

# PrPMC8150

## High-Performance Processor PMC

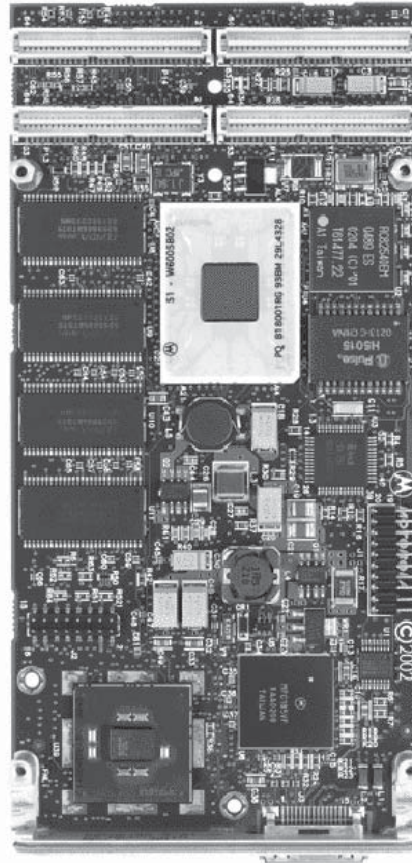
### DATASHEET

### KEY FEATURES

- PowerPC® 750FX microprocessor
- High-performance PowerPlus III Architecture
- Up to 512MB on-board ECC SDRAM
- Up to 64MB on-board flash
- 72-bit ECC memory controller
- Single-wide PMC with a 33/66 MHz PCI interface
- Optional 10/100/1000BaseT Ethernet interface
- 64-bit PCI host bridge
- Asynchronous serial debug port
- Hardware DMA
- Four 32-bit timers
- Two watchdog timers

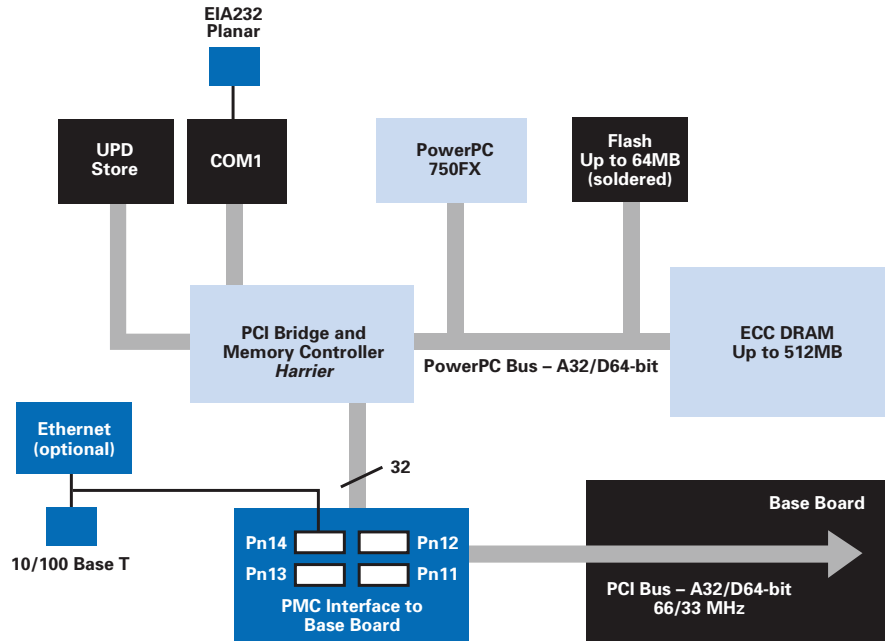
The PrPMC8150 processor PMC is the evolutionary upgrade for applications that demand more performance from the PrPMC8000 family. The PrPMC8150 provides a

PowerPC 750FX processor up to 800 MHz, up to 64MB of flash, up to 512MB of on-board memory, optional Gigabit Ethernet, and optional front-panel or rear P14 I/O.



The Motorola PrPMC8150 series processor PCI mezzanine card (PMC) is the ideal solution when time-to-market and flexibility are important. In addition to the highlighted features, this PMC module includes a full-length heatsink, creating a CPU package capable of handling the thermal requirements of complex tasks.

