examination.

I. ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

2. As required by **M.P.E.P. 609(C)**, the applicant's submissions of the Information Disclosure Statement dated May 07, 2008; June 04, 2008; July 02, 2008; July 03, 2008; July 07, 2008; July 09, 2008; July 14, 2008 and July 15, 2008 are acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by **M.P.E.P 609 C(2)**, a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

II. REJECTIONS BASED ON 35 U.S.C. 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 109-120 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 109, in line 7, it is not fully clear if "a period of time" is the same/different period of time previous recited.

As per claim 109, in line 21, it is not fully clear if "a decoupled state" is the same/different decoupled state previous recited.

4. As per claims 110-120, dependent claims 110-120 are also rejected at least due to direct/indirect dependency on the rejected independent claim 109.

III. <u>REJECTIONS BASED ON PRIOR ART</u>

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 109-110, 114-115 and 118-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over <u>Hashimoto et al.</u> (US Patent 6,111,604) in view of <u>Smith et al.</u> (US Patent 5,634,075) and <u>Kerigan et al.</u> (US Patent 5,948,091).

6. As per claim 109, <u>Hashimoto</u> teaches an analog data generating and processing device (ADGPD) (Fig. 1A-1B and Fig 8) that is capable of receiving one or more data transfer requests, the ADGPD comprising:

an i/o connector (Fig. 1B, ref. 150) that is capable of being in a coupled and a de-coupled state, the i/o connector, when it is in a coupled state, being capable of receiving the one or more data transfer requests (Fig. 14; col. 4, ll. 11-67; col. 5, ll. 43-57; col. 8, ll. 22-36 and col. 12, l. 16 to col. 13, l. 14);

an ADGPD processor having a central processing unit, the ADGPD processor being operatively coupled to the i/o connector (Fig. 8, ref. 11, 23; Fig. 9 and col. 6, l. 16 to col. 8, l. 47);

a data storage memory that is operatively coupled to the ADGPD processor (Fig. 8, ref. 16; Fig. 10; col. 6, l. 16 to col. 8, l. 47 and col. 9, ll. 18-45);

a program memory that is operatively coupled to the central processing unit of the ADGPD processor (Fig. 9, ref. 52, 54-55 and col. 8, l. 48 to col. 9, l. 17);

a sensor that is operatively coupled to the ADGPD processor and that is designed to process analog waves (e.g. audio and visual analog wave) (Fig. 8, ref. 1, 9 and col. 6, l. 16 to col. 8, l. 47);

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is in a decoupled state and without intervention by means of any external mechanism that is separate from the ADGPD, the sensor to generate analog data from one or more analog waves (Fig. 1A-1B; Fig. 11; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 5, ll. 43-57; col. 6, l. 16 to col. 9, l. 17 and col. 9, ll. 46-54);

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is in a decoupled state and without intervention by means of any external mechanism that is separate from the ADGPD, the analog data to be processed and then stored in the data storage memory as one or more files of digitized data that are retrievable via the i/o connector after it has been put into a coupled state (Fig. 1A-1B; Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 3, l. 43 to col. 4, l. 57; col. 5, ll. 43-57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 10, l. 16);

wherein the ADGPD is adapted to cause, after the i/o connector has received at least one Data Transfer Ready (DTR) signal, and without any user intervention by means of any external apparatus that is separate from the ADGPD, the ADGPD is then capable of transferring files of digital data by means of a communication protocol, the ADGPD thereafter subsequently being able to process data transfer requests in accordance with the communication protocol (Fig. 14-15; col. 8, l. 48 to col. 9, l. 17; col. 10, l. 41 to col. 11, l. 42 and col. 12, l. 16 to col. 13, l. 14);

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, after one of the data transfer requests has been received by the i/o connector, a transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector in accordance with the communications protocol (Fig. 11-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 14); and

wherein the central processing unit of the ADGPD processor is operatively coupled to the program memory so that the central processing unit of the ADGPD processor is adapted to control the generation of the analog data as well as the transfer of at least some of the one or more files of digitized data to the i/o connector (Fig. 8-9 and col. 6, l. 16 to col. col. 9, l. 17).

Hashimoto does not teach the ADGPD comprising: receiving device identification inquiry signals that are periodically sent for a period of time; and after receiving the device identification inquiry signals, a response signal is automatically sent, the response signal containing identification data that is consistent with the capability of transferring data by means of the communication protocol.

Smith teaches a system and a method comprising a peripheral device receiving device identification inquiry signals that are periodically sent for a period of time; and after receiving the device identification inquiry signals, a response signal is automatically sent without any user intervention by means of any external apparatus that is separate from the peripheral device, the response signal containing identification data that is consistent with the capability of transferring data by means of a communication protocol (Fig. 2-5; col. 1, ll. 9-22; col. 2, ll. 40-67; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62), as communication is established when the plug and play peripheral device is connected to a computer without any user intervention via the computer, therefore it would have been obvious to implement the above process of receiving device identification inquiry signal and returning the response signal with identification data for establishing communication link.

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Smith's plug and play functionality into Hashimoto's ADGPD for the benefit of simplifying the installation of the peripheral device for the user as the peripheral device may be installed without the need for the user to install software or configure the peripheral device other then just connecting the peripheral device to the computer (Smith, col. 2, ll. 40-67 and col. 5, ll. 41-51 and col. 6, ll. 63-65); additionally, Kerigan also teaches the implementation of the plug and play functionality for camera type peripheral device (Kerigan, col. 3, ll. 29-33 and col. 6, ll. 3-10) to obtain the invention as specified in claim 109.

7. As per claim 110, Hashimoto, Smith and Kerigan teach all the limitations of claim 109 as discussed above, where Hashimoto further teaches the ADGPD further comprising an output device (e.g. speaker) that is operatively coupled to the central processing unit of the ADGPD processor, the output device being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the sensor (Hashimoto, Fig. 8 and col. 6, ll. 16-39).

8. As per claim 114, Hashimoto, Smith and Kerigan teach all the limitations of claim 109 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the ADGPD processor and the program memory are configured to cause at least some of the one or more files of digitized data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector (Hashimoto, Fig. 8; Fig. 12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 11, l. 42).

9. As per claim 115, Hashimoto, Smith and Kerigan teach all the limitations of claim 114 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation (e.g. updating control program) of the ADGPD other than the transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector to be controlled by means of an external article that is separate from the ADGPD (Hashimoto, col. 6, l. 16 to col. 9, l. 17).

10. As per claim 118, Hashimoto, Smith and Kerigan teach all the limitations of claim 109 as discussed above, where Hashimoto further teaches the ADGPD comprising wherein the identification data of the response signal is not consistent with the true nature of the sensor (Hashimoto, Fig. 8; col. 6, l. 16 to col. 9, l. 17 and col. 10, l. 41 to col. 11, l. 42), as one operated in association with CCD signaling and the other operate in accordance with the communication protocol connected to the computer.

11. As per claim 119, Hashimoto, Smith and Kerigan teach all the limitations of claim 109 as discussed above, where Hashimoto and Smith further teach the ADGPD comprising wherein the identification data of the response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an input/output device that is customary in a host device (Hashimoto, Fig. 8; Fig. 12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17 and col. 9, l. 46 to col. 11, l. 42 and Smith, Fig 2-5;

col. 1, ll. 9-22; col. 2, ll. 40-67; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62).

12. As per claim 120, Hashimoto, Smith and Kerigan teach the combination comprising the ADGPD of claim 109 and Hashimoto, Smith and Kerigan further teach a personal computer (Hashimoto, col. 8, ll. 22-36; Smith, Abstract; and Kerigan, Fig. 1, ref. 12).

13. Claims 111-113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US Patent 6,111,604) in view of Smith et al. (US Patent 5,634,075) and Kerigan et al. (US Patent 5,948,091) as applied to claim 109 above, and further in view of Shinohara (US Patent 5,742,934).

14. As per claim 111, Hashimoto, Smith and Kerigan teach all the limitations of claim 109 as discussed above, where Hashimoto and Smith further teach the ADGPD comprising wherein the identification data of the response signal is consistent with the ADGPD being capable of transferring files of digital data from a memory card (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1 and Smith, Fig 2-5; col. 1, ll. 9-22; col. 2, ll. 40-67; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62).

Hashimoto, Smith and Kerigan do not teach the ADGPD comprising wherein the ADGPD being a mass storage device.

Shinohara teaches a system and a method comprising indicating to a computer (Fig. 1, ref. 2) that a memory card (Fig. 1, ref. 1) is a mass storage device (e.g. hard disk drive) (col. 1, ll. 48-50).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Shinohara's emulation into Hashimoto, Smith and Kerigan's ADGPD's memory card for the benefit of expanding the use of the memory card to function as hard disk and also expanding the lifetime usage of the memory card (Shinohara, col. 2, ll. 7-8) to obtain the invention as specified in claim 111.

15. As per claim 112, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 111 as discussed above, where Hashimoto and Shinohara further teach the ADGPD comprising wherein the central processing unit of the ADGPD processor and the program memory are configured to cause at least some of the one or more files of digitized data to be transferred to the i/o connector in a mass storage format (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the memory card is initialized to emulate the hard disk drive for data transferring.

16. As per claim 113, Hashimoto, Smith, Kerigan and Shinohara teach all the limitations of claim 112 as discussed above, where Hashimoto, Smith and Shinohara further teach the ADGPD comprising wherein the central processing unit of the ADGPD

processor and the program memory are further configured to, after the response signal has been sent to the i/o connector, cause file allocation table information to be sent to the i/o connector (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as after initialized to emulate as the hard disk drive it would be necessary to forward the file allocation table information to the computer in order for the computer to know essential information (e.g. storing position and structure of files) in order to transfer data between the computer and the emulated hard disk drive,

wherein the identification data of the response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an apparatus that operates in a manner consistent with a hard disk storage unit (Hashimoto, Fig. 8; Fig. 10-12; Fig. 14-15; col. 1, ll. 35-57; col. 6, l. 16 to col. 9, l. 17; col. 9, l. 46 to col. 11, l. 42 and col. 12, l. 16 to col. 14, l. 1; Smith, Fig 2-5; col. 1, ll. 9-22; col. 2, ll. 40-67; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49),

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk (Smith, Fig 2-5; col. 1, ll. 9-22; col. 2, ll. 40-67; col. 3, ll. 22-27; col. 4, ll. 5-34; col. 5, ll.41-51 and col. 6, ll. 63-62 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), wherein the file allocation table information includes at least a start location of a file allocation table, and wherein the mass storage format is consistent with a data transfer format used in a hard disk drive (Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

17. Claim 116 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US Patent 6,111,604) in view of Smith et al. (US Patent 5,634,075) and Kerigan et al. (US Patent 5,948,091) as applied to claim 109 above, and further in view of Wang et al. (US Patent 5,692,134).

Hashimoto, Smith and Kerigan teach all the limitations of claim 109 as discussed above, but do not expressly teach the ADGPD comprising wherein the communications protocol comprises a SCSI command set.

Wang teaches a system and a method comprising wherein the communications protocol comprises a SCSI command set (Fig. 3 and col. 1, l. 11 to col. 2, l. 7), as the automatic configuring interface device is able to communicate in accordance SCSI communication protocol, thus including the corresponding SCSI command set.

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Wang's SCSI communication protocol into Hashimoto, Smith and Kerigan's ADGPD for the benefit of expanding the ADGPD's communication protocol to include SCSI communication protocol because not only is the SCSI communication protocol a well known high speed communication protocol utilized in computer system, the combination further enables the maintaining of logical identifier of a peripheral connected when other peripheral are added or removed (Wang, col. 2, ll. 4-7) to obtain the invention as specified in claim 116.

18. Claim 117 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US Patent 6,111,604) in view of Smith et al. (US Patent 5,634,075) and Kerigan et al. (US Patent 5,948,091) as applied to claim 109 above, and further in view of Endo et al. (US Patent 4,652,928).

Hashimoto, Smith and Kerigan teach all the limitations of claim 97 as discussed above, wherein Hashimoto further teaches the ADGPD comprising wherein the sensor (e.g. CCD) is designed to be operatively coupled to the ADGPD processor (Hashimoto, Fig. 8).

Hashimoto, Smith and Kerigan do not expressly teach the ADGPD comprising wherein the sensor is designed to be de-coupled.

Endo teaches the ADGPD (e.g. digital camera) comprising wherein the sensor (e.g. CCD) is designed to be de-coupled (e.g. de-coupled when interchanging) (col. 1, ll. 18-25 and col. 13, ll. 57-58).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Endo's interchangeable sensor into Hashimoto, Smith and Kerigan's ADGPD for the benefit of adaptively increase the resolution of the camera to obtaining a better quality image (Endo, col. 1, ll. 18-20) to obtain the invention as specified in claim 117.

IV. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) CLAIMS REJECTED IN THE APPLICATION

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

b. DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

IMPORTANT NOTE

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C.K.L./

July 11, 2008

Chun-Kuan (Mike) Lee
Examiner
Art Unit 2181

/Alford W. Kindred/

Supervisory Patent Examiner, Art Unit 2181

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Michael Tasler

Group No.: 2181

Serial No.: 11/467,092

Conf. No.: 3038

Filed: August 24, 2006

Examiner: Chun Kuan Lee

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER (As Amended)

Attorney Docket No.: 0757/98081

AMENDMENT A

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Amendment A is provided in response to the Office Action that was mailed from the USPTO on May 1, 2008.

In The Claims:

Please cancel claims 1-108 and add new claims 109 – 120 as follows:

1-108. (cancelled).

109. (new) An analog data generating and processing device (ADGPD) that is capable of receiving device identification inquiry signals that are periodically sent to the ADGPD for a period of time, the ADGPD also being capable of receiving one or more data transfer requests, the ADGPD comprising:

an i/o connector that is capable of being in a coupled and a de-coupled state, the i/o connector, when it is in a coupled state, being capable of receiving (i) the device identification inquiry signals that are periodically sent to it for a period of time and (ii) the one or more data transfer requests;

an ADGPD processor having a central processing unit, the ADGPD processor being operatively coupled to the i/o connector;

a data storage memory that is operatively coupled to the ADGPD processor;

a program memory that is operatively coupled to the central processing unit of the ADGPD processor;

a sensor that is operatively coupled to the ADGPD processor and that is designed to process analog waves;

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is in a decoupled state and without intervention by means of any external mechanism that is separate from the ADGPD, the sensor to generate analog data from one or more analog waves;

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is in a decoupled state and without intervention by means of any external mechanism that is separate from the ADGPD, the analog data to be processed and then stored in the data storage memory as one or more files of digitized data that are retrievable via the i/o connector after it has been put into a coupled state;

wherein the ADGPD is adapted to cause, after the i/o connector has received at least one of the device identification inquiry signals, a response signal to be automatically sent to the i/o connector without any user intervention by means of any external apparatus that is separate from the ADGPD, the response signal containing identification data that is consistent with the ADGPD being capable of transferring files of digital data by means of a communication protocol, the ADGPD thereafter subsequently being able to process data transfer requests in accordance with the communication protocol;

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, after one of the data transfer requests has been received by the i/o connector, a transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector in accordance with the communications protocol; and

wherein the central processing unit of the ADGPD processor is operatively coupled to the program memory so that the central processing unit of the ADGPD processor is adapted to control the generation of the analog data as well as the transfer of at least some of the one or more files of digitized data to the i/o connector.

110. (new) The ADGPD of claim 109, further comprising an output device that is operatively coupled to the central processing unit of the ADGPD processor, the output device

being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the sensor.

111. (new) The ADGPD of claim 109, wherein the identification data of the response signal is consistent with the ADGPD being capable of transferring files of digital data as if the ADGPD were a mass storage unit.

112. (new) The ADGPD of claim 111,

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause at least some of the one or more files of digitized data to be transferred to the i/o connector in a mass storage format.

113. (new) The ADGPD of claim 112,

wherein the central processing unit of the ADGPD processor and the program memory are further configured to, after the response signal has been sent to the i/o connector, cause file allocation table information to be sent to the i/o connector,

wherein the identification data of the response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an apparatus that operates in a manner consistent with a hard disk storage unit,

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors of a storage disk,

wherein the file allocation table information includes at least a start location of a file allocation table, and wherein the mass storage format is consistent with a data transfer format used in a hard disk drive.

114. (new) The ADGPD of claim 109, wherein the ADGPD processor and the program memory are configured to cause at least some of the one or more files of digitized data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector.

115. (new) The ADGPD of claim 114, wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation of the ADGPD other than the transfer of at least some of the one or more files of digitized data from the data storage memory to the i/o connector to be controlled by means of an external article that is separate from the ADGPD.

116. (new) The ADGPD of claim 109, wherein the communications protocol comprises a SCSI command set.

117. (new) The ADGPD of claim 109, wherein the sensor is designed to be de-coupled from the ADGPD processor.

118. (new) The ADGPD of claim 109, wherein the identification data of the response signal is not consistent with the true nature of the sensor.

119. (new) The ADGPD of claim 109, wherein the identification data of the response signal is consistent with the ADGPD being capable of transferring files of digital data as if it were an input/output device that is customary in a host device.

120. (new) A combination comprising the ADGPD of claim 109 and a personal computer.

REMARKS

The Examiner is respectfully requested to contact the undersigned attorney upon entry of this Amendment A to set-up a second personal interview at the USPTO. It is further respectfully requested that the interview take place before any formal USPTO response to this Amendment A is made to provide an opportunity for further negotiation, should that be necessary.

New claims 109-120 are submitted herewith for the Examiner's consideration. It is the specific intention of the applicant that new claims 109-119 *do not* read on the combination of a personal computer ("PC") and an analog data generating and processing device ("ADGPD"). Rather, such claims read on an infringing ADGPD by itself. It also is the specific intention of the applicant that claim 120 does, in fact, read on the combination of a PC and an ADGPD that meets the limitations of the claim.

The Examiner is respectfully requested to consider only the remarks made in this Amendment A and the remarks made at or after the recent personal interview when considering the patentability of the new claims submitted in this Amendment A. In this regard, the Examiner is respectfully asked to disregard all remarks and amendments made in all papers previously filed in this application or previously filed in any application related to the instant application.

Regarding the recent personal interview, the undersigned attorney would like to confirm that the new claims are not limited to the specific structure that was discussed (*e.g.*, a software driver located in BIOS of a PC to which the claimed device can be connected). Rather, such structure is exemplary in nature, and forms one (but not all) of the various embodiments that are covered by the new claims.

It is respectfully submitted that, for the reasons stated by the undersigned attorney at the recent personal interview, new claims 109-120 should not be subject to rejection under either the first or second paragraph of 35 USC 112. For example, in claim 111, a "mass storage unit" is not a positively recited claim element on its own. Instead, the words "mass storage unit" are used to further describe the content of the "identification data of the response signal" – *i.e.*, that it is "consistent with the ADGPD being capable of transferring files of digital data as if it were a mass storage unit." The Examiner's confirmation of the new claims being in compliance with 35 USC 112 is earnestly solicited.

Regarding the new claims, please note that each new claim recite the following *automatic processing* feature:

> "wherein the ADGPD is adapted to cause, after the i/o connector has received at least one of the device identification inquiry signals, a response signal to be automatically sent to the i/o connector without any user intervention by means of any external apparatus that is separate from the ADGPD, the response signal containing identification data that is consistent with the ADGPD being capable of transferring files of digital data by means of a communication protocol, the ADGPD thereafter subsequently being able to process data transfer requests in accordance with the communication protocol."

This claim element reads on, for example, the device shown in Figure 2 of this application. In accordance with this exemplary embodiment, the SCSI connector 1240 and an inquiry signal from a PC form examples of the claimed "i/o port" and a "device identification inquiry signal," respectively. The EPROM 1400 shown in Figure 2 contains a set of instructions that are executed by the DSP 1300 after the SCSI connector 1240 has been connected to a SCSI port of a PC, and after the SCSI connector 1240 has received an inquiry signal from the PC.

When the set of instructions stored in EPROM 1400 are executed, they cause a "response signal" to be automatically sent by the DSP 1300 to the PC without any user intervention by means of the PC, the "response signal" containing identification data that is consistent with the Figure 2 device being capable of transferring files of digital data in accordance with a communications protocol. The new claims are not limited to the structure shown in Figure 2 of the instant application.

The use of the phrase "without any user intervention by means of any external apparatus that is separate from the ADGPD" in the new claims means that:

- no user has to load an applications level program or a software driver onto a PC at any time in order to allow the claimed device to be able to transfer "files of digital data by means of a communications protocol" to the PC as quoted in the claims; or

- no user has to interact with a PC (*e.g.*, setting up a file system) at any time in order to allow the claimed device to be able to transfer "files of digital data by means of a communications protocol" to the PC as quoted in the claims.

Regarding the scope of the new claims submitted herewith, please note that none of the new claims read on any of the following products:

a) a digital camera or scanner which requires a user to load a software driver and/or applications level program onto a PC in order to be able to transfer images from the digital camera or scanner to the PC (see, for example, the document attached to Supplemental Notice filed April 22, 2008, in which Casio, Inc. admits that the Casio QV-10 camera and the Kodak DCS200 camera both need "a software driver to retrieve images in the camera's memory";

b) a digital camera or scanner which requires a user to interact with a PC (*e.g.*, use the PC to set up a file system in the digital camera or scanner) in order to be able to transfer images from the digital camera or scanner to the PC (see, for example, US Patent No. 6,256,452, which relates to a storage device for an electronic camera, and which requires that the storage device be "beforehand formatted" before it is attached to the camera (column 2, line 59 of the '452 patent) (see also, for example, US Patent No. 6,088,532, the HDD of which is believed to operate in a manner consistent with the HDD that is used in the camera disclosed in the '452 patent – the '532 patent is discussed in the document attached to the Supplemental Notice filed April 22, 2008));

c) a digital camera or scanner which requires a user to remove a storage device such as a memory card from the digital camera or scanner and then place the memory card in a PC card reader in order to be able to transfer images from the digital camera or scanner to the PC (see, for example, the Figure 4A embodiment of the primary reference cited by the Examiner in the Office Action); and

d) a data acquisition system that requires a user to load an applications level program onto a PC in order to be able to transfer digitized analog data to the PC (see, for example, the two references cited on page 15 of this Amendment A.

All of the above-referenced products affirmatively require "user intervention" in order for a PC to be able to understand how to communicate with and receive files of digital data from each product. "User intervention" of this sort is the antithesis of the *automatic processing* feature of each new claim.

Regarding the non-obviousness issues, it is respectfully submitted that the newly submitted claims are patentable over a purported combination of US Patent No. 5,914,748 (the "'748 patent") and US Patent No. 5,969,750 (the "'750 patent) for a number of reasons. As one example, neither the '748 patent or the '750 patent teaches or suggests the above-described *automatic processing* feature of the new claims. An exemplary analysis in support of this conclusion follows.

Regarding the '748 patent, two different embodiments are disclosed in the patent. The Figure 3A embodiment shows a host computer 44 that can issue a "command" via interface cable 46 for a camera 40 to take a picture (see, column 2, lines 65-66). In order for this to take place, a user must have previously loaded a camera control applications level program onto the computer. Such programs also provide camera to PC picture transfer capability. Loading an applications program onto a PC in order to be able to transfer pictures to it is the antithesis of the *automatic processing* feature of the new claims.

In order to transfer pictures from the portable camera shown in Figure 4A of the '748 patent, a user is required to remove a memory card from the camera, and then to manually put the card in a PC card reader. User intervention of this sort (*e.g.*, physically removing a memory card from a camera and then inserting it in a PC card reader) is the antithesis of the *automatic processing* feature of the new claims. For at least the above-noted reasons, the new claims should be found to be both novel and non-obvious over the '748 patent by itself.

It is respectfully submitted that the '750 patent does not provide the teachings missing from the '748 patent to render the new claims obvious for a number of different reasons. While the '750 patent refers to "plug and play" cameras (column 1, lines 5-8 of the '750 patent) that can be connected to a PC by means of the USB interface disclosed in the USB spec, version 1.0 dated January 16, 1996 (referenced at column 5, lines 20-23 of the '750 patent), a user must load appropriate video conferencing software (i.e., an applications level program) onto a PC in order to have the PC be able to receive and process image data from the camera. This is the antithesis of the *automatic processing* feature of the new claims. A short analysis in support of this conclusion follows.

At column 3, lines 27-31, the '750 patent states that one of the drawbacks of prior art video conferencing systems is that, for example, a skilled operator is necessary to properly install and configure video conferencing "software" (emphasis added). One goal of the '750 patent is the elimination of the skilled operator. However, the '750 patent contains no disclosure that the software requirement is eliminated or that a PC can recognize how to receive and process data from a camera without a user having to load software onto the PC. All of the teachings of the '750 patent should be read in this context. Thus, the '750 patent affirmatively requires that a user load appropriate video conferencing software onto a PC in order for the PC to be able to receive and process image data from a camera, which is the antithesis of the *automatic processing* feature of the new claims. For this reason alone, for example, the new claims should be found to be both novel and non-obvious over the '750 patent either taken alone or in a purported combination with the '748 patent.

The '748 patent itself provides evidence to support the conclusion that the '750 patent does not teach or suggest the *automatic processing* feature of the new claims. The '748 patent teaches that the interface cable 46, which connects the Figure 3A camera to the computer 44, may utilize a USB interface. The USB interface disclosed in the '748 patent is the same USB interface that is disclosed in the '750 patent because the applications that resulted in these patents were filed when the same USB standard document was in existence – the above-referenced 1996 document.

If the '750 patent truly does teach the *automatic processing* feature as suggested in the Office Action, then it follows from the fact that both the '750 and '748 patents disclose the same USB interface that the '748 patent would state that picture information can be transferred to a PC without a user having to load software onto the PC or without a user having to remove a memory card and manually transfer the memory card to a PC card reader. These are the only two modes of camera to computer picture transfer disclosed in the '748 patent, both of which require user intervention. Significantly, the '748 patent contains no disclosure whatsoever that digital pictures can be transferred without user intervention as is required by each new claim. For this reason, for example, it is respectfully submitted that it is not proper to allege that the '750 patent teaches or suggests the *automatic processing* feature of the new claims and, therefore, that such claims should be found to be patentable over a purported combination of the '748 and '750 patents.

A document entitled "Universal Serial Bus Common Class Specification, Revision 1.0" that is dated December 16, 1997 (the "Common Class Spec") is consistent with the non-obviousness of the new claims submitted herewith. While the Common Class Specification is not prior art to any of the new claims, it appears to describe the "auto recognition process" referenced at column 10, line 12 of the '750 patent, whereby a camera is "automatically recognized" and appropriate driver software for using the camera is "automatically" selected.

In accordance with the Common Class Spec, the driver that is "automatically selected" in the '750 patent is a vendor specific driver that a user had to have previously loaded onto a PC before connecting a camera to it. User intervention of this sort is the antithesis of the *automatic processing* feature. Moreover, the '750 patent is inoperative because it fails to provide any teaching as to how a video camera could make use of a generic class driver(s) that may have been available at the time of filing of the '750 patent. An exemplary analysis in support of these conclusions follows.

Section 3.10 of the USB Common Class Spec is entitled "Locating USB Drivers." In this section, it is stated that the search for USB drivers is based on information from the device descriptor, and that the search is performed in a particular order until a driver is found. The first searches use the idVendor and idProduct information. If no driver is found, then the next searches use the idVendor and bDeviceSubClass information, but only if bDeviceClass is 0xFF.

At least at the time of filing of the '750 patent, vendor-provided software of this sort was not included with a personal computer when it was purchased by an end user and, therefore, had to be loaded onto the personal computer. Such vendor-provided software is stored in a PC with user intervention. This is the antithesis of the *automatic processing* feature of the new claims.

Only after the searches for a vendor-provided driver are exhausted are there searches made for a generic class driver, using bDeviceClass and bDeviceSubClass, and then only if bDeviceClass is not 0xFF. Codes for bDeviceClass are assigned by USBIF. It is respectfully submitted that no class codes for video devices existed in USB in 1997 because such class codes were introduced in about 2003, about six years after the above-captioned application was filed in Germany. The '750 patent contains no disclosure as to how the video camera disclosed therein is to be used with generic drivers that were available when the '750 patent was filed and, therefore, is inoperative with respect to the matters raised in the Office Action.

In particular, the '750 patent does not provide any disclosure as to what bDeviceClass information is provided by the camera 110. If one assumes that the camera 110 of the '750 patent provides a bDeviceClass of 0xFF, then a vendor specific driver would be searched for and loaded. Such drivers are not typically provided with a PC when it is purchased by an end user, and are instead provided with the peripheral device in question when it is purchased by an end user. Thus, even if the camera 100 is "automatically recognized" and the appropriate driver is "automatically selected," it would only be because the camera user had previously installed the vendor-specific driver on the PC, which is the antithesis of the *automatic processing* feature of the new claims.

If, on the other hand, one assumes that the camera 110 of the '750 patent provides a bDeviceClass code of something other than 0xFF, then the disclosure is inoperative because it fails to provide any teaching as to how a video device could make use of any of the generic class drivers that were available at the time of filing of the '750 patent. For example, if the camera 110 provides a bDeviceClass code of 0x03 (Human Interface Device), and assuming that such a class existed at the time of filing of the '750 patent, then a driver appropriate for keyboards and pointing devices might be loaded. However, there is no disclosure in the patent '750 as to how such generic drivers could be used to stream video data in the video conferencing system disclosed in the '750 patent. For these additional reasons, for example, the new claims should be found to be patentable over the '750 patent either taken alone or in a purported combination with the '748 patent.

