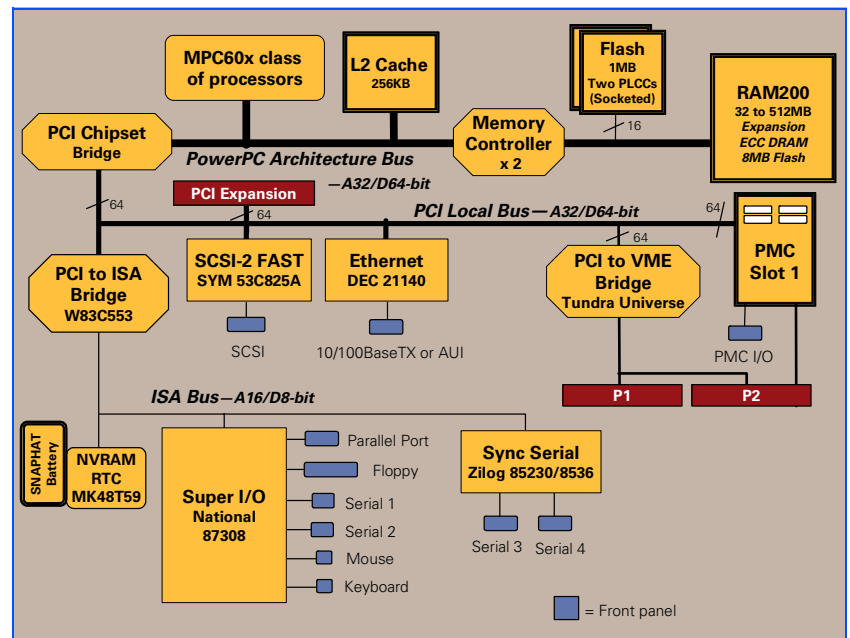


- MPC60x class of microprocessors
- 16KB/16KB or 32KB/32KB L1 cache
- 256KB L2 cache
- Up to 512MB ECC DRAM on-board memory
- 8MB on-board Flash, 1MB socketed
- 64-bit PCI mezzanine connector
- On-board debug monitor with self-test diagnostics
- IEEE P1386.1 compatible 32/64-bit PMC expansion slot
- Two or three async, one or two sync/async serial ports
- Ethernet transceiver interface with 32-bit PCI local bus DMA
- 8- or 16-bit Fast SCSI-2 bus interface
- Parallel, floppy, keyboard, and mouse interfaces
- 8KB x 8 NVRAM and time-of-day clock with replaceable battery backup
- Four 32-bit timers, one watchdog timer

**PMC expansion combined with a high-performance VME processor**

The MVME2600 series is a family of VME processor modules based on the Motorola PowerPlus VME architecture with PowerPC architecture-compatible microprocessors. The flexibility of the MVME2600 provides an excellent base platform that can be quickly and easily customized for a variety of industry-specific applications.

Designed to meet the needs of military and aerospace, industrial automation, and medical imaging market segments, the MVME2600 applies to a variety of applications. DRAM expansion mezzanines enable memory upgrades to the maximum 512MB of ECC DRAM without requiring additional VME slots.



**PCI Expansion**

MVME2600 modules have a 64-bit PCI connection to support PCI expansion carriers such as Motorola PMCspan. Design details for the connector and electrical specifications are available from your local Motorola sales representative.

**Memory Modules**

The MVME2600 series has a modular memory design. Mezzanine arrays support up to 512MB.

**Transition Modules**

Two artwork variants of the MVME2600 are available. One series provides backward compatibility with the MVME712M transition module I/O, while the other series accepts the MVME761 transition module featuring an additional sync/async serial port, a 10/100BaseTX Ethernet interface, Fast 16-bit SCSI, and an IEEE 1284 compatible parallel port.

**MVME761**

The MVME761 transition module provides industry-standard connector access to the IEEE 1284 parallel port, a 10BaseT or 100BaseTX Ethernet port via an RJ-45 connector, two DB-9 connectors providing access to the asynchronous serial ports configured as EIA-574 DTE and two HD-26 connectors providing access to the sync/async serial ports. These serial ports, labeled as Serial 3 and Serial 4 on the face plate of the MVME761, are individually user configurable as EIA-232, EIA-530, V.35, or X.21 DCE/DTE via the installation of Motorola serial interface modules (SIMs).

