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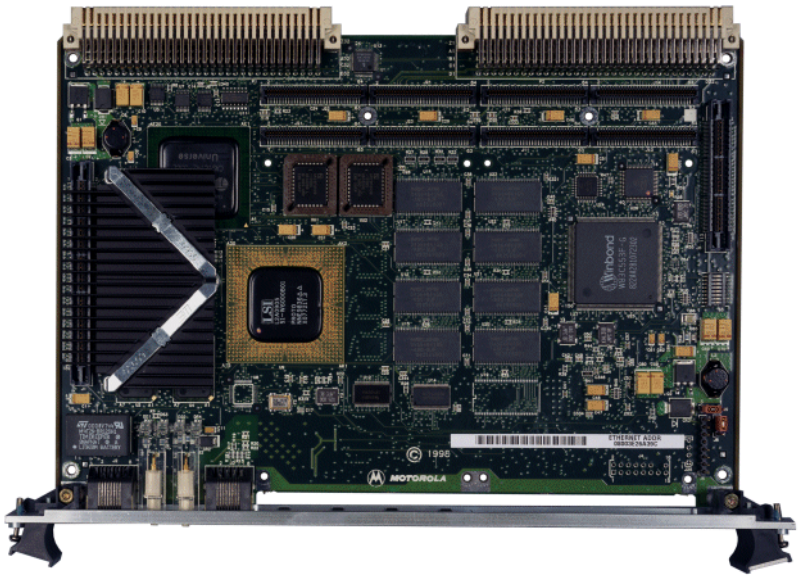
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Find the *Emerson / Motorola MVME2432-3* at our website: ***Click HERE***

intelligence everywhere™

MVME2400 Series

VME Processor Modules



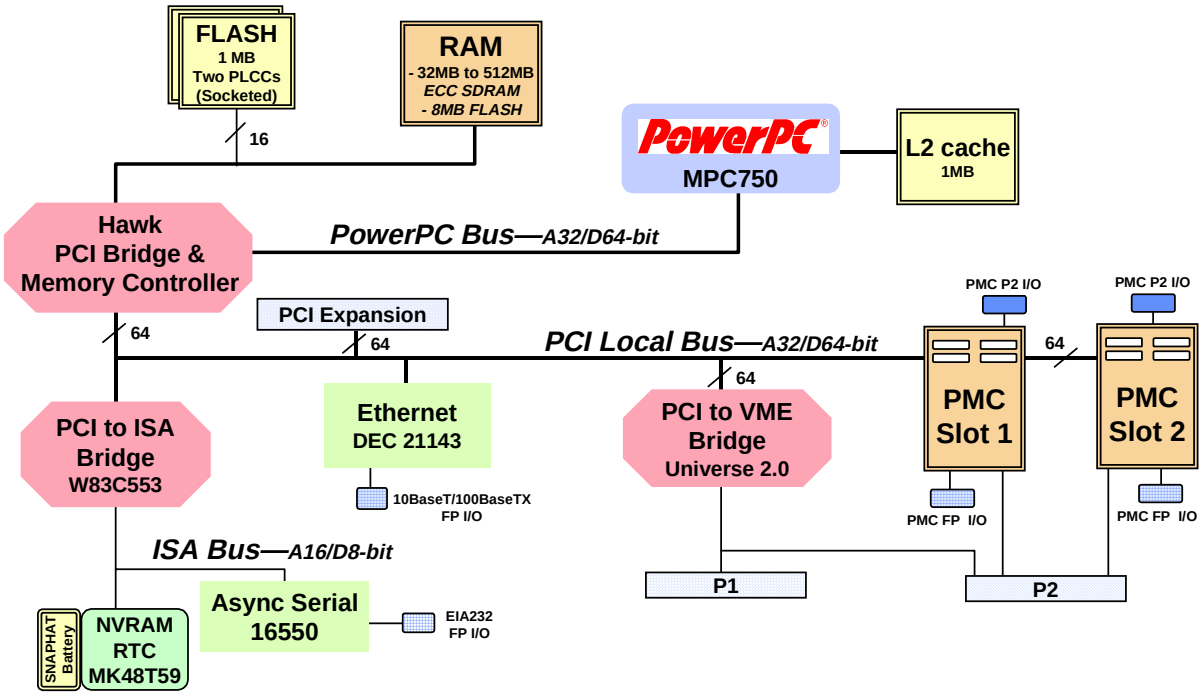
- PowerPC 750™ 32-bit microprocessor
- 32KB/32KB L1 cache
- 1MB backside L2 cache
- 32MB to 512MB of on-board ECC SDRAM
- Up to 1MB capacity for on-board firmware or user-specified requirements
- 8MB on-board Flash memory for user-specified requirements
- On-board debug monitor with self-test diagnostics
- Two 32/64-bit PMC expansion slots with front panel and P2 I/O
- 64-bit PCI expansion mezzanine connector
- 8K x 8 NVRAM and time-of-day clock with replaceable battery backup
- One asynchronous serial debug port
- Four 32-bit timers, one 16-bit timer, one watchdog timer
- 10/100Mb/s Ethernet interface
- 4-level requester, 7-level interrupter, and 7-level interrupt handler for VMEbus

Low-power, high-performance microprocessor suitable for a variety of applications

The MVME2400 series of VME boards provides the performance of Motorola's PowerPlus II Architecture and the ability to be fully customized to satisfy your application needs with two PCI Mezzanine Cards (PMCs). The flexibility of the MVME2400 provides an excellent base platform that can be quickly and easily customized for a variety of industry-specific applications.

