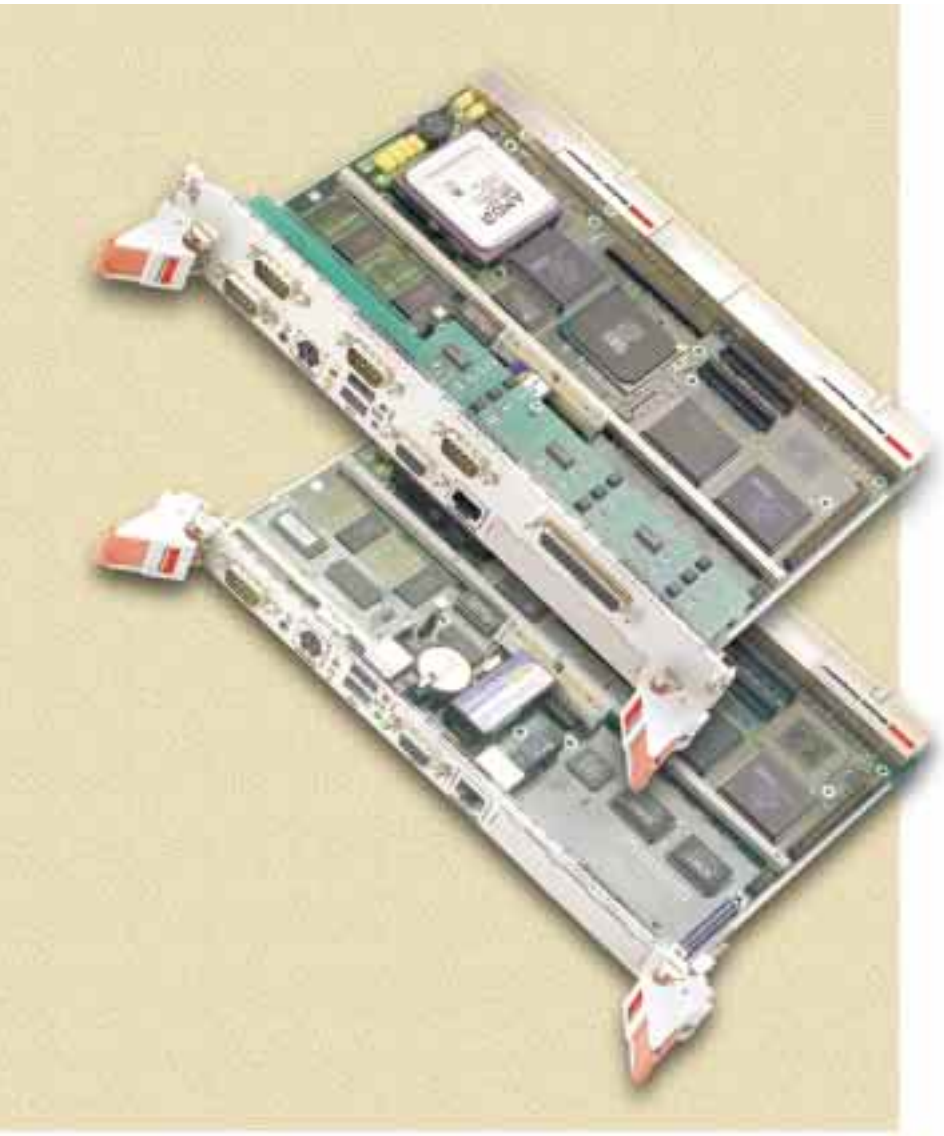
HIGH-PERFORMANCE CPUs SINGLE-BOARD COMPUTERS

CP600/610

CompactPCI Double-Height Computer



Outstanding Industrial Computing Features

- Supports Socket 7 processors up to and greater than 300 MHz
- Up to 14 peripheral slots supported without additional bridges
- Designed for harsh industrial environments
- 32 MByte to 192 MByte DRAM
- Up to 144 MByte FLASH using DiskOnChip™ technology
- Integrated Fast-Ethernet interface
- Integrated SVGA interface
- P1386-compatible PMC interface
- Rear I/O on P3 connector
- Hot-Swap compliant
- Up to 4 COM and 2 USB interfaces
- Dual IDE/ATA hard disk interface (ultra DMA protocol)
- Floppy disk interface
- Keyboard Interface and PS-2 mouse

The CP600 and CP610 are highly integrated 6U CompactPCI boards designed for use with Socket 7 processors up to and exceeding 300 MHz and ruggedly constructed for industrial environment applications.