A P2 adapter provides interface module signals to the MVME761 transition module. The 3-row P2 adapter can be used for 8-bit SCSI. A 5-row P2 adapter supports 16-bit SCSI and PMC I/O.

**MVME712M**

The MVME712M transition module provides industry-standard connector access to the Centronics parallel port, an AUI port and four DB-25 connectors, providing access to the asynchronous/synchronous serial ports jumper configurable as EIA-232 DCE or DTE. A P2 adapter provides interface signals to the MVME712M transition module. The 3-row P2 adapter can be used for 8-bit SCSI.

To gain access to the additional user-definable I/O pins provided via the 5-row VME64 extension connector, a special P2 adapter board is available. This adapter panel replaces the traditional 3-row P2 adapter and extends its capability by providing access to the PMC I/O pins.

Several other variations of the MVME712M are available for combinations of I/O and connectors.

**Firmware Monitor**

Firmware must fulfill the traditional functions of test and initialization, in addition to operating system boot support. The MVME2600 firmware monitor exceeds these requirements with a proven monitor from the embedded VME leader. It expands features like power-up tests with extensive diagnostics, as well as a powerful evaluation and debug tool for simple checkout or when high-level development debuggers require additional support. All this is included with the MVME2600 firmware, plus it supports booting both operating systems and kernels.

**Operating Systems and Real-Time Kernels**

<b>Motorola Computer Group:</b>	AIX
<b>Integrated Systems, Inc.:</b>	pSOSystem
<b>Lynx Real-Time Systems, Inc.:</b>	LynxOS
<b>Microware Systems Corporation:</b>	OS-9/OS-9000
<b>Microtec:</b>	VRTX32
<b>Wind River Systems, Inc.:</b>	VxWorks

## SPECIFICATIONS

### Processor

<b>Microprocessor:</b>	MPC603	MPC604	MPC604
<b>Clock Frequency:</b>	200 MHz	333 MHz	400 MHz
<b>On-chip Cache (I/D):</b>	16K/16K	16K/16K	16K/16K
<b>Memory Type:</b>	60 ns FPM or 50 ns EDO	60 ns FPM or 50 ns EDO	60 ns FPM or 50 ns EDO

### Memory

<b>MAIN MEMORY:</b>	Dynamic RAM
<b>Capacity (60ns FPM):</b>	32MB on RAM200
<b>Capacity (50ns EDO):</b>	128, 256, or 512MB on RAM200
<b>Single Cycle Accesses:</b>	9 read/4 write
<b>Read Burst Mode (60ns FPM):</b>	9-1-2-1 idle; 3-1-2-1 aligned page hit
<b>Read Burst Mode (50ns EDO):</b>	8-1-1-1 idle; 2-1-1-1 aligned page hit
<b>Write Burst Mode:</b>	4-1-1-1 idle; 3-1-1-1 aligned page hit
<b>Architecture:</b>	128-bit, two-way interleaved
<b>Parity/ECC:</b>	No/Yes
<b>L2 CACHE:</b>	256KB
<b>Cache Bus Clock Frequency:</b>	Processor clock divided by 2
<b>FLASH:</b>	On-board programmable
<b>Capacity:</b>	1MB via two 32-pin PLCC/CLCC sockets; 8MB surface mount
<b>Read Access (8MB port):</b>	68 clocks (32 byte burst)
<b>Read Access (1MB port):</b>	260 clocks (8 byte burst)
<b>Write Access (1MB/8MB):</b>	19 clocks (2 bytes/8 bytes)
<b>NVRAM:</b>	8KB (4KB available for users)
<b>Cell Storage Life:</b>	50 years at 55° C
<b>Cell Capacity Life:</b>	10 years at 100% duty cycle
<b>Removable Battery:</b>	Yes

