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**Park**

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(54) **METHODS FOR SAVING DATA ON THE BASIS OF THE REMAINING CAPACITY OF A BATTERY IN A SUSPEND MODE AND RESUMING OPERATIONS USING THE SAVED DATA**

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**G06F 11/00** (2006.01)

(52) **U.S. Cl.** ..... **714/22; 714/6; 713/300; 320/127; 711/162; 365/226**

(58) **Field of Classification Search** ..... **714/22, 714/24, 14, 6, 21; 713/300, 320, 330, 340, 713/323; 711/162; 365/227, 228, 229; 320/127**  
See application file for complete search history.

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(57) **ABSTRACT**

The present invention discloses a method for saving data including system status data stored in a memory to a backup server via a data communication network if the remaining capacity of the battery is not sufficient, by confirming continuously the remaining capacity of the battery, in a suspend mode in a computer system. Accordingly, the present invention previously prevents important data from losing although the system-down is occurred abruptly by the perfect discharge of the battery.

**16 Claims, 3 Drawing Sheets**

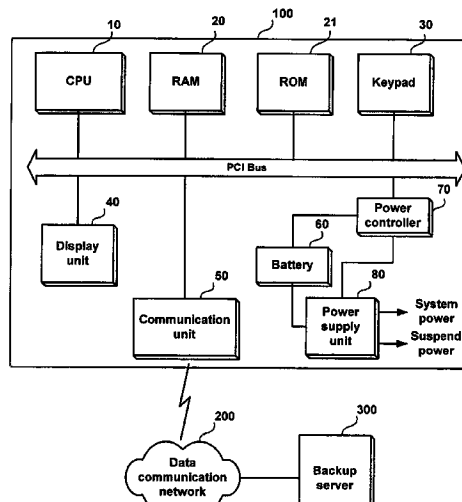


Fig. 1

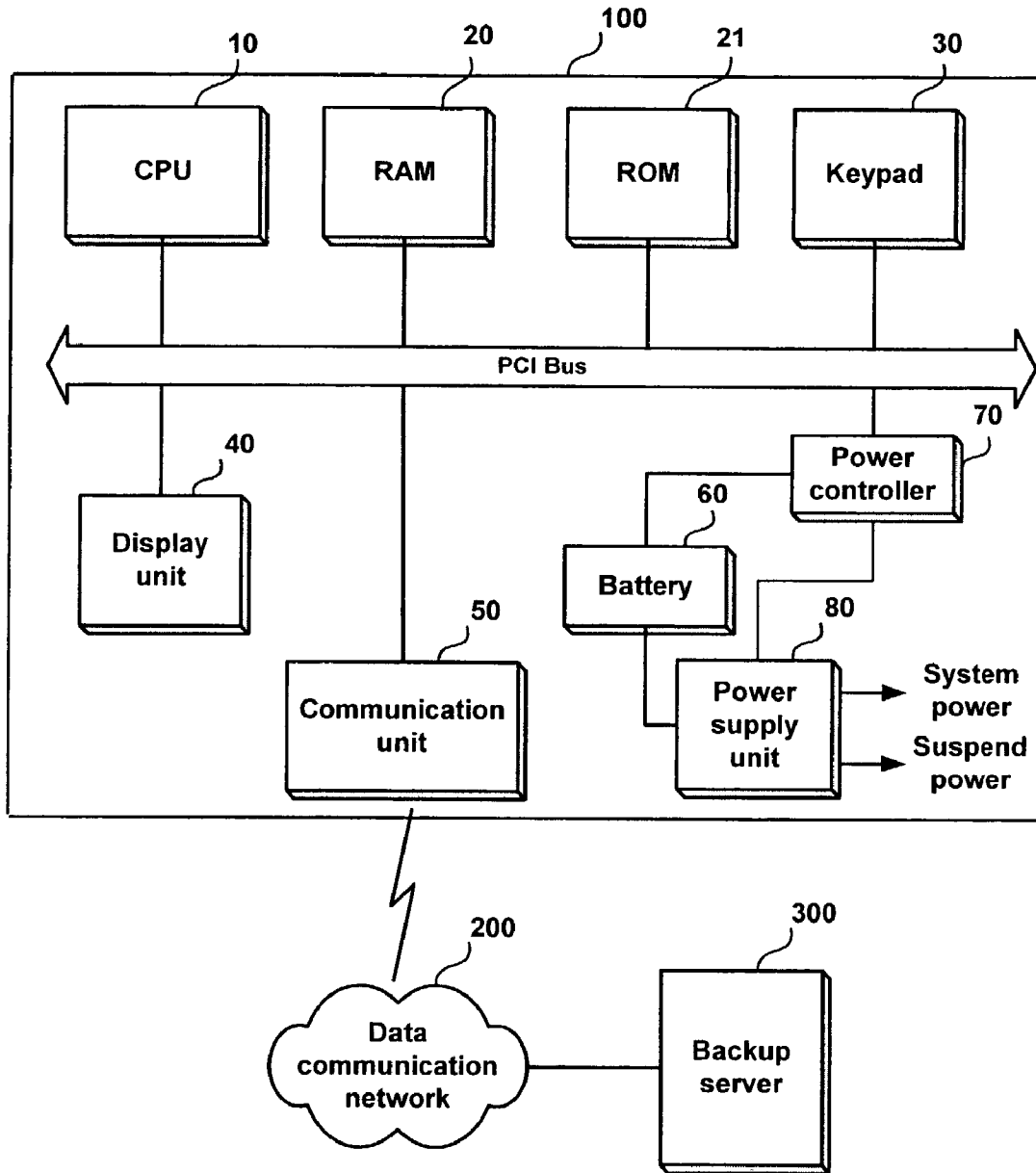