PCI INDUSTRIAL PICMG COMPUTERS

CERTIFIED DIN ISO 9001 QUALITY SYSTEM Reg. No. 0548 - 02

PEP Modular Computers®

Ordering Information

CP600/610

Product	Description	Order No.
CP600 [1]	A 4HP, P1/P2 CompactPCI 6U CPU board with **32** MByte soldered DRAM, 512 kByte L2 cache, **PS-2** style keyboard connector, 9-pin D-Sub COM1, two IDE/ATA interfaces, floppy interface, integrated SVGA interface, Fast Ethernet, PMC slot and Award BIOS in FLASH	**18853**
CP600 [1]	Same as order no. 18853 but with **64** MByte soldered DRAM	**18854**
CP600 [1]	An 8HP P1/P2 CompactPCI 6U CPU board with **32** MByte soldered DRAM, 512 kByte L2 cache, **PS-2** style keyboard connector,9-pin D-Sub COM1, COM2, COM3, COM4 and 25-pin LPT1 parallel port, two IDE/ATA interfaces, floppy interface, integrated SVGA interface, Fast Ethernet, PMC slot and Award BIOS in FLASH	**18855**
CP600 [1]	Same as order no. 18855 but with **64** MByte soldered DRAM	**18856**
CP610 [1]	A 4HP, P1/P2, P4/P5 CompactPCI 6U CPU board with **32** MByte soldered DRAM, 512 kByte L2 cache, **PS-2** style keyboard connector, two IDE/ATA interfaces, floppy interface, integrated SVGA interface, Fast Ethernet, PMC slot and Award BIOS in FLASH	**18857**
CP610 [1]	Same as order no. 18857 but with **64** MByte soldered DRAM	**18858**
CP610 [1]	An 8HP P1/P2, P4/P5 CompactPCI 6U CPU board with **32** MByte soldered DRAM, 512 kByte L2 cache, **PS-2** style keyboard connector, 9-pin D-Sub COM1, COM2, COM3, COM4 and 25-pin LPT1 parallel port, two IDE/ATA interfaces, floppy interface, integrated SVGA interface, Fast Ethernet, PMC slot and Award BIOS in FLASH	**18859**
CP610 [1]	Same as order no. 18859 but with **64** MByte soldered DRAM	**18860**
DMSO-16	16 MByte SODIMM DRAM module (an additional socket is available on request at the expense of the stiffener bar)	**18503**
DMSO-32	32 MByte SODIMM DRAM module (an additional socket is available on request at the expense of the stiffener bar)	**18504**
DMSO-64	64 MByte SODIMM DRAM module (an additional socket is available on request at the expense of the stiffener bar)	**18505**
FLD-2 [2]	2 MByte FLASH-Disk	**18225**
FLD-4 [2]	4 MByte FLASH-Disk	**18226**
FLD-8 [2]	8 MByte FLASH-Disk	**18227**
P133-VRT-A4	133 MHz Pentium VRT processor with fan for both 4HP and 8HP CP600/CP610 variants	**18506**
P133-VRT-P4	133 MHz Pentium VRT processor without fan for the 4HP CP600/CP610 variants	**19162**
P133-VRT-P8	133 MHz Pentium VRT processor without fan for the 8HP CP600/CP610 variants	**19163**
P233-MMX-A8	233 MHz Pentium MMX processor with fan for the 8HP CP600/CP610 variants	**18509**
P300-MMX-A8	300 MHz AMD K6 processor with fan for the 8HP CP600/CP610 variants	**18510**
CP-HD-6X0	Notebook-style 2.5". ≥ 2.1 GByte hard-disk for board mounting on one of the CP6x0 range of 6U PEP CPU boards	**18985**
KIT-CP610	Drivers and Windows NT setup utilities with user's manual documentation in PDF format on 3.5" floppy disk	**18960**
MAN-CP610	Printed user's manual for the CP600/610	**18939**

Note: The latest Socket 7 processors are supported. Processors, other than the ones listed may be available on request.

[1] The CP600/610 must be ordered with one of the processor options which will then decide the style of front-panel that will be attached.

[2] FLASH-Disks up to 144 MByte are also available on request.