### PCI Expansion Connector

<b>Address/Data:</b>	A32/D32/D64
<b>PCI Bus Clock:</b>	33 MHz
<b>Signaling:</b>	5 V
<b>Connector:</b>	114-pin connector located on the planar of the MVME2600 between P1 and P2

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

<b>Controller:</b>	Tundra Universe
<b>DTB Master:</b>	A16–A32; D08–D64, BLT
<b>DTB Slave:</b>	A24–A32; D08–D64, BLT, UAT
<b>Arbiter:</b>	RR/PRI
<b>Interrupt Handler/Generator:</b>	IRQ 1–7/Any one of seven IRQs
<b>System Controller:</b>	Yes, jumperable or auto detect
<b>Location Monitor:</b>	Two, LMA32

### Ethernet Interface

	MVME761	MVME712M
<b>Controller:</b>	DEC 21140	DEC 21140
<b>Interface Speed:</b>	10/100Mb/s	AUI (10Mb/s)
<b>PCI Local bus DMA:</b>	Yes, with PCI burst	Yes, with PCI burst
<b>Connector:</b>	Routed to P2, RJ-45 on MVME761	Routed to P2, DB-15 AUI on MVME712M

### SCSI Interface

	MVME761	MVME712M
<b>Controller:</b>	Symbios 53C825A	Symbios 53C825A
<b>PCI Local Bus DMA:</b>	Yes, with PCI local bus burst	Yes, with PCI local bus burst
<b>Asynchronous:</b>	5.0MB/s	5.0MB/s
<b>Synchronous:</b>	10.0MB/s (8-bit mode), 20.0MB/s (16-bit mode)	10.0MB/s (8-bit mode), 20.0MB/s (16-bit mode)
<b>Connector:</b>	Routed to P2, 50- or 68-pin on MVME761EXT	Routed to P2, SCSI D-50 on MVME712M

### Asynchronous Serial Ports

	MVME761	MVME712M
<b>Controller:</b>	PC87308	PC87308, 85230/8536
<b>Number of Ports:</b>	Two, 16550 compatible	Two, 16550 compatible and one 85230/8536
<b>Configuration:</b>	EIA-574 DTE	EIA-232 DCE/DTE
<b>Async Baud Rate, bps max.:</b>	38.4K EIA-232, 115Kb/s raw	38.4K EIA-232, 115Kb/s raw
<b>Connector:</b>	Routed to P2, DB-9 on MVME761	Routed to P2, DB-25 on MVME712M

## Synchronous Serial Ports

	MVME761	MVME712M
<b>Controller:</b>	85230/8536	85230/8536
<b>Number of Ports:</b>	Two	One
<b>Configuration:</b>	TTL to P2 (both ports), SIM on MVME761	EIA-232 DCE/DTE
<b>Baud Rate, bps max.:</b>	2.5MB sync, 38.4KB async	2.5MB sync, 38.4KB async
<b>Oscillator Clock Rate (PCLK):</b>	10 MHz/5 MHz	10 MHz/5 MHz
<b>Connector:</b>	Routed to P2, HD-26 on MVME761	Routed to P2, DB-25 on MVME712M

## Parallel Port

	MVME761	MVME712M
<b>Controller:</b>	PC87308	PC87308
<b>Configuration:</b>	8-bit bidirectional, full IEEE 1284 support; Centronics compatible	8-bit bidirectional, IEEE 1284 minus EPP and ECP
<b>Modes:</b>	Master only	Master only
<b>Connector:</b>	Routed to P2, HD-36 on MVME761	Routed to P2, D-36 on MVME712M

## Counters/Timers

<b>TOD Clock Device:</b>	M48T18; 8KB NVRAM
<b>Real-Time Timers/Counters:</b>	Four, 32-bit programmable
<b>Watchdog Timer:</b>	Time-out generates reset

## Floppy

<b>Controller:</b>	PC87308
<b>Compatible Controllers:</b>	DP8473, 765A, N82077
<b>Configuration:</b>	3.5" 2.88MB and 1.44MB; 5.25" 1.2MB
<b>Connector:</b>	HD-50 on front panel

