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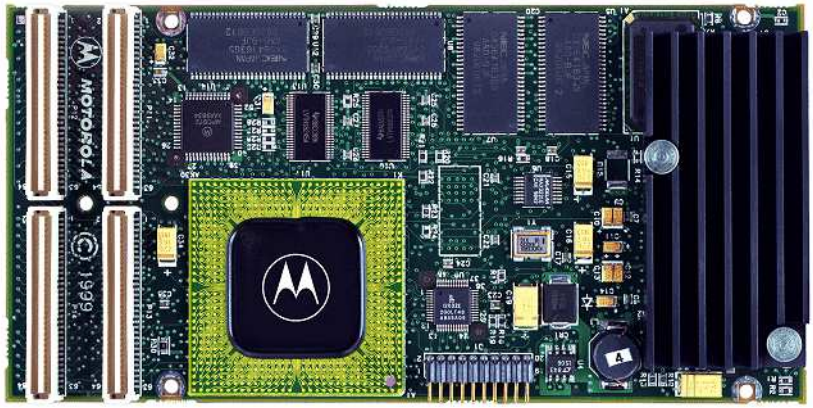
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# PrPMC750

Processor PCI Mezzanine Card



*Processing Core Design*

- PowerPC™ 750 microprocessor
- Power Plus II architecture

*Memory Subsystem*

- 1MB of L2 cache
- Up to 128MB ECC SDRAM
- Memory expansion modules up to 768MB
- 8MB on-board Flash; up to 64MB on carrier
- 144-bit ECC memory controller ASIC

*Interface Features*

- Single-wide PMC with a 33 MHz PCI interface
- 64-bit PCI host bridge
- One async serial port

*Other Features*

- Four 32-bit timers
- Two watchdog timers

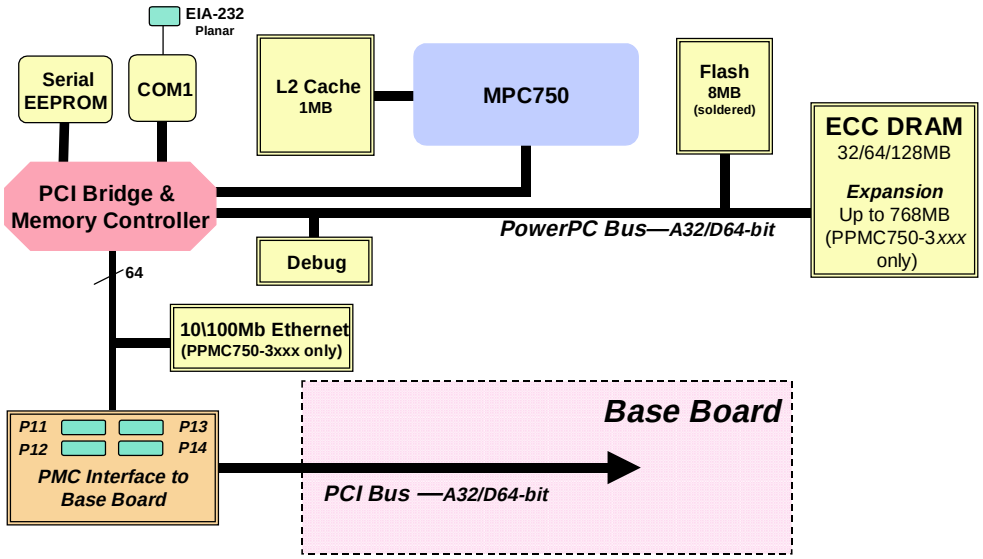
**An ideal solution for those looking for flexibility and quick performance tuning**

The PrPMC750 processor PCI mezzanine card (PrPMC) is the ideal solution when time-to-market is important. The PrPMC750, a new breed of macro-components, is a single-wide PMC with a 33 MHz PCI interface. As a complete processor/memory subsystem, it handles the complexity of 300+ MHz architectures. The compact, standards-based form factor offers flexibility and simplified performance tuning while preserving base design investment. If additional performance is required, processor PMCs can be added, creating a loosely-coupled multiprocessing architecture.

The PrPMC750 features a 32-bit PowerPC™ 750 microprocessor and Motorola PowerPlus II architecture with integrated 64-bit PCI host bridge and 144-bit ECC memory controller ASIC. The Pn4 I/O connector supports Flash expansion and debug features including JTAG/COP and a serial port. Models for debug (PPMC750-2*xxx*) and tall modules with memory expansion (PPMC750-3*xxx*) are also available.

