



US005815505A

# United States Patent [19] Mills

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[45] **Date of Patent:** Sep. 29, 1998

- [54] **COMBINED ANALOG AND DIGITAL COMMUNICATIONS DEVICE**
- [75] Inventor: **Andrew Mills**, Austin, Tex.
- [73] Assignee: **Advanced Micro Devices, Inc.**, Sunnyvale, Calif.
- [21] Appl. No.: **696,201**
- [22] Filed: **Aug. 13, 1996**
- [51] **Int. Cl.<sup>6</sup>** ..... **H04Q 11/00**
- [52] **U.S. Cl.** ..... **370/522; 370/264; 370/463; 379/399**
- [58] **Field of Search** ..... 370/420, 522, 370/524, 465, 463, 264; 375/219, 220; 379/399

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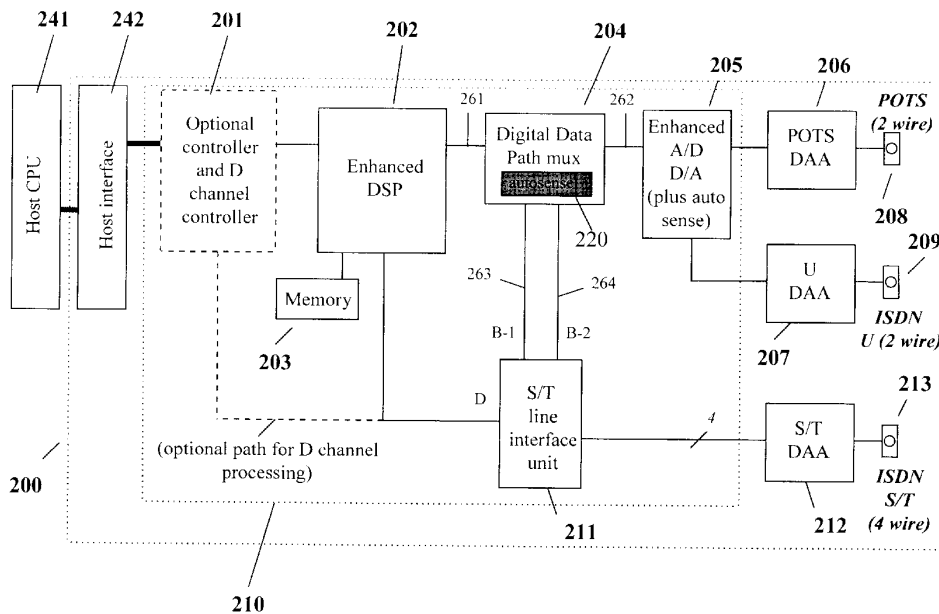
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[57] **ABSTRACT**

A communications device is presented which is configured to provide selective signal processing at a "plain old telephone service" (POTS) interface, an ISDN U interface, or an ISDN S/T interface. A first POTS connector allows the communications device to be connected to an analog POTS telephone line. A second ISDN U connector allows the communications device to be connected to an ISDN network at an ISDN U interface point. A third ISDN S/T connector allows the communications device to be connected to an ISDN network at an ISDN S/T interface point. A digital signal processing (DSP) core performs: (i) analog modem functions via analog modem emulation when a POTS telephone line is connected to the POTS connector, or (ii) ISDN digital voice and data processing functions along with ISDN S/T and U interface functions when an ISDN line is connected to the ISDN U connector, or (iii) ISDN digital voice and data processing functions along with ISDN S/T interface functions when an ISDN line is connected to the ISDN S/T connector. Interface logic couples signals between the DSP core and the connectors. A digital data path multiplexer coupled between the DSP core and the interface logic includes "autosense" logic which monitors signals received by the connector coupled to the telephone line and determines a data transfer mode based upon the received signals. The digital data path multiplexer provides the data transfer mode information to the DSP core, and the DSP core performs communications operations according to data transfer mode information.

