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United States Patent [19]

Gulick et al.

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[54] **COMPUTER SYSTEM AND METHOD HAVING A DEDICATED MULTIMEDIA ENGINE AND INCLUDING SEPARATE COMMAND AND DATA PATHS**

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[73] Assignee: **Advanced Micro Devices, Inc.**, Sunnyvale, Calif.

[21] Appl. No.: **526,531**

[22] Filed: **Sep. 11, 1995**

[51] **Int. Cl.^{6}** **G06F 13/00**

[52] **U.S. Cl.** **395/800**; 395/281

[58] **Field of Search** 395/281, 800, 395/842

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Primary Examiner—Eric Coleman
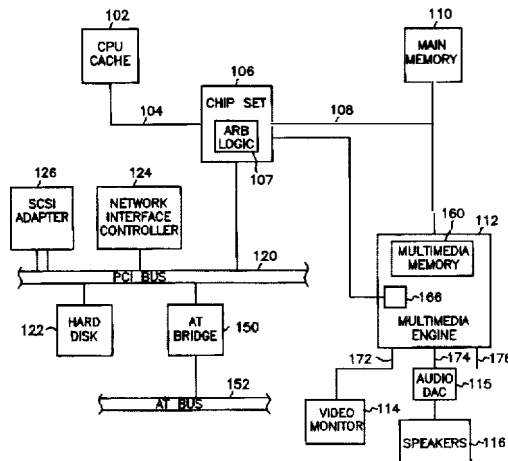*Attorney, Agent, or Firm*—Conley, Rose & Tayon; Jeffrey C. Hood
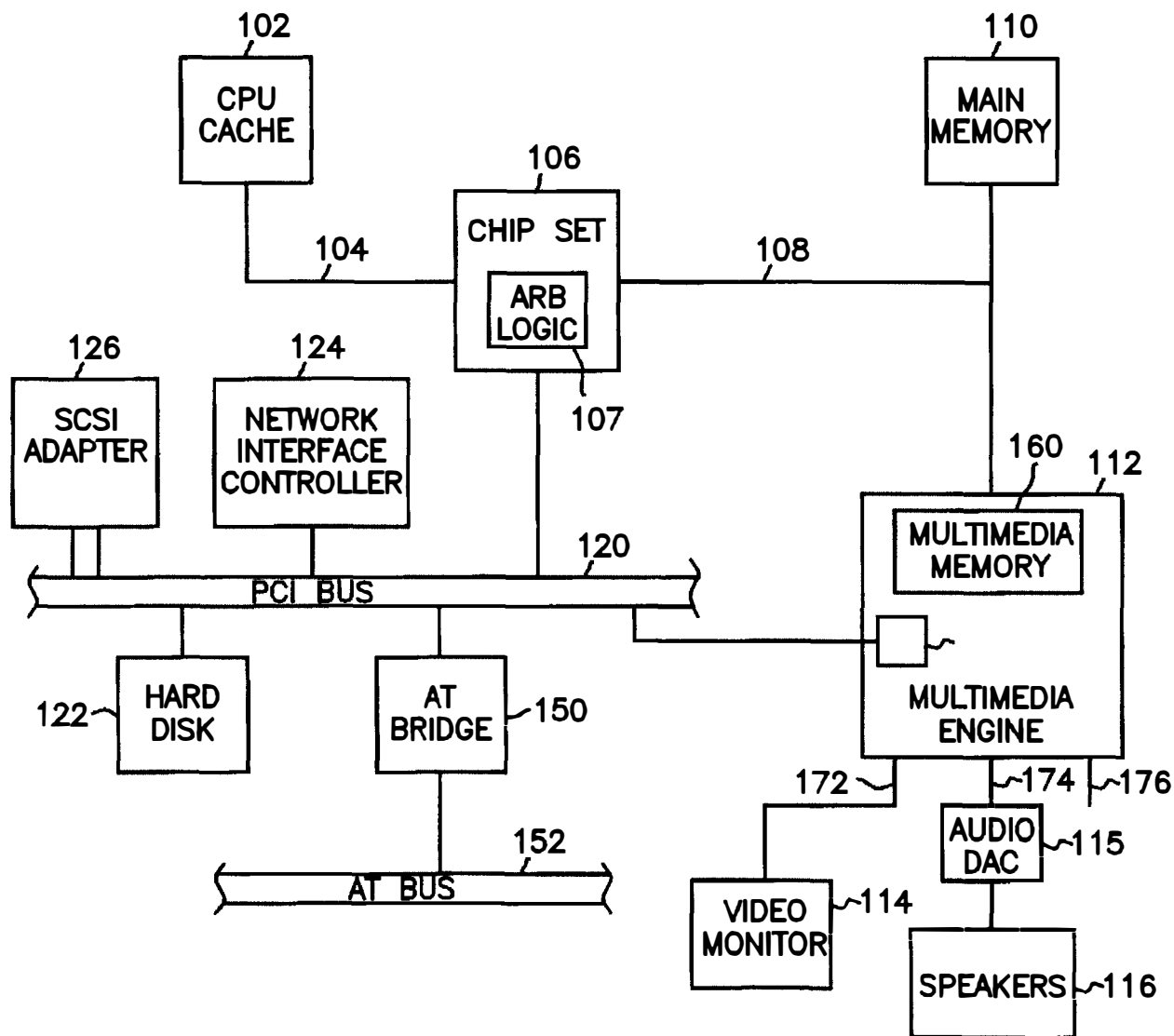
[57] **ABSTRACT**