An article from Microsoft that was first published on April 8, 1997 is available at the following address: http://www.microsoft.com/presspass/press/1997/apr97/wdmpr.mspx. A copy of this article is attached hereto. Even though it is not prior art (it was published about one month after the March 4, 1997 German priority filing of the above-captioned application), the article provides the Examiner with objective evidence that supports applicant's contention about the patentability of the new claims. An exemplary analysis in support of this conclusion follows.

The article concerns the announcement of new "Win32 Driver Model class drivers" that are intended to provide "still image support for scanners and cameras" and that concern "streaming class video." These drivers exist between (a) the applications level program that a user works with and (b) vendor specific device driver for a particular device (*e.g.*, a digital camera) that a user loads onto a PC to enable the USB functionality.

There is no statement or teaching in the article to the effect that a user can transfer still images or video streams from a digital camera to a PC without a user having to first load software such as a vendor specific driver onto the PC. Thus, this article provides the Examiner with objective evidence that, as of March 4, 1997, it was the state of the art to require a user to load at least a vendor specific device driver onto a PC in order to allow the PC to receive picture data or a video stream from a camera. The "auto-recognition" process of the '750 patent must be read in this context and, therefore, also requires a user to at least load a vendor specific driver onto the PC which can then be recognized by means of a video conferencing applications level program that a user also loads onto the PC.

Please note that the following two references concern data acquisition systems of the type raised by Examiner Lee at the recent personal interview, and are of record: (1) "High Speed PC-based Data Acquisition Systems" by Payne et al. allegedly published in 1995; and (2) "PC-based Instrumentation," allegedly published in 1990. Both of these references require a user to load an applications program on the PC. At paragraph 8 on page 1, Payne states that at "the beginning of the operation, the PC transfers the control program to the board from the disc." Such programs typically are not provided with PCs when sold to an end user and, therefore, must be loaded onto a PC by an end user. The last page of the PC article shows a graphic user interface that is part of an applications program, which a user must have previously loaded onto the PC. This user loaded software requirement is the antithesis of the *automatic processing* feature of the new claims. For this reason alone, the proposed claims sent herewith should be found to be patentable over these two prior art data acquisition systems.

At least for the foregoing reasons, it is respectfully submitted that the new claims are in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited.

Respectfully submitted,

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Universal Serial Bus
Common Class Specification

SYSTEMSOFT® CORPORATION
INTEL® CORPORATION

Revision 1.0
December 16, 1997

Scope of this Revision

Revision 1.0 of this document includes all modifications suggested at face to face meeting in order to produce a 1.0 release candidate.

Revision History

Revision	Issue Date	Comments
1.0	December 14, 1997	Final updates as agreed by CCS CWG at December face to face meeting for 1.0.
0.9	October 31, 1997	Conversion to master document containing references to the USB Feature Specifications.
0.8c	July 14, 1997	Minimal update from RRs for DWG face-to-face. Revision marks in Dynamic Interfaces from 0.8b were cleared with the understanding that this section will continue to change.
0.8b	May 26, 1997	Updated for June DWG face to face.
0.8a	April 5, 1997	Updated for April DWG face to face.
0.8rc	January 17, 1997	Describes why class specifications are being developed for USB devices and what a specific class document should include. This document also describes attributes and services that are common to more than one class of USB device, but are not required by all USB devices.
0.7c	January 2, 1997	Updated re: feedback on shared endpoints and for greater clarity and examples. Added driver identification discussion from white paper.
0.7b	November 29, 1996	Updated per proposed resolution of review requests 48 & 49.
0.7	October 7, 1996	First round comments included
0.6	August 25, 1996	First draft to establish concept

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1. Introduction

1.1 Purpose

This document describes requirements for USB Classes and their specifications. In addition, this document describes attributes and services that may be common to more than one class, but are not required for all USB devices.

1.2 Scope

The information provided in this document serves as a guideline for the development of USB class specifications, as well as defining common class capabilities. As such, it defines how devices and interfaces using the class or common capability are to be implemented and how developers of generic or adaptive device drivers will interact with compliant implementations.

1.3 Related Documents

Universal Serial Bus Specification, Revision 1.0

1.4 Terms and Abbreviations

ADAPTIVE DEVICE DRIVER	A device driver providing support by using that device's self-description.
CAPABILITY	A visible function provided by one or more interfaces, such as speakers, keypad, etc.
CLASS DRIVER	An adaptive device driver based on a class definition.
GENERIC DEVICE DRIVER	See Adaptive Device Driver.

2. Management Overview

This section is an overview of the contents of this document and provides a brief summary of each of the subsequent sections. It does not establish any requirements or guidelines.

2.1 USB Classes

A USB Class describes a group of devices or interfaces with similar attributes or services. A Class Specification defines the requirements for such a related group. A complete class specification allows manufacturers to create implementations which may be managed by an adaptive device driver. Adaptive drivers are intended to be developed by operating system and third party software vendors as well as manufacturers supporting multiple products.

2.2 Class Specification Format

This document describes a suggested format for class specifications. Since the actual definition of what constitutes a class may vary from class to another, class specification developers are not required to follow this format. This document should instead be considered a guideline. The overriding requirement is that the class specification provides sufficient information for the:

- driver developer to create an adaptive driver that is capable of operating a device or interface.
- manufacturer to build an operational device or interface.

which follows the class specification.

2.3 Common Attributes and Services

The development of class specifications made evident attributes and services which a number of classes have in common. To encourage the common definition of such attributes and services, this document contains introductions for a set of attributes and services with titles of the actual specification documents where the requirements for classes using these attributes and services are described.

It is not required that an implementation use these definitions, but if a class developer wishes to incorporate these attributes and services, the advantages of using common definitions should be strongly considered. For example, an operating system may choose to incorporate standard support for a common feature, just as the standard device framework is supported in a standard manner. Also, consider the ease with which a class driver developer might understand the attribute or service based on development of other class drivers, which use similar features. This also illustrates the ability of class driver developers to incorporate common code to handle such features across classes of devices. Eventually, following common designs may allow silicon developers to offer hardware support for some features.

3. USB Classes

3.1 What is a Class?

For the purposes of USB, a class is a group of devices (or interfaces) which have certain attributes or services in common. Typically, two devices (or interfaces) are placed in the same class if they provide or consume data streams having similar data formats or if both devices use a similar means of communicating with a host system.

USB classes are primarily used to describe the manner in which an interface communicates with the host, including both the data and control mechanisms. However, some USB classes also have the secondary purpose of identifying in whole or in part the capability provided by that interface. Thus the class information can be used to identify a driver responsible for managing the:

- interface's connectivity.
- capability provided by the interface.

3.2 Why Have Classes?

Grouping devices or interfaces together in classes and then specifying the characteristics in a Class Specification allows the development of host software which can manage multiple implementations based on that class. Such host software adapts its operation to a specific device or interface using descriptive information presented by the device. A class specification serves as a framework defining the minimum operation of all devices or interfaces which identify themselves as members of the class.

By developing in compliance with a Class Specification, entities other than the device manufacturer are able to develop software which can interact with the device. This relieves the device manufacturer from having to develop software for every combination of host platform and operating system that potentially could support the device. It also makes it easier for a device to fit into a platform/operating system's system management schemes without requiring additional support from the manufacturer. Thus, the device can be more compatible in areas such as power and connection management.

In addition, operating system vendors desiring to support a number of USB devices need to develop only a few class-specific drivers in order to make a wide-range of USB devices available for their environment. In this way, end-users have the ability to attach the latest USB devices to their system and device manufacturers get another market for their devices without requiring the development effort and distribution problems related to the use of device-specific drivers.

The process of developing a successful class specification requires operating system vendors and device manufacturers to cooperate in the definition of a class. This public review process often results in improved communications between hardware and software as both sides develop a better understanding of the requirements and constraints the other faces in supporting a particular class of device.

The ability of device manufacturers to share their experiences and perspectives improves the abstraction presented by a class specification. An appropriate level of abstraction allows a simpler interface between device and host. The class specification also identifies characteristics which might vary between implementations and establishes domains or ranges for that variation and a method for a device to communicate its particular implementation requirements.

3.3 USB Relationships

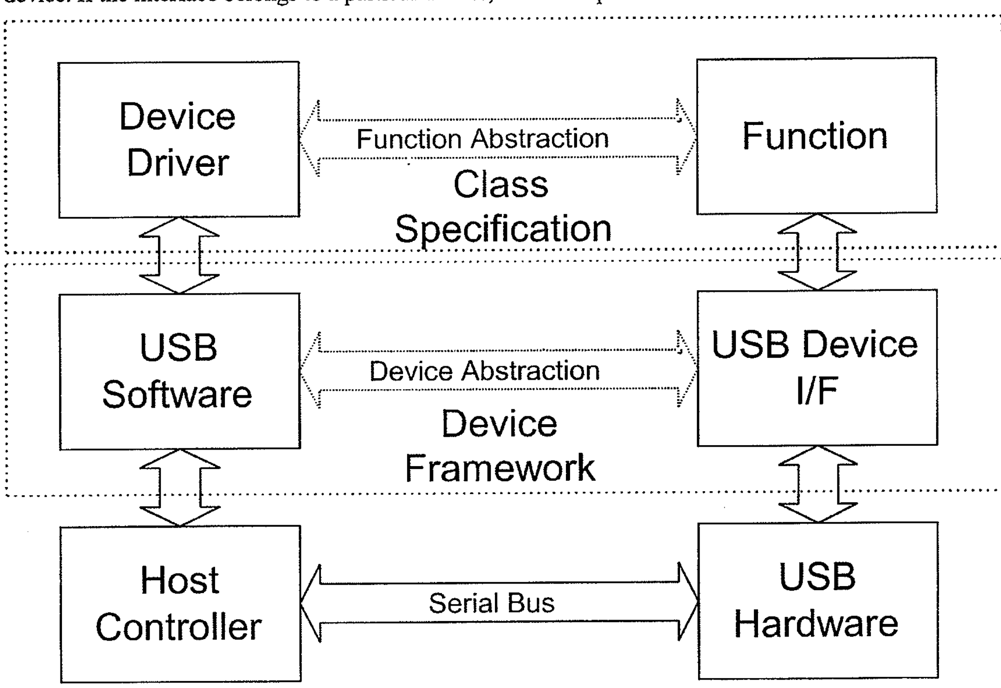
USB changes the traditional relationship between driver and device. Instead of allowing a driver direct hardware access to a device, USB limits communications between a driver and a device to four basic data transfer types (i.e. bulk, control, interrupt and isochronous) implemented as a software interface provided by the host environment. This means a device must respond as expected by the system software layers or a driver will be unable to communicate with its device.

The *Universal Serial Bus Specification* identifies the requirements that all devices must meet to be compliant. In particular, **Chapter 9 USB Device Framework** outlines the standard requests and descriptors all USB devices must support. Class specifications add another layer of requirements directly related to how the software interacts with the capability performed by a device or interface which is a member of the class.

The illustration below indicates the relationships between a device and a host system. At the lowest level, the host controller physically communicates with USB hardware on the device through USB.

At the middle layer, USB system software uses the device abstraction defined in the *Universal Serial Bus Specification* to interact with the USB device interface on the device. This is the hardware or software which responds to standard requests and returns standard descriptors.

At the highest layer the driver uses an interface abstraction to interact with the function provided by the device. If the interface belongs to a particular class, the class specification defines this abstraction.



3.4 Connection versus Functionality

Classification of USB devices (and interfaces) does not necessarily follow the traditional approaches related to functionality. Instead, a USB class can define the manner in which a device communicates with the host. Because USB mandates that host software must communicate with a device or an interface via intervening software layers, how such a connection is accomplished must always be described.

For that reason USB classes must be based at least on how the device or interface connects to USB rather than just the attributes or services provided by the device. For example, the USB printer class does not identify how many paper trays or colors of ink a printer supports. Instead the printer class describes how a printer is attached to a host system, either as a single unidirectional output pipe or as two unidirectional pipes, one out and one in for returning detailed printer status.

USB classes also focus on the format of the data moved between host and device. While raw (or undefined) data streams may be used, the class may also identify data formats more specifically. Again using printers as an example, the output (and optional input) pipe may choose to encapsulate printer data as defined in another industry standard. The printer class provides a mechanism to return this information using a class specific command.

A USB class may also indicate enough information about the interface or device that a driver capable of managing the functionality, as well as the connectivity, of the interface is located and bound to that interface. For instance, the audio class defines

- the appearance of interfaces which are members of the audio class.
- how to identify the format of the data streams.
- class requests for setup and information retrieval.

and indicates that the capability provided by the interface is to consume or produce audio data. Other classes, like the communication class, identify how a broad range of capabilities are organized on such devices and largely rely on the functional and connectivity definitions provided by other classes to handle the specifics.

3.5 What is a Class Specification?

A Class Specification defines how devices using that class must behave. A device may use different classes for each interface it provides. It also may choose to implement interfaces which use no class definition at all. A complete class specification allows developers to develop adaptive software that is capable of operating any interface within the class. The class specification identifies features of devices that are implemented consistently across all devices using that class. In addition, the class specification anticipates variations in implementations and defines mechanisms to describe these variations for interrogation by adaptive drivers.

For example, a class specification may define a number of data formats which can be used by an endpoint. The specification then also details how the device reports which format(s) is used by a specific implementation. The class specification also describes if the format varies according to the selected device configuration or may vary dynamically based on host or external input. If selection of a particular format is possible, the class specification also describes how to administer the format.

3.6 Revision Numbering

Class specifications go through a development and review process prior to release, as described in the Device Working Group policies and procedures. Initially, a company or individual develops a conceptual proposal for a class specification. The proposal represents their view of the class. As the class specification is reviewed, and agreed to, by wider and wider audiences, the revision numbers increase. Intermediate versions of a class specification at a particular revision level are identified by an incrementing alpha suffix and use revision marks to indicate changes as the document moves forward.

3.7 Device Components

A USB device may be subdivided into a number of components, such as: device, configuration, interface and endpoint. Class specifications define how a device uses these components to deliver the functionality provided to the host system.

3.8 Specific Device Recognition

In some cases a host system uses device-specific information in a device or interface descriptor to associate a device with a driver. For example, the *idVendor* and *idProduct* fields in the device descriptor may uniquely identify a device and allow it to be associated with a driver. However, this style of driver association usually requires a driver written for a specific device. Class specifications attempt to provide device recognition to a host through identification of the device by class related affiliations.

3.9 Classes, Sub-Classes and Protocols

The standard device and interface descriptors contain fields that are related to classification: class, sub-class and protocol. These fields may be used by a host system to associate a device or interface to a driver, depending on how they are specified by the class specification.

Valid values for the class fields of the device and interface descriptors are defined by the USB Device Working Group. Valid values for the subclass and protocol fields are determined by each class working group and must be specified in the class specification.

3.10 Locating USB Drivers

Finding device drivers for USB devices presents some interesting situations. In some cases the whole USB device is handled by a single device driver. In other cases, each interface of the device has a separate device driver. The method for determining how device drivers are located and loaded needs to be defined generically for USB devices so that OS vendors and USB device providers are working within a common model. This section describes the common model for locating and loading USB device drivers.

Choosing a configuration determines the number of interfaces. The specific characteristics of the interface may be determined later via alternate settings. Typically, different device configurations are only required when a different power environment is to be used or a different number of interfaces required. They may in fact be viewed as a user configuration option, with all other configuration options being handled at the interface level.

Device drivers are searched for and located based on descriptor information from the USB device. The first search is based on information from the 'device' descriptor and looks for a driver that controls the whole device. The particular pieces of information (keys) used in the driver search are shown in the table below. Note that these are presented in priority order, and if no driver is found for a particular key, then the next key in order is used for the next search.

Key	Comments
idVendor & idProduct & bcdDevice	bcdDevice is the device's release number.
idVendor & idProduct	
idVendor & bDeviceSubClass & bDeviceProtocol	Only if bDeviceClass is FFH.
idVendor & bDeviceSubClass	Only if bDeviceClass is FFH.
bDeviceClass & bDeviceSubClass & bDeviceProtocol	Only if bDeviceClass is not FFH.
bDeviceClass & bDeviceSubClass	Only if bDeviceClass is not FFH.

If a driver is found in the above search, that driver is able to participate in choosing which configuration of the USB device should be used.

If no drivers are found from the above search, then system software is expected to choose an appropriate configuration for the USB device and then try to locate/load drivers for each interface in the chosen configuration. Keys for this driver search are based on information from both the 'device' and 'interface' descriptors. The table below shows the search keys in priority order.

Key	Comments
idVendor & idProduct & bcdDevice & bConfigurationValue & bInterfaceNumber	
idVendor & idProduct & bConfigurationValue & bInterfaceNumber	
idVendor & bInterfaceSubClass & bInterfaceProtocol	Only if bInterfaceClass is FFH.
idVendor & bInterfaceSubClass	Only if bInterfaceClass is FFH.
bInterfaceClass & bInterfaceSubClass & bInterfaceProtocol	Only if bInterfaceClass is not FFH.
bInterfaceClass & bInterfaceSubClass	Only if bInterfaceClass is not FFH.

3.11 Identifying Class and Vendor-Specific Requests and Descriptors

A USB Class Specification or a device vendor may define additional USB device requests. Class-specific requests are indicated by setting the *bmRequestType.Type* field of the setup packet to CLASS. The specific class defining the request is specified by the *bmRequestType.Recipient* field, that is the request class is the recipient class.

For instance, if the Recipient field is set to DEVICE, the *bDeviceClass* field of the Device Descriptor identifies the class defining the request. If the Recipient field is set to INTERFACE or ENDPOINT, the *bInterfaceClass* field of the Interface Descriptor identifies the class defining the request.

Vendor-specific requests are indicated by setting the *bmRequestType.Type* field of the setup packet to VENDOR. The specific vendor defining the request is specified by the *idVendor* field of the Device Descriptor.

The most significant bit of the *bDescriptorType* field is reserved for future use. For forward compatibility, this bit is handled as follows:

- Devices return this bit reset to zero when responding to a GET_DESCRIPTOR request.
- The host ignores the setting of this bit when it is returned by the GET_DESCRIPTOR request.
- The host resets this bit to zero before a SET_DESCRIPTOR request.
- Devices ignore this bit when receiving a SET_DESCRIPTOR request.

The next two most significant bits of the *bDescriptorType* field are used to indicate standard, class or vendor-specific descriptors. These bits use the same encodings as the *bmRequestType.Type* field of a USB device request setup packet. Because the upper three bits of the *bDescriptorType* field are used as described above, the maximum number of unique descriptors that may be defined for any category (standard, class or device-specific) is 32.

Whether class or vendor-specific USB device requests or descriptors are mandatory is determined by the defining class specification or vendor. When a device responds to a descriptor request with data that contains multiple descriptors, class or vendor-specific descriptors may be intermixed with standard descriptors. The position of the class or vendor-specific descriptor is used to associate that descriptor with prior descriptors. For example, if a class defines a descriptor extending the standard endpoint descriptor, a class specific endpoint extension descriptor would immediately follow each standard endpoint descriptor (endpoint descriptor, class-specific endpoint extension descriptor, endpoint descriptor, class-specific endpoint extension descriptor...).

The value used for the least significant five bits of a class or vendor-specific descriptor is defined by the appropriate class or vendor definition. That means a class or vendor-specific descriptor extending a standard descriptor is not required to use the same values as a standard descriptor they extend.

The standard GET_DESCRIPTOR request (with the *bRequestType.Type* field set to standard) is used to directly request class or vendor-specific descriptors. The class associated with such a request is determined by the class of the *bmRequestType.Recipient.* When the *bmRequestType.Recipient* field is set to INTERFACE or ENDPOINT, the *wIndex* field identifies the desired interface or endpoint. All endpoints within an interface use that interface's class, subclass and protocol.

3.12 Device Behavior: Alternate Settings

A USB host may issue the SET_INTERFACE command to select the alternate setting to be used with an interface. If the interface being set already has data queued for transmission to the host when the SET_INTERFACE command is issued, then this queued data shall be discarded.

4. Class Specification Format

This section describes the contents of the sections suggested for a class specification. Until a class specification reaches revision 1.0 it should contain the following disclaimer:

For Review and Discussion Only Draft Document Subject to Revision or Rejection **Not For Publication or General Distribution**

4.1 Title and Initial Pages

Each class specification begins with a title page that identifies the class specification by name. The title page includes the specification revision and release date.

The reverse side of the title page contains the following items:

- Scope of this Revision
- Revision History
- Intellectual Property Disclaimer
- Comment

For examples of the above, see the initial pages of this document.

4.2 Introduction

The introduction sets the overall goals for a class specification. It contains the following sub-sections:

- Purpose
- Scope
- Related Documents
- Terms and Abbreviations.

The Purpose sub-section describes why the class specification is being created.

The Scope sub-section describes devices that are included within the class specification and may specifically identify devices which either are not intended to be a part of the class or are not currently targeted for support.

The sub-section for Related Documents identifies other document sources that contribute to the definition of the class. If the class re-uses other industry standards, specific citations are required.

4.3 Management Overview

This section is a one or two page overview that allows readers to understand the class and the range of implementation possibilities without requiring an exhaustive review of the entire document.

4.4 Functional Characteristics

This section of the class specification provides a description of each of the functional characteristics provided by devices belonging to the defined class.

4.5 Operational Model

This section describes how the device is expected to interact with a host system. For example, this section might explain how and why a host system sends commands through the default pipe to select class specific actions on an interrupt pipe.

4.6 Descriptors

The *Universal Serial Bus Specification* defines a number of standard descriptors. This section defines how the class uses those standard descriptors (e.g. values for the class, subclass and protocol fields of the device and interface descriptors) and any additional descriptors defined by the class (class-specific descriptors).

4.7 Requests

The *Universal Serial Bus Specification* also defines a number of standard requests that all devices must support. This section defines how the class uses those standard requests, if they differ from the standard implementations. If a class specification adds additional class-specific requests, they are also described in this section.

4.8 Device Components

This defines how configurations, interfaces and endpoints may be defined to implement this class.

4.9 Electrical, Protocol and Transport Considerations

A device class may choose to restrict or expand the use of features defined in the *Universal Serial Bus Specification* in standard areas such as power or protocol. Such variations are described here.

4.10 Class Interactions

A class may choose to make extensive use of other classes' definitions to implement its capabilities. The requirements of such interactions are described here.

4.11 Appendices

If required, a class specification may provide appendices to list tabular information or supplement the basic specification. For example, if a class specification added a number of class-specific requests or descriptors, an appendix might be used to provide tables illustrating the numeric constants used for specific requests or descriptors.

5. Common Attributes and Services Overview

This section presents an overview of attributes and services, which are not covered in the *Universal Serial Bus Specification,* but which can be used by more than one class.

5.1 Synchronization

The *Universal Serial Bus Specification* identifies several types of synchronization between sources and sinks of digital data streams. What is not defined in that specification is a method of reporting the synchronization requirements of a specific endpoint. The specification also does not describe how synchronization feedback information is returned by a device; for example, which endpoint reports feedback information and what is the format used for reported feedback information. Refer to *USB Feature Specification: Synchronization* for details.

5.2 Dynamic Interfaces

The *Universal Serial Bus Specification* describes devices being configured as a part of the initialization process and interfaces which have the same, known, capabilities available subsequently that they had at configuration time. Some devices require a change in interface definition due to an event external to the host or device.

For example, a telephone call might be received by a multimedia modem. Due to the nature of the call, the device might be able to determine that the data being received was audio, or fax or unformatted data. To utilize the appropriate class definition, the interface providing the data from the modem might require a change from its original setting. Dynamic interfaces allow the device to report the need for this change and describe how a host system may determine the new interface type and request any necessary changes. Refer to *USB Feature Specification: Dynamic Interfaces* for details.

5.3 Associations

Extending the example in the previous section, when a call is received by a multimedia modem it may actually contain multiple data elements. The call might have voice and video information. Following USB conventions, this would require two interfaces, one defined by an imaging class and another by an audio class. However, now the interfaces would actually be related (or associated) because both were tied to the same call.

Associations provide the necessary definition to describe how a device reports the interrelation of multiple interfaces and allows a host to react accordingly. Refer to *USB Feature Specification: Associations* for details.

5.4 Shared Endpoints

The *Universal Serial Bus Specification* allows only the default endpoint to be shared between interfaces on a device. This was a simplifying assumption to reduce coupling between interfaces. However, as additional classes were defined, it became clear that several interfaces on a device could have very similar requirements on an endpoint, which would allow it to be shared among those interfaces. Such sharing would reduce the overall number of endpoints required, and thus the overall cost of the device.

For instance, the specification of synchronization mechanisms and reuse of class specifications to allow easy driver binding could substantially increase the number of endpoints required for some devices. Devices which require feedback would need a substantial number of endpoints since each endpoint requiring synchronization may require a separate endpoint to report feedback information.

In addition, some devices may actually be collections of interfaces that use very simple and low bandwidth data reporting mechanisms, such as an interrupt endpoint, for a common activity such as event notification. If this interrupt endpoint could be shared by multiple interfaces, the device could use fewer endpoints and fewer endpoints would need to be scheduled. Refer to *USB Feature Specification: Shared Endpoints* for details.

5.5 Interface Power Management

A method for providing power management to an interface on a USB device is not described in the *Universal Serial Bus Specification*. Interface power management enables the host software to manage power savings and remote wake-up behavior independently on each separate interface of a device. An example use of interface power management is its application to composite devices. A *composite device* is a USB device that has more than one interface and each interface is controlled by a different device driver running on the host (or by a different instance of the same driver running on the host). For example,

- An audio-visual device can have two interfaces, audio (an Audio class interface) and video (an Imaging class interface). Independent power management of each interface enables the host to put the video interface in a power saving mode when only the audio interface is being used.
- A telephony device can have three interfaces: audio, a keypad (a HID class interface), and a modem (a Communications class interface). The host can use interface power management to put the modem in a low-power wake-enabled mode when only the keypad and audio interfaces are being used.

An interface power descriptor can provide the following benefits:

- USB devices can implement a range of low-power modes, not just Suspend.
- Each interface of a device with multiple interfaces can be power-managed independently.
- Each interface of a device with multiple interfaces can be wake-enabled independently.
- Self-powered devices can conserve energy.

Refer to *USB Feature Specification: Interface Power Management* for details.

5.6 Default Notification Pipe

Many class specifications have built class-specific *Device-to-Host* asynchronous notification controls based on interrupt pipes. These are always point-to-point solutions and define the format of the data and a set of class-specific notification messages. The Default Notification Pipe provides a common, standard solution for moving device events to the appropriate level of system software. Refer to *USB Feature Specification: Default Notification Pipe.*

Microsoft Announces New Win32 Driver Model Device Driver Support For DVD, Cameras, Audio and Game Devices

Microsoft Expands Win32 Driver Model for Windows and Windows NT With Four Key Class Drivers

SAN FRANCISCO, April 8, 1997 — Microsoft Corp. today announced the development of four additional Win32® Driver Model class drivers. The drivers simplify driver writing and make it easier for hardware developers to create exciting new PC hardware at a lower cost for the next releases of the Microsoft® Windows® and Windows NT® operating systems.

Microsoft is expanding the Win32 Driver Model with class drivers and support for the following:

- Human interface devices (HIDs) such as keyboards, mice, joysticks, game pads, system control devices (remotes and wired control panels) and so on that are used in a broad range of consumer appliances, games and interactive multimedia
- Still image devices such as scanners, digital and still cameras
- Streaming devices such as video capture, MPEG decoders, audio and synchronized multimedia in support of DVD and broadcast architectures
- Win32 Driver Model audio architecture to support rich new audio streaming functionality across a broad range of existing PC audio devices and new digital audio devices on PCI, USB and IEEE 1394

"These new Windows-compatible device driver classes mean that users of Windows and Windows NT will have high-quality, reliable and easy support for important hardware areas such as cameras, scanners, DVD, digital audio and gaming devices," said Carl Stork, general manager for the Windows platform at Microsoft. "By providing a consistent model for driver development on Windows and Windows NT, with an extensible architecture, Microsoft is decreasing the amount of effort necessary for hardware vendors supporting Windows platforms. This allows them more time and freedom to bring new and exciting PC devices to market more quickly and less expensively."

"We've worked closely with Microsoft in creating these new class drivers, and we look forward to their availability in the next releases of Microsoft Windows operating systems," said Craig Kinnie, vice president and general manager of the Internet and communications group at Intel Corp. "This new driver model improves the software platform responsiveness and throughput demanded by interactive, media-rich applications."

On Friday, April 11, 1997, more than 1,600 developers will receive a Win32 Driver Model Device Driver Kit (DDK) Preview at a Microsoft conference in San Francisco, where they will learn how to put Win32 Driver Model and the four new class drivers to work supporting their hardware.

