

(12) **United States Patent**
Koenck et al.

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(54) **MODULAR, PORTABLE DATA PROCESSING TERMINAL FOR USE IN A COMMUNICATION NETWORK**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **08/513,658**

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(57) **ABSTRACT**

Related U.S. Application Data

A portable data terminal includes at least two communication transceivers having different operating characteristics, one for conducting data communications on a wired sub-network and one for conducting data communications on a wireless subnetwork. A communication processor converts data received by the communication transceivers to a predetermined format for a base module and converts data in a predetermined format from the base module to a format for transmission by a selected one of the first and second communication transceivers, thereby isolating the base module from differing characteristics of the transceivers. The communication processor is arranged to relay communications received by one transceiver for re-transmission by the other transceiver and to transfer communications from one subnetwork to the other, without activating the base module.

(63) Continuation-in-part of application No. 08/114,872, filed on (List continued on next page.)

(51) **Int. Cl.⁷** **G06F 1/32**
 (52) **U.S. Cl.** **709/230; 395/200.79; 395/500**
 (58) **Field of Search** **395/800, 200.01, 395/500; 364/DIG. 1, DIG. 2; 370/913**

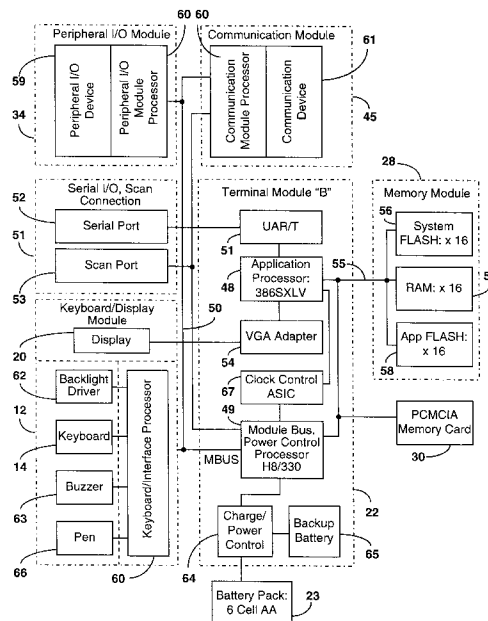
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25 Claims, 41 Drawing Sheets



Related U.S. Application Data

Aug. 31, 1993, now Pat. No. 5,680,633, which is a continuation-in-part of application No. 07/898,908, filed on Jun. 12, 1992, now abandoned, which is a continuation-in-part of application No. 07/835,718, filed on Feb. 12, 1992, now abandoned, which is a continuation-in-part of application No. 08/071,555, filed on Jun. 4, 1993, now Pat. No. 5,331,136, which is a continuation of application No. 07/660,615, filed on Feb. 25, 1991, now Pat. No. 5,218,187, which is a continuation-in-part of application No. 07/467,096, filed on Jan. 18, 1990, now Pat. No. 5,052,020, and a continuation-in-part of application No. PCT/US90/03282, filed on Jun. 7, 1990, which is a continuation-in-part of application No. 07/364,594, filed on Jun. 7, 1989, now abandoned, which is a continuation-in-part of application No. 07/339,330, filed on Apr. 14, 1989, now abandoned, which is a continuation-in-part of application No. 08/107,470, filed on Aug. 17, 1993, now abandoned, which is a continuation-in-part of application No. 08/081,411, filed on Jun. 22, 1993, now abandoned, which is a continuation-in-part of application No. 08/053,901, filed on Apr. 27, 1993, now abandoned, which is a continuation-in-part of application No. 08/097,462, filed on Jul. 26, 1993, now Pat. No. 5,590,346, which is a continuation-in-part of application No. 08/431,077, filed on Apr. 27, 1995, which is a continuation-in-part of application No. 08/097,462, filed on Jul. 26, 1993, now Pat. No. 5,590,346, said application No. 08/431,077, is a continuation-in-part of application No. 08/401,526, filed on Mar. 10, 1995, now abandoned, which is a continuation-in-part of application No. 08/258,285, filed on Jun. 10, 1994, which is a continuation-in-part of application No. 08/226,256, filed on Apr. 11, 1994, now abandoned, which is a continuation-in-part of application No. 08/194,178, filed on Feb. 9, 1994, now abandoned, which is a continuation-in-part of application No. 08/154,020, filed on Nov. 17, 1993, now abandoned, which is a continuation-in-part of application No. 08/107,470, filed on Aug. 17, 1993, now abandoned, application No. 08/513,658, which is a continuation-in-part of application No. 08/487,609, filed on Jun. 7, 1995, which is a continuation-in-part of application No. 08/279,148, filed on Jul. 22, 1994, now Pat. No. 5,657,317, which is a continuation-in-part of application No. PCT/US94/05037, filed on May 6, 1994, which is a continuation-in-part of application No. 08/198,404, filed on Feb. 22, 1994, now abandoned, which is a continuation-in-part of application No. 08/198,452, filed on Feb. 18, 1994, now abandoned, which is a continuation-in-part of application No. 08/197,386, filed on Feb. 16, 1994, now abandoned, which is a continuation-in-part of application No. 08/168,478, filed on Dec. 16, 1993, now abandoned, which is a continuation-in-part of application No. 08/147,377, filed on Nov. 3, 1993, now abandoned, which is a continuation-in-part of application No. 08/101,254, filed on Aug. 3, 1993, now abandoned, which is a continuation-in-part of application No. 08/085,662, filed on Jun. 29, 1993, now abandoned, which is a continuation-in-part of application No. 08/076,340, filed on Jun. 11, 1993, now abandoned, which is a continuation-in-part of application No. 08/062,457,