Fig. 2A

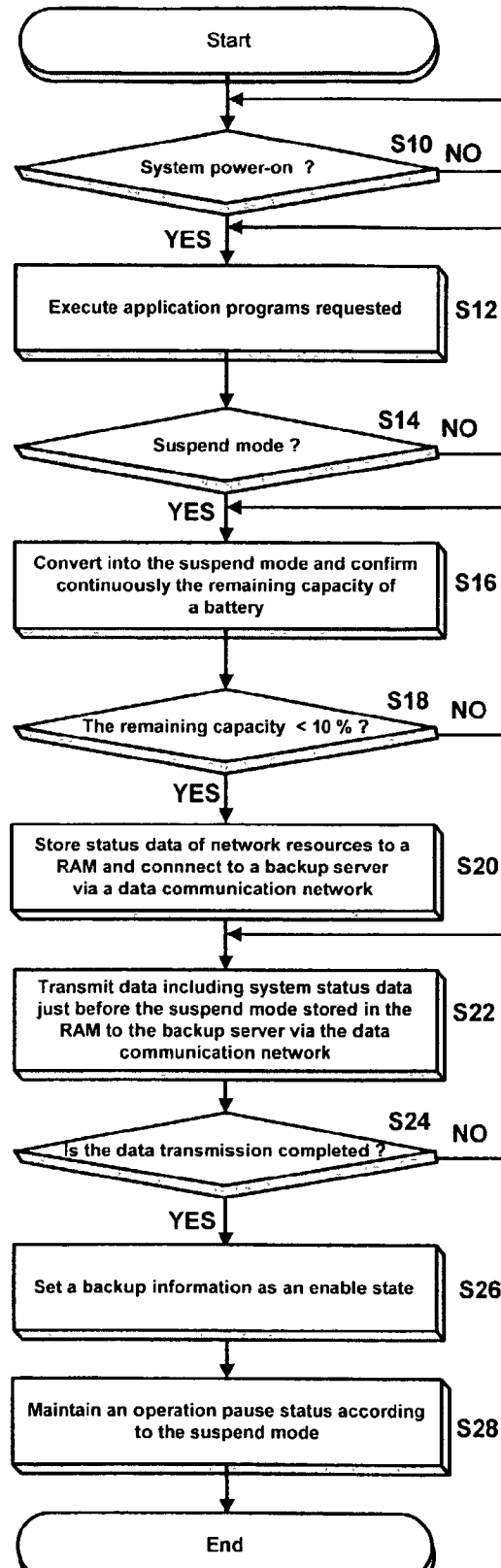
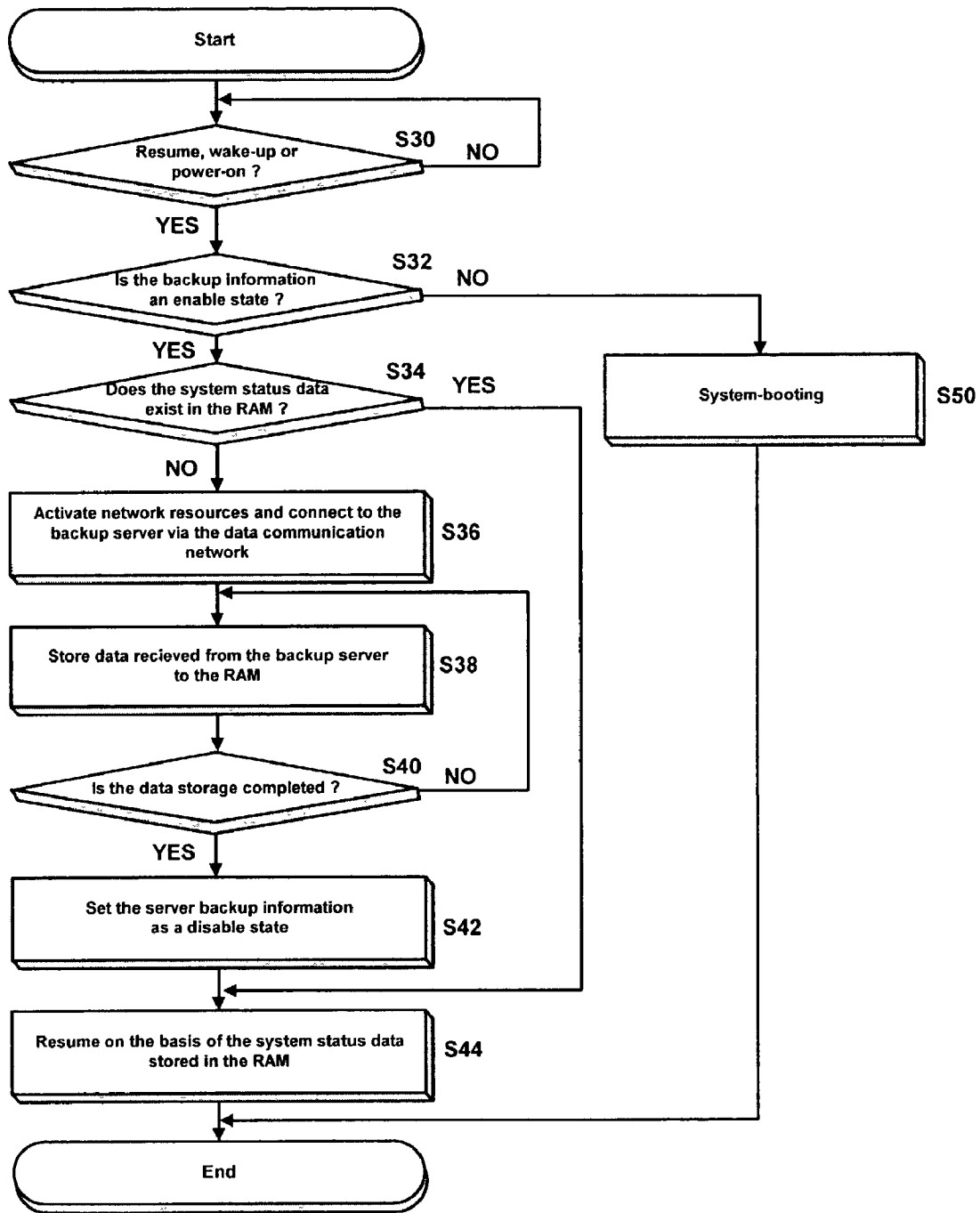


Fig. 2B



1

**METHODS FOR SAVING DATA ON THE  
BASIS OF THE REMAINING CAPACITY OF  
A BATTERY IN A SUSPEND MODE AND  
RESUMING OPERATIONS USING THE  
SAVED DATA**

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to methods for saving data including system status data stored in a memory to a backup server via a data communication network on the basis of the remaining capacity of a battery in a suspend mode, and resuming operations using the saved data when a resume mode, a wake-up mode or a power-on mode is occurred in a computer system.

