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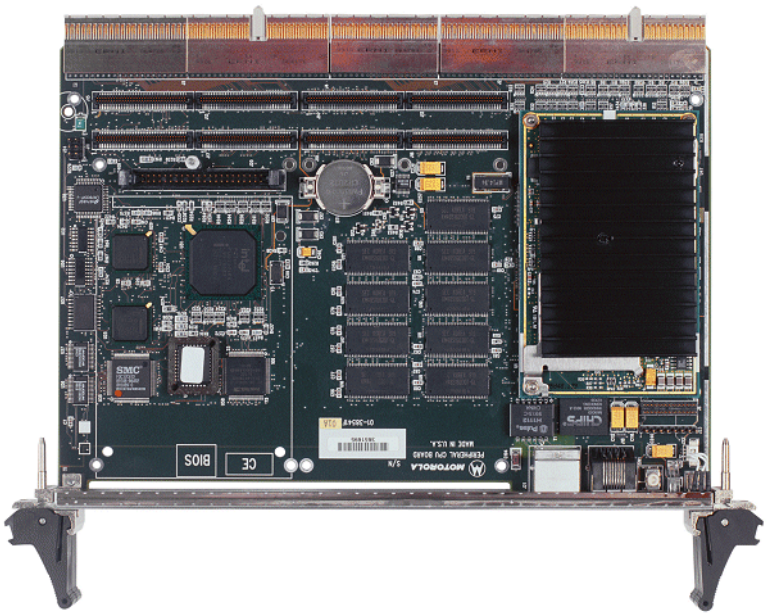
CPN5360

CompactPCI Peripheral Processor



- Intel® low-power processor module including:
  - Pentium® II or Pentium III processor
  - 82440BX chipset
  - 66/100 MHz system bus frequency
- Up to 256MB on-board 3.3V SDRAM
- Accelerated 2D graphics with 4MB video memory
- Dual 10BaseT/100BaseTX Fast Ethernet
- Two Universal Serial Bus (USB) channels
- Two asynchronous serial ports
- PS/2 keyboard/mouse, real-time clock, watchdog timer
- One bi-directional IEEE 1284 compliant parallel port
- Two 32/64-bit PMC expansion slots
- 16MB surface-mounted Flash ChipSet
- Optional on-board 2.5" EIDE hard drive (replaces one PMC site)
- Supported by industry-standard operating systems such as Windows NT® and VxWorks®, with others to come

Scalable high-performance computing with the flexibility of PMC expansion

Motorola's CPN5360 is a high-performance single-slot CompactPCI® single-board computer powered by a Pentium® II or Pentium III processor–Low Power Module. Highly integrated, it provides 16MB on-board solid-state disk, USB, PCI EIDE, accelerated graphics, dual Fast Ethernet controllers, and standard PC I/O plus two PMC sites for additional expansion. I/O for PMC sites and on-board devices is accessible from either the front or rear.

The CPN5360 is designed to meet the needs of embedded application developers. Typical applications include broadband data or intelligent network switching; CTI server; industrial control and automation; military and aerospace; and medical, scientific, or imaging products.

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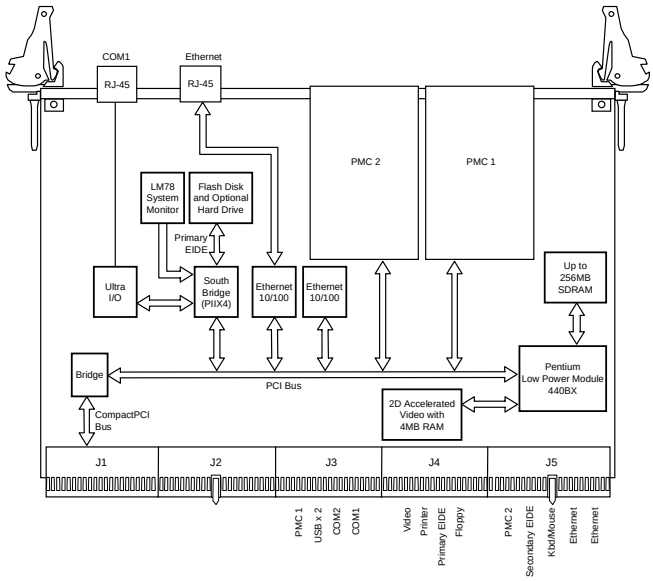

CPN5360 Details

Intel Pentium II or Pentium III Processor–Low Power Module

For high-end embedded applications, the CPN5360 fully supports the Pentium II or Pentium III processor–Low Power Module. The processor is combined with the Intel 440BX PCI chipset resulting in exceptional processing capability. The Low Power Module contains 32KB of internal Level 1 cache memory as well as 256KB of Level 2 cache delivering rapid data access to complex applications. Dynamic execution and dual independent buses are additional performance advantages. For continual Low Power Module processor speed enhancement options, consult your Motorola sales representative.

