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CPV5370

CompactPCI Host Slot Processor Board

DATASHEET

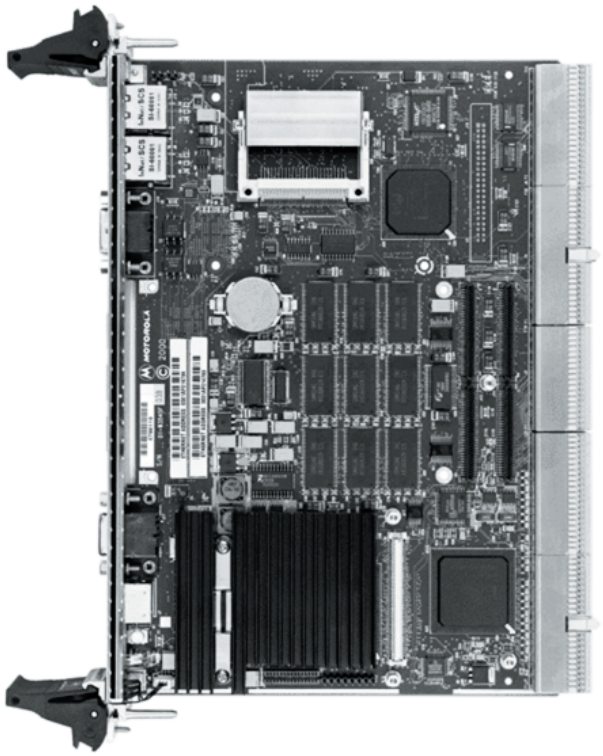
MOTOROLA

KEY FEATURES

- CompactPCI® host slot processor board
- Intel® Pentium® III BGA2 processor
- Intel® 440GX chipset
- 100 MHz frontside bus frequency
- Up to 1GB PC100 SDRAM
- Accelerated 2D graphics with 4MB video memory
- Dual 10/100BaseT Ethernet
- Two universal serial bus (USB) channels
- Two asynchronous serial ports
- One bi-directional IEEE-1284 compliant parallel port
- One 32/64-bit PMC expansion slot
- Optional on-board 2.5" EIDE hard drive
- Optional CompactFlash
- Watchdog timer
- Supported by industry-standard operating systems such as Linux

The CPV5370 is designed for telecommunications and other applications where high reliability is mandatory. The board has a demonstrated high MTBF in addition to a unique feature that allows the board to be booted from an on-board flash device rather than a lower-reliability device such as a hard disk or floppy drive.

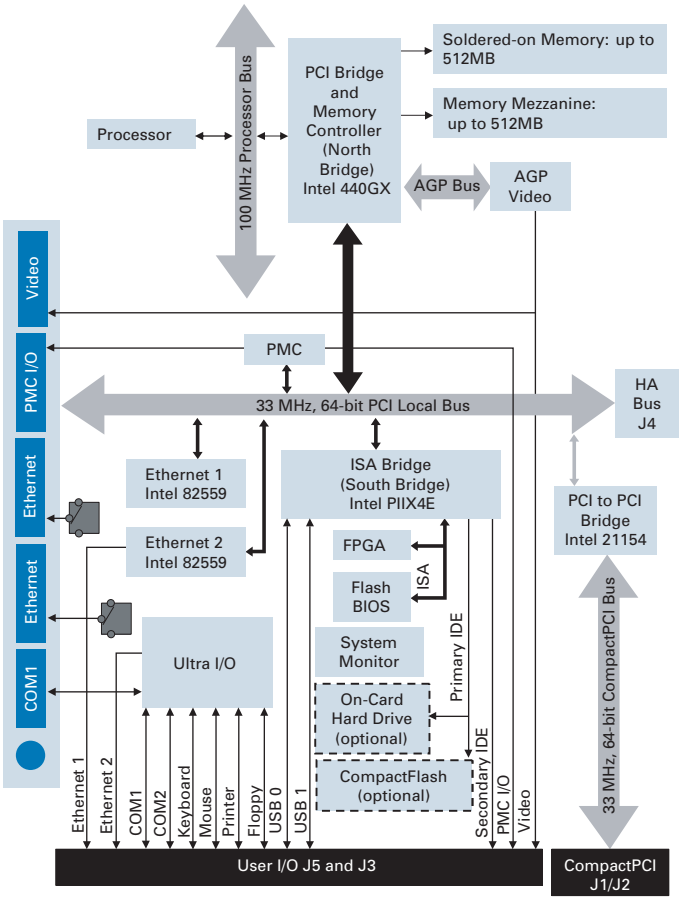
Coupled with software support for operating systems such as Linux, the CPV5370 provides an ideal time-to-market solution for applications requiring a CompactPCI host slot controller based on the Intel Pentium processor.