The present invention comprises a computer system and method optimized for real-time applications which provides increased performance over current computer architectures. The system includes a dedicated multimedia engine and dedicated multimedia memory coupled directly to the main memory. The computer system includes a data path to the main memory and the multimedia memory, and includes a separate command path to the multimedia engine. In one embodiment, the CPU includes a separate command path through the chipset logic to the multimedia engine. In an alternate embodiment, the CPU includes a separate command path to the multimedia engine through the PCI bus. In this alternate embodiment, the multimedia engine includes a PCI interface which couples to the PCI bus. The multimedia engine executes commands and data from the multimedia memory to perform a number of real-time operations, including audio and video functions, as well as others. Thus the computer system of the present invention provides greater performance for real-time applications than prior systems.

34 Claims, 11 Drawing Sheets

102

CPU
CACHE

106

CHIP SET

104

ARB
LOGIC

107

110

MAIN
MEMORY

108

126

SCSI
ADAPTER

124

NETWORK
INTERFACE
CONTROLLER

120

PCI BUS

122

HARD
DISK

AT
BRIDGE

150

160   112

MULTIMEDIA
MEMORY

166

MULTIMEDIA
ENGINE

172   174   176

152

AT BUS

AUDIO
DAC

115

VIDEO
MONITOR

114

SPEAKERS

116

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102
CPU
CACHE

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MAIN
MEMORY

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CHIP SET
ARB
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FIG.