Memory

The CPN5360 provides up to 256MB of on-board PC100 compliant synchronous DRAM. Memory size is detected by the system BIOS.

2D Accelerated Graphics

A CHIPS 69030 HiQVideo™ accelerator with 4MB integrated memory provides eye-opening 2D accelerated graphics performance for human-machine interfaces and imaging applications. Resolutions up to 1280 x 1024 are supported.

Dual Ethernet

Two Intel 82559 Ethernet controllers provide redundant Ethernet ports for monitoring and telecom applications. One or both of these controllers can be used as a diagnostic interface allowing remote monitoring of system status (for example, voltage and temperature). One Ethernet RJ-45 connector is located on the front panel. Both Ethernet ports are also routed to the rear I/O.

Hot Swap Compatible

The CPN5360 can be inserted or removed in a powered system. ENUM# signals are in compliance with the PICMG 2.1 Hot Swap Specification.

On-Board Peripherals

The CPN5360 has an extensive array of on-board I/O that is available from both the front panel of the CPN5360 and/or the rear panel via the CPTM-01 transition board. Front panel I/O includes openings for PMC sites, one RJ-45 connector for Ethernet and one RJ-45 serial connector. Two Ethernet, PS/2 mouse and keyboard, one IDE (secondary), and PMC 2 I/O signals are routed through the backplane via CompactPCI connector J5; one IDE (primary), video, one parallel, and floppy are routed via CompactPCI connector J4; and two serial, two USB, and PMC 1 I/O signals are routed via CompactPCI connector J3.

CompactPCI Bus

Designed to the CompactPCI interface standard, the CPN5360 supports a 64-bit PCI interface on the J1 and J2 physical CompactPCI connectors. On-card devices connect directly to the local bus. Off-card CompactPCI bus accesses are supported through the Intel 21554 PCI-PCI non-transparent bridge.

Specifications

Processor

Single 333 MHz Pentium II processor–Low Power Module or
500 MHz Pentium III processor–Low Power Module

System Bus

333 MHz processor: 66 MHz bus

500 MHz processor: 100 MHz bus

Cache

Level 1: 16/16KB instruction/data (Pentium II resident)

Level 2: 256KB (integrated)

Memory

Capacity: Up to 256MB on-board

DRAM: PC100 compliant synchronous, 60ns, parity or ECC mode

Addressing

Real and protected (36-bit) addressing supported

Data Path

32-bit CPU/PCI bus

CompactPCI Interface

Compliance: PCI Specification Rev. 2.1

Connectors: J1/J2

Address/Data Lines: 64

PCI Bus Clock: 33 MHz

Controller: Intel 21554 PCI-to-PCI interface bridge chip

Signaling: 5V or 3.3V compliant

IEEEP1386.1 PCI Mezzanine Interface

Address/Data Lines: 64

PCI Bus Clock: 33 MHz

Signaling: 3.3V

Power: +3.3V, +5V, ±12V; 7.5 watts maximum per PMC slot

Module Types: Two single-wide or one double-wide, front-panel I/O or J3 and J5 I/O

Clock/Calendar

Real-time clock with (replaceable) battery backup; includes CMOS

Interrupts

Four CompactPCI level-sensitive interrupts, configurable to any interrupt vector for Plug-and-Play compatibility
Note: All ISA on-card interrupts are Plug-and-Play compliant.

Ethernet

Controller: Two Intel 82559

PCI Local Bus DMA: Yes, with PCI burst

Graphics

Controller: CHIPS 69030 2D accelerated video

Video Memory: 4MB on-chip SDRAM

Resolution: 1280 x 1024 max.; Quarter VGA 320 x 240, 320 x 200

IDE Flash Disk

Type: Surface-mounted SanDisk® Flash ChipSet

Capacity: 16MB

Mode: True IDE, configured as primary master

Front Panel I/O Interfaces

PMC: Two knockouts to accommodate PMC I/O

Serial Port: One RJ-45

Ethernet: One RJ-45

Note: Additional devices may be attached via transition module.