HID Class for Consumer Appliances, Simulators and Game Controllers

Microsoft's HID Class support is based on the device class definition for human interface devices. The HID specification unifies input devices by providing flexible data reporting, typeless data, and arrayed/variable input and output. The generality of the HID opens opportunities for IHVs to develop many new input devices. For example, HID controls are defined for the following:

- 2-D and 3-D game control devices
- Virtual reality devices (belts, body suits, gloves, head trackers, head-mounted displays, oculometers, etc.)
- Sports equipment devices (golf clubs, baseball bats, rowing machines, treadmills, etc.)
- Vehicle simulation devices (autos, planes, tanks, spaceships and submarines)
- Monitors
- About 250 consumer appliance controls

HID I/O is based on the Win32 Driver Model, providing both kernel-mode and user-mode access, and supports Plug and Play and power management. HID drivers understand how to take advantage of built-in support for system devices (keyboards, mice), DirectInput ™ API support for gaming devices (joysticks, game pads) and the ability to support arbitrary new HID devices connected using USB (keyboards, mice, gaming devices, personality modules, remote controls, telephony devices, etc.).

Still Image Support for Scanners and Cameras

Still image capture is an increasingly popular PC function in the home and in the business environment. To facilitate industry growth, Microsoft has enhanced support for still image capture devices in the next versions of Windows 95 and Windows NT.

The still image architecture is centered around a device driver interface (DDI) that works as a conduit for communications to a particular device. Still image devices include these:

- Flatbed scanners, including those with an automatic document feeder, transparency adapter, or options such as a start button
- Sheet-fed scanners with paper-inserted detection mechanisms
- Handheld scanners
- Still image digital cameras

The DDI provides interfaces for device enumeration, test activation, device capabilities and notification of device events, including polling for device activity. Device event polling is critical to the implementation of push model - a method of operation that launches imaging applications based on user-initiated actions such as inserting paper into the scanner. Such capabilities make these devices more popular with users.

Streaming Class for Video, Audio and Interactive Multimedia

PCs are increasingly used for streaming and synchronization of interactive multimedia both across networks and the Internet. To support these applications, developers are offering a broad range of peripherals based on new buses, such as IEEE 1394, and Windows accelerators that improve the performance of these applications. The Win32 Driver Model's new streaming class driver provides highly functional, cross-platform class driver support for MPEG, video capture, USB and IEEE 1394 audio and video, and other streaming hardware.

Win32 Driver Model video capture minidrivers use kernel streaming, a standardized connection for streaming within the kernel, optimizing the flow of data. The video capture minidriver API provides rich property sets for a wide range of video devices, enabling the integration of innovative video solutions under Windows. For example, video capture properties are defined for the following devices:

- Capture from and control of a digital stream from a USB camera
- Capture from and control of a TV tuner within the PC
- Capture, compression and monitoring of inputs using analog video capture hardware
- Capture of digital streams from an IEEE 1394 digital video-based digital camcorder or VCR
- Separation of data from the vertical blanking interval in video data

These properties are very close to a ratio of 1 to 1 mapping of the Microsoft ActiveMovie ™ interface methods.

The Win32 Driver Model Audio architecture supports a rich new audio streaming functionality across a broad range of existing PC audio devices and new digital audio devices on PCI, USB and IEEE 1394. Technology advancements and changes in PC usage are driving the need for a new, scalable, high-performance audio architecture. Users are demanding a richer, more immersing quality PC audio experience. The industry has responded with a host of new audio technologies: better quality synthesis with updatable sound sets, interactive 3-D capabilities, multichannel mixing, sound effects and high-quality digital output on serial buses such as USB and IEEE 1394.

The ActiveMovie architecture laid a foundation for building rich multimedia applications. DirectSound laid a foundation for low latency access to audio hardware. Win32 Driver Model Audio complements both ActiveMovie and the DirectSound® API by providing these advantages:

- Cross-platform ISA, PCI, USB and IEEE 1394 stream driver model that simplifies the task of writing audio drivers
- Low-latency system audio services - mixing, sample rate conversion, software wave table synthesis, Sound Blaster Pro

emulation

- Ability to build ActiveMovie filter graphs with kernel mode audio drivers
- Native DirectSound support over Win32 Driver Model audio drivers
- New acceleration possibilities that allow rendering to be separated from processing of audio
- Intelligent, on-demand audio graph building

Win32 Driver Model Architecture

The Win32 Driver Model provides a common set of I/O services and binary-compatible device drivers for both Windows NT and future Windows operating systems. The Win32 Driver Model is a core technology enabling Simply Interactive PC (SIPC) and "Zero Administration" for Windows initiatives and new Plug and Play device support for USB, IEEE 1394, and the OnNow power management initiative.

The Win32 Driver Model architecture provides a modular class and minidriver structure. A logical class driver defines generic support for a new bus or standard device command interface. A simple minidriver is used to extend class drivers to support a specific physical device interface. Because class drivers are generic they can be used to standardize logical device command sets, protocols and bus interfaces necessary for code reusability. Because minidrivers are hardware-specific, they can be used to implement specific extensions created to support new hardware innovation. Win32 Driver Model support for standard class interfaces reduces the number and complexity of device drivers that are written by IHVs and required for both operating systems.

The Win32 Driver Model maximizes system responsiveness and throughput by providing the extremely low-latency services and fewer ring transitions that interactive applications demand. All Win32 Driver Model drivers have access to low-latency services.

Availability

Microsoft has already implemented Win32 Driver Model support for USB and Konica cameras in Microsoft Windows 95 OEM Service Release 2.1 and shipped a Win32 Driver Model DDK Preview for these classes and OnNow to WinHEC attendees.

Additional information on the Win32 Driver Model is available on the Microsoft Web site at http://www.microsoft.com/hwdev/winhec/wdmsem.htm .

This technology will be a feature in the upcoming version of Windows, code-named "Memphis," and Windows NT Workstation 5.0. Memphis is scheduled to be released for beta testing in the first half of this year. Windows NT Workstation 5.0 is slated for beta release later in the year. Both operating systems will incorporate the latest innovations in hardware and Internet technology as well as enhancements that will make them easier to use, faster, more reliable and more manageable.

Founded in 1975, Microsoft (NASDAQ "MSFT") is the worldwide leader in software for personal computers. The company offers a wide range of products and services for business and personal use, each designed with the mission of making it easier and more enjoyable for people to take advantage of the full power of personal computing every day.

Note to editors : If you are interested in viewing additional information on Microsoft, please visit the Microsoft Web page at http://www.microsoft.com/presspass/ on Microsoft's corporate information pages.

Microsoft Win32 Driver Model
Industry Support Statements

April 1997

"We are pleased to be working with Microsoft on the development of audio standards for the Win32 Driver Model universal serial bus and 1394 Audio. These developments will result in the seamless integration of high quality multi-channel digital playback systems, USB connected speakers and a variety of additional audio peripherals in future PCs, convergent technology products and communication devices."

- Edward Anchel

Chairman and President

Altec Lansing Technologies Inc.

"Microsoft's introduction of the Win32 Driver Model is an exciting step forward in the evolution of streaming video software for the PC. The Win32 Driver Model will ease hardware integration and applications development, allowing Cirrus Logic customers to fully exploit the high-performance video features in our new products."

- Art Swift

Vice President of Marketing

Cirrus Logic's Graphics Co.

"We are delighted to see Microsoft developing a single driver model that works on future versions of both Windows and Windows NT. This significantly reduces our development time and allows us to provide better support for upcoming operating systems as they release to the market. Additionally, the work that HP and Microsoft have done on Still Image device drivers will improve plug and play capability of these devices and enable market growth."

- Phil Faraci

General Manager

Greeley Hardcopy Division

Hewlett-Packard Co.

"Logitech is actively working on Win32 Driver Model-based software today, with a special focus to provide USB support for mice and other products. We look forward to an expanded market, simplified development and faster delivery of our products in the future because of the ability to share drivers with both the Memphis and Windows NT operating systems."

- William Sheehan

Product Marketing Director

Logitech

"Oak Technology is pleased to announce its support for Microsoft's efforts in the area of the Win32 Driver Model. Our PCI-based DirectSound accelerators, the OTI-611 TelAudia3D and the OTI-610 Audia3D, will take advantage of the Win32 Driver Model drivers to provide multiple-channel digital audio mixing and sample rate conversion, and three-dimensional HRTF audio capabilities to Windows- and Windows NT-based computing environments."

- Ken Boyce

Director
Audio/Communications Business Unit

Oak Technology

"We are thrilled that our first IEEE 1394 product - the Papaya IEEE 1394 Audio Adaptor -was chosen by Microsoft as the Win32 Driver Model audio reference design. When PAVO established its relationship with Microsoft to bring audiophile quality to the PC, we were concerned that the high standards observed in the hi-fi and pro audio industries could not be met by the PC. But Microsoft has demonstrated a passion for enabling the highest-quality audio and video production in the PC, and the resulting experience is extremely compelling. Microsoft's Win32 Driver Model streaming architecture, especially the IEEE 1394 bus drivers, make the PC a welcome addition to digital media theater systems."

- Greg Bartlett
President

PAVO Inc.

"Philips and Microsoft have enjoyed a very close working relationship, which has resulted in many USB chips and products that Philips was able to pioneer. Philips is committed to USB and has already announced a number of USB-enabled products such as digital speakers, monitors, cameras, and hubs, and will provide USB versions of virtually all its PC peripherals, LCD projectors, and handheld PCs in the near future. Microsoft's Win32 Driver Model drivers enable quick introduction of these products to the market.

- Adri Baan

Chief Executive Officer

Philips Business Electronics

"The inclusion of Rockwell's Brooktree Division video drivers for the BT848 in the Win32 Driver Model DDK Preview will enhance a variety of video capabilities and built-in hardware support for developers. These new enhancements will make the PC easier to use and more interactive. Rockwell is proud to be part of the next generation of the Windows and Windows NT operating systems."

- Dana Witt

Software Product Manager

Brooktree Division

Rockwell Semiconductor Systems

"Sony is pleased to develop the software technology that enables the Win32 Driver Model to support a new generation of digital video products."

- Scott Smyers

Director

Advanced Digital Interface Technologies

Sony Electronics Inc.
U.S. Research Laboratories

"Symbios Logic firmly believes that Microsoft's Win32 Driver Model environment accelerates time-to-market and enables its leading-edge technology to be easily utilized on multiple platforms. We have worked closely with Microsoft on 1394 driver support as well as the SBP-2 transport protocol and the Win32 Driver Model for our 1394-to-ATA/ATAPI controller product, the SYM13FW500. Development has been accelerated due to the Win32 Driver Model. In addition, the SBP-2 and Microsoft 1394 Win32 Driver Model driver stack runs in both Memphis and Windows NT 5.0, thereby making our hardware accessible to both platforms. We are excited about being able to demonstrate the SYM13FW500 at WinHEC."

- Randy Zwetzig

Director of Peripheral Solutions

Symbios Logic Inc.

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11/467,092	08/24/2006	Michael Tasler	0757/98081	3038

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EXAMINER	
LEE, CHUN KUAN	

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2181	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No. 11/467,092	Applicant(s) TASLER, MICHAEL	
	Examiner Chun-Kuan Lee	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *97-108* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *97-108* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.

4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *20080312* .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :08/24/2006, 08/08/2007, 10/25/2007, 01/02/2008, 03/05/2008, 04/08/2008 & 04/23/2008.

DETAILED ACTION

RESPONSE TO ARGUMENTS

1. Applicant's arguments with respect to claims 97-108 have been considered but are moot in view of the new prior art of record. Currently, claims 1-96 are cancelled and claims 97-108 are pending for examination.

I. INTERVIEW SUMMARY

2. A telephone interview was initiated by the examiners Alford Kindred (SPE) and Chun-Kuan Lee (Examiner) with Jeffrey Salmon, having Registration No. 37,435 on March 04, 2008. The attorney assisted the examiners in gaining a better understanding of the novelty for the instant claimed invention by providing a real world example; such as a digital camera (i.e. ADGPD) having a unidirectional sensor for taking pictures, wherein upon the connection of the digital camera to a computer, an automatic configuring by automatic selecting a corresponding driver to establish communication between the digital camera and the computer would be implemented without any loading of the driver; in summary, the novelty of the instant invention is the automatic detection of the connected peripheral device and selection of the corresponding driver to establish communication with the peripheral device without any user loading of the driver on the computer.

II. TERMINAL DISCLAIMER

3. The terminal disclaimer filed on 08/24/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent Application Serial Number 11/078,778 is currently being reviewed.

4. The terminal disclaimer filed on 10/30/2007 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,470,399; US Patent 6,845,449; Patent Application Serial Number 11/928,283 and Patent Application Serial Number 11/467,073 has been reviewed and is accepted. The terminal disclaimer has been recorded.

III. ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

5. As required by **M.P.E.P. 609(C)**, the applicant's submissions of the Information Disclosure Statement dated August 24, 2006; August 08, 2007; October 25, 2007; January 02, 2008; March 05, 2008, April 8, 2008 and April 23, 2008 are acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by **M.P.E.P 609 C(2)**, a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

IV. REJECTIONS BASED ON 35 U.S.C. 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 97-108 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claim 97, it is not fully clear to the examiner as to where in the Specification/Drawings supports the enablement of the claimed limitations of "… a unidirectional sensor that is operatively coupled to the ADGPD processor, the unidirectional sensor being designed to process analog waves that, before being processed by the unidirectional sensor, have propagated external to and not in substantial proximity to the ADGPD …wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is not operatively coupled to a device external to the ADGPD and without intervention by means of the device external to the ADGPD, the unidirectional sensor to generate analog data from one or more analog waves that, before being processed by the unidirectional sensor, have propagated external to and not in substantial proximity to the ADGPD …".

As per claim 105, it is not fully clear to the examiner as to where in the Specification/Drawings supports the enablement of the claimed limitations of "… wherein the unidirectional sensor is designed to be interchangeably operatively coupled to the ADGPD processor …".

As per claims 98-104 and 106-108, dependent claims 98-104 and 106-108 are also rejected at least due to direct/indirect dependency on the rejected independent claim 97.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 97-108 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 97, in lines 1 and 6, it is not fully clear as to which “it” the applicant is referring to; the examiner will assume the claimed limitation of “the ADFPD” for the current examination.

As per claim 97, in lines 19-20, 26 and 34, it is not fully clear to the examiner if each “device” are same/different device; the examiner will assume the claimed limitation of "... while the i/o connector is not operatively coupled to <u>a device external to the ADGPD</u> and without intervention by means of <u>the device external to the ADGPD</u>, the unidirectional sensor to generate analog data from one or more analog waves that, before being processed by the unidirectional sensor … after the i/o connector has received at least one of the device identification inquiry signals, a response signal to be automatically sent to the i/o connector without any user intervention by means of <u>the device external to the ADGPD</u> … a transfer of at least some of the digitized data, including at least some of the digitized data that is generated while the i/o connector is not coupled to <u>the device external to the ADGPD</u> …” for the current examination.

As per claim 97, in line 26, it is not fully clear if the “device” is the same/different device as previously recited; the examiner will assume the claimed limitation of “… the response signal containing identification data that is consistent with the ADGPD being a data transferring device that can transfer files of digital data by means of a communication protocol …" for the current examination.

As per claim 100, in line 5, it is not fully clear of the "mass storage device" is the same/different mass store device previously recited; the examiner will assume the claimed limitation of "... the mass storage device …" for the current examination.

As per claim 101, in lines 3 and 6-7, it is not fully clear of the "mass storage device" is the same/different mass store device previously recited; the examiner will assume the claimed limitation of "... wherein tile identification data of the response signal is consistent with the ADGPD being the mass storage device that operates … configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors associated with the mass storage device that operates …" for the current examination.

As per claim 101, in lines 6 and 11, it is not fully clear of the "hard disk drive" is the same/different hard disk drive previously recited; the examiner will assume the claimed limitation of "... configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors associated with the mass storage device that operates in a manner consistent with the hard disk drive … wherein the mass storage device format is consistent with a data transfer format used in the hard disk drive …" for the current examination.

As per claim 103, in line 4, it is not fully clear of the "device external to the ADGPD" is the same/different device external to the ADGPD previously recited; the examiner will assume the claimed limitation of "... the device external to the ADGPD …" for the current examination.

As per claims 98-99, 102 and 104-108, dependent claims 98-99, 102 and 104-108 are also rejected at least due to direct/indirect dependency on the rejected independent claim 97.

V. REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 97, 102-103 and 106-108 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,914,748) in view of Hsieh et al. (US Patent 5,969,750).

9. As per claim 97, Parulski teaches an analog data generating and processing device (ADGPD) (Fig. 3A, ref. 40, Fig. 3B; Fig. 4A, ref. 42 and Fig. 4B) that is capable of receiving device identification inquiry signals, the ADGPD also being capable of receiving one or more data transfer requests, the ADGPD comprising:

an i/o connector (e.g. USB connector) that is capable of receiving the device inquiry signals, the i/o connector also being capable of receiving one or more data transfer requests (Fig. 3A-3B; Fig. 4A; col. 2, l. 46 to col. 3, l. 46 and col. 6, l. 18 to col. 7, l. 21);

an ADGPD processor having a central processing unit (e.g. digital signal processor 88 of Fig. 4B), the ADGPD processor being operatively coupled to the i/o connector (Fig. 4B and col. 6, l. 18 to col. 7, l. 21);

a data storage memory (e.g. buffer 88, memory card 98 of Fig 4B) that is operatively coupled to the ADGPD processor (Fig. 4B and col. 6, l. 18 to col. 7, l. 21);

a program memory that is operatively coupled to the central processing unit of the ADGPD processor (col. 2, ll. 25-30 and col. 6, l. 18 to col. 7, l. 21), as the operation of the portable digital camera is implement in association software, the portable digital camera would have the necessary program memory to store the corresponding software for operation;

a unidirectional sensor (Fig. 3B, ref. 52 and Fig. 4B, ref. 52) that is operatively coupled to the ADGPD processor, the unidirectional sensor being designed to process analog waves that, before being processed by the unidirectional sensor, have propagated external to and not in substantial proximity to the ADGPD (Fig. 3A-3B; Fig. 4A-4B; col. 2, l. 46 to col. 3, l. 46; col. 4, ll. 26-67 and col. 6, l. 18 to col. 7, l. 21), as the analog wave of image is captured by the CCD;

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is not operatively coupled to a device external to the ADGPD (computer 44 of Fig. 4) and without intervention by means of the device external to the ADGPD, the unidirectional sensor to generate analog data from one or more analog waves that, before being processed by the unidirectional sensor, have propagated external to and not in substantial proximity to the ADGPD (Fig. 3A-3B; Fig. 4A-4B; col. 2, l. 46 to col. 3, l. 46; col. 4, ll. 26-67 and col. 6, l. 18 to col. 7, l. 21), as the command/instruction is given to take a picture when the portable digital is no connected to the computer; and

wherein the central processing unit of the ADGPD processor is operatively coupled to the program memory so that the central processing unit of the ADGPD processor is adapted to control the generation of the analog data as well as the transfer of digitized data to the i/o connector (Fig. 4A-4B and col. 4, ll. 26-67), as the execution of the instructions would require the DSP to operatively coupled to the program memory.

Parulski does not expressly teach the ADGPD comprising:

the device inquiry signals are periodically sent to the ADFPD for a period of time …wherein the ADGPD is adapted to cause … a response signal to be automatically sent to the i/o connector without any user intervention by means of the device external to the ADGPD … consistent with … a communication protocol … process data transfer requests in accordance with the communication protocol; and

wherein the central processing unit … to cause, after one of the data transfer requests has been received … a transfer of at least some of the digitized data … from the data storage memory to the i/o connector … in accordance with the communications protocol.

Hsieh teaches an ADGPD (e.g. camera 110 of Fig. 5) that is capable of receiving device identification inquiry signal that are periodically sent to the ADFPD for a period of time, the ADGPD comprising:

the device inquiry signals are periodically sent to the ADFPD for a period of time; wherein the ADGPD is adapted to cause, after the i/o connector has received at least one of the device identification inquiry signals (e.g. after the camera is connected to the computer), a response signal to be automatically sent to the i/o connector without any user intervention by means of the device external to the ADGPD, the response signal containing identification data that is consistent with the ADGPD being a data transferring device that can transfer files of digital data by means of a communication protocol (e.g. USB communication protocol), the ADGPD thereafter subsequently being able to process data transfer requests in accordance with the communication protocol (Fig. 5; col. 5, ll. 21-23; col. 5, ll. 50-55 and col. 10, ll. 11-17), as the driver software for using the camera in accordance to the USB communication protocol is automatically selected after the camera is connected to the computer; and

after the i/o port has been operatively coupled to the computer, data can be transferred from the ADGPD to the computer (Fig. 5 and col. 5, l. 56 to col. 6, l. 43).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Hsieh's automatic configuring into Parulski's ADGPD, wherein the resulting combination of the references further teaches the ADGPD comprising:

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, after one of the data transfer requests has been received by the i/o connector, a transfer of at least some of the digitized data, including at least some of the digitized data that is generated while the i/o connector is not coupled to the device external to the ADGPD, from the data storage memory (Parulski, memory card 98 of Fig. 4B) to the i/o connector (e.g. USB connector), the digital data that is sent being sent in accordance with the communications protocol (e.g. USB communication protocol) (Parulski, Fig. 3A-3B; Fig. 4A-4B; col. 2, l. 46 to col. 3, l. 46; col. 4, ll. 26-67and Hsieh, Fig. 5; col. 5, l. 56 to col. 6, l. 43; col. 10, ll. 11-17), as the data stored on the memory card (Parulski, Fig. 4B, ref. 98) is transferred from the portable digital camera to the computer by means of the USB communication protocol;

for the benefit of enabling a novice user to easily install the camera (e.g. ADFPD) on the computer by simply plugging the cable into the computer (Hsieh, col. 10, ll. 11-17) to obtain the invention as specified in claim 97.

10. As per claim 102, Parulski and Hsieh teach all the limitations of claim 97 as discussed above, where Hsieh further teaches the ADGPD comprising wherein the ADGPD processor and the program memory are adapted to cause files of digital data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector (Hsieh, Fig. 5, and col. 9, ll. 21-39).

11. As per claim 103, Parulski and Hsieh teach all the limitations of claim 102 as discussed above, where Parulski further teaches the ADGPD comprising wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation (e.g. operation of taking a picture) of the ADGPD other than the transfer of files of digital data from the data storage memory to the i/o connector to be controlled by means of the device external to the ADGPD (e.g. computer) (Parulski, col. 2, l. 46 to col. 3, l. 46).

12. As per claim 106, Parulski and Hsieh teach all the limitations of claim 97 as discussed above, where Hsieh further teaches the ADGPD comprising wherein the identification data of the response signal is not consistent with the true nature of the unidirectional sensor (Hsieh, Fig. 5; col. 5, l. 50 to col. 6, l. 43 and col. 10, ll.11-17), as one operated in accordance to USB standard and the other operate in association with the CCD signaling.

13. As per claim 107, Parulski and Hsieh teach all the limitations of claim 97 as discussed above, where both further teach the ADGPD comprising wherein the identification data of the response signal is consistent with the ADGPD being an input/output device that is customary in a host device (Parulski, Fig. 3A-3B; Fig. 4A-4B and Hsieh, Fig. 5; col. 10, ll. 11-17).

14. As per claim 108, Parulski and Hsieh teach all the limitations of claim 97 as discussed above, where both further teach the ADGPD comprising a combination comprising the ADGPD of claim 97 and a personal computer (Parulski, Fig. 3A-3B; Fig. 4A-4B and Hsieh, Fig. 5).

15. Claim 98 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,914,748) in view of Hsieh et al. (US Patent 5,969,750) as applied to claim 97 above, and further in view of Hannah (US Patent 5,614,948).

Parulski and Hsieh teach all the limitations of claim 97 as discussed above, where Hsieh further teaches the ADGPD comprising an output device that is operatively coupled to the central processing unit of the ADGPD processor, the output device being capable of generating one or more data that are representative of at least some of the analog data that is generated by the unidirectional sensor (Hsieh, Fig. 6, ref. 310 and col. 10, l. 45 to col. 11, l. 21).

Parulski and Hsieh do not expressly teach the ADGPD comprising generating one or more analog waves.

Hannah teaches an ADGPD (Fig. 10, ref. 172) comprising generating one or more analog waves (Fig. 10, ref. 182, 184) (col. 9, ll. 29-46).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Hannah's generation of analog wave into Parulski and Hsieh's ADGPD for the benefit of implementing a camera (e.g. ADGPD) with more output functions including outputting analog data and at the same time reducing the cost of the camera by having a low-cost A/D converter (Hannah, col. 2, ll. 27-30) to obtain the invention as specified in claim 98.

16. Claims 99-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,914,748) in view of Hsieh et al. (US Patent 5,969,750) as applied to claim 97 above, and further in view of Shinohara (US Patent 5,742,934).

17. As per claim 99, Parulski and Hsieh teach all the limitations of claim 97 as discussed above, where Parulski further teaches the ADGPD comprising wherein the identification data of the response signal is consistent with the memory card (Parulski, Fig. 4B, ref. 98 and Hsieh, col. 10, ll.11-17).

Parulski and Hsieh do not teach the ADGPD comprising wherein the ADGPD being a mass storage device.

Shinohara teaches a system and a method comprising indicating to a computer (Fig. 1, ref. 2) that a memory card (Fig. 1, ref. 1) is a mass storage device (e.g. hard disk drive) (col. 1, ll. 48-50).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Shinohara's emulation into Parulski and Hsieh's ADGPD's memory card for the benefit of expanding the use of the memory card to function as hard disk and also expanding the lifetime usage of the memory card (Shinohara, col. 2, ll. 7-8) to obtain the invention as specified in claim 99.

18. As per claim 100, Parulski, Hsieh and Shinohara teach all the limitations of claim 99 as discussed above, where Parulski, Hsieh and Shinohara further teach the ADGPD comprising

wherein the central processing unit of the ADGPD processor and the program memory are further configured to, after the response signal has been sent to the i/o connector (e.g. after cable is connected and the driver software is automatically selected), cause file allocation table information to be sent to the i/o connector to enable information to be transferred to and from the ADGPD as if the ADGPD were the mass storage device (Parulski, Fig. 3A- 3B; Fig. 4A-4B; col. 2, ll. 25-30; col. 4, ll. 26-67, Hsieh, col. 9, ll. 21-39; col. 10, ll. 11-17 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the memory card is initialized to emulate the hard disk drive it would be necessary to forward the file allocation table information to the computer in order for the computer to know essential information (e.g. storing position and structure of files) in order to transfer data between the computer and the emulated hard disk drive, and

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause digitized data to be transferred to the i/o connector in a mass storage device format (Parulski, Fig. 3A- 3B; Fig. 4A-4B; col. 2, ll. 25-30; col. 2, l. 46 to col. 3, l. 46; col. 4, ll. 26-67 and Hsieh, col. 9, ll. 21-39; col. 10, ll. 11-17).

19. As per claim 101, Parulski, Hsieh and Shinohara teach all the limitations of claim 100 as discussed above, where Parulski, Hsieh and Shinohara further teach the ADGPD comprising

wherein tile identification data of the response signal is consistent with the ADGPD being the mass storage device that operates in a manner consistent with a hard disk drive (Hsieh, col. 9, ll. 21-39; col. 10, ll. 11-17 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49),

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors associated with the mass storage device that operates in a manner consistent with the hard disk drive (Parulski, Fig. 3A- 3B; Fig. 4A-4B; col. 2, ll. 25-30; col. 4, ll. 26-67, Hsieh, col. 9, ll. 21-39; col. 10, ll. 11-17 and Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49), as the memory card is initialized to emulate the hard disk drive after connecting the cable between the digital camera and the computer, it would be necessary to include the transferring of the virtual boot sequence including the number of sectors in order for the computer to know the size of the memory card and utilize the memory card having the corresponding size as the hard disk drive;

wherein the file allocation table information includes at least a start location of a file allocation table; and wherein the mass storage device format is consistent with a data transfer format used in the hard disk drive (Shinohara, col. 1, ll. 48-60; col. 3, l. 56 to col. 4, l. 49).

20. Claim 104 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,914,748) in view of Hsieh et al. (US Patent 5,969,750) as applied to claim 97 above, and further in view of Wang et al. (US Patent 5,692,134).

Parulski and Hsieh teach all the limitations of claim 97 as discussed above, but do not expressly teach the ADGPD comprising wherein the communications protocol comprises a SCSI command set.

Wang teaches a system and a method comprising wherein the communications protocol comprises a SCSI command set (Fig. 3 and col. 1, l. 11 to col. 2, l. 7), as the automatic configuring interface device is able to communicate in accordance SCSI communication protocol, thus including the corresponding SCSI command set.

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Wang's SCSI communication protocol into Parulski and Hsieh's ADGPD for the benefit of expanding the ADGPD's communication protocol to include SCSI communication protocol because not only is the SCSI communication protocol a well known high speed communication protocol utilized in computer system, the combination further enables the maintaining of logical identifier of a peripheral connected when other peripheral are added or removed (Wang, col. 2, ll. 4-7) to obtain the invention as specified in claim 104.

21. Claim 105 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,914,748) in view of Hsieh et al. (US Patent 5,969,750) as applied to claim 97 above, and further in view of Endo et al. (US Patent 4,652,928).

Parulski and Hsieh teach all the limitations of claim 97 as discussed above, wherein Parulski further teaches the ADGPD comprising wherein the unidirectional sensor (e.g. CCD) is designed to be operatively coupled to the ADGPD processor (Parulski, Fig. 4A-4B and col. 4, ll. 26-67).

Parulski and Hsieh do not expressly teach the ADGPD comprising wherein the unidirectional sensor is designed to be interchangeable.