## Mouse Interface

<b>Controller:</b>	PC87308
<b>Connector:</b>	6-pin circular female mini DIN on front panel

## Keyboard Interface

<b>Controller:</b>	PC87308
<b>Connector:</b>	6-pin circular female mini DIN on front panel

## IEEE P1386.1 PCI Mezzanine Card Slot

<b>Address/Data:</b>	A32/D32/D64, PMC PN1, PN2, PN3, PN4 connectors
<b>PCI Bus Clock:</b>	33 MHz
<b>Signaling:</b>	5 V
<b>Power:</b>	+3.3 V, +5 V, $\pm 12$ V; 7.5 watts maximum per PMC slot
<b>Module Types:</b>	Basic, single-wide, front panel I/O or P2 I/O (Note: P2 I/O is only accessible to systems equipped for VME64 extension connectors.)

## Board Size

<b>Height:</b>	233.4 mm (9.2 in.)
<b>Depth:</b>	160.0 mm (6.3 in.)
<b>Front Panel Height:</b>	261.8 mm (10.3 in.)
<b>Width:</b>	19.8 mm (0.8 in.)
<b>Max. Component Height:</b>	14.8 mm (0.58 in.)

## Miscellaneous

Reset and abort switches on front panel; six LEDs for FAIL, CHKSTP, CPU, PCI, SCON and FUSE

## Transition Module

## I/O Connectors

	MVME761	MVME712M
<b>Asynchronous Serial Ports:</b>	Two, DB-9 labeled as COM1 and COM2	Three, DB-25 labeled as Serial 1, Serial 2 and Serial 3
<b>Synchronous Serial Ports:</b>	Two, HD-26 labeled as Serial 3 and Serial 4 (user configurable via installation of SIMs; two 60-pin connectors on MVME761 planar for installation of two SIMs)	One, DB-25 labeled as Serial 4
<b>Parallel Port:</b>	HD-36, Centronics compatible	D-36, Centronics compatible
<b>Ethernet:</b>	10BaseT or 100BaseTX RJ-45	10Mb/s Ethernet; DB-15 AUI
<b>SCSI:</b>	8- or 16-bit, 50- or 68-pin connector via P2 adapter	8-bit, standard SCSI D-50

## Board Size

<b>Height:</b>	233.4 mm (9.2 in.)
<b>Depth:</b>	80.0 mm (3.1 in.)
<b>Front Panel Height:</b>	261.8 mm (10.3 in.)
<b>Width:</b>	19.8 mm (0.8 in.)

## All Modules

## Power Requirements

(not including power required by PMC or external AUI transceiver)

	+5 V ±5%	+12 V ±10%	-12 V ±10%
<b>MVME2603-1161C:</b>	6.75 A typ. 8.5 A max.	250 mA typ. 500 mA max.	100 mA typ. 250 mA max.
<b>MVME2604-1361:</b>	8.0 A typ. 10.0 A max.	250 mA typ. 500 mA max.	100 mA typ. 250 mA max.
<b>MVME2604-4361:</b>	7.5 A typ. 9.5 A max.	250 mA typ. 500 mA max.	100 mA typ. 250 mA max.

-12 V power is not used on the MVME2600 but is supplied for use by other devices (such as PMC); requirements vary by device

## Demonstrated MTBF

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

<b>Mean:</b>	190,509 hours
<b>95% Confidence:</b>	107,681 hours

## Environmental

	Operating	Nonoperating
<b>Temperature:</b>	0° C to +55° C, forced air cooling	-40° C to +85° C
<b>Humidity (NC):</b>	10% to 80%	10% to 90%
<b>Vibration:</b>	2 Gs 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 B; Immunity: EN55024