BIOS Features

- BIOS in Flash EPROM
- Auto-configuration or extended setup with serial/parallel ports remappable
- Diskless, keyboardless and videoless operation extensions
- BIOS POST and Setup
- System and video BIOS shadowing
- Network boot using PXE (Preboot eXecution Environment)
- CMOS backup to Flash (allows operation without battery)

Supervisory

Watchdog Timer: Two-level, software programmable (0.46 sec. to 477 sec.); drives interrupt, NMI/system reset, or soft reset

Alarm Microcontroller (NS LM78): CPU temperature (user definable threshold alarm on selectable IRQ: 5, 7, 9, 11, NMI, or SCI), backplane and CPU voltages, and chassis fan rotation and intrusion, with status interrogated via NMI or SCI

Reset Switch: Guarded, on front panel

Front panel LEDs: Power OK (green), Hot Swap (blue)

Mechanical

6U, 4HP wide (233 mm x 160 mm x 20 mm), conforms to PICMG 2.0 CompactPCI (rev. 2.1) and PCI SIG 2.1 specifications

CPTM-01 Transition Module I/O

Transition module provides backplane I/O from J3, J4* and J5 on the CPN5360

On-board Headers: Dual USB, CompactFlash™, EIDE, floppy, serial, parallel, single PIM** site

Rear Panel: Keyboard/mouse, dual Ethernet, video, serial, knockout for PIM

*J4 I/O is not available on models of the CPN5360 without connector J4.
**The PMC Interface Module (PIM) simplifies PMC rear I/O. PMC vendors create PMC-PIM pairs while CPU or I/O controller vendors create CPU or I/O transition module pairs. PMCs can then be easily mixed on carrier cards.

Power Requirements

(excluding drive option)

	333 MHz	500 MHz
+5V:	3.0 A typ.	1.0 A typ., 3.5 A max.
+3.3V:	5.0 A typ.	2.0 A typ., 2.0 A max.
+12V:	100 mA typ.	<25 mA typ., <25 mA max.
–12V:	0.0 A typ.	.05 A typ., .05 A max.

Demonstrated MTBF

(based on a sample of four boards in accelerated stress environment)

Mean: 107,161 hours

95% Confidence: 60,570 hours

Environmental

(excluding on-board hard drive option)

	Operating	Storage/Transit
Temperature:	0° C to 50° C	–40° C to +85° C
Humidity (NC):	5 to 90% @ 40° C	5 to 95% @ 40° C
Altitude:	5,000 m	15,000 m
Vibration:	1.0 G RMS 20–2000 Hz random	6 Gs RMS 20–2000 Hz random

Electromagnetic Compatibility (EMC)

Intended for use in systems meeting the following regulations:

U.S.: FCC Part 15, Subpart B, Class A (non-residential)

Canada: ICES-003, Class A (non-residential)

This product was tested in a representative system to the following standards:

CE Mark per European EMC Directive 89/336/EEC with Amendments; Emissions: EN55022 Class B; Immunity: EN55024

Safety

All printed wiring boards (PWBs) are manufactured with a flammability rating of 94V-0 by UL recognized manufacturers.

Ordering Information

CPN5360 CompactPCI Single-Board Computer

All models of the CPN5360 come with a Pentium II or Pentium III processor–Low Power Module, dual Ethernet, EIDE, one or two PMC sites with access to front panel (depending on hard drive option), and are available in the following configurations:

Part Number	Description
Some models listed below are available without connector J4 for use in applications with specialized backplane buses (such as ATM or H.110).	
CPN5360B-333-01	333 MHz Pentium II processor, 128MB SDRAM
CPN5360B-333-02	333 MHz Pentium II processor, 256MB SDRAM
CPN5360B-333-03	333 MHz Pentium II processor, 128MB SDRAM, hard drive
CPN5360B-333-04	333 MHz Pentium II processor, 256MB SDRAM, hard drive
CPN5360B-333-05	333 MHz Pentium II processor, 128MB SDRAM, no J4
CPN5360B-333-06	333 MHz Pentium II processor, 256MB SDRAM, no J4
CPN5360B-333-07	333 MHz Pentium II processor, 128MB SDRAM, hard drive, no J4
CPN5360B-333-08	333 MHz Pentium II processor, 256MB SDRAM, hard drive, no J4
CPN5360B-500-01	500 MHz Pentium III processor, 128MB SDRAM
CPN5360B-500-02	500 MHz Pentium III processor, 256MB SDRAM
CPN5360B-500-03	500 MHz Pentium III processor, 128MB SDRAM, hard drive
CPN5360B-500-04	500 MHz Pentium III processor, 256MB SDRAM, hard drive
CPN5360B-500-06	500 MHz Pentium III processor, 256MB SDRAM, no J4
CPN5360B-500-07	500 MHz Pentium III processor, 128MB SDRAM, hard drive, no J4
CPN5360B-500-08	500 MHz Pentium III processor, 256MB SDRAM, hard drive, no J4
Note: The above products may be factory installed into a Motorola Computer Group (MCG) CPX Series platform. Contact your local Motorola sales representative for further details.	

Transition Modules

CPTM-01	One PIM site, keyboard/mouse, dual USB, CompactFlash, EIDE, floppy, serial, parallel, dual Ethernet, video

Documentation

CPN5360A/IH	CPN5360 Installation and Reference Guide
Documentation is available for on-line viewing and ordering at http://www.motorola.com/computer/literature.	

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