▶ USA ▶ GERMANY ▶ FRANCE ▶ UK ▶ SWEDEN ▶ BENELUX ▶ POLAND ▶ ITALY ▶ SPAIN ▶ NORWAY
▶ DENMARK ▶ FINLAND ▶ SWITZERLAND ▶ CZECHIEN ▶ HUNGARY ▶ CIS ▶ CHINA ▶ JAPAN ▶ KOREA

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Product Assembly

CP600/610

Standard 32 MByte or 64 MByte soldered DRAM offers optimum resistance against industrial shock. DRAM may be upgraded by utilizing SODIMM modules. An additional SODIMM socket can be mounted on request but at the expense of the stiffener bar.

An industrial stiffener bar ensures board rigidity even in the most extreme industrial applications.

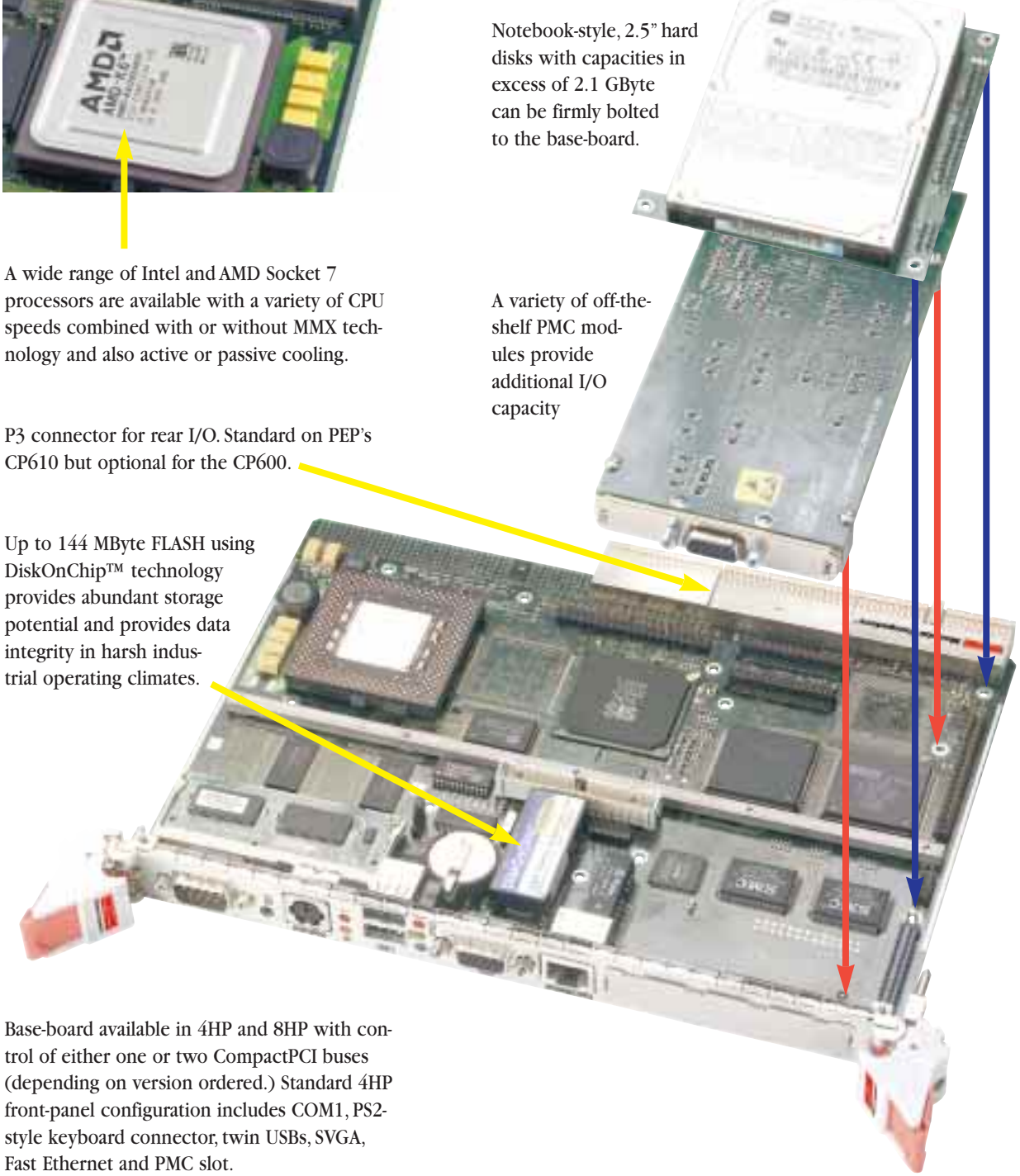
Notebook-style, 2.5" hard disks with capacities in excess of 2.1 GByte can be firmly bolted to the base-board.