RoHS 0/6 NOT COMPLIANT

See back page for details

The Motorola CPV5370 is a powerful and flexible CompactPCI host slot processor board based on the Intel Pentium III processor. This board is specifically designed to add performance, memory and bandwidth to Motorola's high availability platforms. It can also be used in embedded board-level applications where performance and a rich feature set are mandatory.



HARDWARE OVERVIEW

INTEL PENTIUM III PROCESSOR

For high-end embedded applications, the CPV5370 fully supports the Intel Pentium III BGA2 processor. The processor is combined with the Intel 440GX PCI chipset resulting in exceptional processing capability. The processor 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.

MEMORY

The CPV5370 is configured with up to 512MB of on-board PC100 compliant synchronous DRAM. Memory size is detected by the system BIOS. The board can support up to 1GB of SDRAM by installing the CPMEZZ-256 memory expansion module. Refer to the Ordering Information section for additional information.

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). Both Ethernet RJ-45 ports are located on the front panel. Both Ethernet ports are also routed to the rear I/O and available via the CPTM-04 transition module.

HOT SWAP COMPATIBLE

The CPV5370 can be inserted or removed in a powered system. ENUM# services are in compliance with the PICMG 2.1 Hot Swap Specification.

ON-BOARD PERIPHERALS

The CPV5370 has an extensive array of on-board I/O available from both the front and/or rear panel via the CPTM-04 transition module. Front panel I/O includes a knockout for the PMC site, PS/2 mouse and keyboard connector, two RJ-45 ports for Ethernet, one high-density 15-pin D-sub SVGA connector, and one 9-pin D-sub connector for COM1. User I/O available at the rear of the board includes the Ethernet 1 & 2 ports, secondary IDE, PMC I/O, video, parallel, floppy, mouse/keyboard, COM1 and COM2, and USB0 and USB1.

COMPACTPCI BUS

Designed to the CompactPCI interface standard, the CPV5370 supports a 64-bit PCI interface on the J1 and J2 physical CompactPCI connectors. On-board devices connect directly to the local bus. Off-board CompactPCI bus accesses are supported through the Intel® 21154 PCI-to-PCI transparent bridge.

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 1600 x 1200 are supported.

SPECIFICATIONS

PROCESSOR

1.0 GHz and 700 MHz Intel Pentium III BGA2 processor

CACHE

Level 1: 16/16KB instruction/data

Level 2: 256KB

MEMORY

Capacity: Up to 1GB

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

Addressing: Real and protected (32-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 21154 PCI-to-PCI interface bridge chip

Signaling: 5V compliant

IEEE 1386.1 PCI MEZZANINE INTERFACE

Address/Data Lines: 64

PCI Bus Clock: 33 MHz

Signaling: 5V

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

Module Types: One single-wide front-panel I/O or J3 and J5 I/O

Note: Due to high component density, uninsulated traces and vias are located in the CPV5370 I/O keepout area. If installed, PMC modules having conductive I/O connectors could contact these traces and vias. If full IEEE 1386-2001 compliance is required, an insulating shield (e.g., Kapton tape) should be installed.

CLOCK/CALENDAR

Real-time clock with replaceable battery backup

INTERRUPTS

Four CompactPCI level-sensitive interrupts, configurable to any interrupt vector for plug-and-play compatibility.

Note: All ISA on-board interrupts are plug-and-play compliant.

ETHERNET

Controllers: 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: 1600 x 1200 max.; Quarter VGA 320 x 240, 320 x 200

IDE COMPACTFLASH DISK

Type: Surface-mounted CompactFlash connector

Capacity: 8MB – 192MB

Mode: True IDE, configured as primary master if installed

FRONT PANEL I/O INTERFACES

PMC: One opening to accommodate PMC I/O

Serial Port: 9-pin D-sub

Ethernet: Two RJ-45

Video: One 15-pin D-sub

Keyboard/mouse: One mini Din

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 LM81): CPU and board temperature (user definable threshold alarm on selectable IRQ: 5, 7, 9, 11, NMI, SCI. or Alarm), and backplane and CPU voltages, with status interrogated via NMI, SCI, selectable IRQ, or Alarm

Reset Switch: Guarded, on front panel

Front Panel LEDs: Power OK (green), Alarm (red), Hard Drive Activity (blue)

On-board Headers: CompactFlash or EIDE, and single PMC site

Rear Panel: Ethernet one and two ports, secondary IDE, PMC I/O, video, printer, floppy, mouse/keyboard, COM1 and COM2, and USB0 and USB1

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

Warning: +12V PIMs are not supported on early versions of the CPV5370.