filed on May 11, 1993, now abandoned, which is a continuation-in-part of application No. 07/876,776, filed on Apr. 28, 1992, now abandoned, which is a continuation-in-part of application No. 07/854,115, filed on Mar. 18, 1992, now abandoned, which is a continuation-in-part of application No. 07/558,895, filed on Jul. 25, 1990, now abandoned, which is a continuation-in-part of application No. PCT/US93/12628, filed on Dec. 23, 1993, which is a continuation-in-part of application No. 07/997,693, filed on Dec. 23, 1992, now abandoned, which is a continuation-in-part of application No. 08/205,639, filed on Mar. 4, 1994, now Pat. No. 5,555,276, which is a continuation-in-part of application No. 07/735,128, filed on Jul. 22, 1991, now Pat. No. 5,365,546, which is a continuation-in-part of application No. 07/467,096, filed on Jan. 18, 1990, now Pat. No. 5,052,020, which is a continuation-in-part of application No. 08/275,821, filed on Jun. 10, 1994, now abandoned, which is a continuation-in-part of application No. 07/876,629, filed on Apr. 30, 1992, now abandoned, which is a continuation-in-part of application No. 08/027,140, filed on Mar. 5, 1993, now Pat. No. 5,602,854, which is a continuation-in-part of application No. 07/854,115, filed on Mar. 18, 1992, now abandoned, application No. 08/513,658, which is a continuation-in-part of application No. 08/267,758, filed on Jul. 5, 1994, now Pat. No. 5,568,645, which is a continuation-in-part of application No. 07/748,150, filed on Aug. 21, 1991, now Pat. No. 5,349,678.

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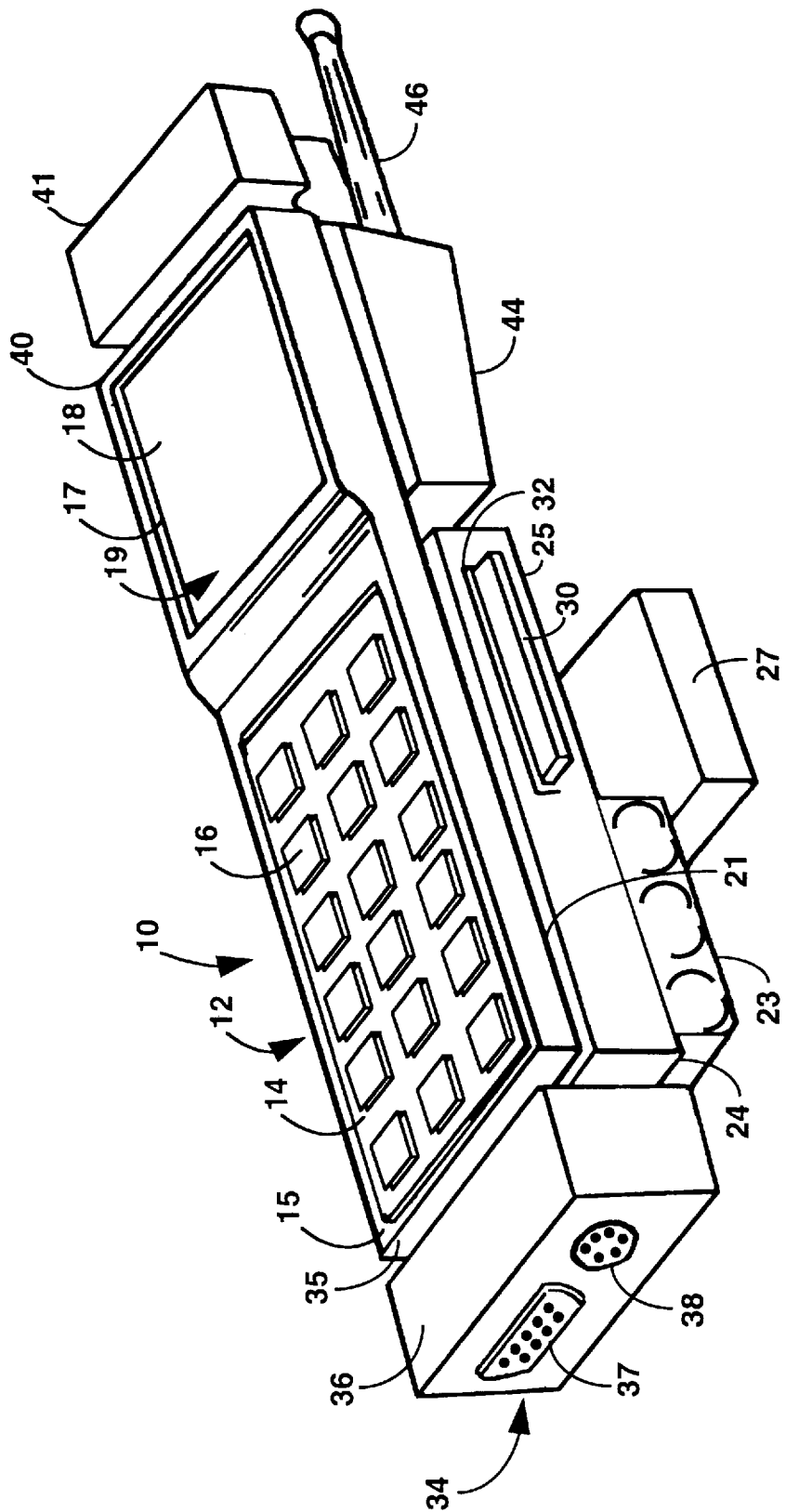