A wide range of Intel and AMD Socket 7 processors are available with a variety of CPU speeds combined with or without MMX technology and also active or passive cooling.

A variety of off-the-shelf PMC modules provide additional I/O capacity

P3 connector for rear I/O. Standard on PEP's CP610 but optional for the CP600.

Up to 144 MByte FLASH using DiskOnChip™ technology provides abundant storage potential and provides data integrity in harsh industrial operating climates.



Base-board available in 4HP and 8HP with control of either one or two CompactPCI buses (depending on version ordered.) Standard 4HP front-panel configuration includes COM1, PS2-style keyboard connector, twin USBs, SVGA, Fast Ethernet and PMC slot.

HIGH-PERFORMANCE CPUs SINGLE-BOARD COMPUTERS

Product Overview

CP600/610

PEP's 6U CompactPCI CPUs are highly integrated, single-board computers based around the Intel Pentium or AMD Socket 7 series of processors.

The CP600 and CP610 meet the needs of a wide range of industrial control and processing applications and is available as:

- A 4HP unit or
- An 8HP unit

Both may be used with or without cooling fan or passive heat-sink (depending on the installed processor.)

Designed for stability and packaged in a rugged format, the boards fit into all applications situated in industrial environments. Extra board stiffness by way of a stiffener bar further enhance the industrial capability of these CPUs.

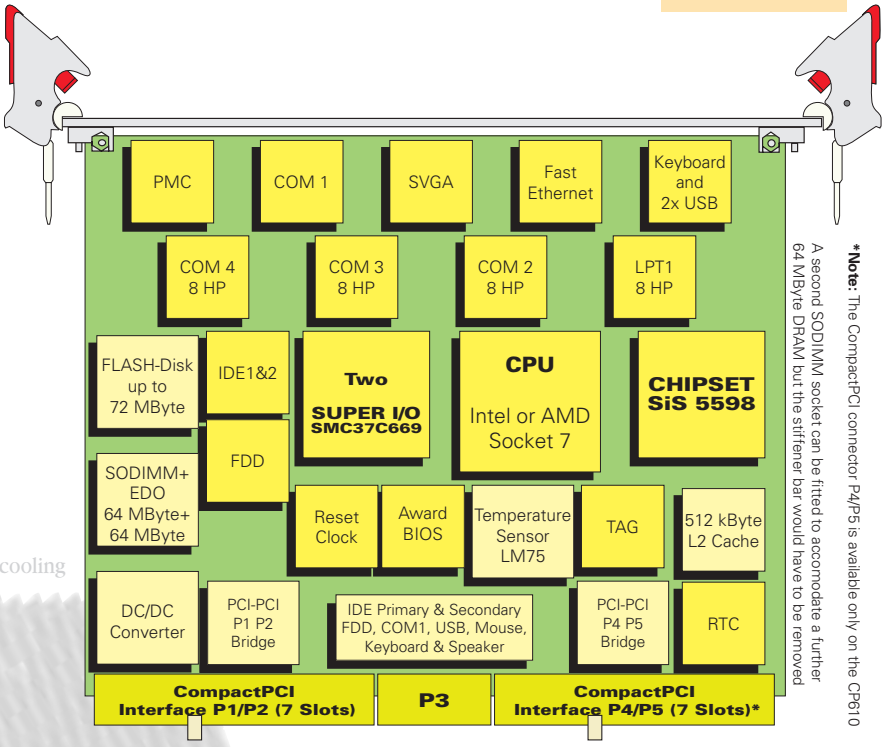
The low power feature of the boards is further assured through the use of voltage reduced technology (VRT) and 3.3V power supply for support of the latest 64 Mbit DRAM components.

Not necessarily requiring the CompactPCI bus backplane to operate, and fully able to function on a standalone basis due to the high-integration of board features and commonly used peripheral devices, these 6U CPU boards form the power house behind all 6U CompactPCI applications.

The CPUs are compatible with the following operating systems:

- Microsoft Windows™ NT
- VxWorks®
- QNX®

and others requiring the standard PC boot configuration are available on request.