Transition module provides backplane I/O from J3, J4, and J5 on the CPV5370

Connectors on the panel include: Keyboard/mouse, dual Ethernet, video, COM2, and optional PIM* module knockout

On-board Headers: COM1, USB0, USB1, IDE, floppy, parallel, and CompactFlash

*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 easilymixed on carrier cards.

POWER REQUIREMENTS

(includes transition module)

Operating	Storage/Transit
+5V @ 2.9 A	700 MHz with 256MB, 512MB, or 1GB SDRAM
+5 to 90%	1 GHz with 256MB, 512MB, or 1GB SDRAM
+3.3V @ 2.0 A	700 MHz with 256MB, 512MB, or 1GB SDRAM
+3.3V @ 2.3 A	1 GHz with 256MB, 512MB, or 1GB SDRAM
+12V @ <25 mA typ., <25 mA max	700 MHz or 1 GHz
-12V @ 0.5 A typ., 0.05 A max	700 MHz or 1 GHz

DEMONSTRATED MTBF

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

Mean: 190,509 hours

95% Confidence: 107,681 hours

(excluding on-board hard drive option)

ENVIRONMENTAL

	Operating	Non-operating
Temperature:	0° C to +55° C	–40° C to +70° C
Humidity:	5% to 90% @ 40° C non-condensing	5% to 95% @ 40° C non-condensing
Shock:	10 G, 3 axis	Per ASTM 0775
Vibration:	1.0 G RMS, 5 – 200 Hz random	0.5 Gs sine sweep, 5 – 50 Hz random 0.1 octaves/min; 3.0 G sine sweep, 50 – 500 Hz, 0.25 octaves/min, all 3 axes

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: EN50082-1

ORDERING INFORMATION

Part Number	Description
CPN5365-700-01	700 MHz, 256MB SDRAM, one PMC site, CompactFlash connector
CPV5370-700-03	700 MHz, 512MB SDRAM, one PMC site, CompactFlash connector
CPV5370-700-04	700 MHz, 512MB SDRAM, one PMC site, hard drive
CPV5370-700-05	700 MHz, 1GB SDRAM, one PMC site, CompactFlash connector
CPV5370-700-06	700 MHz, 1GB SDRAM, one PMC site, hard drive, factory installed
CPV5370-1G-05	1 GHz, 1GB SDRAM, one PMC site, CompactFlash connector
Transition Modules	
The CPV5370 uses an optional transition module for peripheral and network connections that are required at the rear of the chassis.	
CPTM-04	Transition module with keyboard/mouse, dual Ethernet, video, COM1, optional PIM module knockout
Memory Modules	
CPMEZZ-256B	256MB memory mezzanine, bottom installation
CPMEZZ-256T	256MB memory mezzanine, top installation
Documentation	
CPV5370A/IH	CPV5370 Installation and Reference Guide
Documentation is available for online viewing and ordering at http://www.motorola.com/ computer/literature	

PMC MODULE SUPPORT

Motorola also offers PMC modules that complement and enhance the functionality of the CPV5370. Additional information is available at http://www.motorola.com/computing or by contacting a Motorola sales representative or authorized distributor.

USER NOTE: SPECIFICATIONS FOR 2.5" DISK DRIVES

Your attention is directed to the fact that the MTBF of any drives mounted on these blades must be considered independently of the MTBF of the blades themselves. Also, the supported operating parameters of the drives may differ substantially from those of the blades.

It is the User's responsibility to ensure that the operating parameters of these drive offerings are well understood and taken into consideration when designing operating use.

The operating parameters of our current drive offerings can be found on the Motorola Technical Publications Web site at www.motorola.com/computer/literature.



Future RoHS Status

This product is being redesigned for 5/6 RoHS compliance. When the RoHS compliant version is available, the RoHS designator will be updated accordingly.

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