Utilizing Motorola's low-power, high-performance PowerPC 750 microprocessors, the Peripheral Component Interconnect (PCI) bus for the on-board peripherals, processor/memory bus to PCI bus bridge, and a VME interface, the MVME2400 processor modules pack optimum levels of flexibility and performance into a single VME slot.

MOTOROLA digital dna™



MVME2400 Details

IEEE P1386.1 Compliant PMC Slots

The MVME2400 features dual PMC ports with support for both front-panel and P2 I/O. P2 I/O-based PMCs which follow the PMC committee recommendation for PCI I/O when using the VME64 extension connector will be pin-out compatible with the MVME2400.

In addition to providing high-performance expansion I/O, the IEEE P1386.1 compliant PMC ports form a common architecture for future generations of products. Changing I/O requirements can be satisfied by simply replacing PMCs while reusing the same base platform, reducing the long-term cost of ownership.

VME64 Extension Connector

To maximize the capabilities of the MVME2400, 5-row 160-pin DIN connectors replace the 3-row 96-pin connectors historically used on VME for P1 and P2. Two rows, Z and D, have been added to the VME P1/J1 and P2/J2 connectors providing a user with additional I/O. The VME64 extension connector is 100% backward compatible with existing VME card systems.

PowerPlus Architecture

A second-generation architecture, PowerPlus II Architecture is a processor and bus architecture fully optimized to get the maximum performance from the PowerPC microprocessor family, the PCI bus, and the VMEbus. Features added to the original PowerPlus Architecture include support for 100 MHz local bus operation, and utilization of synchronous DRAM (SDRAM) technology. The outstanding performance of VME processor boards based on the PowerPlus II Architecture is not due to a single factor. A number of elements in the design of the PowerPlus II Architecture contribute to its outstanding performance including the Processor/Memory subsystem, high-speed local bus, optimally decoupled architecture, decoupling the processor from PCI, and the advanced VME interface which reduces PCI delays.

Specifications

Processor

Microprocessor:	MPC750	MPC750	MPC750
Clock Frequency:	233 MHz	350 MHz	450 MHz
On-chip Cache (I/D):	32KB/32KB	32KB/32KB	32KB/32KB
SPECint95, estimated:	10.2	15.4	TBD
SPECfp95, estimated:	8.2	10.5	TBD

Memory

ECC Protected Main Memory: PC100 SDRAM with 100 MHz bus

Capacity: 32MB to 512MB

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), 180 MHz (450 MHz processor)

EEPROM/Flash: On-board programmable

Capacity: 1MB via two 32-pin PLCC/CLCC sockets; 8MB surface mount

Read Access (8MB port): 70 Clocks (32 byte burst)

Read Access (1MB port): 262 Clocks (32 byte burst)

NVRAM: 8KB; 4KB available for users

Cell Storage Life: 50 years at 55° C

Cell Capacity Life: 10 years at 100% duty cycle

Removable Battery: Yes

VMEbus ANSI/VITA 1-1994 VME64 (IEEE STD 1014)

Controller: Tundra Universe 2.0

DTB Master: A16–A32; D08–D64, BLT

DTB Slave: A24–A32; D08–D64, BLT, UAT

Arbiter: RR/PRI

Interrupt Handler/ Generator: IRQ 1–7/Any one of seven IRQs

System Controller: Yes, jumperable or auto detect

Location Monitor: Two, LMA32

Ethernet Interface

Controller: DEC 21143

PCI Local bus DMA: Yes

Connector: Routed to front panel via an RJ-45

Asynchronous Serial Port

Controller: W83C553

Number of Ports: One, 16550 compatible

Configuration: EIA-574 DTE

Async Baud Rate, bps max.: 38.4K EIA-232, 115Kbps raw

Counters/Timers

TOD Clock Device: M48T559; 8KB NVRAM

Real-Time Timers/ Counters: One 16-bit, four 32-bit programmable

Watchdog Timer: Time-out generates reset

Miscellaneous

Reset and Abort switches and four LEDs for Fail, CPU, PMC1, PMC2 on front panel

IEEE P1386.1 PCI Mezzanine Card Slot

Address/Data: A32/D32/D64, PMC PN1, PN2, PN3, PN4 connectors

PCI Bus Clock: 33 MHz

Signaling: 5V

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

Module Types: One double-wide or two single-wide front-panel I/O or P2 I/O

Note: P2 I/O from PMC slot 2 is only accessible to systems equipped for VME64 extension connectors

PCI Expansion Connector

Address/Data: A32/D32/D64

PCI Bus Clock: 33 MHz

Signaling: 5V

Connector: 114-pin connector located on the planar of the MVME2400

Power Requirements

	+ 5V ± 5%
MVME2400 w/ MPC750 @ 233 MHz:	4.5 A typ., 5.5 A max.
MVME2400 w/ MPC750 @ 350 MHz:	4.5 A typ., 5.5 A max.
MVME2400 w/ MPC750 @ 450 MHz:	3.93 A typ., 4.31 A max.