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## Specifications

### Processor

| | | |
|---|---|---|
| **Microprocessor:** | MPC750 | MPC750 |
| **Clock Frequency:** | 233 MHz | 350 MHz |
| **On-chip Cache (I/D):** | 32KB/32KB | 32KB/32KB |

### Memory

| | |
|---|---|
| **ECC Protected Main Memory:** | PC100 SDRAM |
| **On-board Capacity:** | Up to 128MB |
| **Memory Expansion (optional):** | Up to 768MB |
| **Single Cycle Accesses:** | 10 read/5 write |
| **Read Burst Mode:** | 7-1-1-1 idle; 2-1-1-1 aligned page hit |
| **Write Burst Mode:** | 4-1-1-1 idle; 2-1-1-1 aligned page hit |
| **Architecture:** | 64-bit, single interleave |
| **L2 Cache:** | 1MB |
| **Cache Bus Clock Frequency:** | 116.67 MHz (233 MHz processor), 140 MHz (350 MHz processor) |
| **User $I^2C$ Serial EEPROM:** | 256 bytes |
| **EEPROM/Flash:** | 8MB surface mount (on-board programmable), 64MB on carrier (optional) |
| **Read Access:** | 262 clocks (8-byte burst) |

### Asynchronous Serial Port

| | |
|---|---|
| **Controller:** | 16C550 |
| **Number of Ports:** | One |
| **Configuration:** | EIA-574 DTE |
| **Async Baud Rate, bps max.:** | 38.4K EIA-232, 115Kbps raw |

### Counters/Timers

| | |
|---|---|
| **Real-Time Timers/ Counters:** | Four 32-bit programmable |
| **Watchdog Timers:** | Two, time-out generates interrupt or reset |

### Miscellaneous

Reset, Abort, and JTAG/COP via on-board debug connector
Two planar LEDs for Fail, CPU

### IEEE P1386.1 Interface

| | |
|---|---|
| **Address/Data:** | A32/D32/D64, PMC PN1, PN2, PN3, PN4 connectors |
| **PCI Bus Clock:** | 33 MHz |
| **Signaling:** | 3.3V output; VIO input |
| **Power:** | +3.3V, +5V |
| **Height:** | 13.5 mm from top of carrier board (one slot); 18.8 mm with memory expansion |
| **Module Type:** | 74 mm x 149 mm (single-wide) |

### Power Requirements

| | **+ 3.3V ± 5%** | **+ 5V ± 5%** |
|---|---|---|
| **PPMC750-12xx:** | 1.0 A typical, 1.5 A max. | 1.0 A typical, 1.5 A max. |

**VIO:** PCI buffer diode clamping voltage

### Demonstrated MTBF

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

| | |
|---|---|
| **Mean:** | 190,509 hours |
| **95% Confidence:** | 107,681 hours |

### Environmental

| | **Operating** | **Nonoperating** |
|---|---|---|
| **Temperature:** | 0° C to +55° C, forced air cooling | –40° C to +85° C |
| **Altitude:** | 5,000 m | 15,000 m |
| **Humidity (NC):** | 10% to 90% | 10% to 90% |
| **Vibration:** | 1 G RMS, 20–2000 Hz random | 6 Gs RMS, 20–2000 Hz random |

### Safety

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

## 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 A; Immunity: EN55024

## Ordering Information

| Part Number | Description |
|---|---|
| The PrPMC750 includes 1MB backside L2 cache and 8MB Flash, and is available in the following processor/memory configurations: | |
| **PPMC750-1131** | 233 MHz MPC750, 32MB ECC |
| **PPMC750-1141** | 233 MHz MPC750, 64MB ECC |
| **PPMC750-1231** | 350 MHz MPC750, 32MB ECC |
| **PPMC750-1241** | 350 MHz MPC750, 64MB ECC |
| **PPMC750-1251** | 350 MHz MPC750, 128MB ECC |
| **PPMC750-2141** | 233 MHz MPC750, 64MB ECC; 1.5 wide with 10/100 Ethernet and debug connector |
| **PPMC750-2251** | 350 MHz MPC750, 128MB ECC; 1.5 wide with 10/100 Ethernet and debug connector |
| **PPMC750-3251** | 350 MHz MPC750, 128MB ECC, memory expansion connector |
| **Memory Expansion** | |
| (for PPMC750-2*xxx* and PPMC750-3*xxx* only) | |
| **RAM400-003** | 32MB memory expansion |
| **RAM400-004** | 64MB memory expansion |
| **RAM400-005** | 128MB memory expansion |
| **RAM400-006** | 256MB memory expansion |
| **RAM400-007** | 512MB memory expansion |
| **RAM400-008** | 768MB memory expansion |
| **Related Products** | |
| **PRPMC-SYS-*xxxx*** | 1U ATX-like processor PMC system with four PMC I/O sites, a Monarch PrPMC800-1259 PMC module, power supply, and 128MB ECC memory |
| **PRPMC-CARR-*xxxx*** | Fully configured product with a Monarch PrPMC800 PMC module and four non-Monarch PMC sites, up to 256MB ECC memory, 1MB Flash and Ethernet |
| **PPMCBASE-*xxx*** | Compact peripheral master carrier including one monarch and one I/O target site |
| **Documentation** | |
| **PPMC750A/IH:** | PrPMC750 Installation and Use manual |
| **PPMC750A/PG:** | PrPMC750 Programmer's Reference Guide |
| Documentation is available for on-line viewing and ordering at http://www.motorola.com/computer/literature. | |

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