

Embedded BIOS™ Adaptation Kit

for AMD Am486PCI based
Embedded Designs

Overview

The AMD Am486PCI Customer Development Platform provides a rich hardware testbed for embedded applications such as network communications equipment, requiring PCI and Ethernet. Featuring a 133Mhz Am5x86 CPU with ALi M1487/M1489 chipset and an ALi M5113 Super I/O controller and large Flash array for XIP or disk emulation, the platform boots with Embedded BIOS™ and can support application programming in Windows NT, Windows 95, Windows CE, DOS, and other embedded operating systems. The General Software Embedded BIOS™ Adaptation Kit for the Am486PCI provides industry-standard BIOS core software with the special embedded support for products built around this design.

Advanced Am486PCI Embedded BIOS Features

PCnet™ FAST+

This built-in embedded PCI Ethernet device is automatically detected and enabled by the BIOS, eliminating the need for OEM initialization of the PCI bus.

Execute In Place (XIP) Flash Array

The on-board Flash array is available for operating system or application use. Operating systems and applications can be executed directly from the BIOS when stored in XIP Flash. Built-in Embedded BIOS Windows CE loader can even launch NK.BIN from this array, making ETK adaptations simple and easy.

Flash Disk Array

For use as a disk emulator, Embedded BIOS can treat the Am486PCI's large Flash array of AMD sectored Flash parts as a read/write Flash disk, emulating either floppy disks or hard disks with solid-state memory.

PCI and ISA Slots Managed by "ALi Finali" Chipset

Both PCI and ISA slots permit prototyping with off-the-shelf, widely-available expansion boards. ALi's M1487/M1489 chipset provides the Northbridge and Southbridge support for PCI and ISA busses.

M1487/M1489/M5113 BIOS Debugger with Chipset and Flash Programming Support

The built-in debugger is chipset and Super I/O-aware, allowing interactive experimentation with chipset (both Northbridge and Southbridge) and Super I/O registers for board checkout and system optimization, as well as in-system Flash programming. Access to all I/O ports and full range of system addresses is supported.

Super I/O & Serial Ports

Embedded BIOS can be configured to use the serial ports as consoles for remote access via terminal programs. Manufacturing Mode can also run over these ports, allowing software updates in the lab and in the field from any host PC or laptop.

Am486PCI Support Modules

Board-Level and Chipset-Level Programming

Chipset programming with table loads for M1487/M1489, shadowing, DRAM geometry autodetection, Super I/O programming for M5113, and reference design peripheral component programming included.

See Reverse Side for More Details

System Software for

Embedded Systems

Handheld, Mobile and

Consumer Electronics

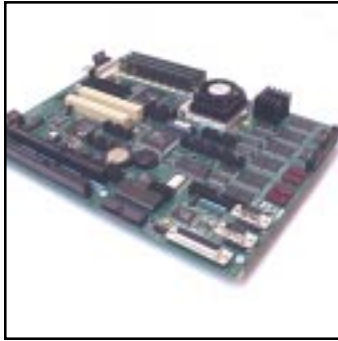

GENERAL
SOFTWARE

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Applications

AMD Reference Design



The AMD Am486PCI Customer Development Platform was designed by AMD to showcase the 133Mhz Am5x86 processor in a high-performance environment, with PCI bus, Ethernet controller, Execute in Place (XIP) memory, off-the-shelf chipset and Super I/O, logic analyzer headers, ISA slots for easy expansion, HEX LEDs for debug and BIOS bringup, and emulator support. General Software's Embedded BIOS provides the essential system software that brings up this reference design. The target can be used to run DOS, Windows 95, Windows 98, Windows NT, Windows CE, and real-time operating systems from other 3rd party operating system vendors.

This development board offers a rich environment for prototyping networking applications, including routers and telecomm devices, because of its built-in PCI Ethernet chip, high performance CPU and PCI bus, and large solid-state storage capacity. Complete schematics, Bill of Materials, and User's Manual are available from AMD (contact epd.support@amd.com.)

Routers, Switches, and WAN Connectivity



Applications like narrowband Frame Relay, ATM, Internet, SNA, video, voice, circuit emulation, ISDN switched access, and wireless services for transport over the network backbone are all possible with the high-performance AMD Am486PCI CDP based platform. The 133Mhz Am5x86 CPU and high bandwidth of the PCI bus are ideally suited for this class of applications.

Embedded BIOS can provide the PCI services and solid-state disk services necessary to build a totally solid-state embedded PCI computer through emulation of components such as IDE drives that are costly, bulky, heat-producing, and have a limited lifespan. Conditional console redirection, headless operation, and quick boot (<3 seconds) are all standard options available with Embedded BIOS.

Industrial Data Acquisition and Process Control



Industrial control applications that require high CPU bandwidth and also I/O bandwidth can benefit from the AMD Am486PCI design. Robotic cells, machine vision, and many process control applications are ideally hosted on an Am486PCI CDP based system.

Solid-state, robust storage solutions, coupled with industry-standard operating system support are necessary in any strategic scalable process control application. Embedded BIOS provides the emulation of disk drives with AMD Flash memories, and can boot real-time operating systems, or industry standard operating systems such as Windows CE, without any moving parts. The mass storage emulators in Embedded BIOS provide software block wear levelling, enabling them to sustain on average, over 1,000,000 writes without failure. Power outages during Flash file system operation are problematic for many 3rd party Flash file systems, but the Resident Flash Disk in Embedded BIOS provides a robust, recoverable system that is designed to operate unattended, without "recovery" programs run by an operator.

For More Information

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