Note: Power requirements are PMC dependent at +12 and –12 volts.

Board Size

Height: 233.4 mm (9.2 in.)

Depth: 160.0 mm (6.3 in.)

Front Panel Height: 261.8 mm (10.3 in.)

Width: 19.8 mm (0.8 in.)

Max. Component Height: 14.8 mm (0.58 in.)

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	–40° C to +70° C
Humidity (NC):	5% to 85%	5% to 95%
Vibration:	1 G Sine Sweep 5–100 Hz	.5 G Sine Sweep 5–50 Hz; 3 G Sine Sweep 50–500 Hz;

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

Canada: ICES-003, Class A

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

Software Support

The MVME2400 is supported by a variety of operating systems, including a complete range of real-time operating systems and kernels.

Ordering Information

Part Number	Description
All modules include 1MB backside L2 cache, 9MB Flash, and the option of either the original VME Scanbe front panel and handles or the IEEE 1101 compatible front panel with injector/ejector handles.	
MVME2401-1	233 MHz MPC750, 32MB ECC SDRAM, Scanbe handle
MVME2401-3	233 MHz MPC750, 64MB ECC SDRAM, IEEE handle
MVME2403-1	233 MHz MPC750, 32MB ECC SDRAM Scanbe handle
MVME2403-3	233 MHz MPC750, 32MB ECC SDRAM, IEEE handle
MVME2431-1	350 MHz MPC750, 32MB ECC SDRAM, Scanbe handle
MVME2431-3	350 MHz MPC750, 32MB ECC SDRAM, IEEE handle
MVME2432-1	350 MHz MPC750, 64MB ECC SDRAM, Scanbe handle
MVME2432-3	350 MHz MPC750, 64MB ECC SDRAM, IEEE handle
MVME2433-1	350 MHz MPC750, 128MB ECC SDRAM, Scanbe handle
MVME2433-3	350 MHz MPC750, 128MB ECC SDRAM, IEEE handle
MVME2434-1	350 MHz MPC750, 256MB ECC SDRAM, Scanbe handle
MVME2434-3	350 MHz MPC750, 256MB ECC SDRAM, IEEE handle
MVME2400-0321	450 MHz MPC750, 32MB ECC SDRAM, Scanbe
MVME2400-0323	450 MHz MPC750, 32MB ECC SDRAM, 1101
MVME2400-0331	450 MHz MPC750, 64MB ECC SDRAM, Scanbe
MVME2400-0333	450 MHz MPC750, 64MB ECC SDRAM, 1101
MVME2400-0341	450 MHz MPC750, 128MB ECC SDRAM, Scanbe
MVME2400-0343	450 MHz MPC750, 128MB ECC SDRAM, 1101
MVME2400-0351	450 MHz MPC750, 256MB ECC SDRAM, Scanbe
MVME2400-0353	450 MHz MPC750, 256MB ECC SDRAM, 1101
MVME2400-0361	450 MHz MPC750, 512MB ECC SDRAM, Scanbe
MVME2400-0363	450 MHz MPC750, 512MB ECC SDRAM, 1101

Related Products

PMCSPAN-002	Primary PCI expansion, mates directly to the MVME2400 providing slots for either two single-wide or one double-wide IEEE P1386.1 compliant PMC cards; optional PMCSPAN-010
PMCSPAN(1)-002	PMCSPAN-002 with original VMEbus Scanbe handles
PMCSPAN-010	Secondary PCI expansion, plugs directly into PMCSPAN-002 providing two additional PMC slots
PMCSPAN(1)-010	PMCSAN-010 with original VMEbus Scanbe handles
MPMC*xxx*	Motorola's family of PMC modules; ask your sales representative for details

Documentation

V2400A/IH	MVME2400 Installation and Use
V2400A/PG	MVME2400 Programmer's Reference Guide
PMCSPANA/IH	PMCspan Installation and Use
PPCBUGA1/UM	PPCBug User's Manual, Part 1 of 2
PPCBUGA2/UM	PPCBug User's Manual, Part 2 of 2
PPCDIAA/UM	Firmware Diagnostics Manual

Notes on Ordering Information

1. Board support package source and object modules available upon request.
2. Documentation is available for on-line viewing and ordering at http://www.motorola.com/computer/literature.

www.motorola.com/computer 1-800-759-1107

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