Endo teaches the ADGPD (e.g. digital camera) comprising wherein the unidirectional sensor (e.g. CCD) is designed to be interchangeable (col. 1, ll. 18-25 and col. 13, ll. 57-58).

It would have been obvious for one of ordinary skill in this art, at the time of invention was made to include Endo's interchangeable unidirectional sensor into Parulski and Hsieh's ADGPD for the benefit of adaptively increase the resolution of the camera to obtaining a better quality image (Endo, col. 1, ll. 18-20) to obtain the invention as specified in claim 105.

VI. <u>CLOSING COMMENTS</u>

<u>Conclusion</u>

a. <u>STATUS OF CLAIMS IN THE APPLICATION</u>

The following is a summary of the treatment and status of all claims in the application as recommended by **M.P.E.P. 707.07(i)**:

a(1) <u>CLAIMS REJECTED IN THE APPLICATION</u>

Per the instant office action, claims 97-108 have received a first action on the merits and are subject of a first action non-final.

b. <u>DIRECTION OF FUTURE CORRESPONDENCES</u>

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571) 272-0671. The examiner can normally be reached on 8AM to 5PM.

<u>IMPORTANT NOTE</u>

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

March 10, 2008

Chun-Kuan (Mike) Lee
Examiner
Art Unit 2181

/Alford W. Kindred/

Supervisory Patent Examiner, Art Unit 2163

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Michael Tasler

Group No.: 2181

Serial No.: 11/467,092

Conf. No.: 3038

Filed: August 24, 2006

Examiner: Harold J. Kim

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER (As Amended)

Attorney Docket No.: 0757/98081

SUPPLEMENTAL PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-0001

Dear Sir:

Please enter this supplemental preliminary amendment prior to examination of the above-captioned application.

IN THE CLAIMS:

Please cancel claims 1-96 and add new claims 97-108 as noted hereinafter:

1-96. (cancelled).

97. (new) An analog data generating and processing device (ADGPD) that is capable of receiving device identification inquiry signals that are periodically sent to it for a period of time, the ADGPD also being capable of receiving one or more data transfer requests, the ADGPD comprising:

an i/o connector that is capable of receiving the device inquiry signals that are periodically sent to it for a period of time, the i/o connector also being capable of receiving one or more data transfer requests;

an ADGPD processor having a central processing unit, the ADGPD processor being operatively coupled to the i/o connector;

a data storage memory that is operatively coupled to the ADGPD processor;

a program memory that is operatively coupled to the central processing unit of the ADGPD processor;

a unidirectional sensor that is operatively coupled to the ADGPD processor, the unidirectional sensor being designed to process analog waves that, before being processed by the unidirectional sensor, have propagated external to and not in substantial proximity to the ADGPD;

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, while the i/o connector is not operatively coupled to another device and without intervention by means of a device external to the ADGPD, the unidirectional sensor to generate analog data from one or more analog waves that, before being processed by the unidirectional sensor, have propagated external to and not in substantial proximity to the ADGPD;

wherein the ADGPD is adapted to cause, after the i/o connector has received at least one of the device identification inquiry signals, a response signal to be automatically sent to the i/o connector without any user intervention by means of a device external to the ADGPD, the response signal containing identification data that is consistent with the ADGPD being a device that can transfer files of digital data by means of a communication protocol, the ADGPD thereafter subsequently being able to process data transfer requests in accordance with the communication protocol;

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause, after one of the data transfer requests has been received by the i/o connector, a transfer of at least some of the digitized data, including at least some of the digitized data that is generated while the i/o connector is not coupled to a device external to the ADGPD, from the data storage memory to the i/o connector, the digital data that is sent being sent in accordance with the communications protocol; and

wherein the central processing unit of the ADGPD processor is operatively coupled to the program memory so that the central processing unit of the ADGPD processor is adapted to control the generation of the analog data as well as the transfer of digitized data to the i/o connector.

98. (new) The ADGPD of claim 97, further comprising an output device that is operatively coupled to the central processing unit of the ADGPD processor, the output device

being capable of generating one or more analog waves that are representative of at least some of the analog data that is generated by the unidirectional sensor.

99. (new) The ADGPD of claim 97, wherein the identification data of the response signal is consistent with the ADGPD being a mass storage device.

100. (new) The ADGPD of claim 99,

wherein the central processing unit of the ADGPD processor and the program memory are further configured to, after the response signal has been sent to the i/o connector, cause file allocation table information to be sent to the i/o connector to enable information to be transferred to and from the ADGPD as if the ADGPD were a mass storage device, and

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause digitized data to be transferred to the i/o connector in a mass storage device format.

101. (new) The ADGPD of claim 100,

wherein the identification data of the response signal is consistent with the ADGPD being a mass storage device that operates in a manner consistent with a hard disk drive,

wherein the central processing unit of the ADGPD processor and the program memory are configured to cause a virtual boot sequence to be sent to the i/o connector which includes at least information that is representative of a number of sectors associated with a mass storage device that operates in a manner consistent with a hard disk drive;

wherein the file allocation table information includes at least a start location of a file allocation table; and wherein the mass storage device format is consistent with a data transfer format used in a hard disk drive.

102. (new) The ADGPD of claim 97, wherein the ADGPD processor and the program memory are adapted to cause files of digital data stored in the data storage memory to be directly transferred to an input/output device by means of the i/o connector.

103. (new) The ADGPD of claim 102, wherein the ADGPD processor and the program memory are adapted to allow an aspect of operation of the ADGPD other than the transfer of files of digital data from the data storage memory to the i/o connector to be controlled by means of a device external to the ADGPD.

104. (new) The ADGPD of claim 97, wherein the communications protocol comprises a SCSI command set.

105. (new) The ADGPD of claim 97, wherein the unidirectional sensor is designed to be interchangeably operatively coupled to the ADGPD processor.

106. (new) The ADGPD of claim 97, wherein the identification data of the response signal is not consistent with the true nature of the unidirectional sensor.

107. (new) The ADGPD of claim 97, wherein the identification data of the response signal is consistent with the ADGPD being an input/output device that is customary in a host device.

108. (new) A combination comprising the ADGPD of claim 97 and a personal computer.

REMARKS

Claims 1-96 have been cancelled, and new claims 97-108 have been added in this supplemental preliminary amendment. It is the specific intention of the applicant that new claims 97-107 *do not* read on the combination of a personal computer and an analog data generating and processing device. Rather, such claims read on an infringing analog data generating and processing device by itself.

It is respectfully submitted that the new claims are patentable over all of the prior art of record, including the references that the Examiner has been asked to assume, for the sake of argument, are prior art with respect to this application. An exemplary analysis in support of this conclusion is presented hereinafter with respect to prior art US Patent No. 5,917,545.

One feature of the new claims is that they affirmatively recite that a "central processing unit" of an "ADGPD processor" and a "program memory" are configured to cause a unidirectional sensor to generate analog data, and to transmit digitized data representative of the analog data to an i/o connector. The claimed i/o connector is designed to be operatively coupled to, for example, a multi-purpose interface of a PC (but is not required to be so connected for purposes of evaluating direct infringement of claims 97-107). Exemplary structure corresponding to this claim element is, for example, the central processing unit of the DSP shown in Figure 2 of the subject application. The new claims are not limited to this exemplary structure.

The '545 patent does not, for example, teach or suggest the above-described subject matter of the new claims. Figure 3 of the '545 patent shows a CPU 118, a PC card i/f 120, and two bus buffers A and B. The CPU 118 is not capable of causing a transfer of information from the memory 119 to a notebook computer to which the device is connected. One reason for this is that, for example, the bus buffers A and B are activated to electrically isolate the CPU 118 from accessing the memory when the device is connected to a PC. For this reason alone, for example, the new claims should be found to be patentable over the '545 patent.

Other features of the new claims further evidence their patentability over all of the references that have been submitted to the Examiner assuming, for the sake of argument, that they are prior art. In this regard, the new claims recite, for example, that the ADGPD is adapted to cause a "response signal" to be automatically sent to the PC without any user intervention by means of a deice external to the ADGPD. The new claims also recite that the response signal contains data that is consistent with the ADGPD being a device that can transfer files of digital data by means of a communications protocol (*e.g.*, the SCSI command set), and that the ADGPD thereafter is subsequently able to process data transfer commands in accordance with the communications protocol.

Exemplary structure that corresponds to this claim element is shown, for example, in Figure 2 of the patent application. In accordance with this exemplary embodiment, the central processing unit of the DSP shown in Figure 2 is adapted to cause a response signal to be sent to a connector via an interface, the response signal containing information that is consistent with the Figure 2 device being able to transfer files of digital data in accordance with a communications protocol (*e.g.*, the SCSI command set) "without any user intervention by means of a device external to the ADGPD."

The use of the phrase "without any user intervention by means of a device external to the ADGPD" in the newly submitted claims means that (i) no user has to load an applications level program onto a device external to the ADGPD (*e.g.*, a PC) at any time and/or that (ii) no user has to interact with a device external to the ADGPD (*e.g.*, setting up a file system on a PC) at any time in order to allow the ADGPD to "thereafter subsequently" be "able to process data transfer requests in accordance with the communications protocol (*e.g*, the SCSI command set). The new claims are not limited to the structure illustrated in Figure 2 of the application.

The '821 patent to Murata does not, for example, teach or suggest structure that corresponds to the above-described claim feature. In direct contrast to the claimed subject matter, all devices disclosed in the '821 patent affirmatively require user intervention in order to cause the PC to understand how to communicate with the scanner disclosed in the patent. A short analysis in support of this conclusion follows.

Column 4, lines 20-35 of the '821 patent state that an "mkfs" or "newfs" UNIX command must be executed before the scanner can be recognized. These commands are operating system commands, and have to be entered by the user or be embedded in an application program running on a workstation to which the '821 patent scanner is connected. The commands require parameters to be given, including at least mkfs i-node device_name. This means that, for example, the user has to enter the node at which the file system is to be made and the device name (associated with the device file and driver in the system). These parameter values are not standard and may differ according to the actual hardware configuration of the workstation. If these commands are embedded in an application program, the application program can only be successfully run on different workstations if there is an appropriate means for entering the parameters by the user.

As readily apparent to one of ordinary skill in the relevant art, the UNIX operating system of the '821 patent does not automatically recognize devices, nor does it perform data transmission with a device even though the device may emulate the UNIX file system. Detailed operator instructions or an application program containing the embedded instructions is required to administer and coordinate the data exchange described in the '821 patent. For this reason alone, for example, the new claims should be found to be patentable over the '821 patent.

A Japanese language brochure describing a Nikon Coolpix 100 camera, an English translation thereof, and a one page specification describing the Nikon Coolpix 100 camera previously were submitted for the Examiner's consideration. In a previously filed paper, the undersigned attorney stated that he assumed that the product illustrated in these documents operated in a manner consistent with, for example, the above-described US Patent No. 5,917,545.

Subsequent to the filing of that paper, an actual sample of the Nikon Coolpix 100 camera was obtained and analyzed. This analysis indicates that the sample product may not have exactly the same construction as thc dcvicc that is illustrated in the '545 patent. For example, the bus buffers A and B shown in Figure 3 of the '545 patent (that are used to electrically isolate the CPU 118 from the memory 119 while the device is plugged into and receives power from a notebook computer) are not readily apparent in the Nikon Coolpix 100 product that was analyzed.

The analysis also appears to indicate, however, that a microprocessor is put in a state where it is incapable of accessing a memory of the sample product when the sample product is plugged into and receives power from a notebook computer. As such, the microprocessor of the sample product is not capable of executing a set of instructions that cause data from the memory to be transferred to the notebook computer.

In previously filed papers, the Examiner was asked to assume, for the sake of argument, that various camera manuals, cameras, software and products (*e.g.*, the information previously submitted about the Nikon Coolpix 100 camera and various Casio products) actually were prior art. For purposes of clarity, the applicant takes this opportunity to reiterate that no admission is made as to whether or not any such material actually is prior art. In this regard, applicant disputes that all such previously submitted material is prior art to the newly submitted claims.

Regarding the Nikon Coolpix 100 camera and information relating to the above-referenced camera manuals, etc., the assignee currently is investigating whether any of this information actually is prior art. As such, the applicant and assignee respectfully ask that the Examiner consider whether or not the currently pending claims are patentable over all such information. The issue of whether or not any such information is or is not prior art to the currently pending claims would become irrelevant if the Examiner were to agree with the undersigned attorney that the new claims are clearly patentable over all of this information.

An IDS is being submitted herewith. One of the items referenced in the IDS is the above-referenced used Nikon Coolpix 100 camera that was obtained and analyzed. The Examiner is respectfully requested to consider all of the information disclosed in the IDS.

A short validity analysis with respect to the sample Nikon Coolpix 100 camera is presented hereinafter. The Nikon Coolpix 100 camera does not, for example, teach or suggest one or more features of the new claims. One feature of the new claims that is not taught or suggested by the product is, for example, the claim feature that concerns a "central processing unit" of an "ADGPD processor" and a "program memory" that are configured both to cause analog data to be generated and to cause digitized data representative of the analog data to be transferred to an i/o connector as discussed above. The microprocessor of the Nikon Coolpix 100 camera that was analyzed cannot do both tasks because, for example, the microprocessor is put into a state it is incapable of accessing a data storage memory when the camera is plugged into a notebook computer. For this reason alone, for example, the new claims should be found to be patentable over the sample Nikon Coolpix 100 product that was obtained.

The Examiner is respectfully requested to consider only the remarks made in this amendment when considering the patentability of the new claims submitted in this supplemental preliminary amendment. In this regard, the Examiner is respectfully asked to disregard all remarks and amendments made in all papers previously filed in this application or previously filed in any application of which the instant application claims priority.

It is respectfully submitted that the new claims are in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited.

The Examiner is respectfully requested to contact the undersigned attorney upon entry of this supplemental preliminary amendment.

Respectfully submitted,

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January 2, 2008

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Michael Tasler

Group No.: 2181

Serial No.: 11/467,092

Conf. No.: 3038

Filed: August 24, 2006

Examiner: Harold J. Kim

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER (As Amended)

Attorney Docket No.: 0757/98081

SUPPLEMENTAL PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-0001

Dear Sir:

Please enter this supplemental preliminary amendment prior to examination of the above-captioned application.

IN THE CLAIMS:

Please cancel claims 1-84 and add new claims 85-96 as noted hereinafter:

1-84. (cancelled).

85. (new) An analog data generating and processing device for use with a personal computer having at least one multi-purpose interface to which inquiry signals are periodically sent as to what type of device is operatively connected thereto, comprising:

a connecting device that is to be operatively connected to the multi-purpose interface of the personal computer and that is able to receive therefrom the periodic inquiry signals;

a circuit that includes a sensor and an analog to digital converter, the circuit being adapted (i) to be exposed to analog wave signals that originate from a source that is external to the analog data generating and processing device and that is not located in substantial proximity to the sensor, (ii) to generate one or more sets of analog data therefrom, and (iii) to generate a set of digitized analog data that are representative of each one of the sets of analog data;

a processor and a first memory both of which are operatively connected to the circuit, the processor being adapted to cause one or more of the sets of digitized analog data to be stored in the first memory irrespective of whether or not the analog data generating and processing device has been recognized by the personal computer;

the processor being further adapted to cause one or more of the sets of digitized analog data to be stored in the first memory before the connecting device is connected to a multi-purpose interface of the personal computer;

the processor and first memory being adapted to automatically and without user intervention send a response signal to the multi-purpose interface of the personal computer after the connecting device is operatively connected to the multi-purpose interface and after the connecting device receives at least one periodic inquiry signal therefrom, the response signal informing the personal computer that it can automatically and without user intervention recognize the analog data generating and processing device as being a device having digital data that is stored therein;

the processor and first memory being adapted to, after the analog data generating and processing device has been automatically recognized by the personal computer, and after the connecting device has been coupled to the multi-purpose interface of the personal computer, cause one or more of the sets of digitized analog data, including any digitized analog data sets that are generated before the input/output port is connected to the multi-purpose interface of the personal computer, to be transferred to the personal computer;

the analog data generating and processing device being adapted to affect the transfer of one or more of the sets of digitized analog data by means of a software driver that is stored in a second memory of the personal computer without user intervention; and

a conductive path having a first portion physically connected to the processor and a second portion physically connected to the first memory, the first and second portions of the conductive path being contiguous and not electrically disconnected from each other while one or more of the digitized analog data sets are being transferred to the personal computer.

86. (new) A combination comprising the analog data generating and processing device of claim 85 and a personal computer.

87. (new) The analog data generating and processing device of claim 85, wherein the sensor is adapted to have two-way communication with a personal computer.

88. (new) The analog data generating and processing device of claim 85, wherein the analog wave signals are generated by a medical device.

89. (new) The analog data generating and processing device of claim 85, wherein the connecting device, circuit, processor and first memory form a flexible interface.

90. (new) The analog data generating and processing device of claim 85, wherein the response signal is adapted to inform a personal computer that the analog data generating and processing device is a mass storage device.

91. (new) The analog data generating and processing device of claim 85, wherein the response signal is adapted to inform a personal computer that the analog data generating and processing device is a hard disk drive.

92. (new) The analog data generating and processing device of claim 85, wherein the response signal is adapted to lie to a personal computer about the true nature of the analog data generating and processing device.

93. (new) The analog data generating and processing device of claim 85, wherein the software driver is located in a BIOS of the personal computer.

94. (new) The analog data generating and processing device of claim 85, wherein the sensor is detachably coupled to the analog to digital converter.

95. (new) The analog data generating and processing device of claim 85, wherein the sensor is adapted to receive data from the personal computer.

96. (new) The analog data generating and processing device of claim 85, wherein the sensor is not directly involved in the generation of the response signal.

REMARKS

Claims 1-84 have been cancelled, and new claims 84-96 have been added in their place. The purpose of these amendments is to ensure that the below-noted related cases have a total of 3 independent claims, and 25 total claims.

The Examiner's attention is drawn to the fact that the instant application is related to two applications that are currently pending, Ser. No. 11/467,073, filed August 24, 2006, and Ser. No. 11/928,283, filed October 30, 2007. The instant application and the '073 application both contain 1 independent claim and twelve total claims. The '283 application contains 1 independent claim. This results in a total of 3 independent claims and 25 total claims for all three cases.

A terminal disclaimer is being filed herewith limiting the term of the instant application to the term of any patent granted on the above-noted '073 and '283 applications and to the term of U.S. Patent Nos. 6,470,399 and 6,845,449.

It is respectfully submitted that the new claims are in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited. In this regard, the Examiner is respectfully requested to contact the undersigned attorney upon entry of this amendment.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Michael Tasler — Group No.: 2181

Serial No.: 11/467,092 — Conf. No.: 3038

Filed: August 24, 2006 — Examiner: Harold J. Kim

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER (As Amended)

Attorney Docket No.: 0757/98081

SUPPLEMENTAL PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-0001

Dear Sir:

Please enter this supplemental preliminary amendment prior to examination of the above-captioned application.

IN THE CLAIMS:

Please amend claims 39 and 66 as noted hereinafter:

1-38. (cancelled).

39. (currently amended) An analog data generating and processing device for use with a personal computer having at least one multi-purpose interface to which inquiry signals are periodically sent as to what type of device is operatively connected thereto, comprising:

a connecting device that is to be operatively connected to the multi-purpose interface of the personal computer and that is able to receive therefrom the periodic inquiry signals;

a circuit that includes a sensor and an analog to digital converter, the circuit being adapted (i) to be exposed to analog wave signals that originate from a source that is external to the analog data generating and processing device and that is not located in substantial proximity to the sensor, (ii) to generate one or more sets of analog data therefrom, and (iii) to generate a set of digitized ~~sets of~~ analog data ~~from~~ that are representative of each one of the sets of analog data;

a processor and a first memory both of which are operatively connected to the circuit, the processor being adapted to cause one or more of the sets of digitized ~~sets of~~ analog data to be stored in the first memory irrespective of whether or not the analog data generating and processing device has been recognized by the personal computer;

the processor being further adapted to cause one or more of the sets of digitized analog data to be stored in the first memory before the connecting device is connected to a multi-purpose interface of the personal computer;

the processor and first memory being adapted to automatically and without user intervention send a response signal to the multi-purpose interface of the personal computer after the connecting device is operatively connected to the multi-purpose interface and after the connecting device receives at least one periodic inquiry signal therefrom, the response signal informing the personal computer that it can automatically and without user intervention recognize the analog data generating and processing device as being a device having digital data that is stored therein;

the processor and first memory ~~analog data generating and processing device~~ being adapted to, after the analog data generating and processing device ~~it~~ has been automatically recognized by the personal computer, and after the connecting device has been coupled to the multi-purpose interface of the personal computer, cause ~~user selected~~ ones or more of the sets of digitized ~~sets of~~ analog data, including any digitized analog data sets that are generated before the input/output port is connected to the multi-purpose interface of the personal computer, to be transferred to the personal computer;

the analog data generating and processing device being adapted to affect the transfer of ~~user selected~~one or more of the sets of digitized ~~sets of~~ analog data by means of a software driver that is stored in a second memory of the personal computer without user intervention; ~~and~~

a conductive path having a first portion physically connected to the processor and a second portion physically connected to the first memory, the first and second portions of the conductive path being contiguous and not electrically disconnected from each other while one or more of the digitized analog data sets are being transferred to the personal computer; and the processor being further adapted to store one or more of the sets of digitized ~~sets of~~ analog data in a file system defined within the first memory so that each set of digitized analog data can be selectively retrieved therefrom.

40. (previously presented) A combination comprising the analog data generating and processing device of claim 39 and a personal computer.

41. (previously presented) The analog data generating and processing device of claim 39, wherein the analog wave signals comprise electromagnetic radiation.

42. (previously presented) The analog data generating and processing device of claim 39, wherein the sensor is adapted to have two-way communication with a personal computer.

43. (previously presented) The analog data generating and processing device of claim 39, wherein the analog wave signals are generated by a medical device.

44. (previously presented) The analog data generating and processing device of claim 39, wherein the connecting device, circuit, processor and first memory form a flexible interface.

45. (previously presented) The analog data generating and processing device of claim 39, wherein the connecting device, circuit, processor and first memory form a universal interface.

46. (previously presented)The analog data generating and processing device of claim 39, wherein the sensor comprises an electronic measuring device.

47. (previously presented) The analog data generating and processing device of claim 39, wherein the sensor is electrically connected to the processor and first memory by a two-way communication line.

48. (previously presented) The analog data generating and processing device of claim 39, wherein the response signal is adapted to inform a personal computer that the analog data generating and processing device is a mass storage device.

49. (previously presented) The analog data generating and processing device of claim 39, wherein the response signal is adapted to inform a personal computer that the analog data generating and processing device is a hard disk drive.

50. (previously presented) The analog data generating and processing device of claim 39, wherein the response signal is adapted to lie to a personal computer about the true nature of the analog data generating and processing device.

51. (previously presented) The analog data generating and processing device of claim 39, wherein the software driver is located in a BIOS of the personal computer.

52. (previously presented) The analog data generating and processing device of claim 39, wherein the circuit receives power when the digitized sets of analog data are being transferred to a personal computer.

53. (previously presented) The analog data generating and processing device of claim 39, wherein the sensor receives power when the digitized sets of analog data are being transferred to a personal computer.

54. (previously presented) The analog data generating and processing device of claim 39, wherein receipt and processing of the response signal by the personal computer allows it to communicate with the analog data generating and processing device as if it were a mass storage device even though it is not a mass storage device.

55. (previously presented) The analog data generating and processing device of claim 39, wherein the sensor is detachably coupled to the analog to digital converter.

56. (previously presented) The analog data generating and processing device of claim 39, wherein the connecting device is adapted to be connected to a SCSI interface of the personal computer.

57. (previously presented) The analog data generating and processing device of claim 39, wherein the sensor is adapted to receive data from the personal computer.

58. (previously presented) The analog data generating and processing device of claim 39, wherein the digitized versions of the analog data are transferred to the personal computer in a format suitable for a mass storage device present in the personal computer.

59. (previously presented) The analog data generating and processing device of claim 39, wherein the processor is adapted to create a root directory in the first memory which can be accessed by the personal computer.

60. (previously presented) The analog data generating and processing device of claim 39, wherein a configuration file is stored in the first memory.

61. (previously presented) The analog data generating and processing device of claim 39, wherein a configuration file is stored in the first memory that allows a user to configure the analog data generating and processing device as being a specific mass storage device.

62. (previously presented) The analog data generating and processing device of claim 39, wherein a configuration file is stored in a first memory that allows a user to configure the analog data generating and processing device as being a specific hard disk drive.

63. (previously presented) The analog data generating and processing device of claim 39, wherein a wire based connection is used to operatively connect the input/output port of the processor circuit to the multi-purpose interface of the personal computer.

64. (previously presented) The analog data generating and processing device of claim 39, wherein the sensor is not directly involved in the generation of the response signal.

65. (previously presented)The analog data generating and processing device of claim 39, wherein a virtual file system is simulated to the personal computer by the digitized sets of analog data being representative of the analog wave signals.

66. (currently amended) An analog data generating and processing device (ADGPD), comprising:

a circuit having an ADGPD processor and an ADGPD memory, the circuit being ~~that is~~ adapted to be operatively coupled to a multi-purpose user interface (MPUI) of a personal computer (PC) to which the PC periodically sends device identification signals and to which the PC is capable of sending one or more data transfer requests;

a first set of instructions stored in an ADGPD memory that ~~are~~ is executed by the ADGPD processor ~~adapted~~ to cause analog data to be generated from one or more analog wave signals from a source that is both external to and not located in substantial proximity to the ADGPD, the first set of instructions being further adapted to cause digitized analog data that is representative of the analog data to be stored in the ADGPD memory;

the first set of instructions being further adapted to cause the sets of digitized analog data to be stored in the ADGPD memory before the circuit is connected to a multi-purpose interface of the PC;

a second set of instructions stored in the ADGPD memory that is executed by the ADGPD processor ~~adapted~~ to cause, after one of the ~~a~~ device identification signals has been received and processed, a response signal to be automatically and without user intervention sent to the PC that contains data which indicates to the PC how the PC can communicate with and receive data from the ADGPD;~~ADPGD;~~

a third set of instructions stored in the ADGPD memory that is executed by the ADGPD processor ~~are adapted~~ to cause, after a data transfer request has been received and processed, a transfer of at least some of the digitized analog data, including any digitized analog data ~~sets~~ that is ~~are~~ generated before the circuit is coupled to the multi-purpose interface of the PC, from the ADGPD memory to the PC;

the third set of instructions being further adapted to affect the transfer of ~~user selected~~ at least some of the digitized analog data ~~sets~~ by means of a software driver that is stored in a memory of the PC without user intervention; ~~and~~

a conductive path having a first portion physically connected to an ADGPD processor and a second portion physically connected to the ADGPD memory, the first and second portions of the conductive path being contiguous and not electrically disconnected from each other while the user selected sets of digitized analog data are being transferred to the PC; and

the first set of instructions being further adapted to store ~~one or more~~ at least some of the digitized ~~sets of~~ analog data in a file system defined within the ADGPD memory so that ~~each set~~ portions of the digitized analog data can be selectively retrieved therefrom.

67. (previously presented) A combination comprising the analog data generating and processing device of claim 66 and a personal computer.

68. (previously presented) The ADGPD of claim 66, wherein the analog wave signals comprise electromagnetic radiation.

69. (previously presented) The ADGPD of claim 66, wherein the circuit includes a sensor that is adapted to have two-way communication with the PC.

70. (previously presented) The ADGPD of claim 66, wherein the analog wave signals are generated by a medical device.

71. (previously presented) The ADGPD of claim 66, wherein the circuit forms a flexible interface.

72. (previously presented)The ADGPD of claim 66, wherein the circuit forms a universal interface.

73. (previously presented) The ADGPD of claim 66, wherein the digitized analog data is stored in the ADGPD memory only after the analog data generating and transmitting device is operatively connected to the PC.

74. (previously presented) The ADGPD of claim 66, wherein the response signal is adapted to inform a PC that the ADGPD is a mass storage device.

75. (previously presented) The ADGPD of claim 66, wherein the response signal is adapted to inform the PC that the ADGPD is a hard disk drive.

76. (previously presented) The ADGPD of claim 66, wherein the response signal is adapted to lie to the PC about the true nature of the ADGPD.

77. (previously presented) The ADGPD of claim 66, wherein the software driver is located in a BIOS of the PC.

78. (previously presented) The ADGPD of claim 66, wherein the entirety of the circuit receives power when the digitized analog data is being transferred to the PC.

79. (previously presented) The ADGPD of claim 66, wherein the circuit includes a SCSI interface that is adapted to be connected to the MPUI.

80. (previously presented) The ADGPD of claim 66, wherein a wire based connection is used to connect the circuit to the MPUI.

81. (previously presented) The ADGPD of claim 66, wherein the circuit includes a sensor for generating analog data, the sensor being detachably coupled to a remaining portion of the circuit.

82. (previously presented) The ADGPD of claim 66, wherein the circuit includes a sensor that is adapted to receive data from the PC.

83. (previously presented) The ADGPD of claim 66, wherein the circuit includes a sensor that is not directly involved in the generation of the response signal.

84. (previously presented)The ADGPD of claim 66, wherein a virtual file system is simulated to the PC by the digitized sets of analog data being representative of the analog wave signals.