## ORDERING INFORMATION

Part Number	Description
<b>MVME2600 with MVME761 I/O</b>	
(All modules include 9MB Flash.)	
<b>MVME2603-1161C</b>	200 MHz MPC603, 256MB ECC DRAM, MCG1101 front panel with injector/ejector handles
<b>MVME2603-3161</b>	200 MHz MPC603, 256MB ECC DRAM, original VME Scanbe front panel and handles
<b>MVME2604-1361</b>	333 MHz MPC604e, 256MB ECC DRAM, MCG1101 front panel with injector/ejector handles
<b>MVME2604-3361</b>	333 MHz MPC604e, 256MB ECC DRAM, original VME Scanbe front panel and handles
<b>MVME2604-1471</b>	400 MHz MPC604e, 512MB ECC DRAM, MCG1101 front panel with injector/ejector handles
<b>MVME2604-3471</b>	400 MHz MPC604e, 512MB ECC DRAM, original VME Scanbe front panel and handles
<b>MVME2600 with MVME712 I/O</b>	
(All modules include 9MB Flash.)	
<b>MVME2603-4151</b>	200 MHz MPC603, 128MB ECC DRAM, original VME Scanbe front panel and handles
<b>MVME2603-5131</b>	200 MHz MPC603, 32MB ECC DRAM, MCG1101 front panel with injector/ejector handles
<b>MVME2604-4361</b>	333 MHz MPC604e, 256MB ECC DRAM, original VME Scanbe front panel and handles
<b>MVME2604-4471</b>	400 MHz MPC604e, 512MB ECC DRAM, original VME Scanbe front panel and handles
<b>MVME761 Transition Module</b>	
<b>MVME761-001</b>	Two DB-9 async serial port connectors, two HD-26 sync/async serial port connectors, one HD-36 parallel port connector, one RJ-45 10/100 Ethernet connector; includes 3-row DIN P2 adapter module and cable
<b>MVME761-011</b>	Two DB-9 async serial port connectors, two HD-26 sync/async serial port connectors, one HD-36 parallel port connector, one RJ-45 10/100 Ethernet connector; includes 5-row DIN P2 adapter module and cable; requires backplane with 5-row DIN connectors
<b>MVME761P2-011</b>	5-row DIN P2 adapter compatible with MVME761; connectors for 16-bit (wide) SCSI and PMC I/O; requires backplane with 5-row DIN connectors
<b>MVME761EXT</b>	MVME761 I/O extension module, connectors for Ethernet, SCSI and PMC I/O
<b>SIM232DCE or DTE</b>	EIA-232 DCE or DTE serial interface module
<b>SIM530DCE or DTE</b>	EIA-530 DCE or DTE serial interface module
<b>SIMV35DCE or DTE</b>	V.35 DCE or DTE serial interface module
<b>SIMX21DCE or DTE</b>	X.21 DCE or DTE serial interface module
<b>MVME712M Transition Module</b>	
<b>MVME712M</b>	One DB-25 sync/async serial port connector, three DB-25 async serial port connectors, one AUI connector for Ethernet, one D-36 parallel port connector and one 50-pin 8-bit SCSI connector; includes 3-row DIN P2 adapter module and cable

Part Number	Description
<b>Related Products</b>	
<b>PMCSPAN-001</b>	Primary 32-bit PCI expansion, mates directly to the MVME2600 providing slots for either two single-wide or one double-wide PMC card, accepts optional PMCSPAN-010, MCG1101 front panel with injector/ejector handles
<b>PMCSPAN1-001</b>	PMCSPAN-001 with original VME Scanbe front panel and handles
<b>PMCSPAN-010</b>	Secondary 32-bit PCI expansion, plugs directly into PMCSPAN-001 providing two additional PMC slots; for MCG1101 handles
<b>PMCSPAN1-010</b>	PMCSPAN-010 with original VME Scanbe front panel and handles
<b>Documentation</b>	
<b>V2600A/IH</b>	MVME2600 Installation and Use
<b>V2600A/PG</b>	MVME2600/2700 Programmer's Reference Guide
<b>VME761A/IH</b>	MVME761 Transition Module Installation and Use
<b>VME712A/IH</b>	MVME712 Transition Module Installation and Use
<b>PPCBUGA1/UM and PPCBUGA2/UM</b>	PPC Bug Firmware Package User's Manual
<b>PPCDIAA/UM</b>	PPC Bug Diagnostics Manual
Documentation is available for online viewing and ordering at <a href="http://www.motorola.com/computer/literature">http://www.motorola.com/computer/literature</a>	

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