**29 Claims, 4 Drawing Sheets**



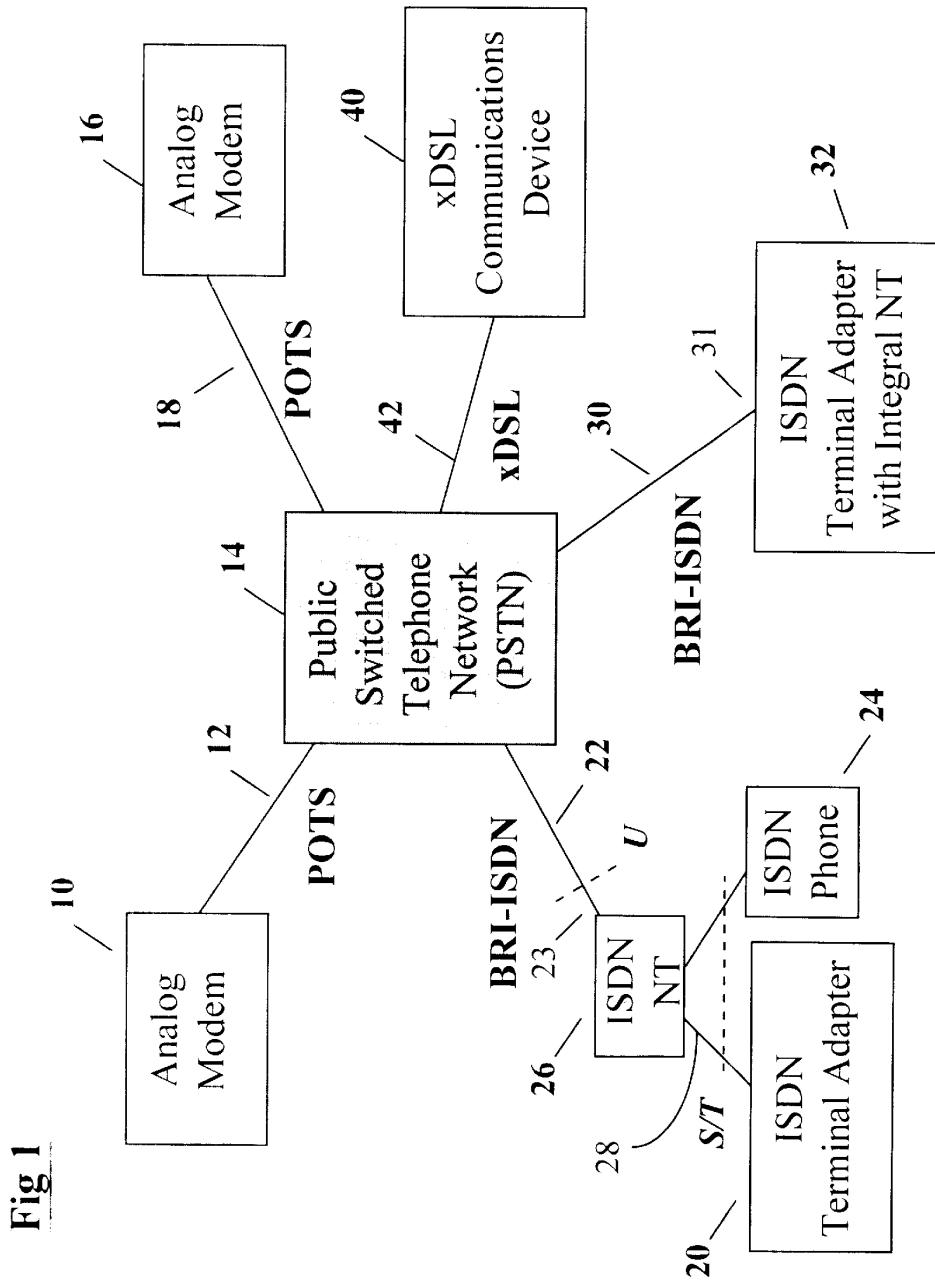


Fig 1

Fig 2 (Prior Art)