REMARKS

Claims 39-84 are currently pending. Certain amendments have been made to claims 39 and 66 for purposes of clarity. Other amendments have been made to claims 39 and 66 to add a "conductive path" feature. Claims 39-84, without the "conductive path" feature, are believed to be patentable over the prior art, including the prior art listed in the IDS filed herewith. One reason for this is that none of the prior art references, either taken alone or in a purported combination, teach or suggest that *automatic and without user intervention* feature of the claims. A short analysis in support of this follows with respect to certain exemplary prior art.

A Japanese language brochure describing the Nikon Coolpix 100 camera, and an English translation thereof, are submitted herewith for the Examiner's consideration. A one page specification describing the Nikon Coolpix 100 camera also is submitted herewith. The Examiner is asked to assume, only for purposes of examination of the instant application, that these documents actually are prior art to all currently pending claims. However, this request should not be construed as being an admission regarding the prior art status of these documents or of the Nikon Coolpix 100 camera described therein. Applicant expressly reserves the right to revoke this request, and to dispute in all forums whether the Nikon Coolpix camera and/or the two documents concerning it actually are prior art.

The Examiner's attention is drawn to the fact that US Patent Nos. 5,917,545 and 6,163,344 illustrate cameras that appear to be substantially similar, if not identical, to the Nikon Coolpix 100 camera discussed in the one-page specification and the Japanese promotional brochure. For this reason, the undersigned attorney assumes that the camera disclosed in the brochure and the specification sheets operate in the same manner as the devices disclosed in the

'545 and '344 patents. All of these references are collectively referred to hereinafter as the "Coolpix 100 References."

The Coolpix 100 References describe a camera that is built around a PCMCIA memory card. After the memory card about which the camera is built has been inserted into a PCMCIA slot of a notebook computer, the computer reads a defined location on the memory card. By processing this information, the computer understands how to communicate with the memory card. Constructing a camera in this manner is functionally the same as providing the camera with a separate memory card that a user removes and places in a card reader to transfer picture data to a computer.

It is respectfully submitted that one reason that all currently pending claims should be found to be patentable over the Coolpix 100 References is because such prior art does not teach or suggest the *automatic and without user intervention* feature of the patent claims. This aspect of the invention does not involve a computer merely reading data stored in a defined location in a memory, but rather requires a processor *on the claimed device* (and not in the computer to which data is being transferred) to execute a set of instructions stored in a memory to cause a response signal to be automatically and without user intervention sent to a computer. The computer understands how to communicate and receive data from the claimed device by receiving and processing the response signal that is generated by active processing on the part of the claimed device as opposed to having a computer merely read a defined location of a memory card.

In contrast to this, the Coolpix 100 References do not involve active processing by the camera in connection with a recognition process. Rather, the Coolpix 100 References merely teach the use of "dummy" memory cards that are recognized by a computer reading information stored in a defined memory location in the card. There is no functional difference between constructing a camera in this manner and providing a camera with a separate memory card that a user removes and places in a card reader. For these reasons, for example, the currently pending claims should be found to be patentable over the Coolpix 100 References.

Even though it is not necessary to do so, claims 39 and 66 have been amended to provide additional reasons as to why the currently pending claims should be found to be patentable over the prior art such as the Coolpix References. In particular, claims 39 and 66 have been amended to require that first and second portions of a conductive path are physically connected to a processor and a memory, respectively, with the first and second portions of the conductive path being "contiguous and not electrically disconnected from each other" while digitized data is being sent to a personal computer.

Exemplary structure corresponding to this claim element is shown, for example, in Figure 1 of the instant application. Figure 1 shows that a DSP 13 is electrically connected to a memory 14. The portion of the electrical connection to the DSP 13 is contiguous with and not electrically disconnected from the portion of the electrical connection to memory 14 when digitized data stored in the memory 14 is being transferred to a host device.

In direct contrast to the above-described subject matter, the Coolpix 100 References teach that portions of a conductive path between a camera processor and a picture memory (where picture data is stored) are not contiguous and are electrically disconnected from each other when picture data is being transferred from the picture memory to a computer. See, for example, column 8, lines 4-12 of the '344 patent, which state that bus buffer A (located between the memory or storage device 16 and the CPU 15) is in the "opened state" when the PC card loading unit 4 is inserted in slot 3. This causes two portions of the bus 18 to be non-contiguous and disconnected when picture data is being sent to a computer. For this additional reason, for example, the currently pending claims should be found to be patentable over the Coolpix 100 References.

It is respectfully submitted that the new claims are in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited. In this regard, the Examiner is respectfully requested to contact the undersigned attorney upon entry of this amendment.

Respectfully submitted,

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August 8, 2007

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Michael Tasler

Group No.: 2181

Serial No.: 11/467,092

Conf. No.: 3038

Filed: August 24, 2006

Examiner: Harold J. Kim

For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER (As Amended)

Attorney Docket No.: 0757/98081

SUPPLEMENTAL PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-0001

Dear Sir:

Please enter this supplemental preliminary amendment prior to examination of the above-captioned application.

IN THE CLAIMS:

Please cancel claims 1-38, and add new claims 39-84 as noted hereinafter:

1-38. (cancelled).

39. (new) An analog data generating and processing device for use with a personal computer having at least one multi-purpose interface to which inquiry signals are periodically sent as to what type of device is operatively connected thereto, comprising:

a connecting device that is to be operatively connected to the multi-purpose interface of the personal computer and that is able to receive therefrom the periodic inquiry signals;

a circuit that includes a sensor and an analog to digital converter, the circuit being adapted to be exposed to analog wave signals that originate from a source that is external to the analog data generating and processing device and that is not located in substantial proximity to the sensor, to generate sets of analog data therefrom, and to generate digitized sets of analog data from the sets of analog data;

a processor and a first memory both of which are operatively connected to the circuit, the processor being adapted to cause the digitized sets of analog data to be stored in the first memory irrespective of whether or not the analog data generating and processing device has been recognized by the personal computer;

the processor being further adapted to cause the sets of digitized analog data to be stored in the first memory before the connecting device is connected to a multi-purpose interface of the personal computer;

the processor and first memory being adapted to automatically and without user intervention send a response signal to the multi-purpose interface of the personal computer after the connecting device is operatively connected to the multi-purpose interface and after the connecting device receives at least one periodic inquiry signal therefrom, the response signal informing the personal computer that it can automatically and without user intervention recognize the analog data generating and processing device as being a device having digital data that is stored therein;

the analog data generating and processing device being adapted to, after it has been automatically recognized by the personal computer, and after the connecting device has been coupled to the multi-purpose interface of the personal computer, cause user selected ones of the digitized sets of analog data, including any digitized data sets that are generated before the input/output port is connected to the multi-purpose interface of the personal computer, to be transferred to the personal computer;

the analog data generating and processing device being adapted to affect the transfer of user selected digitized sets of analog data by means of a software driver that is stored in a second memory of the personal computer without user intervention; and

the processor being further adapted to store one or more digitized sets of analog data in a file system defined within the first memory so that each set of digitized analog data can be selectively retrieved therefrom.

40. (new) A combination comprising the analog data generating and processing device of claim 39 and a personal computer.

41. (new) The analog data generating and processing device of claim 39, wherein the analog wave signals comprise electromagnetic radiation.

42. (new) The analog data generating and processing device of claim 39, wherein the sensor is adapted to have two-way communication with a personal computer.

43. (new) The analog data generating and processing device of claim 39, wherein the analog wave signals are generated by a medical device.

44. (new) The analog data generating and processing device of claim 39, wherein the connecting device, circuit, processor and first memory form a flexible interface.

45. (new) The analog data generating and processing device of claim 39, wherein the connecting device, circuit, processor and first memory form a universal interface.

46. (new) The analog data generating and processing device of claim 39, wherein the sensor comprises an electronic measuring device.

47. (new) The analog data generating and processing device of claim 39, wherein the sensor is electrically connected to the processor and first memory by a two-way communication line.

48. (new) The analog data generating and processing device of claim 39, wherein the response signal is adapted to inform a personal computer that the analog data generating and processing device is a mass storage device.

49. (new) The analog data generating and processing device of claim 39, wherein the response signal is adapted to inform a personal computer that the analog data generating and processing device is a hard disk drive.

50. (new) The analog data generating and processing device of claim 39, wherein the response signal is adapted to lie to a personal computer about the true nature of the analog data generating and processing device.

51. (new) The analog data generating and processing device of claim 39, wherein the software driver is located in a BIOS of the personal computer.

52. (new) The analog data generating and processing device of claim 39, wherein the circuit receives power when the digitized sets of analog data are being transferred to a personal computer.

53. (new) The analog data generating and processing device of claim 39, wherein the sensor receives power when the digitized sets of analog data are being transferred to a personal computer.

54. (new) The analog data generating and processing device of claim 39, wherein receipt and processing of the response signal by the personal computer allows it to communicate with the analog data generating and processing device as if it were a mass storage device even though it is not a mass storage device.

55. (new) The analog data generating and processing device of claim 39, wherein the sensor is detachably coupled to the analog to digital converter.

56. (new) The analog data generating and processing device of claim 39, wherein the connecting device is adapted to be connected to a SCSI interface of the personal computer.

57. (new) The analog data generating and processing device of claim 39, wherein the sensor is adapted to receive data from the personal computer.

58. (new) The analog data generating and processing device of claim 39, wherein the digitized versions of the analog data are transferred to the personal computer in a format suitable for a mass storage device present in the personal computer.

59. (new) The analog data generating and processing device of claim 39, wherein the processor is adapted to create a root directory in the first memory which can be accessed by the personal computer.

60. (new) The analog data generating and processing device of claim 39, wherein a configuration file is stored in the first memory.

61. (new) The analog data generating and processing device of claim 39, wherein a configuration file is stored in the first memory that allows a user to configure the analog data generating and processing device as being a specific mass storage device.

62. (new) The analog data generating and processing device of claim 39, wherein a configuration file is stored in a first memory that allows a user to configure the analog data generating and processing device as being a specific hard disk drive.

63. (new) The analog data generating and processing device of claim 39, wherein a wire based connection is used to operatively connect the input/output port of the processor circuit to the multi-purpose interface of the personal computer.

64. (new) The analog data generating and processing device of claim 39, wherein the sensor is not directly involved in the generation of the response signal.

65. (new) The analog data generating and processing device of claim 39, wherein a virtual file system is simulated to the personal computer by the digitized sets of analog data being representative of the analog wave signals.

66. (new) An analog data generating and processing device (ADGPD), comprising:

a circuit that is adapted to be operatively coupled to a multi-purpose user interface (MPUI) of a personal computer (PC) to which the PC periodically sends device identification signals and to which the PC is capable of sending data transfer requests;

a first set of instructions stored in an ADGPD memory that are adapted to cause analog data to be generated from one or more analog wave signals from a source that is both external to and not located in substantial proximity to the ADGPD, the first set of instructions being further adapted to cause digitized analog data that is representative of the analog data to be stored in the ADGPD memory;

the first set of instructions being further adapted to cause the sets of digitized analog data to be stored in the ADGPD memory before the circuit is connected to a multi-purpose interface of the PC;

a second set of instructions stored in the ADGPD memory that is adapted to cause, after a device identification signal has been received and processed, a response signal to be automatically and without user intervention sent to the PC that contains data which indicates to the PC how the PC can communicate with and receive data from the ADPGD;

a third set of instructions stored in the ADGPD memory that are adapted to cause, after a data transfer request has been received and processed, a transfer of at least some of the digitized analog data, including any digitized data sets that are generated before the circuit is coupled to the multi-purpose interface of the PC, from the ADGPD memory to the PC;

the third set of instructions being further adapted to affect the transfer of user selected digitized data sets by means of a software driver that is stored in a memory of the PC without user intervention; and

the first set of instructions being further adapted to store one or more digitized sets of analog data in a file system defined within the ADGPD memory so that each set of digitized analog data can be selectively retrieved therefrom.

67. (new) A combination comprising the analog data generating and processing device of claim 66 and a personal computer.

68. (new) The ADGPD of claim 66, wherein the analog wave signals comprise electromagnetic radiation.

69. (new) The ADGPD of claim 66, wherein the circuit includes a sensor that is adapted to have two-way communication with the PC.

70. (new) The ADGPD of claim 66, wherein the analog wave signals are generated by a medical device.

71. (new) The ADGPD of claim 66, wherein the circuit forms a flexible interface.

72. (new) The ADGPD of claim 66, wherein the circuit forms a universal interface.

73. (new) The ADGPD of claim 66, wherein the digitized analog data is stored in the ADGPD memory only after the analog data generating and transmitting device is operatively connected to the PC.

74. (new) The ADGPD of claim 66, wherein the response signal is adapted to inform a PC that the ADGPD is a mass storage device.

75. (new) The ADGPD of claim 66, wherein the response signal is adapted to inform the PC that the ADGPD is a hard disk drive.

76. (new) The ADGPD of claim 66, wherein the response signal is adapted to lie to the PC about the true nature of the ADGPD.

77. (new) The ADGPD of claim 66, wherein the software driver is located in a BIOS of the PC.

78. (new) The ADGPD of claim 66, wherein the entirety of the circuit receives power when the digitized analog data is being transferred to the PC.

79. (new) The ADGPD of claim 66, wherein the circuit includes a SCSI interface that is adapted to be connected to the MPUI.

80. (new) The ADGPD of claim 66, wherein a wire based connection is used to connect the circuit to the MPUI.

81. (new) The ADGPD of claim 66, wherein the circuit includes a sensor for generating analog data, the sensor being detachably coupled to a remaining portion of the circuit.

82. (new) The ADGPD of claim 66, wherein the circuit includes a sensor that is adapted to receive data from the PC.

83. (new) The ADGPD of claim 66, wherein the circuit includes a sensor that is not directly involved in the generation of the response signal.

84. (new) The ADGPD of claim 66, wherein a virtual file system is simulated to the PC by the digitized sets of analog data being representative of the analog wave signals.

REMARKS

Claims 1-38 have been cancelled, and new claims 39-84 are being submitted herewith for the Examiner's consideration. The new claims have been submitted to more clearly claim the applicant's invention, and to better highlight how the claims distinguish over all the prior art of record in this and the parent application, either taken alone or in any purported combination.

In the parent of this application, the undersigned attorney submitted information about various digital cameras and software provided by Eastman Kodak, Sony, Polaroid, Canon, Olympus, and Casio, and asked the Examiner to assume that this information is prior art. Assuming that it is prior art, this information, together with the other camera related patents are of record in the parent application, evidences that it was the accepted state of the art in the digital camera field around the time of the claimed invention to require a user to load applications software onto a computer before image data could be transferred to the computer from a digital camera. The scanner related references (*e.g.*, USP 5,508,821) also require user intervention of some sort to allow scanned images to be transferred over to a personal computer.

Deviations away from the accepted state of the art are evidence of patentability of an invention. *See*, *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1552 (C.A.Fed.1983) (The fact that "Dr. Gore . . . proceeded contrary to the accepted wisdom of the prior art . . . is strong evidence of nonobviousness."). *See also*, *Tec Air, Inc. v. Denso Mfg. Mich., Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999) ("To rebut a prima facie case of obviousness based on prior art, objective evidence of nonobviousness may be used, including whether the invention was contrary to accepted wisdom of the prior art."). The recent Supreme Court decision in the KSR case does not overrule and is not inconsistent with the above-noted *Gore* or *Tec Air* decisions of the Federal Circuit.

All of the currently pending claims require an *automatic and without user intervention* feature that allows a computer to understand how to talk to and receive data from the claimed device without a user having to, for example, load applications software onto a computer before being able to transfer data to it. It is respectfully submitted that, in accordance with the above-referenced case law, all currently pending claims should be found to be patentable. One reason for this is that the present invention deviates away from the accepted state of the art evidenced by the camera, software and scanner references of record, which affirmatively require user intervention – a user must, for example, load applications software onto a computer to be able to transfer pictures to it from a digital camera.

The currently pending claims should be found to be patentable for a number of additional reasons. For example, the new claims further specify that the claimed device is capable of generating digitized analog data sets before the claimed device is connected to a personal computer. The undersigned attorney is not aware of any proper combination of references that teaches or suggests this claim element.

As one example, and assuming for the sake of argument that a "plug and play keyboard" is prior art and that it is proper to combine such assumed prior art with a camera reference such as US Patent No. 5,470,335, such a purported combination of references would not render obvious the subject matter of the currently pending claims. One reason for this is that all claims require the capability of generating digitized analog data before the claimed device is connected to a personal computer. In direct contrast to this, keyboards create useful data only after they are connected to a personal computer and, therefore, the combination of the keyboard with the '335 patent would be able to create useful data on a plug and play basis only after the combination is connected to a personal computer. For this additional reason, for example, it is respectfully submitted that all currently pending claims should be found to be patentable.

The Examiner's attention is drawn to the fact that each independent claim includes a dependent claim that recites a combination of a personal computer with the device claimed in the corresponding independent claim. It is the specific intention of the client and the undersigned attorney to ensure that all currently pending claims are first directly infringed by the manufacture or sale of the claimed device, not by the combination of the claimed device and a personal computer.

As a follow-up to the previously filed notice of litigation, additional lawsuits involving Fujifilm, Samsung, Olympus, MEI and JVC have been filed with respect to the same patents at issue in the previous notice. A multi-district litigation may be declared in the future.

The undersigned attorney requests the Examiner to review all the prior art submitted in connection with this and the parent application, and to base his decision on the patentability of the currently pending claims only on the remarks made in this paper, not on arguments or amendments made in any other paper or any application of which this application claims priority.

It is the specific intention of the applicant that the independent claims noted above should be interpreted to stand on their own. In this regard, the limitations of the claims depending from any dependent claim should not be read into any independent claim for any reason.

It is respectfully submitted that the new claims are in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited. In this regard, the Examiner is respectfully requested to contact the undersigned attorney upon entry of this amendment.

Respectfully submitted,

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AN ANALOG DATA GENERATING AND PROCESSING DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of application Ser. No. 11/078,778, filed March 11, 2005, now currently pending, which is a continuation of application Ser. No. 10/219,105, filed August 15, 2002, now Pat. No. 6,895,449, which is a divisional of application Ser. No. 09/331,002, filed Jun. 14, 1999, now Pat. No. 6,470,399.

FIELD OF THE INVENTION

[0002] The present invention relates to the transfer of data and in particular to interface devices for communication between a computer or host device and a data transmit/receive device from which data is to be acquired or with which two-way communication is to take place.

BACKGROUND OF THE INVENTION

[0003] Existing data acquisition systems for computers are very limited in their areas of application. Generally such systems can be classified into two groups.

[0004] In the first group host devices or computer systems are attached by means of an interface to a device whose data is to be acquired. The interfaces of this group are normally standard interfaces which, with specific driver software, can be used with a variety of host systems. An advantage of such interfaces is that they are largely independent of the host device. However, a disadvantage is that they generally require very sophisticated drivers which are prone to malfunction and which limit data transfer rates between the device connected to the interface and the host device and vice versa. Further, it is often very difficult to implement such interfaces for portable systems and they offer few possibilities for adaptation with the result that such systems offer little flexibility.

[0005] The devices from which data is to be acquired cover the entire electrical engineering spectrum. In a typical case, it is assumed that a customer who operates, for example, a diagnostic radiology system in a medical engineering environment reports a fault. A field service technician of the system manufacturer visits the customer and reads system log files generated by the diagnostic radiology system by means a portable computer or laptop for example. If the fault cannot be localized or if the fault is intermittent, it will be necessary for the service technician to read not only an error log file but also data from current operation. It is apparent that in this case fast data transfer and rapid data analysis are necessary.

[0006] Another case requiring the use of an interface could be, for example, when an electronic measuring device, e.g. a multimeter, is attached to a computer system to transfer the data measured by the multimeter to the computer. Particularly when long-term measurements or large volumes of data are involved is it necessary for the interface to support a high data transfer rate.

[0007] From these randomly chosen examples it can be seen that an interface may be put to totally different uses. It is therefore desirable that an interface be sufficiently flexible to permit attachment of very different electrical or electronic systems to a host device by means of the interface. To prevent operator error, it is also desirable that a service technician is not required to operate different interfaces in different ways for different applications but that, if possible, a universal method of operating the interface be provided for a large number of applications.

[0008] To increase the data transfer rates across an interface, the route chosen in the second group of data acquisition systems for the interface devices was to specifically match the interface very closely to individual host systems or computer systems. The advantage of this solution is that high data transfer rates are possible. However, a disadvantage is that the drivers for the interfaces of the second group are very closely matched to a single host system with the result that they generally cannot be used with other host systems or their use is very ineffective. Further, such types of interface have the disadvantage that they must be installed inside the computer casing to achieve maximum data transfer rates as they access the internal host bus system. They are therefore generally not suitable for portable host systems in the form of laptops whose minimum possible size leaves little internal space to plug in an interface card.

[0009] A solution to this problem is offered by the interface devices of IOtech (business address: 25971 Cannon Road, Cleveland, Ohio 44146, USA) which are suitable for laptops such as the WaveBook/512 (registered trademark). The interface devices are connected by means of a plug-in card, approximately the size of a credit card, to the PCMCIA interface which is now a standard feature in laptops. The plug-in card converts the PCMCIA interface into an interface known in the art as IEEE 1284. The said plug-in card provides a special printer interface which is enhanced as regards the data transfer rate and delivers a data transfer rate of approximately 2 MBps as compared with a rate of approx. 1 MBps for known printer interfaces. The known interface device generally consists of a driver component, a digital signal processor, a buffer and a hardware module which terminates in a connector to which the device whose data is to be acquired is attached. The driver component is attached directly to the enhanced printer interface thus permitting the known interface device to establish a connection between a computer and the device whose data is to be acquired.

[0010] In order to work with the said interface, an interface-specific driver must be installed on the host device so that the host device can communicate with the digital signal processor of the interface card. As described above, the driver must be installed on the host device. If the driver is a driver developed specifically for the host device, a high data transfer rate is achieved but the driver cannot be easily installed on a different host system. However, if the driver is a general driver which is as flexible as possible and which can be used on many host devices, compromises must be accepted with regard to the data transfer rate.

[0011] Particularly in an application for multi-tasking systems in which several different tasks such as data acquisition, data display and editing are to be performed quasi-simultaneously, each task is normally assigned a certain priority by the host system. A driver supporting a special task requests the central processing system of the host device for processor resources in order to perform its task. Depending on the particular priority assignment method and on the driver implementation, a particular share of processor resources is assigned to a special task in particular time slots. Conflicts arise if one or more drivers are implemented in such a way that they have the highest priority by default, i.e. they are incompatible, as happens in practice in many applications. It may occur that both drivers are set to highest priority which, in the worst case, can result in a system crash.

[0012] EP 0685799 A1 discloses an interface by means of which several peripheral devices can be attached to a bus. An interface is connected between the bus of a host device and various peripheral devices. The interface comprises a finite state machine and several branches each of which is assigned to a peripheral device. Each branch comprises a data manager, cycle control, user logic and a buffer. This known interface device provides optimal matching between a host device and a specific peripheral device.

[0013] The specialist publication IBM Technical Disclosure Bulletin, Vol. 38, No. 05, page 245; "Communication Method between Devices through FDD Interface" discloses an interface which connects a host device to a peripheral device via a floppy disk drive interface. The interface consists in particular of an address generator, an MFM encoder/decoder, a serial/parallel adapter and a format signal generator. The interface makes it possible to attach not only a floppy disk drive but also a further peripheral device to the FDD host controller of a host device. The host device assumes that a floppy disk drive is always attached to its floppy disk drive controller and communication is initiated if the address is correct. However, this document contains no information as to how communication should be possible if the interface is connected to a multi-purpose interface instead of to a floppy disk drive controller.

SUMMARY OF THE INVENTION

[0014] It is the object of the present invention to provide an interface device for communication between a host device and a data transmit/receive device whose use is host device-independent and which delivers a high data transfer rate.

[0015] The present invention is based on the finding that both a high data transfer rate and host device-independent use can be achieved if a driver for an input/output device customary in a host device, normally present in most commercially available host devices, is utilized. Drivers for input/output devices customary in a host device which are found in practically all host devices are, for example, drivers for hard disks, for graphics devices or for printer devices. As however the hard disk interfaces in common host devices which can be, for example, IBM PCs, IBM-compatible PCs, Commodore PCs, Apple computers or even workstations, are the interfaces with the highest data transfer rate, the hard disk driver is utilized in the preferred embodiment of the interface device of the present invention. Drivers for other storage devices such as floppy disk drives, CD-ROM drives or tape drives could also be utilized in order to implement the interface device according to the present invention.

[0016] As described in the following, the interface device according to the present invention is to be attached to a host device by means of a multi-purpose interface of the host device which can be implemented, for example, as an SCSI interface or as an enhanced printer interface. Multi-purpose interfaces comprise both an interface card and specific driver software for the interface card. The driver software can be designed so that it can replace the BIOS driver routines. Communication between the host device and the devices attached to the multi-purpose interface then essentially takes place by means of the specific driver software for the multi-purpose interface and no longer primarily by means of BIOS routines of the host device. Recently however drivers for multi-purpose interfaces can also already be integrated in the BIOS system of the host device as, alongside classical input/output interfaces, multi-purpose interfaces are becoming increasingly common in host devices. It is of course also possible to use BIOS routines in parallel with the specific driver software for the multi-purpose interface, if this is desired.

[0017] The interface device according to the present invention comprises a processor means, a memory means, a first connecting device for interfacing the host device with the interface device, and a second connecting device for interfacing the interface device with the data transmit/receive device. The interface device is configured by the processor means and the memory means in such a way that the interface device, when receiving an inquiry from the host device via the first connecting device as to the type of a device attached to the host device, sends a signal, regardless of the type of the data transmit/receive device, to the host device via the first connecting device which signals to the host device that it is communicating with an input/output device. The interface device according to the present invention therefore simulates, both in terms of hardware and software, the way in which a conventional input/output device functions, preferably that of a hard disk drive. As support for hard disks is implemented as standard in all commercially available host systems, the simulation of a hard disk, for example, can provide host device-independent use. The interface device according to the present invention therefore no longer communicates with the host device or computer by means of a specially designed driver but by means of a program which is present in the BIOS system (Basic Input/Output System) and is normally precisely matched to the specific computer system on which it is installed, or by means of a specific program for the multi-purpose interface. Consequently, the interface device according to the present invention combines the advantages of both groups. On the one hand, communication between the computer and the interface takes place by means of a host device-specific BIOS program or by means of a driver program which is matched to the multi-purpose interface and which could be regarded as a "device-specific driver". On the other hand, the BIOS program or a corresponding multi-purpose interface program which operates one of the common input/output interfaces in host systems is therefore present in all host systems so that the interface device according to the present invention is host device-independent.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] In the following, preferred embodiments of the present invention will be explained in more detail with reference to the drawings enclosed, in which:

[0019] FIG. 1 shows a general block diagram of the interface device according to the present invention; and

[0020] FIG. 2 shows a detailed block diagram of an interface device according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] It should be understood that the title of this section of this specification, namely, "Detailed Description Of The Invention", relates to a requirement of the United States Patent Office, and does not imply, nor should be inferred to limit the subject matter disclosed herein.

[0022] FIG. 1 shows a general block diagram of an interface device 10 according to the present invention. A first connecting device 12 of the interface device 10 can be attached to a host device (not shown) via a host line 11. The first connecting device is attached both to a digital signal processor 13 and to a memory means 14. The digital signal processor 13 and the memory means 14 are also attached to a second connecting device 15 by means of bi-directional communication lines (shown for all lines by means of two directional arrows). The second connecting device can be attached by means of an output line 16 to a data transmit/receive device which is to receive data from the host device or from which data is to be read, i.e. acquired, and transferred to the host device. The data transmit/receive device itself can also communicate actively with the host device via the first and second connecting device, as described in more detail in the following.

[0023] Communication between the host system or host device and the interface device is based on known standard access commands as supported by all known operating systems (e.g. DOS, Windows, Unix). Preferably, the interface device according to the present invention simulates a hard disk with a root directory whose entries are "virtual" files which can be created for the most varied functions. When the host device system with which the interface device according to the present invention is connected is booted and a data transmit/receive device is also attached to the interface device 10, usual BIOS routines or multi-purpose interface programs issue an instruction, known by those skilled in the art as the INQUIRY instruction, to the input/output interfaces in the host device. The digital signal processor 13 receives this inquiry instruction via the first connecting device and generates a signal which is sent to the host device (not shown) again via the first connecting device 12 and the host line 11. This signal indicates to the host device that, for example, a hard disk drive is attached at the interface to which the INQUIRY instruction was sent. Optionally, the host device can send an instruction, known by those skilled in the art as "Test Unit Ready", to the interface device to request more precise details regarding the queried device.

[0024] Regardless of which data transmit/receive device at the output line 16 is attached to the second connecting device, the digital signal processor 13 informs the host device that it is communicating with a hard disk drive. If the host device receives the response that a drive is present, it then sends a request to the interface device 10 to read the boot sequence which, on actual hard disks, normally resides on the first sectors of the disk. The digital signal processor 13, whose operating system in stored in the memory means 14, responds to this instruction by sending to the host device a virtual boot sequence which, in the case of actual drives, includes the drive type, the starting position and the length of the file allocation table (FAT), the number of sectors, etc., known to those skilled in the art. Once the host device has received this data, it assumes that the interface device 10 according to a preferred embodiment of the present invention is a hard disk drive. In reply to an instruction from the host device to display the directory of the "virtual" hard disk drive simulated by the interface device 10 with respect to the host device, the digital signal processor can respond to the host device in exactly the same way as a conventional hard disk would, namely by reading on request the file allocation table or FAT on a sector specified in the boot sequence, normally the first writable sector, and transferring it to the host device, and subsequently by transferring the directory structure of the virtual hard disk. Further, it is possible that the FAT is not read until immediately prior to reading or storing the data of the "virtual" hard disk and not already at initialization.