102

CPU
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AUDIO
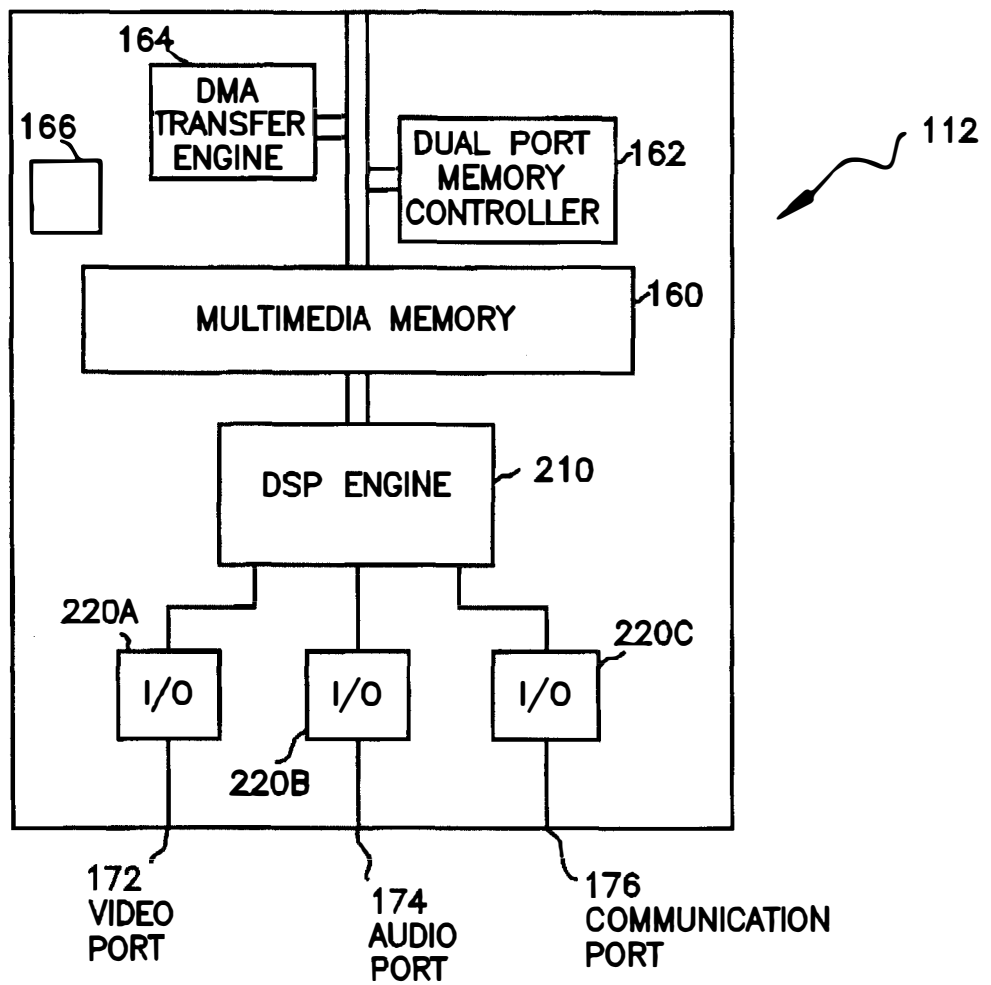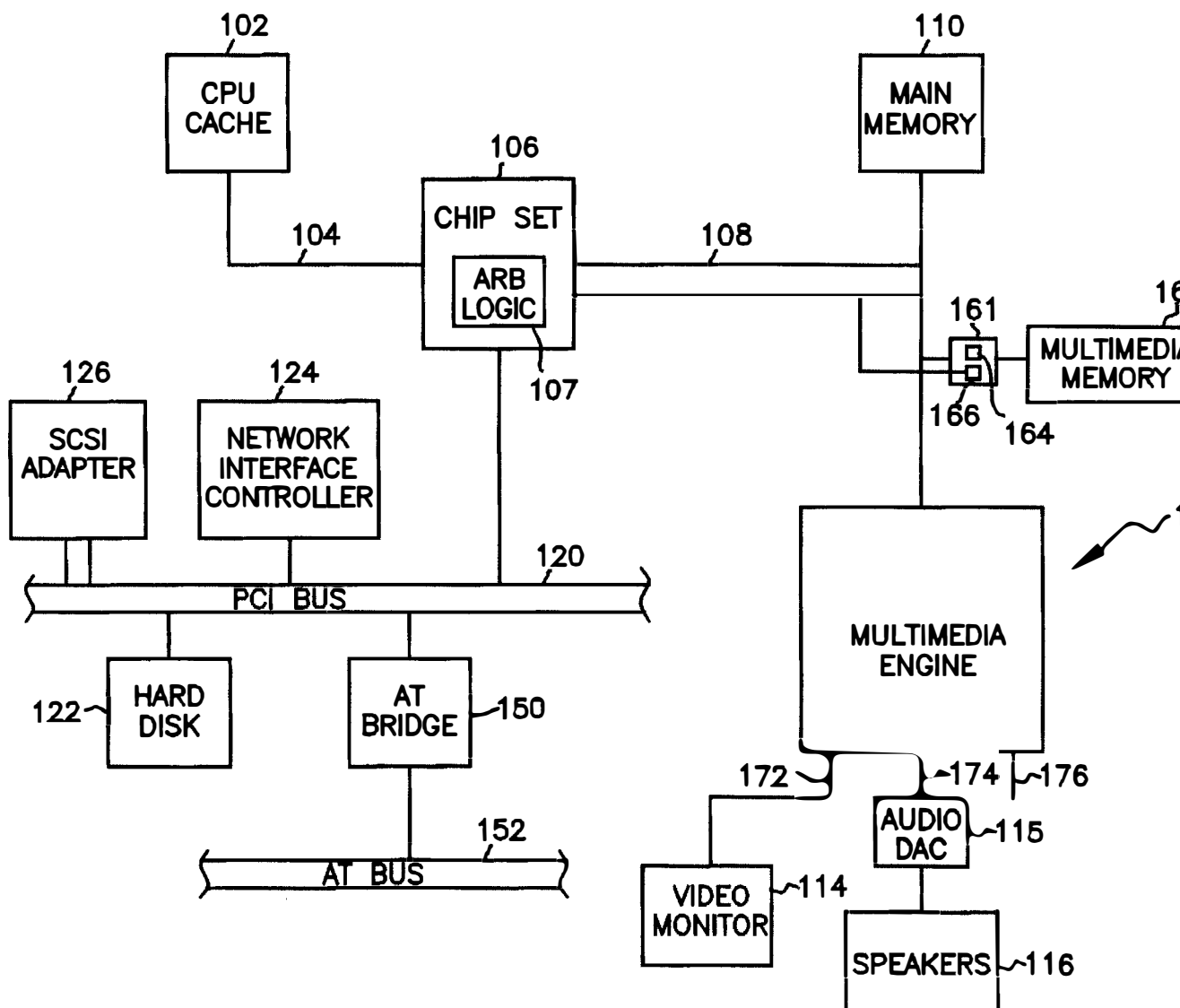DAC

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VIDEO
MONITOR

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SPEAKERS

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