PrPMC6001

PCI Mezzanine Card

Emerson's PMC building blocks offer a range of options that help optimize your application to meet your customer's requirements.

- MPC7448 PowerPC G4 processor running at up to 1.4 GHz
- Highly integrated Marvell Discovery III system controller
- 133 MHz front side bus
- Fully compliant to the VITA-32 Processor PMC and VITA-39 PCI-X Auxiliary standards
- PTMC compliant P4 connector
- Memory configurations possible up to 1GB with ECC support
- 1MB L2 cache
- Supporting MontaVista CGE3.1, PE3.1 and kernel.org 2.6.10
- VxWorks support for hard real-time applications and supporting VxWorks 5.5 and 5.5.1
- 4MB of boot flash and 128MB of user flash
- 128-bit wide AltiVec technology support
- 64-bit, 66-133 MHz PCI-X bus interface
- Configurable monarch/non-monarch mode
- Dual independent Gigabit Ethernet (GbE) interfaces. 2nd GbE interface has optional SerDes support for fiber transceiver
- Dual serial interfaces
- Optional JTAG support for debugging

The Emerson PrPMC6001 PCI mezzanine card (PMC) is a perfect fit for embedded applications requiring low power and high performance with PowerPC® architecture. The Marvel Discovery III system controller, with its feature-rich functionality, adds performance value to the end application. The PrPMC6001's ability to support hard real-time applications using VxWorks RTOSs and cost-conscious applications with the Linux OS will enable this product to be used in wide variety of applications.

PCI Mezzanine Card products from Emerson Network Power provide the flexibility to easily expand I/O functionality and performance within an embedded computer system. Our PMC building blocks offer a range of options that help optimize your application to meet your customer's requirements.

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PRPMC6001 Block Diagram
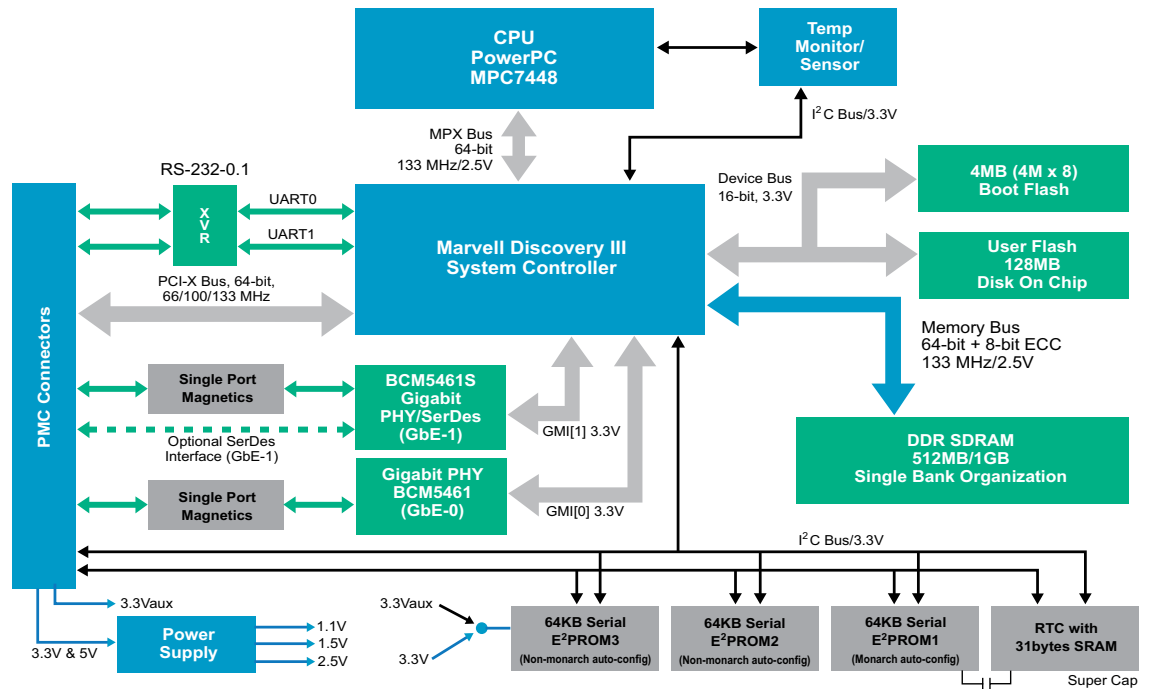
Specifications