[0025] In a preferred embodiment of the present invention, the digital signal processor 13, which need not necessarily be implemented as a digital signal processor but may be any other kind of microprocessor, comprises a first and a second command interpreter. The first command interpreter carries out the steps described above whilst the second command interpreter carries out the read/write assignment to specific functions. If the user now wishes to read data from the data transmit/receive device via the line 16, the host device sends a command, for example "read file xy", to the interface device. As described above, the interface device appears to the host device as a hard disk. The second command interpreter of the digital signal processor now interprets the read command of the host processor as a data transfer command, by decoding whether "xy" denotes, for example, a "real-time input" file, a "configuration" file or an executable file, whereby the same begins to transfer data from the data transmit/receive device via the second connecting device to the first connecting device and via the line 11 to the host device.

[0026] Preferably, the volume of data to be acquired by a data transmit/receive device is specified in a configuration file described in the following by the user specifying in the said configuration file that a measurement is to last, for example, five minutes. To the host device the "real-time input" file then appears as a file whose length corresponds to the anticipated volume of data in those five minutes. Those skilled in the art know that communication between a processor and a hard disk consists of the processor transferring to the hard disk the numbers of the blocks or clusters or sectors whose contents it wishes to read. By reference to the FAT the processor knows which information is contained in which block. In this case, communication between the host device and the interface device according to the present invention therefore consists of the very fast transfer of block numbers and preferably of block number ranges because a virtual "real-time input" file will not be fragmented. If the host device now wants to read the "real-time input" file, it transfers a range of block numbers to the interface device, whereupon data commences to be received via the second connecting device and data commences to be sent to the host device via the first connecting device.

[0027] In addition to the digital signal processor instruction memory, which comprises the operating system of the digital signal processor and can be implemented as an EPROM or EEPROM, the memory means 14 can have an additional buffer for purposes of synchronizing data transfer from the data transmit/receive device to the interface device 10 and data transfer from the interface device 10 to the host device.

[0028] Preferably, the buffer is implemented as a fast random access memory or RAM buffer.

[0029] Further, from the host device the user can also create a configuration file, whose entries automatically set and control various functions of the interface device 10, on the interface device 10 which appears to the host device as a hard disk. These settings can be, for example, gain, multiplex or sampling rate settings. By creating and editing a configuration file, normally a text file which is simple to understand with little prior knowledge, users of the interface device 10 are able to perform essentially identical operator actions for almost any data transmit/receive devices which can be attached to the second connecting device via the line 16, thus eliminating a source of error arising from users having to know many different command codes for different applications. In the case of the interface device 10 according to the present invention it is necessary for users to note the conventions of the configuration file once only in order to be able to use the interface device 10 as an interface between a host device and almost any data transmit/receive device.

[0030] As a result of the option of storing any files in agreed formats in the memory means 14 of the interface device 10, taking into account the maximum capacity of the memory means, any enhancements or even completely new functions of the interface device 10 can be quickly implemented. Even files executable by the host device, such as batch files or executable files (BAT or EXE files), and also help files can be implemented in the interface device, thus achieving independence of the interface device 10 from any additional software (with the exception of the BIOS routines) of the host device. On the one hand, this avoids licensing and/or registration problems and, on the other hand, installation of certain routines which can be frequently used, for example an FFT routine to examine acquired time-domain data in the frequency domain, is rendered unnecessary as the EXE files are already installed on the interface device 10 and appear in the virtual root directory, by means of which the host device can access all programs stored on the interface device 10.

[0031] In a preferred embodiment of the present invention in which the interface device 10 simulates a hard disk to the host device, the interface device is automatically detected and readied for operation when the host system is powered up or booted. This corresponds to the plug-and-play standard which is currently finding increasingly widespread use. The user is no longer responsible for installing the interface device 10 on the host device by means of specific drivers which must also be loaded; instead the interface device 10 is automatically readied for operation when the host system is booted.

[0032] For persons skilled in the art it is however obvious that the interface device 10 is not necessarily signed on when the computer system is powered up but that a special BIOS routine or a driver for a multi-purpose interface can also be started on the host device during current operation of the computer system in order to sign on or mount the interface device 10 as an additional hard disk. This embodiment is suitable for larger workstation systems which are essentially never powered down as they perform, e.g. mail functions or monitor processes which run continuously, for example, in multi-tasking environments.

[0033] In the interface device according to the present invention an enormous advantage is to be gained, as apparent in the embodiment described in the following, in separating the actual hardware required to attach the interface device 10 to the data transmit/receive device from the communication unit, which is implemented by the digital signal processor 13, the memory means 14 and the first connecting device 12, as this allows a plurality of dissimilar device types to be operated in parallel in identical manner. Accordingly, many interface devices 10 can be connected to a host device which then sees many different "virtual" hard disks. In addition, any modification of the specific hardware symbolized by the second connecting device 15 can be implemented essentially without changing the operation of the interface device according to the present invention. Further, an experienced user can intervene at any time on any level of the existing second connecting device by making use of the above mentioned option of creating a configuration file or adding or storing new program sections for the second connecting device.

[0034] An important advantage of the interface device 10 of the present invention is that it also permits extremely high data transfer rates by using, for data interchange, the host device-own BIOS routines which are optimized for each host device by the host device manufacturer or BIOS system manufacturer, or by using driver programs which are normally optimized and included by the manufacturers of multi-purpose interfaces. Furthermore, due to the simulation of a virtual mass storage device, the data is managed and made available in such a way that it can be transferred directly to other storage media, e.g. to an actual hard disk of the host device without, as it were, intervention of the host device processor. The only limitation to long-term data transfer at high speed is therefore imposed exclusively by the speed and the size of the mass storage device of the host device. This is the case as the digital signal processor 13 already formats the data read by the data transmit/receive device via the second connecting device 15 into block sizes suitable for a hard disk of the host device, whereby the data transfer speed is limited only by the mechanical latency of the hard disk system of the host device. At this point, it should be noted that normally data flow from a host device must be formatted in blocks to permit writing to a hard disk and subsequent reading from a hard disk, as known by those skilled in the art.

[0035] The said data transfer rate can be increased further by setting up a direct memory access (DMA) or RAM drive in the host system. As those skilled in the art know, the setting up of a RAM drive requires processor resources of the host device, with the result that the advantage of writing the data to a hard disk drive of the host device essentially without the need for processor resources is lost.

[0036] As described above, a data buffer can be implemented in the memory means 14 to permit independence in terms of time of the data transmit/receive device attached to the second connecting device from the host device attached to the first connecting device. This guarantees error-free operation of the interface device 10 even for time-critical applications in multi-tasking host systems.

[0037] FIG. 2 shows a detailed block diagram of an interface device 10 according to the present invention.

[0038] A digital signal processor (DSP) 1300 is, in a manner of speaking, the heart of the interface device 10. The DSP can be any DSP but preferably has a 20-MB on-chip random access memory (RAM). Certain instruction sets, for example, can be stored in the RAM already integrated in the DSP. An 80-MHz clock generator is attached to the DSP 1300 in order to synchronize the DSP. The DSP implements a fast Fourier transformation (FFT) in real time and also optional data compression of the data to be transferred from the data transmit/receive device to the host device in order to achieve greater efficiency and to permit interoperation with host devices which have a smaller memory.

[0039] In the preferred embodiment of the interface device 10 shown in FIG. 2, the first connecting device 12 of FIG. 1 contains the following components: an SCSI interface 1220 and a 50-pin SCSI connector 1240 for attachment to an SCSI interface present on most host devices or laptops. The SCSI (small computer system interface) interface 1220 translates the data received via the SCSI connector 1240 into data understood by the DSP 1300, as known by those skilled in the art. Further, the first connecting device 12 comprises an EPP (enhanced parallel port) with a data transfer rate of approx. 1 MBps which delivers a more moderate data transfer rate of 1 MBps by comparison to the data transfer rate of 10 MBps of the SCSI interface. The EPP 1260 is connected to a 25-pin D-shell connector 1280 to permit attachment to a printer interface of a host device for example. Optionally, the first connecting device 12 also comprises a 25-pin connector 1282 which permits the attachment of 8 digital outputs and 8 digital inputs 1284 at a host device.

[0040] Preferably, the second connecting device comprises 8 BNC inputs with the calibration relay 1505, a block 1510 with 8 device amplifiers with an overvoltage protection of .+-.75 V, this block being connected in turn to 8 sample/hold (S&H) circuits 1515. The calibration relays are relays which permit controlled changeover between a test voltage and a calibration reference voltage. Each sample/hold circuit is connected to a corresponding input of an 8-channel multiplexer 1520 which feeds its output signals via a programmable amplifier 1525 into an analog/digital converter (ADC) with 12 bit and 1.25 MHz 1530 and to the DSP 1300. The ADC 1530 is controlled by means of a 20-bit timer 1535, as known by persons skilled in the art. The programmable amplifier 1525 and the 8-channel multiplexer 1520 are controlled via an amplifier channel selection circuit 1540 which is in turn controlled by the DSP 1300.

[0041] The complete interface device 10 is supplied with power by an external AC/DC converter 1800 which delivers a digital supply voltage of .+-.5 V and is attached to a DC/DC converter 1810 which can deliver analog supply voltages of .+-.5 V and .+-.15 V as required for the interface device 10. Further, the DC/DC converter controls a precision voltage reference 1820 which controls the 8 BNC inputs 1505 and the ADC 1530 as well as a digital/analog converter (DAC) 1830 which permits, via an output amplifier block with 4 output amplifiers 1840 and a 9-pin connector 1850, analog output direct from the DSP 1300 to an output device, e.g. printer device or monitor device, which can be attached via the 9-pin connector 1850, thus providing the option of monitoring the data transferred to the host device or also, for example, of viewing an FFT to obtain rapid and comprehensive data analysis without using processor time of the host device.

[0042] In FIG. 2 the memory means 14 of FIG. 1 is implemented by an EPROM 1400 which, in a preferred embodiment of the present invention, contains the operating system of the digital signal processor 1300. A random access memory with an access time of 15 ns and a size of 512 KB or optionally 1024 KB 1420 serves as a data buffer to achieve independence in terms of time of the output line 16 from the output lines 11a, 11b and 11c to the data transmit/receive device and to the host device respectively. As described above, in a preferred embodiment of the present invention the digital signal processor 1300 already contains a 20-KB on-chip RAM 1440 which can store certain instruction sets, functions and also smaller application software units.

[0043] The connection, symbolized by the line 16, of the interface device 10 to any data transmit/receive device implements, by means of the blocks 1505-1535, an analog input with a sampling rate of 1.25 MHz and quantization of 12 bits. There are 8 channels with an overvoltage protection of .+-.75 V. By means of the programmable amplifier 1525 the channels can be programmed independently of each other in voltage ranges up to a maximum of .+-.10 V. Unused channels can be grounded internally to reduce channel intermodulation. The block 1515 is implemented as a monolithic high-precision, high-speed sample/hold amplifier for simultaneous sampling of all channels. The precision voltage reference 1820 provides a high-precision, temperature-compensated monolithic energy gap voltage reference for auto-calibration of each channel and each gain. Further, offset fine adjustment for each channel is implemented by the same.

[0044] The blocks 1830, 1840 and 1850 implement a direct analog output for the digital signal processor 1300, and the DAC 1830 provides a data transfer rate of 625 kHz and a quantization of 12 bits. The block 1840 comprises 4 channels with a common output latch.

[0045] Further, the interface device 10 comprises a digital input/output device implemented by the blocks 1284 and 1282. Here there are 8 digital inputs, 8 digital outputs with a common latch, and the digital port can be attached preferably to a side panel of the interface device 10 so that the port itself can easily be accessed.

[0046] The digital signal processor 1300 provides on-board digital data processing. In particular, it is a high-performance DSP with a clock speed of 80 MHz and a 20-bit timer 1535.

[0047] As described above, the first connecting device 12 comprises the SCSI interface 1220 with a peak transfer rate of 10 MBps. An optional PCMCIA-to-SCSI adapter permits high-speed communication with laptop computers which are desirable and in widespread use, particularly by mobile service technicians. The EPP 1260 with its associated connector 1280 permits data transfer at a more moderate rate.

[0048] As described above, the interface device 10 is supplied with power by means of an external AC/DC adapter which has a universal power input (85-264 VAC, 47-63 Hz). Interference suppression complies with the standards EN 55022, curve B and FFC, Class B). Further, it is also in accordance with international safety regulations (TUV, UL, CSA). The interface device 10 is externally shielded and achieves a value of 55 dB at 30-60 MHz and a value of approximately 40 dB at 1 GHz, and therefore complies with the MILSTD 285-1 standard.

[0049] As described above, communication between the host device and the multi-purpose interface can take place not only via drivers for input/output device customary in a host device which reside in the BIOS system of the host device but also via specific interface drivers which, in the case of SCSI interfaces, are known as multi-purpose interface ASPI (advanced SCSI programming interface) drivers. This ASPI driver, which can also be referred to as an ASPI manager, is specific to a special SCSI host adapter, i.e. to a special multi-purpose interface, and is normally included by the manufacturer of the multi-purpose interface. Generally speaking, this multi-purpose interface driver has the task of moving precisely specified SCSI commands from the host system program to the host system SCSI adapter. For this reason, the command set is almost identical to that of the SCSI interface itself. Essentially, only status and reset commands for the host adapter have been added.

[0050] The ASPI driver can be used if the hard disk was not already addressable at boot time or if the SCSI-related BIOS routines of the host computer were still disabled. Here too, the steps needed to initialize the interface device, preferably as a virtual hard disk, are similar to the steps taken when initializing at boot time.

[0051] In general terms, the ASPI manager comprises two sides. One side is the proprietary, hardware-oriented side. It is responsible for converting all commands into a form required by the corresponding multi-purpose interface. The hardware-oriented side of the ASPI driver is therefore matched to a very specific type of multi-purpose interface or SCSI interface. The other side is known as the user software side. This side is totally independent of the proprietary operating characteristics of the SCSI adapter and is therefore identical for all SCSI interfaces. This permits SCSI programming which is however independent of the individual SCSI adapter types.

[0052] In contrast to communication between the host device and the interface device according to the present invention on the basis of a BIOS driver, the use of such an ASPI driver for communication between the host device and the interface device according to the present invention allows various further possibilities of the SCSI multi-purpose interface to be exploited. In the case described above, the interface device which preferably signs on and behaves as a virtual hard disk is detected by the BIOS driver of the host computer at boot time and is configured as a hard disk. This step does not however support active requests sent by the interface device to the host computer. If however the virtual hard disk wishes to write data actively to, for example, a hard disk of the host computer or wishes to initiate communication with the processor of the host computer, the host computer must recognize the request of the virtual hard disk and tolerate a further issuer of instructions on its bus. If the interface device behaves solely like a virtual hard disk, it would always receive and never issue commands. The BIOS has no objections to an additional issuer of commands that actively wishes to place data on the bus of the host device but the BIOS does not support the host device in recognizing corresponding requests of the interface device or in granting the interface device permission to access the bus.

[0053] Using the ASPI manager the interface device according to the present invention can now obtain active access to an SCSI hard disk of the host device connected to the same SCSI bus which, in contrast to the interface device, cannot be a virtual but a real SCSI mass storage device or also a further interface device according to the present invention. Thereupon, the interface device according to the present invention can write the desired data to the SCSI hard disk of the host computer totally independently of the host computer or can communicate with the same in some other manner. The interface device according to the present invention therefore initially behaves passively as a virtual hard disk and then, as required and using the driver software for the multi-purpose interface, actively on the same SCSI bus. This means however that the interface device according to the present invention, using a driver software for the multi-purpose interface which comprises the BIOS routines customary in host devices and simultaneously provides the option of active participation, can, regardless of the type of the data transmit/receive device attached to the second connecting device, behave initially as a virtual and at the same time passive hard disk but can, as required, participate actively on the bus so as to be able to initiate communication directly with other SCSI hard disks of the host device by bypassing the processor of the host device.

[0054] Using a standard interface of a host device, the interface device according to the present invention permits communication with any host device. By simulating an input/output device to the host device and, in a preferred embodiment, by simulating a virtual mass storage device, the interface device 10 is automatically supported by all known host systems without any additional sophisticated driver software. The simulation of a freely definable file structure on the "virtual" hard disk provides simple operation and expansion options and, through the implementation of any programs, independence from special software implemented on the host device. Help files included on the interface device 10 and plug-and-play support ensure ease of use even in portable, flexible host devices. Despite the very simple user interface, experienced users are free at any time to intervene in the functions of the interface device 10 on system level. The interface device 10 thus provides a universal solution which can cover the entire spectrum of possible data transmit/receive devices.

What is claimed is:

1. An interface device (10) for communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device comprising the following features:

a processor means (13; 1300, 1320);

a memory means (14; 1400, 1420, 1440);

a first connecting device (12; 1220, 1240, 1260, 1280) for interfacing the host device with the interface device (10) via the multi-purpose interface of the host device; and

a second connecting device (15; 1505 - 1535) for interfacing the interface device (10) with the data transmit/receive device,

wherein the interface device (10) is configured by the processor means (13; 1300, 1320) and the memory means (14; 1400, 1420, 1440) in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached to the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device (15; 1505 - 1535) of the interface device (10), to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device (10) by means of the driver for the input/output device customary in a host device.

2. An interface device (10) according to claim 1, wherein the drivers for input/output drivers customary in a host device comprise a hard disk driver, and the signal indicates to the host device that the host device is communicating with a hard disk.

3. An interface device (10) according to claim 1 or 2, wherein the memory means comprises a buffer (1420) to buffer data to be transferred between the data transmit/receive

device and the host device.

4. An interface device (10) according to one of the preceding claims, wherein the multi-purpose interface of the host device is an SCSI interface and the first connecting device also comprises an SCSI interface (1220).

5. An interface device (10) according to one of the preceding claims, wherein the second connecting device comprises an analog input (1505) with a subsequent A/D converter (1530) in order to transfer analog data to the host device from a data transmit/receive device connectable to the analog device (1505).

6. An interface device (10) according to one of the preceding claims, wherein the processor means (13) is a digital signal processor (1300).

7. An interface device (10) according to one of the claims 2 to 6, wherein the data to be transferred from the data transmit/receive device to the host device in the interface device (10) is formatted in a suitable format for a hard disk present in the host device.

8. An interface device (10) according to one of the claims 2 to 7, which further comprises a root directory and virtual files which are present on the signaled hard disk drive and which can be accessed from the host device.

9. An interface device (10) according to claim 8, wherein the virtual files comprise a configuration file in text format which are stored in the memory means (14) and using which the user can configure the interface device (10) for a specific data transmit/receive device.

10. An interface device (10) according to claim 8 or 9, wherein the virtual files comprise batch files or executable files for the microprocessor means which are stored in the interface device (10) in order to perform data processing, independently of the host device, of data received via the second connecting device (15; 1505 - 1535).

11. An interface device (10) according to claim 8 or 9, wherein the virtual files comprise batch files or executable files for the host device which are stored in the interface device (10).

12. An interface device (10) for communication between a host device, which comprises a multi-purpose interface and a specific driver for this interface, and a data transmit/receive device comprising the following features:

a processor means (13; 1300, 1320);

a memory means (14; 1400, 1420, 1440);

a first connecting device (12; 1220, 1240, 1260, 1280) for interfacing the host device with the interface device (10) via the multi-purpose interface of the host device; and

a second connecting device (15; 1505 - 1535) for interfacing the interface device (10) with the data transmit/receive device, where the interface device (10) is configured using the processor means (13; 1300, 1320) and the memory means (14; 1400, 1420, 1440) in such a way that the interface device, when receiving an inquiry from the host device as to the type of a device attached at the multi-purpose interface of the host device, sends a signal, regardless of the type of the data transmit/receive device attached to the second connecting device (15; 1505 - 1535) of the interface device (10), to the host device which signals to the host device that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device (10) by means of the specific driver for the multi-purpose interface.

13. An interface device according to claim 12, wherein, in addition to the first connecting device of the interface device, there is a further input/output device at the multi-purpose interface of the host device, and wherein the interface device can communicate directly with the hard disk via the specific driver for the multi-purpose interface.

14. An interface device according to claim 12 or 13, wherein the multi-purpose interface is an SCSI interface, and wherein the specific driver for the multi-purpose interface is an ASPI manager.

15. A method of communication between a host device, which comprises drivers for input/output devices customary in a host device and a multi-purpose interface, and a data transmit/receive device via an interface device (10) comprising the following steps:

interfacing of the host device with a first connecting device (12; 1220, 1240, 1260, 1280) of the interface device (10) via the multi-purpose interface of the host device;

interfacing of the data transmit/receive device with a second connecting device (15; 1505 - 1535) of the interface device (10); inquiring by the host device at the interface device (10) as to the type of device to which the multi-purpose interface of the host device is attached;

regardless of the type of the data transmit/receive device attached to the second connecting device of the interface device (10), responding to the inquiry from the host device by the interface device (10) in such a way that it is an input/output device customary in a host device, whereupon the host device communicates with the interface device (10) by means of the usual driver for the input/output device.

16. A method according to claim 15, wherein the drivers for input/output devices customary in a host device comprise a driver for a storage device and in particular for a hard disk drive.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER (As Amended Herein)

Attorney
Docket No.: 0757/98081

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-0001

Dear Sir:

A continuation patent application is being filed contemporaneously herewith. Please enter this preliminary amendment prior to examination of the continuation application.

IN THE TITLE:

Please amend the title to read as follows:

ANALOG DATA GENERATING AND PROCESSING DEVICE FOR USE WITH A PERSONAL COMPUTER.

IN THE CLAIMS:

Please cancel claims 1-16 without prejudice, and add new claims 17-39 as noted hereinafter:

1-16. (cancelled).

17. (new) An analog data generating and processing device (ADGPD), comprising:

a processor and a memory;

an analog to digital converter that is operatively coupled to the processor and the memory, the analog to digital converter being adapted to generate a digitized analog data set from an analog data set that is generated at one or more user selected times, each digitized analog data set being representative of electromagnetic radiation that is representative of an object that is physically separated from and located not in substantial proximity to the ADGPD;

wherein one or more digitized analog data sets are stored in the memory;

wherein the processor and the memory are adapted to receive one or more device identification signals that are sent to it from a multi-purpose user interface (MPUI) of a personal computer (PC) and then to automatically and without user intervention send a response signal to the MPUI to allow the PC to automatically and without user intervention recognize that it can communicate with the ADGPD as if the ADGPD were a commercially available mass storage device even though the ADGPD is not a commercially available mass storage device;

wherein the processor and the memory are further adapted to receive a data identification signal from an MPUI of a PC and then to automatically and without user intervention send identification information to the MPUI to allow the PC to create a visual representation of the memory on a display; and wherein the processor and the memory are further adapted to receive a data transfer signal from an MPUI of a PC and then to cause user selected ones of the digitized analog data sets to be transferred from the memory and to the MPUI by means of a driver that is a standard component of an operating system of a PC.

18. (new) The ADGPD of claim 17, wherein the electromagnetic radiation is generated by a diagnostic radiological system.

19. (new) The ADGPD of claim 17, wherein the commercially available mass storage device comprises a hard disk drive.

20. (new) The ADGPD of claim 17, wherein receipt and processing of the response signal by a PC allows it to communicate with the ADGPD as if it were a hard disk drive even though it is not a hard disk drive.

21. (new) The ADGPD of claim 17, wherein the processor comprises a digital signal processor.

22. (new) The ADGPD of claim 17, wherein the identification information comprises at least the number of different digitized analog data sets that are stored in the memory.

23. (new) The ADGPD of claim 22, wherein the identification information further comprises a root directory that can be accessed by a PC.

24. (new) The ADGPD of claim 23, wherein the identification information further comprises a configuration file.

25. (new) The ADGPD of claim 17, further comprising an I/O port is to be operatively coupled to an MPUI.

26. (new) The ADGPD of claim 25, wherein the I/O port is operatively coupled to an MPUI by a wire-based connection.

27. (new) The ADGPD of claim 17, wherein each digitized analog data set is stored as an individual file in the memory of the ADGPD.

28. (new) The ADGPD of claim 27, wherein the individual files form a part of a file system.

29. (new) The ADGPD of claim 17, wherein the digitized analog data sets are generated and stored in the memory independent of when the ADGPD is operatively coupled to an MPUI of a PC.

30. (new) The ADGPD of claim 17, wherein the digitized analog data sets are generated and stored in the memory both before and after a time when the ADGPD is operatively coupled to an MPUI of a PC.

31. (new) The ADGPD of claim 30, wherein the digitized analog data sets are generated and stored in the memory only after the time when the ADGPD is operatively coupled to an MPUI of a PC.

32. (new) The ADGPD of claim 17, further comprising one or more transducers that are operatively connected to the analog to digital converter, the processor, and the memory.

33. (new) The ADGPD of claim 32, wherein the ADGPD comprises two or more transducers.

34. (new) The ADGPD of claim 32, wherein the ADGPD further comprises a connecting device that electrically connects the one or more transducers to the analog to digital converter.

35. (new) The ADGPD of claim 34, wherein the connecting device detachably couples the one or more transducers to the analog to digital converter.

36. (new) The ADGPD of claim 32, wherein the one or more transducers are arranged to receive data from the processor and the memory.

37. (new) The ADGPD of claim 32, wherein the one or more transducers are capable of communicating directly with a PC.

38. (new) The ADGPD of claim 32, wherein the one or more transducers are separate from the analog to digital converter.

REMARKS

Claims 1-16 have been cancelled without prejudice as to the subject matter claimed therein. New claims 17-38 are being submitted herewith for the Examiner's consideration.

The Examiner's attention is drawn to the fact that the new claims presented herein are similar in scope in material respects to the claims of parent application Ser. No. 11/078,778, which the Examiner found to be patentable. The issue fee for the parent application recently was paid. For this reason, for example, the undersigned attorney believes and submits that the currently pending claims should be found to be patentable over all of the prior art that was considered in connection with the parent application.

To expedite the prosecution of this application, and while it may not be necessary to do so, a terminal disclaimer over the parent application (Ser. No. 11/078,778) is being submitted herewith to eliminate the possibility of an obviousness type double patenting rejection being made in the future once the parent application issues as a patent. The Examiner's acceptance of the terminal disclaimer is earnestly solicited.

An Information Disclosure statement is being filed herewith for the Examiner's consideration so that all of the prior art considered in connection with the parent application will be listed on the cover page of any patent that is granted on the instant application. The Examiner is respectfully requested to review all of the references submitted with the IDS, including the nine references discussed hereinafter. Portions of each reference that one may argue allegedly are relevant to the subject matter of the currently pending claims, together with an identification of each reference, are presented hereinafter:

1) US Patent No. 5,915,106, which is entitled "Method And System For

Operating A Scanner Which Emulates A Disk Drive," is not prior art to any of the claims submitted herewith. The earliest US filing date of this patent (March 20, 1997) is sixteen days after the earliest effective filing date of the currently pending claims, which is the March 4, 1997 filing date of German application no. 197 08 755. The Examiner's confirmation of this is earnestly solicited.

2) US Patent No. 5,508,821 is entitled "Image Scanner And Image Forming Apparatus With An Interface For Connection With An External Computer." Column 4, lines 21-23 of this patent state that the "image scanner 20 emulates the file system of 'UNIX' as if it were a hard disc. Accordingly, the image scanner 20 looks like the hard disc from the workstation 21 can be handled as a hard disk." In the summary of the invention of this patent, it is stated that an "object" of the invention is to provide an "image scanner" that "requires no preparation of any new device driver."

3) US Patent No. 5,844,961 is entitled "Filmless Digital X-Ray System." Figure 4 of the patent shows an "electronics package 480" that is a part of a "digital cassette." Column 10, lines 4-9 of the patent state that the "electronics package 480 defines an area that will allow for an electronic system being included in the digital cassette 200. The electronics system will be able to process the information captured by the imaging array system 450 and communicate that information to the computer 220." Column 11, line 10 through column 13, line 12 disclose "digital cassette and the computer communications."

4) US Patent No. 5,131,089 is entitled "Solid State disk Drive Emulation."

The abstract of this patent states that the "system permits software written for use with floppy disks to be used with solid state memory devices such as RAM cards or ROM without modification of the software."

5) US Patent No. 4,642,759 is entitled "Bubble Memory Disk Emulation."

6) A two page printout of text included with Windows 95 is submitted herewith concerning the "RAMDRIVE.SYS" command. This document states that this command allows a computer's RAM memory to simulate a hard disk drive.

7) Figure 1 of US Patent No. 5,724,574 discloses a hardware arrangement that includes, for example, a high speed scanner 24, a local area network 10, an optical disk based document server 15, and a number of workstations 18.

8) An article entitled "Optical Server Uses Network Protocol For Plug-And-Play Integration" was published in 1993. Page two of this article states that "emulation of the magnetic file system with a WORM-specific file system in this manner has several distinct advantages. The principal advantage is that the WORM disk appears to applications and utilities as just another disk."