8 HP Passive cooling

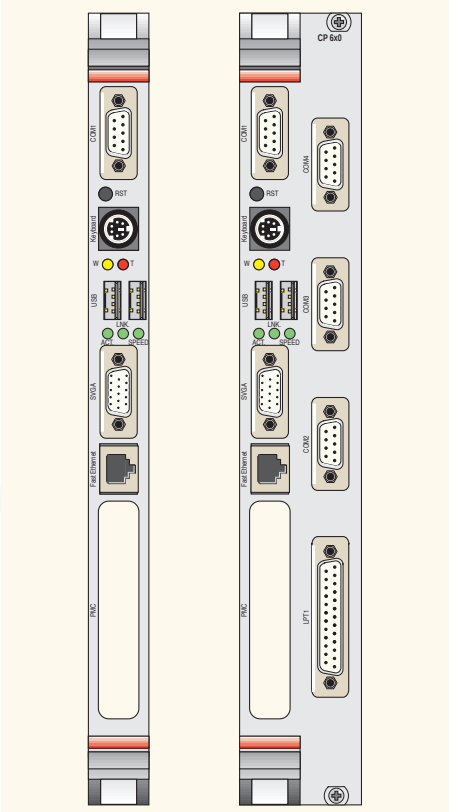
The performance of CompactPCI can be tuned to suit real-time applications and operating systems like VxWorks or QNX which are instrumental in the success of CompactPCI in these market sectors.

For industrial applications, a solid mechanical configuration requires easy access to the main module interfaces. Therefore, all critical user I/O (keyboard, system hard reset, twin USBs, COM1, (COM2, COM3, COM4 and LPT1 are on the 8HP front-panel), SVGA and Ethernet interfaces) are routed to the front-panel. A cutout allows standard PMC modules to be fitted to further enhance the I/O capability of the CPUs. The clever PEP design also allows I/O to appear on the rear P3 CompactPCI connector (optional on the CP600) on the backplane.

All remaining mass-storage interfaces are accessible via the on-board pin-row connectors. Two IDE/ATA interfaces provide support for up to two hard-disks or CD drives per port.

Front-Panel

CP600/610



Specifications

CP600/610

CPUs

Intel or AMD Socket 7 processors up to and greater than 300 MHz: Built-in numeric co-processor support

Memory

32 kByte or 64 kByte internal CPU cache
512 kByte burst-SRAM pipelined L2 expansion cache
32/64 MByte on-board DRAM expandable to 192 MByte (SODIMM socket for 64 MByte EDO devices)

Pentium System Controller

SiS 5598 single-chip PCIset with:

- Level 2 write-back cache controller, Burst DRAM controller, PCI & ISA interface, consuming 1 PCI load
- Real-time clock with general-purpose, battery-backed CMOS RAM, s/w compatible with DS1287/MC146818
- Two enhanced 8259-style interrupt controllers
- Two enhanced 8237-style DMA controllers
- 8042 compatible PC/AT keyboard controller

AT Peripheral Controller

Two SMC FDC37C669 provides the following functions:

- Four 16C550 compatible UARTs with 16 bytes FIFO. Support for IRDA compliant devices is provided on COM1
- Multi-mode, bi-directional parallel port, IBM CENTRONICS compatible. Enhanced Parallel Port (EPP), High-Speed mode: ECP compatible

Mass-Storage Interfaces

- Floppy disk interface for up to 2 devices (720 kByte, 1.2, 1.44 and 2.88 MByte)
- 2 IDE/ATA interfaces each supporting ultra DMA protocol for 2 hard-disks or CD-ROM on 40-pin 2.54mm connectors
- Up to 144 MByte FLASH (DiskOnChip™)

Real-Time Features

Software configurable watchdog timer for NMI, IRQ or RESET generation

SVGA Video Support

High-performance, embedded 64-bit GUI accelerator with shared display memory (1 MByte or 2 MByte) for screen resolutions up to 1024x768 pixels for both interlaced and non-interlaced operational modes

Fast Ethernet Interface

Controller:	Intel 82558 Fast Ethernet controller
Data Rate:	10 & 100 Mbit/s
Ethernet Int.:	Full 802.2 & 802.3 IEEE compliance supporting both 10Base-T & 100Base-TX
Cabling:	Category 5 two-pair cabling

Software Support

Award BIOS is contained within 256 kByte FLASH memory. Due to the standard PC features supported by the BIOS, all PC operating systems like Windows NT may be installed. Real-time operating systems like QNX or VxWorks etc. may also be installed.