2. Description of the Background Art

In a portable computer system such as a notebook computer, a PDA (Personal Digital Assistants) and a Web PAD etc., which uses mainly battery charge power rather than firm power, power management functions are prepared for extending the battery driving time (that is, for saving the battery power). There is a suspend mode as an example of the power management functions.

In the suspend mode, it is stopped to supply power to the rest of the devices, except for the some devices including a memory in which the data necessary for returning to the present status of the system is stored. That is, when a suspend mode signal is occurred, the system is controlled so that the status of the CPU (Central Processing Unit) and the status of various peripheral devices just before the suspend mode is saved to the memory and the power is provided to only some devices such as the memory etc. At this state, an operation pause status according to the suspend mode is maintained until a resume mode or a wake-up mode is requested.

However, in the data saving method of the conventional portable system as described above, there is a disadvantage that since the battery power is continuously supplied to some devices such as the memory etc. even in the suspend mode, if the suspend mode is lasted for a long time, the system-down may be occurred by the perfect discharge of the battery and thereby all the data stored in the memory may be lost.

SUMMARY OF THE INVENTION

Therefore, the present invention has been made in order to solve the above problem, an object of the invention is to provide a method for saving data on the basis of the remaining capacity of a battery, in which data including the system status data stored in a memory is saved to the predetermined backup server via a data communication network if the remaining capacity of the battery is not sufficient in a suspend mode, thereby previously preventing the data from losing caused by the perfect discharge of the battery.

Another object of the invention is to provide a method for resuming operations using the data saved in the server by the data saving method when a resume mode, a wake-up mode or a power-on mode is occurred.

In accordance with one aspect, the present invention provides a method for saving data on the basis of the remaining capacity of a battery including: a first step for storing the present system status data into a memory in a

2

mitting and storing the data stored in the memory to a backup server via a data communication network when the confirmed the remaining capacity of the battery is below a reference value; and a third step for returning to the suspend mode after the data is saved to the server.

In accordance with other aspect, the present invention provides a method for resuming operations in a portable computer system which resume the operations from a suspend mode comprising: a first step for checking whether system status data just before the suspend mode is saved in a backup server; a second step for connecting to the backup server via a data communication network and receiving the system status data saved in the backup server according to the checking result; and a third step for returning to the state prior to the suspend mode using the received system status data.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become better understood with reference to the accompanying drawings that are given only by way of illustration and thus are not limitative of the present invention, wherein:

FIG. 1 is a view illustrating a construction of a portable system and a network to which a data saving method on the basis of the remaining capacity of a battery in accordance with the present invention is applied;

FIG. 2A is a flowchart illustrating a preferred embodiment of the data saving method on the basis of remaining capacity of a battery in accordance with the present invention; and

FIG. 2B is a flowchart illustrating a preferred embodiment of an operation resuming method in a system to which the data saving method in accordance with the present invention is applied.

DETAILED DESCRIPTION OF THE  
PREFERRED EMBODIMENTS

A method for saving data on the basis of the remaining capacity of a battery in a suspend mode and a method for resuming operations using the saved data in accordance with preferred embodiments of the present invention will now be described in detail with reference to the accompanying drawings.

FIG. 1 is a view illustrating a construction of a portable system and a network to which a data saving method on the basis of the remaining capacity of a battery in accordance with the present invention is applied.

As shown in FIG. 1, a portable system **100**, to which the method of the present invention is applied, comprises a CPU (Central Processing Unit) **10**, memories **20** and **21**, a keypad **30**, a display unit **40**, a communication unit **50**, a battery **60**, a power controller **70** and a power supply unit **80**.

The memories comprise a ROM (Read Only Memory) **21** in which BIOS (Basic Input and Output System) routines of the system and a routine for communicating with the address of a data communication network **200** about a backup server **300** are stored, and a RAM (Random Access Memory) **20** in which various programs and data for operating the system are stored.

The keypad **30** is a device for inputting various commands or data by a user and the display unit **40** displays frames of image being implemented by the commands and data input through input devices such as the keypad **30**.

The communication unit **50** is a device for performing a

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