9) The manual for Polaroid's Digital Camera model no. PDC-2000 indicates that it was published in 1996. The Examiner is asked to assume, for the sake of argument, that this is the case. Applicant reserves the right to challenge this in all forums and proceedings other than the examination of this application.

Page 11 of the manual states that the "PDC-2000 camera is a Small Computer Systems Interface (SCSI) device," that one can "connect up to seven

SCSI devices to your computer," and that the "PDC-2000 camera's SCSI ID is preset to 4 at the factor."

Page 83 of the manual states that to "transfer and work with pictures from the PDC-2000 camera on your PC, you use the PDC-2000 TWAIN driver . . ." or one can install "PDC-2000 Direct" software.

The currently pending claims clearly are supported by the specification as originally filed. As one example, all of the currently pending claims generally require that a digitized analog data set be representative of electromagnetic radiation that is representative of an object that is physically separated from and located not in substantial proximity to an analog data generating and processing device (ADGPD). These claim features are supported, for example, by the "diagnostic radiology system" disclosed in paragraph 5 of the specification of the instant application.

An example of such a "diagnostic radiology system" is, for example, an x-ray machine, the x-rays being one example of the claimed "analog wave signals." As readily apparent to one of ordinary skill in the relevant art, typical x-ray machines include two housings – one in which an x-ray generator is mounted and a second one in which an x-ray transducer is mounted. The x-ray generator is physically separated from and not located in substantial proximity to the transducer so that, for example, a patient can position his or her leg between the generator and the transducer. The transducer creates a set of analog data that comprises an x-ray so that, for example, a user can determine whether the patient's leg is broken.

It should be noted that the scope of the currently pending claims *is not* limited to "diagnostic radiology systems" and or to systems that only produce "x-rays." In this regard, other "modes" of practicing the claimed invention include, for example, the CCD device of a still camera that is exposed to ambient light with or without a flash, and that creates therefrom an analog data set that is representative of a picture.

For the Examiner's information, the inclusion of the above-described subject matter in the currently pending claims is one reason that the Examiner should find the new claims submitted herewith patentable over, for example, the prior art of record that discloses the use of document scanners (*e.g.*, US Patent Nos. 5,508,821, 5,532,825 and 5,724,574). In contrast to the currently pending claims, the scanner references teach a light source that is located inside the scanner and that is located in substantial proximity to the CCD of the scanner. Such sensors *are not* adapted to process electromagnetic radiation that is not in substantial proximity to the scanner housing. For this reason alone, the currently pending claims should be found to be patentable over the scanner references.

A still further aspect of the currently pending claims that is fully supported by the originally filed specification follows. All of the claims presented in this preliminary amendment generally require that the ADGPD send a response signal that allows a PC to *automatically and without user intervention* recognize that it can communicate with the ADGPD as if it were a commercially available mass storage device even though it is not a commercially available mass storage device. See, for example, paragraph 54 of the specification submitted herewith, which states that the use of the present invention includes "simulating a virtual mass storage device." The word "virtual" in this context refers, for example, to the fact that a personal computer is led to believe that it is communicating with a commercially available mass storage device when, in actuality, it is communicating with an analog data generating and processing device. See also, for example, paragraph 23 of the specification, which recites:

> "The digital signal processor 13 receives this inquiry instruction via the first connecting device and generates a signal which is sent to the host device (not shown) again via the first connecting device 12 and the host line 11. This signal indicates to the host device that, for example, a hard disk drive is attached at the interface to which the INQUIRY instruction was sent."

It is respectfully submitted that no prior art reference of record, either taken alone or in a purported combination, teaches or suggests the combinations claimed in the currently pending claims for a number of different reasons. As one example, US Patent No. 5,508,821 does not teach or suggest, for example, the above-noted "automatic recognition" feature because, for example, the system disclosed therein is UNIX based. As readily apparent to one of ordinary skill in the relevant art, such UNIX based systems affirmatively require user intervention in order to operate and use the scanner disclosed in the '821 patent.

As a further example of the patentability of the currently pending claims, the camera disclosed in the Polaroid manual submitted (assuming, for argument's sake, that it is prior art) cannot be automatically recognized without human intervention. In this regard, user intervention always is required because, for example, a user needs to make sure that the camera's SCSI identification number does not conflict with the ID number of any other device in a daisy chain of which the camera forms a part. For this reason alone, for example, the currently pending claims should be found to be patentable over the Polaroid camera manual (assuming, for argument's sake, that it is prior art).

It is respectfully submitted that the new claims are in condition for allowance and, therefore, a formal notice to that effect is earnestly solicited. In this regard, the Examiner is respectfully requested to contact the undersigned attorney upon entry of this amendment.

Respectfully submitted,

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PATENT
112384

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Michael Tasler	)	Confirmation No. 3038
Title: ANALOG DATA GENERATING AND PROCESSING DEVICE HAVING A MULTI-USE AUTOMATIC PROCESSOR	)	
Serial No.: 11/467,092	)	
Filed: August 24, 2006	)	
Examiner: C.K. Lee	)	
Art Unit: 2181	)	

APPELLANT'S REPLY BRIEF UNDER 37 C.F.R. §41.41

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir/Madam:

In response to the Examiner's Answer mailed July 25, 2012, Appellant requests consideration of the following reply.

There are no new authorities cited and no new facts relied upon.

Should there be any deficiency in fees in connection with this Appeal, the Commissioner is respectfully requested to and is hereby authorized to charge any such deficiency in fees to Deposit Account No. 23-0920.

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ARGUMENT

A. The Examiner's restatement of the claim is erroneous and cannot properly be relied upon.

The Examiner's Answer has asserted and repeatedly relied upon an incorrect summary restatement of the functioning of the claimed invention allegedly based upon interview summaries prepared by the Examiner but disputed by the Applicant. Applicant objects to the reliance on this restatement of the claims because: a) it is an incorrect restatement of the claims; b) it is based on disputed and inaccurate interpretations of interviews; c) it is not the invention as claimed and it is improper to rely on such an incorrect paraphrase of the claim instead of the claim itself to reject a claim; d) the first six interviews relied upon concern different claims which are not at issue in this appeal; and e) it is improper to modify the claim based upon examples or comments made in a good faith attempt to help the Examiner fully understand the invention.

The Examiner's Answer alleges, based on eight interview summaries paraphrased by the Examiner, that Applicant has disclosed that the claimed invention is the function of "a plug and play camera peripheral device that communicates with a connected host without any user loading of a driver, wherein the communication is to emulate a hard disk drive for transferring data with the connected host". (Examiner's Answer, p. 36, lines 15-21). Applicant has not authorized the Examiner to re-characterize the claims and has always asserted that the invention is defined by the claims not by interview summaries (See, e.g. the July 12, 2011 interview summary, p. 42 of the Examiner Answer, "Applicant indicated that the inventive concept for the instant invention is the claims..."). *Phillips v. AWH Corp.,* 415 F.3d 1303, 1312 (Fed. Cir. 2005)(en banc)("It is a 'bedrock principle' of patent law that the claims of a patent define the invention…"). Further, Applicant asserts that this restatement of the invention is incorrect, and Applicant has repeatedly corrected the Examiner's interview summaries relied upon. For example, Applicant did not and does not agree that the invention functions as a plug and play camera peripheral, or that communication is to emulate a hard drive for transferring data with the connected host. (The claims, for example, do not even mention plug and play or a camera, but do claim other features not in the Examiner's restated claim.) In addition, the interview summaries relied upon which occurred prior to October 7, 2009, concerned cancelled claims which are not at issue in this appeal; while the interviews of October 7, 2009, and November 6, 2010, concerned different claims. At no time did Applicant agree to the restatement of the invention set out in the Examiner's answer. The statements that were made during the interviews were merely good faith efforts to help the Examiner understand the claimed invention by examples and explanation, but Applicant never agreed to the Examiner's restatement of the invention. The Examiner's restatement also appears to be an improper attempt at distilling the invention to a "gist" of the invention (MPEP 2141.02 (II), "Distilling an invention to the 'gist' or 'thrust' of an invention disregards the requirement of analyzing the subject matter as a whole…". Further, the Examiner's incorrect restatement is not relevant since it is the claims that define the invention and which are at issue in this appeal. Since the Examiner's incorrect restatement of the claimed invention is based on inaccurate and disputed interview summaries, is not accurate, and not relevant to this appeal, it should not be considered.

The Examiner's Answer in the Response to Arguments section (Examiner's Answer, pages 36-69) repeats, on pages 46, 49, 53, 54, 56, 59, 61, and 63, the erroneous claim recharacterization discussed above along with a conclusory statement that the combination of the references Hashimoto, Smith, Kerigan, Ristelhueber and Shinohara teaches or is functionally equivalent to the Examiner's incorrect restatement of the claims. However, there is no explanation of how the references teach the misstated claim or the claim feature at issue, merely the conclusory statement that the combination is equivalent to the Examiner's erroneous restatement of the claim. In each of titled sections of the Response to Argument portion of the Examiner's Answer, the Examiner's erroneous restatement of the claims is repeated at least once and incorrectly asserted as the Appellant's invention. This reliance is misplaced because the Examiner's restatement is incorrect and based on disputed and inapplicable interview summaries, and because it is the Applicant's claims which are on appeal, not the Examiner's erroneous substitute claim. Further, simply repeating the erroneous claim restatement and an unsupported conclusion does nothing to establish that any of the references teach the claimed features. Thus, this repeated use of the Examiner's erroneous claim restatement does not establish in any way that the claims are rendered obvious by the asserted combination of the cited references.

B. All pending claims are distinguishable over any combination of the cited references because none of the references disclose an ADGPD processor that causes digitized acquired analog data to be automatically transferred to a host computer without requiring any user-loaded device driver or file transfer enabling software.

Independent claim 239, recites "...an automatic file transfer process in which...the processor executes at least one other instruction set...to thereby cause the at least one file of digitized analog data acquired ... to be transferred to the computer using a device driver for the digital storage device while causing the analog data generating and processing device to appear to the computer as if it were the digital storage device without requiring any user-loaded file transfer enabling software to be loaded on or installed in the computer at any time." Independent claims 370, 372 and 374 similarly call for an automatic file transfer process in which the processor of the ADGPD communicates with the host computer as if it were a digital storage device including causing the digitized acquired analog data to be transferred using a device driver existing in the host computer without requiring an end-user loaded device driver at any time.

The Examiner's Answer concedes that Hashimoto, Smith, and Ristelhueber do not teach data transferring using a device driver for the digital storage device while causing the ADGPD to appear as if it were a digital storage device without requiring any user-loaded device driver or file transfer enabling software to be loaded on or installed in the computer at any time (Examiner's Answer, p. 11); but asserts that Shinohara teaches such a system and method using a device driver at Col. 1 lines 48-60 and Col. 3, line 33 to Col. 4, line 49 (Examiner's Answer, p. 11-13). The Examiner's Answer alleges that by combining the flash memory card emulation of a mass storage device (i.e. hard disk) of Shinohara with the data Plug and Play functionality of the combined other references, the resulting combination would teach this feature (Examiner's Answer, p. 13).

However, this is not the case because Shinohara merely describes an approach to extending the life of the flash memory in a flash disk drive. Shinohara at the cited Col. 1, line 48-60 merely describes a flash disk memory which can erase and write data in a unit sector of a flash memory to emulate the data structure of a hard disk, where the host computer erases and writes a sector designated by the host computer so an address conversion table is not needed and also describes a disk operating system. There is no mention of device drivers and no mention of the user not needing to load file transfer enabling software. Thus, these features are not disclosed at all in Shinohara. Similarly Col. 3, line 33 to Col. 4, line 49 merely describes details of the flash disk which can cause the flash memory to last for a longer time using an address conversion table. However, nowhere in Shinohara is there any mention of transferring a file of digitized analog data, or doing so without requiring any user loaded device driver or transfer enabling software. Rather, the detailed description cited calls for the host computer to perform unique file management functions (Col. 4, lines 34-49) which would require data transfer software in the host computer to set up the disk data structure emulation. Further, there is no teaching or mention of a disclosed disk emulator being able to transfer data without data-transfer software loaded on the host computer. The Shinohara reference is devoid of any such teaching. Thus, Shinohara does not teach the feature of transferring digitized analog data without requiring any user loaded device driver or file transfer enabling software.

The Examiner's Answer also asserts that combining the device of Shinohara with the Plug and Play functionality of the other references like Smith, teaches this feature. However, Plug and Play is concerned only with allocation of the resources of the host computer to avoid conflicts between resources within the host computer. Thus, the Plug and Play process does not need to recognize the peripheral, it only needs to determine what resources of the host computer the peripheral needs. In Plug and Play, the host computer reads the resource requirements from each attached peripheral, such resources as i/o addresses, interrupts levels, and DMA channels, (see, Smith, Col. 3, lines 1-4; also see Plug and Play ISA Specification, Version 1.0a, May 5, 1994 ("Plug and Play Specification") p.1, abstract, line 5, and lines 9-11). The computer then assigns to each peripheral device the necessary resources so as to avoid resource conflicts (see Smith, Col. 4, lines 25-32; and Plug and Play Spec. p.1, lines 11-12). Once the host computer has assigned its resources and activated the device, an appropriate device driver must then be loaded to permit operation. As described in Smith, Col. 4, lines 26-33 in a PnP (Plug and Play) system:

> "...the operating system will isolate each PNP device, assign a 'handle' (number) to each card, and read the resource data from that card. Once each card had been isolated, assigned a handle and read, the operating system software will arbitrate system resources for all PNP devices. Conflict-free resources may then be

assigned and the devices activated. Finally, appropriate device drivers may be loaded and the system thus configured."

Also see Plug and Play Spec. p.1, Abstract, and Smith, Col. 3, lines 52-59. The Plug and Play process thus does not eliminate the need to supply a driver but rather calls for loading the driver after the system resources are allocated and the device is activated. The Plug and Play standard does not address device drivers other than the fact that one is needed. (Plug and Play Specification p. 1 Abstract: "However, user interface issues for installation of device drivers are not addressed".) Thus, even with Plug and Play, a device specific driver is still needed for each peripheral installed in the Plug and Play computer system in order for the peripheral's processor to execute an instruction to automatically transfer a file of digitized analog data to the computer from the peripheral device. This is clearly demonstrated by the Smith reference and the Plug and Play Specification document. Applicant has also submitted numerous other prior art references during prosecution which further demonstrate that Plug and Play requires loading a device driver after resource allocation is performed. Thus, neither Shinohara nor the Plug and Play functionality disclosed in the other cited references teach data transfer without a user loaded driver.[1]

In addition, the device described in Shinohara is merely a digital memory for storage of digital data by a host computer and for retrieval of that data by the host computer, and thus is not suitable for receiving analog data from a sensor independent of the host computer nor for transferring acquired digitized analog data to a host computer. The Shinohara device has one port that merely receives and stores digital data from the computer and allows that same computer to retrieve that stored data through the same port. The claimed invention has two

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[1] Note that Plug and Play functionality deals with resource allocation within the host computer, while the claimed invention here deals with the interface device (i.e., the ADGPD only), and is independent of the host computer. Moreover, Plug and Play functionality operates within the host computer through the host computer bus and motherboard for allocating the system resources and does not relate to the drivers.

separate ports providing input of analog data on one port and subsequent transfer of digitized analog data to a computer out another port. Thus, the disk memory emulation of Shinohara is dramatically different from the claimed invention and not compatible with or combinable with Hashimoto to obtain the claimed invention.

Stated another way, at most Shinohara merely teaches that a digital memory device having a single read/write port such as a flash memory, may be configured to use the data structure of a digital hard disk. This does not teach and is not related to an analog data acquisition device having both an analog input and a host computer interface port which then identifies itself as a hard disk and communicates with the host as if it were a hard disk. Thus, the attempted combination of Shinohara with the other references does not work because nothing in the references teaches or suggests the claimed automatic file transfer of acquired digitized analog data without requiring a user loaded device driver or file transfer enabling software. Indeed, there is nothing in any of the references to suggest the advantage of not requiring user loaded file transfer enabling software in any device, let alone in an analog data acquisition device interfacing analog sources to a digital computer.

The Examiner's Answer assumes that plug and play functionality teaches automatic recognition and automatic loading of a device driver for a plug and play peripheral. However, it is important to note that plug and play functionality provides host computer resource allocation for a new peripheral added to a previously existing operational computer. As such, a plug and play host computer detects all added peripherals, and retrieves a list of required resources from each plug and play peripheral. The host computer then allocates the necessary resources to each peripheral device. As discussed above, the cited plug and play references clearly describe that once the resources are allocated, a device driver must still be loaded for each peripheral device.

The Examiner argues that this means that the plug and play functionality automatically loads the device drivers. However, since the plug and play peripherals are add-on devices, the host computer would not have the device driver for the new added devices. Thus, these device drivers would have to be supplied by the user. This is why the plug and play specification states that it does not address device drivers (Plug and Play Specification p. 1, Abstract: "However, user interface issues for installation of device drivers are not addressed"). Further, since plug and play is concerned with resource allocation, the host computer only needs to retrieve resource requirements from the added plug and play peripherals. Thus, the plug and play functionality taught by the plug and play references Smith, Kerrigan and Ristelhueber, do not teach automatic recognition or automatic loading of file transfer enabling software, but only describe a host computer resource allocation process.

The Examiner's Answer also concedes that Smith's plug and play requires loading of a device driver (Examiner's Answer, p. 54, lines 17-23) but asserts loading the device driver from the BIOS is consistent with appellant's loading of the driver. However, Smith does not describe loading the device driver from the BIOS and does not anywhere describe the claimed data transfer without requiring any user-loaded file transfer enabling software (i.e., device driver).

The Examiner's Answer (Examiner's Answer, p. 49, line 20-p. 50, line 4) asserts that Smith's plug and play functionality will cure Shinohara's deficiency of not mentioning device drivers or file transfer enabling software because Smith's plug and play functionality must load an appropriate device driver (and also asserts that appellant stated this in the Appeal Brief, p. 15, lines 9-10); and that Smith's plug and play would need to recognize the peripheral to be able to pick the appropriate device driver. As discussed hereinabove, Applicant did not state that Smith's plug and play loads a driver, rather Applicant specifically stated that Smith's plug and play had nothing to do with loading device drivers. Appellants at the cited p. 15, line 9-10 of Appellant's Brief said, "Once the host computer has assigned its resources and activated the device, an appropriate device driver must then be loaded to permit operation." Appellant continued "... the plug and play process of Smith thus does not eliminate the need to supply a driver but rather calls for loading the driver after the system resources are allocated ..." (Appeal Brief, p. 15, lines 18-21). This loading of the driver is not a function of plug and play but instead, the driver is supplied by the user. Since Smith's plug and play does not select the appropriate device driver, it does not require recognizing the peripheral. The device driver in Smith is loaded by the user after the device is activated, contrary to the clear terms of the claim.

The Examiner's Answer also argues (p. 50, lines 5-9) that appellant's own invention requires the loading of the HDD driver (based on the incorrect interview summaries discussed above). However, this description of appellant's claimed invention is contrary to Applicant's repeated assertions in documents and interviews, and is the opposite of the express language of the claims. The claims specifically require ". . . without requiring any user-loaded file transfer enabling software" to be loaded on or installed in the computer at any time.

The Examiner's Answer also asserts that the combination of Shinohara's flash memory card emulating a hard disk drive into Hashimoto's flash memory card teaches the camera peripheral to emulate a hard drive because Hashimoto teaches using a flash memory card and Shinohara teaches a flash memory emulating a hard disk (see Examiner's Answer, p. 50, line 12 – p. 51, line 3). Thus, it is argued that the combination teaches an analog data acquisition device having an analog input and a host computer port which emulates the hard disk. However, Hashimoto's flash memory 16 does not communicate or interface with the host computer; it is merely auxiliary memory used only by the internal processors. Thus, such a combination would not result in an analog data acquisition device with a host computer interface which emulates a hard disk.

Hashimoto's flash memory card 16 provides data storage memory to store compressed audio and image data for the camera peripheral device. This stored data is transferred to and from the internal digital signal processor 11, and the internal CPU 23 (see Hashimoto, Fig. 8; Col. 7, lines 33-58). Thus, the flash memory card of Hashimoto functions as data storage for the internal processors of the camera peripheral device. The internal digital signal processor 11 processes the data from the memory card 16 and the internal CPU processor 23 processes and formats the data and outputs the resulting data through the interface circuit 27 to the host computer (Col. 7, line 50-Col.8,line 3). As a result, the memory card data is transferred only to and from the internal processors because data output to the host computer must always be processed and formatted by the CPU 23 before being output to the host computer. Therefore, the memory card 16 is solely internal processor memory which is isolated from the host computer because all data from the memory card must pass through and be processed by the internal CPU 23 before being output to the host computer. Thus the memory card 16 communicates only with the internal processors, but does not communicate with the host computer. Accordingly, if Shinohara's flash memory is used for Hashimoto's flash memory card, it would simply provide internal data memory using the data structure of a hard disk when communicating with the internal processors; but, since the memory card is isolated from the host computer interface by the internal CPU, the memory card would not have anything to do with communication with the host computer interface. Thus, the suggested combination of Shinohara's flash memory card into Hashimoto's memory card would not provide an analog acquisition device with a host computer port which emulates a hard disk.

Moreover, Shinohara merely discloses a digital memory (flash memory) which uses a specific data structure of digital memory (i.e., a hard disk). The Examiner's Answer asserts that Shinohara's disk emulating flash memory is similar to Hashimoto camera device flash memory card. While they are both flash memories, Hashimoto's flash memory card is used for internal processor storage. Thus, Shinohara flash memory would merely provide memory for the internal processors. Therefore, the similarity of Hashimoto's memory and Shinohara has nothing to do with the claimed transfer of acquired analog data to a host computer in an analog data acquisition peripheral.

Further, since combining Shinohara's memory into Hashimoto's memory card merely results in the Hashimoto device with a flash memory card used for internal data storage for the internal processors, the camera peripheral device of Hashimoto would not identify itself as a hard disk drive and would not emulate a hard drive to the host computer. Rather, the flash memory would merely emulate a hard disk drive to the internal processors of the camera peripheral device with no control of the communication by the camera device with the host computer.

In addition, Shinohara is a simple digital storage device having a single I/O port to receive digital data for storage and for retrieval of the stored digital data. There is nothing about Shinohara which teaches or suggests the claimed analog acquisition device having on analog input for acquiring analog data and a second port to interface to a host computer for transferring the acquired data wherein the analog device transfers the acquired data to the computer without user loaded software. Further, the claimed invention performs the functions of an analog data acquisition device-- not those of the hard disk drive (i.e., store data received from a host computer and return the stored data to the host). Thus, the claimed invention does not emulate a hard disk as asserted by the Examiner's Answer because it acquires analog data and then transfers the data in the format of a hard disk drive.

Also, because Hashimoto requires manual switching between transmit-only and receive-only modes, Hashimoto is incompatible with Shinohara (which requires read/write cycles that occur in microseconds) and would not be able to perform the automatic data transfer claimed. Thus the combination of Shinohara and Hashimoto would not result in the claimed invention and the references cannot be combined because they are incompatible.

Accordingly, it is respectfully submitted that all the pending claims are distinguishable over the cited references because none of the references teaches the claimed transfer of a file of acquired digitized analog data without user loading of a device driver or file transfer enabling software. That is, even if all the references could somehow be properly combined (which they cannot, as explained hereinafter), the result would still not meet the combined limitations of the claims. Therefore Applicant requests reversal of the rejections of all pending claims on this ground alone.

C. <u>All pending claims are distinguishable over the cited references because none of the references disclose a ADGPD processor involved in an automatic recognition process of the host in which the ADGPD processor automatically sends an identifying parameter which misrepresents the analog data device as a digital storage device to the host computer.</u>

Independent claim 239 recites "...the processor...involved in an automatic recognition process of the host computer in which...the processor executes at least one instruction set...and thereby causes at least one parameter identifying the analog data generating and processing device...as a digital storage device instead of as an analog data generating and processing device to be automatically sent...to the multi-purpose interface of the computer...". Independent claims 370, 372, and 374 similarly call for the processor to transmit an identifying parameter which identifies the analog data generating device as a digital storage device and not as an analog data generating and processing device.

Thus, all the claims require the processor of the ADGPD to automatically send an identifying parameter which misrepresents what the ADGPD is to the host computer in a host computer automatic recognition process. The Examiner's Answer asserts that the primary reference Hashimoto discloses a camera circuit with a processor involved in an automatic recognition process citing Col. 1, lines 27-57; Col. 6, line 16 to Col. 9, line 17, Col. 9, line 46 to Col. 11, line 42 and Col. 12, line 16 to Col. 14, line 14; and Figs. 8, 9, 11, 12, 14 and 15 (Examiner's Answer, p. 7). However, none of these passages, or any other portions of Hashimoto, describe a host computer automatic recognition process, or the processor automatically sending an identification parameter to the host computer. Rather, Hashimoto describes a camera circuit in which the camera processor 23 detects connection to a host personal computer interface by monitoring the data terminal ready (DTR) signal of the RS-232 connection or another signal of similar function of another user selected communications protocol (Hashimoto, Col. 10, lines 44-65; Fig. 4). When the signal from the host computer communication interface is detected, a communication algorithm is set up in the camera to prepare the camera to transmit or receive information. Then the camera system detects whether a switch on the camera has been set to transmit or to receive to determine whether to transmit image data or receive (Hashimoto, Col. 15, lines 3-16). No recognition of the camera by the host computer or transmission of identifying information to the host computer is described or suggested. Thus, Hashimoto merely describes a process for detection by the camera system of a connection to a host computer by monitoring for a signal from the computer. This detection process is not the recognition process of the host claimed in which <u>the ADGPD processor</u>

automatically sends identification information to the host computer; rather, the ADGPD processor merely detects a proper connection to the computer interface.

The Examiner's Answer asserts that Hashimoto's camera CPU controls the digital camera to be recognized by the PC and that the camera needs to be recognized (Examiner's Answer, p 7, last 2 lines). However, no citation is provided, and there is, in fact, no disclosure of such function in Hashimoto. In Hashimoto, identification is provided by user loaded software and the camera CPU only detects being connected to a computer, but this has nothing to do with identifying itself to the computer. There is no description anywhere in Hashimoto of a host computer automatic recognition process (i.e. a process by which the host computer recognizes what the peripheral is). Further, there is no description anywhere in Hashimoto of any process that sends an identification parameter to the host computer, automatically or otherwise.

The Examiner's Answer also asserts at p. 53, lines 19-21 that Hashimoto discloses an automatic recognition process by assuming the host must recognize the peripheral device. However, as discussed hereinabove, this assumption is not correct. At the time the application was filed, devices such as Hashimoto's camera required user loaded software which identified the device being installed. Thus, the host computer was told by the user what the device was. There is no description whatever in Hashimoto of a process wherein the host recognizes the camera. Further, such a process would require a two-way communication between the peripheral and the host, and as explained in the Appeal Brief and herein, Hashimoto had to be manually switched to one of either a transmit-only or receive-only mode. Thus, Hashimoto was not capable of an automatic recognition process.

The Examiner's Answer further asserts that Hashimoto teaches a peripheral having a processor involved in the recognition process citing Fig. 8, reference 11 and 23 (Examiner

Answer, p. 54, lines 12-13) that when combined with the plug and play functionality of Smith and the other references teaches a peripheral having a processor involved in the plug and play process (Examiner's Answer, p. 54, lines 13-16). However, Fig. 8 merely shows two processors, 11, 23, which are not involved in a recognition process at all. As explained above, there is no description of these processors, or any processor, involved in a recognition process in Hashimoto (also see Appeal Brief, p. 18, lines 3-16), and there is no description of the claimed automatic recognition process in the plug and play references (see Appeal Brief, p. 19, line 1–p. 20, line 5). Thus, they do not describe a processor involved in a recognition process. Further, the claims call for the processor to be involved in a recognition process in which the processor executes instructions to automatically provide identification information to the host, not merely a processor involved in plug and play. (Recall that plug and play functionality does not concern recognition of the device, it is a host resource allocation process.) The Examiner's Answer also concedes that Smith's plug and play requires subsequent loading of a device driver after activating the device (Examiner's Answer, p. 54, lines 17-23), but without any support asserts loading the device driver from the BIOS is consistent with appellant's loading of the driver. However, Smith never describes such loading from the BIOS or data transfer without requiring any user-loaded file transfer enabling software (i.e., a device driver).

Similarly, none of the other references disclose a processor in the peripheral device in an automatic recognition process which automatically sends an identification parameter to the host computer. The Examiner's Answer concedes that Hashimoto does not teach an automatic recognition process of the host computer with identification information automatically sent identifying the ADGPD as a digital storage device instead of an analog data device as claimed (Examiner's Answer, p. 8), but asserts that Smith teaches an "automatic recognition process of a host computer wherein at least one parameter (e.g., parameter signifying that the peripheral device has the ability to communicate in accordance to at least one software driver) [is] to be automatically sent through the i/o port…" at Figs. 2-5; Col. 1, lines 9-22; Col. 2, line 40 to Col. 3, line 59; Col. 4, lines 5-34 and Col. 6, lines 63-65, by combining plug and play functionality with Hashimoto's "automatic recognition process" (Examiner's Answer, pp. 8-9). However, not only does Hashimoto not disclose the claimed automatic recognition as discussed above, but Smith also fails to disclose automatic recognition and automatically sending identification information.