PROCESSOR

- Microprocessor: PowerPC G4 MPC7448 (AltiVec capable)
- Clock Frequency: 1.4 GHz
- On-chip Cache (I/D): 32KB/32KB, eight-way, set-associative instruction and data caches (Harvard architecture)
- L2 Cache: 1MB (on chip)
- Cache Bus Clock Frequency: 1.4 GHz core frequency
- Frontside bus: 133 MHz MPX

PROCESSOR HOST BRIDGE (PHB)
Discovery III (MV64460)

MEMORY

- ECC Protected Main Memory: DDR SDRAM, 266 MHz
- On-board Capacity: 512MB, 1GB
- Flash: 128MB DiskOnChip user flash, 4MB boot flash
- SROM: Dedicated for Monarch/non-Monarch PHB configuration, BIB (Board Information Block)

ASYNCHRONOUS SERIAL PORT

- Controller: Discovery III PHB UART
- Number of Ports: Two
- Configuration: RS-232
- Async Baud Rate, b/s max.: 115Kb/s raw via 12.5 MHz clock
- Routing: Pn4 (PTMC compliant)

IEEE P1386.1 INTERFACE

- Connectors: Pn1, Pn2, Pn3, Pn4 (Pn4 compliant to PTMC standard)
- Address/Data: 32-bit address/64-bit data
- PCI Bus Clock: PCI/PCI-X @ 33, 66, 133 MHz
- Signaling: 3.3/5V VIO (PCI), 3.3V VIO (PCI-X)
- Power: +3.3V, +5V
- Height: 10mm standoff (1GB variant violates CMC height mechanicals, additional 5 mm spacing suggested)
- Module Type: single-wide, standard length

ETHERNET

- Controller: Dual Gigabit Ethernet, Discovery III PHB integrated
- PHY: Broadcom 5461S
- Routing: Pn4 (PTMC compliant)

REAL-TIME CLOCK

Controller: Maxim MAX6900 with supercap power backup

COUNTERS/TIMERS

- Real-Time Timers/Counters: Four (4) 32-bit (integrated in Discovery III PHB)
- Watchdog Timers: One (1) 32-bit (integrated in Discovery III PHB)

MISCELLANEOUS

- JTAG/COP: Yes
- LEDs: 10 (one each: power, user, Monarch, EREADY; six Ethernet)
- Temperature sensor (I^2C): Analog Devices ADT7461

POWER REQUIREMENTS

	3.3V	5V
PrPMC6001M (TYPICAL):	11.6W	7.8W
PrPMC6001M (MAX):	14.0W	9.5W
PrPMC6001S (TYPICAL):	13.10W	6.58W
PrPMC6001S (MAX):	16.49W	9.87W

MEAN TIME BETWEEN FAILURES

2,564,103 hours (controlled environment, ground benign)

STANDARDS COMPLIANCE

PCI 2.2; IEEE P1386.1; VITA 32-2003; VITA 39-2002

SAFETY

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

ENVIRONMENTAL

	Operating	Non-operating
Temperature:	0° C to 55° C 300 LFM forced air	−40° C to +85° C
Humidity (NC):	5% to 95% @ 40° C	5% to 95% @ 40°
Shock:	5g/11 ms half sine	15g/11 ms half sine
Vibration:	10-15 MHz 2mm amplitude, 15-150 MHz 2g	10-15 MHz 5mm amplitude, 15-150 MHz 5g

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)
- Emerson board products are tested in a representative system to the following standards:
  - CE Mark per European EMC Directive 89/336/EEC with Amendments
  - Emissions: EN55022 Class* (see note below);
  - Immunity: EN55024
  - RoHS Directive 2002/95/EC

*Note: Class A (nonresidential) for front Ethernet versions and Class B for rear and no Ethernet versions.

Ordering Information

Part Number	Description
PRPMC6001M-001	Single MPC7448 @ 1.4 GHz, 512MB DDR memory
PRPMC6001S-001	Single MPC7448 @ 1.4 GHz, 1GB DDR memory

Software

- MontaVista CGE3.1
- PE3.1
- Kernel.org 2.6.10
- Wind River VxWorks 5.5 and 5.5.1

SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh. Plus solution extras include enhanced warranty and repairs.

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The global leader in enabling
Business-Critical Continuity™.

- ■ AC Power Systems
- ■ Connectivity
- ■ DC Power Systems
- ■ **Embedded Computing**
- ■ Embedded Power
- ■ Integrated Cabinet Solutions
- ■ Outside Plant
- ■ Power Switching & Control
- ■ Precision Cooling
- ■ Services
- ■ Site Monitoring
- ■ Surge & Signal Protection