CompactPCI Bus Interface

Compatible with CompactPCI specification rev.2.1
32-bit master interface
Single slot local system operation
3.3V/5.0V compatible
CP600 supports 1 CompactPCI bus on P1/P2
CP610 supports 2 CompactPCI buses on P1/P2 & P4/P5

General

Power Consumption:	15W (typ.)
Dimensions:	233.35mm x 160mm; single-slot
Operating temp.:	0ºC to +60ºC
	-25ºC to +75ºC (optional)
Storage temp.:	-55ºC to +85ºC
Operating humidity :	0% to 95% non-condensing
Weight:	600g (8HP)

Front-Panel Functions

PS-2 style keyboard connector (6-pin mini-DIN)
COM1 mouse/serial port with 9-pin D-Sub (RS232)
PS-2 style mouse connector or two USB interfaces
Fast Ethernet (10Base-T/100Base-TX) on RJ45 connector
15-pin D-Sub SVGA connector
PMC slot
LPT physical interface on 25-pin D-Sub (8HP version)
COM2 serial port with 9-pin D-Sub (8HP version)
COM3 serial port with 9-pin D-Sub (8HP version)
COM4 serial port with 9-pin D-Sub (8HP version)
Board RESET button

LEDs	ACT, LNK, SPEED	Ethernet status
	WDG	Watchdog timer status
	TMP	Temperature

Common

DC power monitors (3.3V and 5V)
Battery (socket) for RTC
LM75 temperature sensor

Features

CP600/610

CPU

The latest socket 7 processes are supported up to exceeding 300 MHz with a bias towards Intel Pentium and AMD devices.

CompactPCI Bus Interface

Supporting a single CompactPCI bus, the CP600 is capable of controlling up to 7, 6U peripheral slots. The CP610 by comparison, hosts two CompactPCI buses that can address up to 14, 3U peripheral slots (if used with PEP's split-kit and 6U, 19" rack.)

Memory

The CPUs can accommodate up to 192 MBytes of 32-bit wide DRAM up to 64 MBytes of which are soldered in place for best mechanical stability. 256 kByte FLASH is provided for the system BIOS arranged in 2 x 8 kByte parameter blocks and a 16 kByte boot block with hardware selectable write protection. Up to 144 MByte FLASH may be realized by using DiskOnChip™.

DMA

Two enhanced 8237-style DMA controllers are provided on the CPUs for use by the on-board peripherals. DMA channels for the floppy disk and parallel port can be selected by setting the configuration register.

Fast Ethernet Interface

Automatic switching detection between 10BaseT and 100Bast-TX transmission protocols are supported on a 9-pin RJ45 interface.

PMC Interface

This is a 32-bit master PCI electrical interface for the Common Mezzanine Card (CMC) form-factor designed to comply with the IEEE P1386 specification.

Rear I/O

PEP's 6U CPUs have been designed to allow the I/O signals defined in the Dual System Slot specification 0.4 to be accessed via the CompactPCI P3 connector. A translation module allows these signals to be accessed physically. This feature is available as an option for PEP's CP600.

Hot-Swap

It is not an intention to insert/extract these CPU boards in a live system. However, these CPUs do allow other boards to be removed or added with the power on. The individual clocks for each slot and access to the backplane ENUM# signal comply with the PICMG 2.1 Hot-Swap specification.

Serial I/O

Four 16C550 PC-compatible serial ports are available with 5V charge pump technology eliminating the need for a ±12V supply. All 4 ports include a complete set of handshaking and modem control signals, maskable interrupt generation and data transfers up to 460.8 kBaud.

IEEE 1284 Parallel Port/Printer Interface

These CPUs include an IEEE 1284, ECP/EPP-compatible parallel port (on the 8HP model.)

Floppy Interface and Keyboard Controller

Both CPUs have an on-board floppy interface connector for connection of up to two floppy drives.

The keyboard controller is the industry standard PC/AT® type and allows PS-2 style keyboard and mouse connection on the front-panel as well as through the rear I/O connector.

Universal Serial Bus

Two Universal Serial Buses (USBs) provide a common interface to slower-speed peripherals.

Watchdog Timer

A software programmable watchdog timer can be configured to issue an IRQ, NMI or system RESET.

Real-Time Clock

The real-time clock performs time-keeping functions and includes 256 bytes of general-purpose battery-backed CMOS RAM. Features include an alarm function, programmable periodic interrupt and 100 year calendar.