As explained hereinabove, Smith describes Plug and Play systems as requiring the Plug and Play host computer to assign a "handle" (i.d. number) to each peripheral card and then the host computer reads resource data from the peripheral. Thus, the host computer in Smith assigns an identifying number rather than the peripheral processor automatically sending an identifying parameter. There is no description of automatic sending of an identification parameter. The Plug and Play process described in Smith or any other of the references is not concerned with recognizing the device. It is not a device recognition process, rather it is a host computer resource allocation process. The host computer after supplying an i.d. merely performs a process of reading resource data and then allocating its resources. There is no mention of identification information being read or sent. The cited passages of Smith at Col. 1, lines 9-22, Col. 2, line 40 to Col. 3, line 40, and Col. 6, lines 63-65 do not even mention a peripheral processor automatically providing identification information to the host computer. Instead, the host computer initiates a "read" function to obtain only resource data from the peripheral.

Smith also does not describe a peripheral having a processor involved in the Plug and Play process. The only Plug and Play peripheral device circuitry is shown in Figs. 6, 7, and 9 which show a circuit made up of registers, flips flops, etc. to allow the peripheral to configure upon power up to operate in legacy mode or plug or play mode. There is no peripheral processor described involved in automatic recognition of the peripheral.

The Examiner's Answer further asserts that the combination of the Plug and Play functionality of Smith with Hashimoto's automatic recognition process results in teaching an automatic recognition process corresponding to configuring a Plug and Play system utilizing ROM BIOS by having the operating system load the device driver after the peripheral device is coupled to the host PC for installation (Examiner's Answer, p. 9). However, saying that the ROM BIOS and operating system of the computer loads the device driver does not teach or relate in any way to the ADGPD processor automatically sending identifying information. Further, the loading of the device driver in the Plug and Play of Smith occurs after the peripheral device has been assigned resources and activated, and requires that a device driver then be provided. Thus, the Plug and Play functionality of Smith requires the user to load driver after the peripheral device has been activated contrary to the claim feature calling for not requiring any user-loaded device driver.

The Examiner's Answer also suggests that the combination of Smith's Plug and Play functionality into Hashimoto's "automatic recognition" would be obvious to one of ordinary skill in the art because it would simplify the installation for the user without the need to install software or configure the peripheral devices. However, as we have seen, Smith expressly teaches the contrary, that a device driver must be loaded once the peripherals have been set up and host computer resources assigned (see e.g., Smith, Fig. 2, ref. 126 and Col. 4 lines 32-33).

Further, the Plug and Play functionality of Smith is functionality which is primarily located in the host computer not the peripheral. The Plug and Play compatibility as implemented in the peripheral in Smith is merely a set of logic gates and registers (not a processor) to give the peripheral compatibility with the Plug and Play functionality of the host computer. Plug and Play functionality calls for the host computer to configure its resources according to the needs of all the peripherals attached to it and thus primarily concerns functions located in the host computer. Thus, it would not make sense to one skilled in the art to put these Plug and Play functions into the peripheral device which would have no use for them. The peripheral device is only going to connect to a host computer and thus does not need to allocate its resources to handle multiple Plug and Play devices. In addition, as discussed above, neither Hashimoto nor Smith teach automatically sending an identification parameter.

Additionally, neither Ristelhueber or Shinohara disclose a processor of the peripheral device in an automatic recognition process which automatically sends an identification parameter to the host computer. Ristelhueber provides a very generic description of future Plug and Play, but does not disclose a processor of a peripheral in a host computer automatic recognition process, or the processor automatically sending an identification parameter to the host computer. Shinohara merely describes a flash disk drive and also does not mention a processor of the peripheral device involved in a host computer automatic recognition process, or the processor automatically sending an identification parameter to a host computer.

The Examiner's Answer takes the position in a section titled "Examiner's response to Issue" (p. 46) that the automatic recognition feature and automatic file transfer process transferring acquired analog data are disclosed in the references. This conclusion is based merely on the erroneous restatement of the claim (Examiner's Answer, p. 46, lines 10-15), and a general assumption that the combined references somehow disclosed the invention. Based on these general assumptions, the Examiner's Answer merely asserts that the references teach the claimed features without explanation. However, there is no showing or explanation of how the references teach the invention. As explained in detail in the Appeal Brief and hereinabove, Hashimoto does not have an automatic recognition process and cannot have such a process because of its one-way data transfer system. Further, as described in detail above, Smith and Ristelhueber do not describe the claimed recognition process or the claimed file transfer process transferring acquired digitized analog data without requiring user loaded file transfer enabling software.

Accordingly, all pending claims are distinguishable over the combination of the cited references because none of the references teaches the claimed automatic recognition process. Therefore, Applicant requests reversal of the rejections of all pending claims on this ground.

D. <u>Claims 239, and 333- 369 are distinguishable over the cited references because none of the references disclose an automatic recognition process without requiring any end user to load software onto the computer.</u>

Independent Claims 239 recites "...the processor... involved in an automatic recognition process... causes at least one parameter identifying the analog data generating and processing device, independent of analog data source, as a digital storage device instead of as an analog data generating and processing device to be automatically sent...a) without requiring any end user to load any software onto the computer at anytime...".

The Examiner's Answer states that Hashimoto and Smith do not teach the ADGPD comprising "...(a) without loading software onto the computer at any time..., but asserts that Ristelhueber on pages 1-3 describes a peripheral device having an automatic recognition process without requiring any end user to load any software on the computer at anytime (Examiner's Answer, p. 10). Ristelhueber is a non-technical buyer magazine article which generically describes the coming Plug and Play standard with an enthusiastic description of the future ("In about a year the key standard and specifications will be in place to make PnP a reality", p. 1, paragraph 3). Thus, Ristelhueber cannot properly be relied upon as enabling prior art. Ristelhueber is relied upon for disclosure of Plug and Play functionality. The Examiner's Answer appears to rely on vague statements in Ristelhueber regarding recognition of new hardware, and configuring of hardware to relieve the user of the need to fumble with floppy disks and user manuals to get the device up and running. However, when read in context these phrases are predicting PnP will recognize that a new device has been added. The author is not describing recognizing what peripheral is attached, only whether there is a peripheral attached to the port. Further, there is no enabling disclosure of how such recognition would one day be implemented. The description in Ristelhueber is just an over enthusiastic prediction of the hoped for goals for PnP, which is to detect when a new device is attached (i.e. identifying presence not what it is), configure the host computer resources to accommodate it, and then activate the device. However, Ristelhueber nowhere discusses or even mentions device drivers, or what will happen after a device is configured and activated. As discussed herein above, the Smith reference and the PnP Standards Specification make clear that a device driver is still needed after the peripheral presence has been detected, assigned resources and activated in accordance with Plug and Play.

The Examiner's Answer appears to assert that the claimed automatic recognition process is a plug and play peripheral for emulating a hard disk drive, that Smith, Kerigan and Ristelhueber disclose the plug and play, and Shinohara discloses a peripheral emulating the hard disk (Examiner's Answer, p. 56, lines 14-21). This conclusion is flawed because merely a plug and play peripheral for emulating a hard disk drive is not what is claimed, and because Smith, Kerigan and Ristelhueber do not describe an automatic recognition process as fully discussed in the Appeal Brief and hereinabove. Instead these references only describe the plug and play process which is a host computer resource allocation process. None of these references disclose an automatic recognition process. Further, Shinohara's peripheral device is a single port digital memory device dramatically different from the claimed multiple port analog acquisition device which transfers acquired analog data to a host computer, which also does not teach the claimed automatic recognition process. Thus, the combination of the plug and play of Smith, and Ristelhueber with Shinohara does not disclose a processor involved in an automatic recognition process providing a misidentifying identification parameter, and transferring acquired analog data to a host computer without requiring any user loaded file transfer enabling software as claimed.

Further, there is no teaching in the cited references of a processor of the peripheral (i.e. the ADGPD) automatically sending identification information to the computer, or of anything done or not done by a processor of a Plug and Play peripheral device. It merely describes the host computer determining the presence of a peripheral device, identifying the resources needed by the peripheral device and configuring its hardware thereby relieving the user from having to do so. There is no teaching in Ristelhueber to relieve the user from having to load a device driver. There is no mention of a processor on the peripheral, and no mention of the need or lack of need for user loaded software on the host computer. Thus, Ristelhueber does not disclose this claimed feature. Rather, Ristelhueber merely broadly describes Plug and Play without discussing device driver software for proper functioning of the peripheral after it is activated. As discussed above, the Plug and Play still requires loading a device driver after the peripheral device has been activated using a Plug and Play process. Thus, Ristelhueber does not teach a peripheral device which doesn't require an end user to load software onto the computer at anytime. Since the Examiner's Answer concedes that Hashimoto and Smith do not teach this feature, and nothing in Shinohara does, none of the cited references teach this feature. Therefore, Applicant respectfully requests reversal of the rejections of independent claim 239 and dependent claims 333-369 on this ground as well.

E. Claims 239 and 333-369 are distinguishable over the cited references because none of the cited references discloses an automatic recognition process without requiring an end user to interact with the host computer to set up a file system in the ADGPD at any time.

Independent Claim 239 recites "...processor... involved in an automatic recognition process...causes...identification information... to be automatically sent... (b) without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time..."

The Examiner's Answer concedes that Hashimoto, Smith, and Ristelhueber do not teach "without requiring any end user to interact with the computer to set up a file system in the ADGPD at any time, but asserts that Shinohara does at Col. 1, lines 48-60 and Col. 3, lines 33 to Col. 4, line 49 (Examiner's Answer, p. 11, lines 3-7). Shinohara describes a flash disk drive which couples only to a host computer to allow the host computer to send data for storage and retrieve the data stored by the host computer. This is entirely different from the claimed analog data generating and processing device which receives data from an analog sensor, and provides for transfer of the digitized analog data to a separate host computer. Therefore, the environment and functionality, and the problems to be resolved are completely different, and it would thus not be obvious to combine the Shinohara flash disk drive features with Hashimoto, and because of these fundamental differences, Shinohara is not compatible with Hashimoto. Moreover, the combination (even if considered somehow together) still would not end up meeting the terms of claim 239 or the other claims. Shinohara merely describes how the host computer sends data and sets up the data structure in the flash disk drive but does not teach or even mention that there is no need for user interaction to set up a file system. This data structure set up would require software on the host computer to perform these set-up functions. Thus, additional software must be added to the host computer to set up the data structure for the flash drive. Further, since Shinohara is merely a hard disk emulator connected to a computer, it cannot cause an acquired file of digitized analog data acquired from an analog source to be transferred (i.e., there is only digital data stored by the host computer).

The Examiner's Answer asserts that the automatic process without requiring an end user to interact with the host computer to set up a file system in the ADGPD is disclosed by the references (Examiner's Answer, p. 59). The Examiner's Answer asserts that the automatic recognition feature is a plug and play camera peripheral device having a flash memory for emulating a hard disk wherein Hashimoto, Smith, Kerigan, and Ristelhueber disclose a camera peripheral device with its flash memory card, and that Shinohara's flash memory for emulating a hard disk discloses the claimed automatic recognition without requiring the end user to interact to set up a file system. However, the flash memory of Hashimoto is internal memory which communicates with the internal processors, not the host computer. Thus, Hashimoto, and the plug and play references do not teach a camera peripheral with flash memory for transferring data with the host; the flash memory of Hashimoto does not transfer data to the host computer. Further, there is no automatic recognition disclosed in Hashimoto, in the plug and play references or in Shinohara. Finally, Shinohara merely discloses a digital memory (flash memory) which uses the data structure of a specific digital memory (i.e., a hard disk) but does not disclose the claimed automatic recognition process or set-up of a file system without user interaction.

The Examiner's Answer also asserts that Shinohara's flash memory is similar to Hashimoto camera device flash memory card. While they are both flash memories, Hashimoto's flash memory card is used for internal storage; not for communicating with the host computer. Thus, Shinohara flash memory would merely provide internal memory for the internal processors. This has nothing to do with the claimed user interaction with the host to set-up a file system in the peripheral device.

The Examiner's Answer further asserts that the combination of the cited references teaches that there is no need for user interaction to set up a file system because the references teach plug and play and the camera peripheral have flash memory for emulating the hard disk drive to transfer data to the host computer. Again, the flash memory card in the camera peripheral device is internally used memory, and even if it emulated a hard disk, the result does not teach automatic recognition without interaction to set-up a file system in the peripheral device. The Examiner's Answer mentions that a F.A.T. file system must be set up in Shinohara at col. 1, lines 48-60 (Examiner's Answer, p. 60, lines 9-12) in order for the flash memory to use the data storage structure of a hard drive. Shinohara nowhere teaches that the user does not need to load software or otherwise interact with the host to set up the file system. Instead, it teaches a complex system that would require software to be loaded onto the host computer to set-up the file structure and the complex functions required. Thus, the combination of all the cited references does not teach the automatic identification process without requiring end user interaction to set up the file system because none of the references teach the claimed automatic recognition process, or setting up such a process without the user interacting to set up a file system in the ADGPD.

Since the Office Action concedes that Hashimoto, Smith, and Ristelhueber do not teach the automatic identification process without requiring any end user to interact with the computer to set up a file system in the ADGPD, and Shinohara also does not teach this feature, all pending claims are distinguishable over the cited references. Therefore, Applicant also requests reversal of the rejection of independent claim 239, and dependent claims 333-369 on this ground.

F. All pending claims are distinguishable over the cited references because none of the references disclose data from a plurality of analog acquisition channels coupled into the processor and processed by the processor.

All pending claims call for analog data from a plurality of acquisition channels to be coupled into the processor and processed by the processor. The Examiner's Answer asserts that this is disclosed by Hashimoto asserting that Hashimoto acquires image and audio data and digitizes and stores them (Examiner's Answer, p 7, lines 2-5). However, Hashimoto does not transfer the audio data into the processor for processing, but instead transfers it to an audio output or to storage. Thus the acquired data is not coupled into the processor and processed by the processor, as claimed. There is no disclosure of this feature in Hashimoto, or any of the other cited references. Therefore, Applicant respectfully requests reversal of the rejection of all claims on this ground.

G. Independent Claim 370, and dependent claims 333, 373 and 375 are distinguishable over the cited references because none of the references discloses active commands to access the host computer system bus to communicate directly with other devices of the host computer while bypassing the host computer processor.

Claims 370, 335, 373 and 375 recite transmitting "...to the host computer active commands...to access a system bus of the host computer to enable communication directly with other devices of the host computer while bypassing the host computer processor...". The Final Office Action asserts that the references disclose this feature asserting that data is transferred from the digital camera directly to the disk drive of the computer, and further asserts that as the connected analog device is recognized as a hard disk drive, the hard disk drive on the host can directly communicate with the connected analog device via the hard disk drive emulation for transferring the data from the analog device's flash drive memory card to the host hard disk drive (Final Office Action p. 19, line 17 to p. 20, line 6). However, none of this is disclosed in any of the references. There is no disclosure whatever in any of the references of data transferred from a peripheral ADGPD directly to another device of the host, nor is there teaching or suggestion of doing so with active commands from the peripheral which access the host computer's bus to enable direct communication with the other device bypassing the host computer processor. The only disclosure in any of the references involves the processor of the host reading/writing data directly to and from the peripheral. Thus, there is no disclosure or suggestion of this claimed feature in any of the cited references. Therefore, Applicant respectfully requests reversal of the rejection of claims 370, 335, 373 and 375 on this ground.

H. <u>Claims 372-373, and dependent claim 334 are distinguishable over the cited references because none of the references disclose transferring the acquired digitized analog data using a device driver for a digital storage device present in the BIOS of the host computer.</u>

Independent Claim 372 calls for "...transferring the digitized analog data acquired...using a device driver present in the BIOS of the host computer for the digital mass storage device in the host computer without requiring the user to load the device driver." Dependent Claim 334 similarly calls for data transfer enabled by a driver that is part of a manufacturer installed BIOS. The Final Office Action asserts that Plug and Play calls for a driver which is in part of the installed BIOS, citing Hashimoto, Smith, Ristelhueber and Shinohara. However, the citations to Hashimoto, and Shinohara do not even mention plug and play or a BIOS installed driver, and Ristelhueber, as previously discussed, merely discusses future plug and play hopes, is not enabling prior art, and does not mention data transfer from a peripheral to a host or using a driver in a pre-installed BIOS. Smith, as discussed above, clearly describes the need to provide a driver after plug and play is installed, and therefore teaches away from the claimed feature. Further, none of those references even remotely suggest the major departure from the prior art of using a device driver for a digital hard disk to handle interfacing with analog devices. Thus, this feature is not taught or suggested by the cited references. Therefore, Applicant respectfully requests reversal of the rejection of claims 372, 373, and 334 on this ground.

I. Dependent claim 357 is distinguishable over the cited references because none of the references discloses a processor in the peripheral device which causes a virtual boot sequence.

Dependent Claim 357 calls for "...wherein the processor is configured to ...cause...file allocation table information to be sent to the multipurpose interface...the file allocation table information including at least a start location of a file allocation table;" and "...to cause a virtual boot sequence to be sent to the multipurpose interface which includes at least information that is representative of a number of sectors of a storage disk...".

The Examiner's Answer asserts that Hashimoto, Smith, and Ristelhueber teach the processor sending file allocation table information including at least a start location, causing a virtual boot sequence to be sent including at least a number of sectors of the storage disk, and asserts that Shinohara teaches these features at Col. 1, lines 48-60 and Col. 3, lines 56 to Col. 4, line 49 (Examiner's Answer, p. 62). The Examiner's Answer asserts that the file allocation table information and virtual boot sequence corresponds to the Plug and Play ADGPD having a memory card emulating a hard disk for data transferring after the Plug and Play ADGPD is connected to the host PC (Examiner's Answer, p. 27, lines 7-10). However, Shinohara in the cited passages merely describes a flash disk memory where the host computer erases and writes a sector designated by the host computer. There is no mention of a file allocation table start location provided by the peripheral processor, and no mention of a virtual boot sequence sent by the peripheral processor. Shinohara is devoid of any disclosure of these features. Further, these features are not disclosed in any way in the other cited references. Thus, dependent claim 357 is clearly distinguishable over any combination of the cited references. Therefore Applicant requests reversal of rejection of claim 357 on this ground.

J. <u>All pending claims are further distinguishable over the cited references because none of the references discloses an analog acquisition device which identifies itself to a host computer as a digital storage device.</u>

All independent claims 239, 370, 372, and 374 call for the analog data generating and processing device processor to send a parameter to the host computer which misidentifies the analog device as a digital storage device. As discussed above, none of the cited references disclose the automatic recognition and automatic file transfer processes claimed. Further, however, none of the references disclose a device which acquires and processes analog data but identifies itself as a digital storage device. Shinohara discloses a digital mass storage device (i.e. a flash memory) which operates as a digital mass storage device. This teaching of Shinohara does not suggest to one of ordinary skill in the art the operation and identification of an analog acquisition and processing device as an entirely different type of device, i.e. a hard disk, and does not suggest a device which sends an identifying parameter to the host computer identifying the device as a device of dramatically different type than what it actually is. The Examiner's Answer asserts that the analog data acquisition device which identifies itself as a digital storage device is disclosed in the references because Shinohara discloses a flash memory card that emulates a hard drive and because Hashimoto's camera device includes a flash memory card; and by combining Shinohara's flash memory into Hashimoto's memory card, the result is the camera peripheral device's flash memory emulating a hard disk with the camera's peripheral device identifying itself to the host computer as a hard disk drive (Examiner's Answer, p. 63, line 17-p. 64, line 12). However, as described above, combining Shinohara's memory into Hashimoto's memory card merely results in the Hashimoto device with a flash memory card used for internal data storage for the internal processors. Thus the camera device would not identify itself as a hard disk drive and would not emulate a hard drive to the host computer. Rather, the flash memory would emulate a hard disk drive to the internal processors of the camera device with no effect on the communication by the camera device with the host computer. It would have nothing to do with the ADGPD appearing to the host computer as a hard disk drive.

Further, Shinohara's flash memory is just a digital storage device using the data structure of a hard disk digital storage device. Thus it does not suggest an analog acquisition device identifying itself as digital storage device. The analog acquisition device acquires analog data at one analog input and transfers it to another digital port. The digital storage device does not concern analog data, and merely stores data received from the host, or retrieves data previously written by the host at a single interface with the host computer. Thus, they are fundamentally different with different structure, function, and purpose. Therefore, Shinohara's digital disk emulating memory does not teach or suggest an analog data acquisition device which identifies itself as a hard disk drive. Further, nothing in the combining of the flash memory of Shinohara into Hashimoto's memory card teaches or suggests an analog acquisition peripheral device that identifies itself as a digital storage device. Thus all pending claims are further distinguishable over the cited references for this reason in addition to the reasons discussed herein above.

K. The references cannot be properly combined

1.) Hashimoto and Smith are incompatible and cannot be properly combined.

As previously discussed, Hashimoto detects that it is properly connected to a host computer interface by monitoring for a DTR signal. Until the DTR signal is detected, the power to the communication circuitry is turned off or in standby mode (Hashimoto, Col. 12, lines 62 to Col. 13, lines 8). After detecting the proper connection and activating the communication circuitry, Hashimoto checks a switch 110 which is manually set by the camera user, to determine whether it is in the transmit mode or is in a receive mode. (Hashimoto, Fig. 14, Ref. No. 308; Col. 10, lines 51-54 and Col. 11, lines 7-13). Thus, at any point in time, the Hashimoto camera is enabled to only transmit, or only receive; it is not enabled to do both. The user must manually switch between modes. Smith, however, describes a Plug and Play process which requires the host computer to read resource data from the PnP peripheral device (see e.g. Smith, Col. 3, lines 41-43; Col. 4, lines 25-28). This read function requires the peripheral to receive a read request, which would include an address, and then requires the peripheral to transmit the resource data to the host computer. Thus, Smith's Plug and Play (and PnP in general) cannot be added to Hashimoto because the Hashimoto camera cannot both transmit and receive at any one moment. If the mode switch in the Hashimoto camera is in the transmit position, then the camera would not be able to receive the read request and address, and if the mode switch is in the receive position, the camera would not be able to transmit the resource data. Thus, Hashimoto and Smith, are incompatible and cannot properly be combined. This is also true of Plug and Play in general.

Smith requires reading and writing while Hashimoto can only transmit or only receive and must be manually switched between modes. The Examiner's Answer argues that Smith's read can occur and then the user can switch over to transmit for transmitting the data (Examiner's Answer, p. 67, lines 11-14). However, this would require the user to manually switch back and forth without knowing when to do so during read write cycles that take microseconds. If the mode switch is in the transmit mode when the read request was made by the host, then the read would fail and the users would not know the switch needed to be changed. If in receive mode at the time transmission is required, the camera could not transmit the resource data and again the user would not know switching was needed. Even if the user could guess at the time to switch, continuing to manually switch back and forth would be untenable, and clearly is not the <u>automatic</u> recognition process claimed.

The Examiner's Answer also asserts that Hashimoto is not being relied upon to teach an automatic file transfer without requiring user-loaded file transfer software which is asserted to be plug and play function, but relies on other cited references to teach plug and play functionality. As discussed hereinabove, the plug and play functionality as evidenced by the cited references, does not provide data transfer without requiring user-loaded file transfer software.

2.) The combination of Hashimoto and Shinohara is improper.

Hashimoto describes an electronic camera while Shinohara describes a flash disk drive. The Examiner's Answer asserts Shinohara with Hashimoto can be properly combined without improper hindsight, by combining Shinohara's disk emulating flash memory into Hashimoto's flash memory card to teach data transferred between the camera flash memory and the host computer while the camera peripheral flash memories emulate a hard drive. However, this dramatically changes the fundamental structure, operation, and purpose of Hashimoto. Shinohara is merely a simple digital storage device having a single port to receive digital data from a computer for storage and to allow the same computer to retrieve that data through the same port. In other words, Shinohara merely teaches that a single port digital memory device can be configured to emulate a hard disk. This does not teach or suggest an analog data acquisition device having both analog input and a separate host computer interface port emulating a hard disk. There is nothing about Shinohara which teaches or suggests the claimed analog acquisition device have an analog input for acquiring analog data and a port to interface to a host computer for transferring the acquired data wherein the analog acquisition device appears to the computer to be a hard disk. In addition, in Hashimoto, data transfer does not occur directly between the camera's flash memory and the host, only from camera flash to the camera internal processor. Further, as discussed above, because Hashimoto requires manual switching between transmit and receive modes, Hashimoto is incompatible with Shinohara which requires read/write cycles that occur in microseconds and would not produce the automatic data transfer claimed. Thus, the combination requires improper hindsight and the references are incompatible, and therefore, Hashimoto and Shinohara cannot be properly combined.

3.) The combination requires hindsight assumptions about the disclosures in the references.

The Examiner's Answer improperly presumes that the processor of Hashimoto (item 23 in Figure 8) is adapted to be involved in an "automatic file transfer process" (Examiner's Answer, p. 7, line11-p. 8, line 2) and, therefore, purportedly requires no added software. The following portion of Hashimoto is an example of conclusory citations provided to support this proposition:

> "The digital images captured by the camera are used to create exposure controlling evaluation information, automatic focus controlling information, and automatic white balance evaluation information by the CPU 23. Automatic control of the camera is performed using this information." (Hashimoto, col. 7, lines 50-55).

Hashimoto discloses that a camera can be <u>controlled in a manual and non-automatic fashion</u> by an end user manipulating the camera control buttons, and that a camera can be controlled by its

CPU. The "automatic control" of Hashimoto's camera, therefore is control of the camera sensor accomplished by means of a computer (CPU) which is part of the camera circuitry. However, there is no disclosure of automatic file transfer of digitized data to a host computer without requiring user-loaded file transfer software or device driver, as recited by the instant claims.

It is the Examiner's burden to show a camera "automatically controlled" by a host computer to transfer data to the host computer without end user added software as a part of the establishment of a prima facie case of obviousness. It is not the Applicant's burden to prove a negative that no prior art had the ability to automatically transfer analog data from a camera without end user added software. Because the Office Action cites no evidence whatsoever that any camera in the relevant time frame automatically transferred data from the camera to a host computer without user-loaded software, it is respectfully submitted that no prima facie case of obviousness can be made that Hashimoto does not require user-loaded software. Hashimoto simply does not teach anything regarding a camera that does not require user added software to be controlled by a host computer. For this reason, the rejections should be withdrawn.

4.) The combination of Plug and Play with the other references is inconsistent.

In a further inconsistency, the rejection assumes that Plug and Play calls for the peripheral device to identify itself (although, as discussed above, this is not disclosed in the references). This assumption would inherently call for the device to correctly identify itself. However, this is contrary to the claim requirement that the parameter sent to the host computer identify a difference type of device than what it is (i.e. a digital storage device instead of a analog data generating device). Thus, the assumptions made regarding plug and play functionality, even if true, would be inconsistent with and would teach away from the claim's misidentification requirement. Therefore, the references cannot be properly combined to render the claims obvious.

L. Kerigan Reference.

On pages 46, 49, 52, 53, 54, 55, 56, 59, 61, 63 of the Response to Argument section and pages 12 and 13 of the Grounds of Rejection section of the Examiner's Answer, the Kerigan reference is included within string citations of the other cited references of record. This reference is not mentioned in the Evidence Relied Upon section of the Examiner's Answer, nor is there a statement of a new grounds of rejection in the Examiner's Answer. There is no argument made with specific reference to Kerigan, nor any citation to any portion of Kerigan. Thus, it is assumed that these citations do not raise a new grounds of rejection. In any event, Kerigan merely discloses a digital display interface for a host system but does not disclose the missing features identified above. Thus, Kerigan does not materially effect the above discussion or otherwise render the claims unpatentable either separately or in combination with the other cited references.

M. Claim Reference Errors

The Examiner's Answer noted errors in the Appeal Brief that referenced cancelled claims 237 and 321. Applicant's attorney apologizes for these typographical errors. The Examiner's Answer correctly assumed that pending claims on appeal were intended to be referenced.

N. Conclusion.

In summary, none of the reference teach or suggest the claimed host computer automatic recognition process, automatic transfer of acquired analog data without a user-loaded device driver, sending a identifying parameter to the host which misrepresents the analog data device as a digital storage device, and coupling plural analog acquisition channels into the processor. Thus, all the pending claims are distinguishable over any combination of the references. Other individual claim features are also not disclosed as discussed above. Further, the references are incompatible and therefore cannot be properly combined. Taken together the references are devoid of any teaching, suggestion or motivation to combine to produce the claimed analog device which automatically transfers acquired analog data to a host computer without need for a user loaded device driver. Further, the references fail to recognize the problem or suggest the solution provided by the claimed invention. For the above reasons, the combination of Hashimoto, Smith, Kerigan, Ristelhueber and Shinohara do not teach or suggest each and every claim limitation of the pending claims. Since the combination fails to teach or suggest each and every claim limitation, the claims are distinguishable over the combination. In view of the foregoing, appellant submits that claims 239, and 333-376 are not obvious over Hashimoto in view of the combined teachings of Smith, Ristelhueber, Roberts, Endo and Shinohara.

Applicant has discussed other distinctions and arguments in Appellant's Appeal Brief and continue to assert these distinctions and arguments as well. Therefore, allowance of claims 239 and 333-376 as now presented is believed to be in order. Accordingly, appellant respectfully requests that the Board reverse the decision of the Examiner with regard to all pending claims.

Respectfully submitted

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