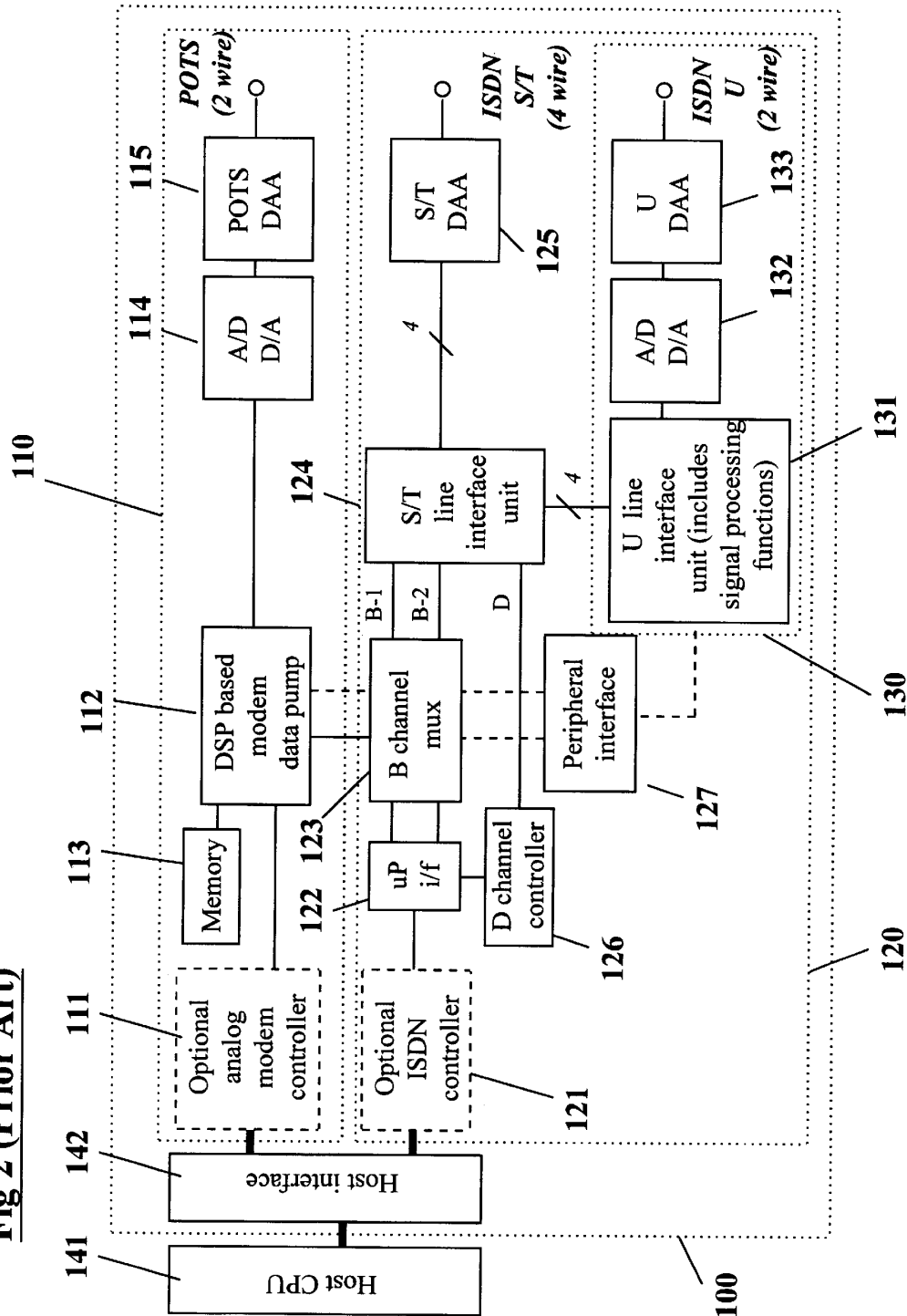
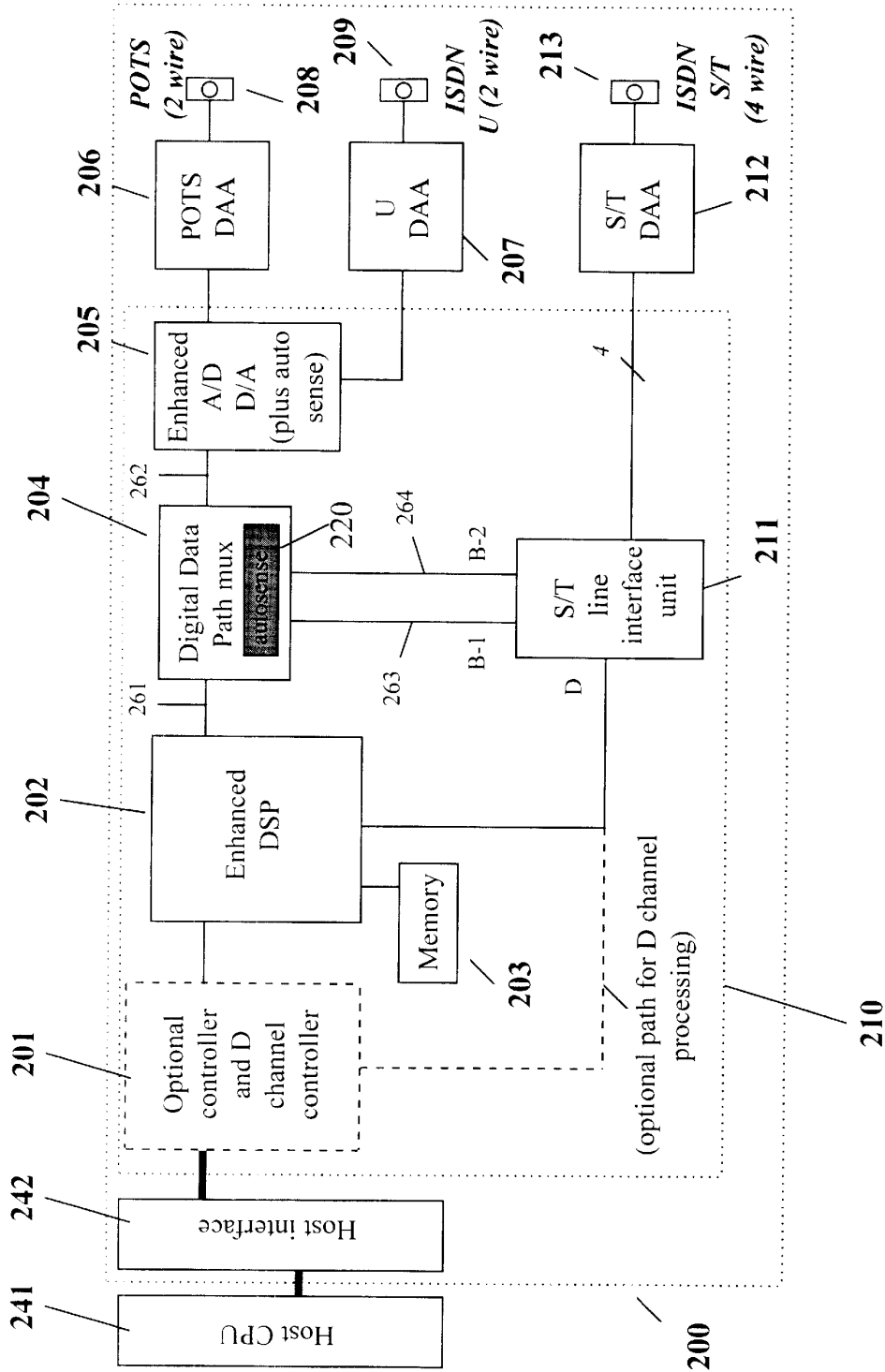