FIG. 1

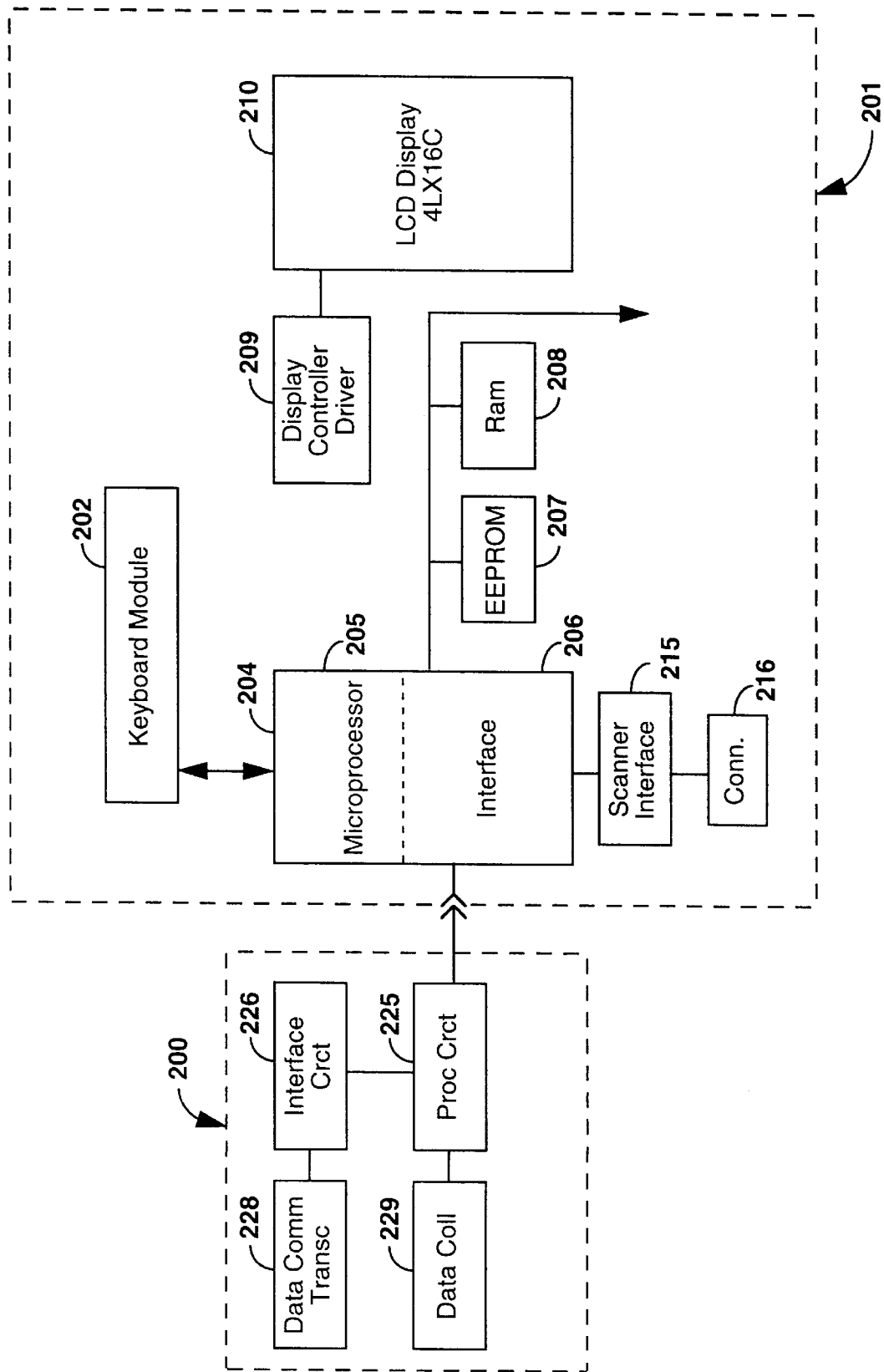


FIG. 1A

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