## BLOCK DIAGRAM



## SPECIFICATIONS

### PROCESSOR

Microprocessor: PowerPC 750FX  
 Clock Frequency: 700 MHz or 800 MHz  
 On-chip Cache (I/D): 32KB/32KB  
 L2 Cache: 512KB  
 Cache Bus Clock Frequency: 700 MHz or 800 MHz

### MEMORY

ECC Protected Main Memory: PC100 SDRAM  
 On-board Capacity: 128MB, 256MB, or 512MB  
 Single Cycle Accesses: 10 read/5 write  
 Read Burst Mode: 8-1-1-1 idle; 3-1-1-1 aligned page hit (CL3)  
 Write Burst Mode: 4-1-1-1 idle; 3-1-1-1 aligned page hit  
 User I2C Serial EEPROM: 8KB  
 EEPROM/Flash: 32MB or 64MB surface mount (on-board programmable), up to 512MB addressable on carrier (optional)

### ASYNCHRONOUS SERIAL PORT

Controller: 16C550 compatible  
 Number of Ports: One  
 Configuration: DTE  
 Async Baud Rate, b/s max.: 38.4K EIA-232, 115Kb/s raw

### IEEE P1386.1 INTERFACE

Address/Data: A32/D32/D64, PMC P11, P12, P13, P14 connectors  
 PCI Bus Clock: 33 MHz or 33/66 MHz  
 Signaling: +3.3V output; VIO input  
 Power: +3.3V  
 Height: 13.5 mm from top of carrier board (one slot)  
 Module Type: Single-wide

### ETHERNET

Controller: Intel 82540EM  
 PCI Bus Master: 66/33 MHz with PCI burst  
 Connector: 10/100/1000BaseT routed to front panel, optional routing to P14 connector for carrier board I/O

### REAL-TIME CLOCK

Controller: MAX 6900  
 Configuration: Real-time clock via I<sup>2</sup>C with super capacitor for up to 12 hours of backup power

### 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

## POWER REQUIREMENTS

+ 3.3V ± 5% @ 20° C

|   |                                      |
|---|--------------------------------------|
| PrPMC8150-3271<br>(10/100Mb Ethernet only): | 14.5 watts typical                   |
| PrPMC8150-4371<br>(Gigabit Ethernet) :      | 16.3 watts typical                   |
| VIO:  | PCI buffer diode<br>clamping voltage |

## ENVIRONMENTAL

| Operating      | Non-operating                         |                                |
|----------------|---------------------------------------|--------------------------------|
| Temperature:   | 0° C to +55° C,<br>forced air cooling | -40° C to +85° C               |
| Humidity (NC): | 10% to 90%                            | 10% to 90%                     |
| Vibration:     | 0.5 G RMS,<br>20–2000 Hz random       | 6 Gs RMS,<br>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)

Motorola 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

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

## ORDERING INFORMATION

| Part Number   | Description  |
|---|--|
| PrPMC8150-1371  | 800 MHz, 512MB ECC, 64MB flash, no Ethernet, 5E                              |
| PrPMC8150-2371  | 800 MHz, 512MB ECC, 64MB flash, front Gigabit Ethernet, 5E                   |
| PrPMC8150-3271  | 750FX at 700 MHz, 512MB ECC, no MPC185 rear Ethernet (PrPMC800-like PN4), 5E |
| PrPMC8150-4361  | 800 MHz, 256MB ECC, 64MB flash, rear Gigabit Ethernet, 5E                    |
| PrPMC8150-4371  | 800 MHz, 512MB ECC, 64MB flash, rear Gigabit Ethernet, 5E                    |
| Related Products  |  |
| PIM5E-11  | PMC I/O module for PrPMC81500 with Gigabit Ethernet, 5E                      |
| Documentation is available for online viewing and ordering at <a href="http://www.motorola.com/computer/literature">http://www.motorola.com/computer/literature</a> |  |

## SOLUTION SERVICES

Motorola 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. And solution extras include enhanced warranty and repairs.

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Tempe, AZ U.S.A. 1 800 759 1107 or +1 602 438 5720  
Paris, France +33 1 69 35 77 00  
Munich, Germany +49 (0) 89 9 608 2 333  
Tel Aviv, Israel +972 3 568 4387

Shanghai, China +86 215292 5693  
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