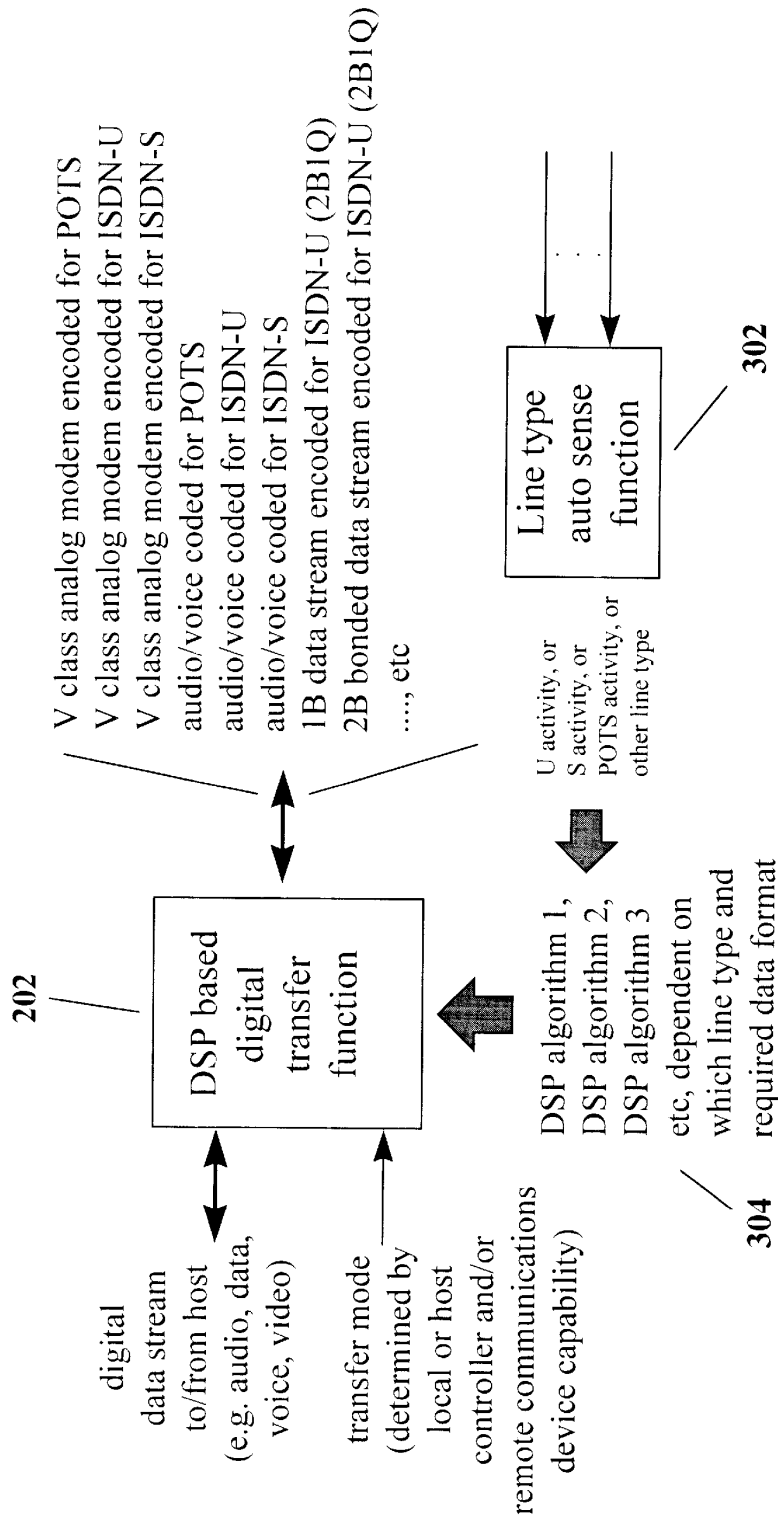


Fig 3



**Fig 4**



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