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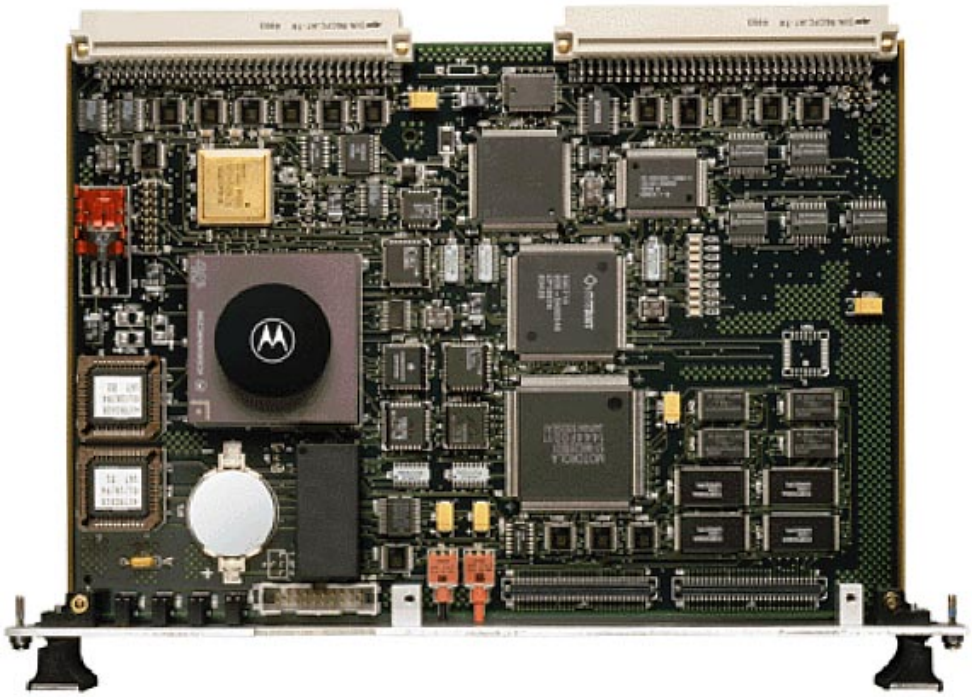
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Find the *Emerson / Motorola MVME177-003* at our website: ***Click HERE***

MOTOROLA COMPUTER GROUP

Board Level Products

MVME177
SINGLE-BOARD COMPUTER



Advantages

The company that pioneered the VMEbus single-board computer has added new dimensions in performance and functionality. Motorola's third-generation single-board computer, the MVME177, upholds the tradition by combining a superscalar MC68060 microprocessor with the feature flexibility and world-class quality found only in Motorola VME products.

The MVME177's compatibility with existing M68000 family hardware and software allows users to realize RISC performance levels while protecting their chassis, peripheral, specialized I/O, and software investment. The MVME177 makes an ideal solution for scientific, industrial, and high-end monitoring and control applications.

MOTOROLA

Features

- 50 or 60 MHz MC68060 32-bit microprocessor with 8KB of cache, MMU, and FPU
- Full 32-bit master/slave VMEbus interface
- High-performance DMA, supports VMEbus D64 and local bus memory burst cycles
- 4, 8, 16, 32, 64, 128 or 256MB on-board DRAM, four-way interleaved, with error checking and correction (ECC)
- 128KB SRAM with battery backup
- On-board SCSI interface with 32-bit local bus burst DMA
- On-board Ethernet interface with 32-bit local bus DMA
- 4MB of Flash ROM
- Two 44-pin sockets for up to 2MB on-board ROM/EPROM
- Four EIA-232-D serial ports implemented with quad serial I/O processor
- 8-bit, bidirectional, Centronics® compatible parallel port
- Four 32-bit timers and one watchdog timer
- 8KB of NVRAM with real-time clock/calendar
- Remote Reset/Abort/Status control functions
- Completely programmable for maximum integration flexibility
- Low power consumption—less than 20 watts typical

The Motorola Commitment

Motorola Computer Group is committed to providing best-in-class VME board level products and standard open computer platforms to the VME industry. These products provide superior hardware, price performance, and faithfulness to the tenets of open computing: modularity, scalability, portability, and interoperability.

The MVME177 adheres to these principles. Because of the reliability and quality that are designed into the MVME177, Motorola offers a standard five-year warranty. The MVME177 single-board computer offers the widest range of flexibility, functionality, and performance available for today's systems integration and OEM marketplace.

Ordering Information

Part Number	Description
MVME177-001*y*	50 MHz, 4MB ECC DRAM
MVME177-002*y*	50 MHz, 8MB ECC DRAM
MVME177-003*y*	50 MHz, 16MB ECC DRAM
MVME177-004*y*	50 MHz, 32MB ECC DRAM
MVME177-005*y*	50 MHz, 64MB ECC DRAM
MVME177-006*y*	50 MHz, 128MB ECC DRAM
MVME177-011*y*	60 MHz, 4MB ECC DRAM
MVME177-012*y*	60 MHz, 8MB ECC DRAM
MVME177-013*y*	60 MHz, 16MB ECC DRAM
MVME177-014*y*	60 MHz, 32MB ECC DRAM
MVME177-015*y*	60 MHz, 64MB ECC DRAM
MVME177-016*y*	60 MHz, 128MB ECC DRAM

Note: *y* indicates product revision level if any; for example, "-001A."

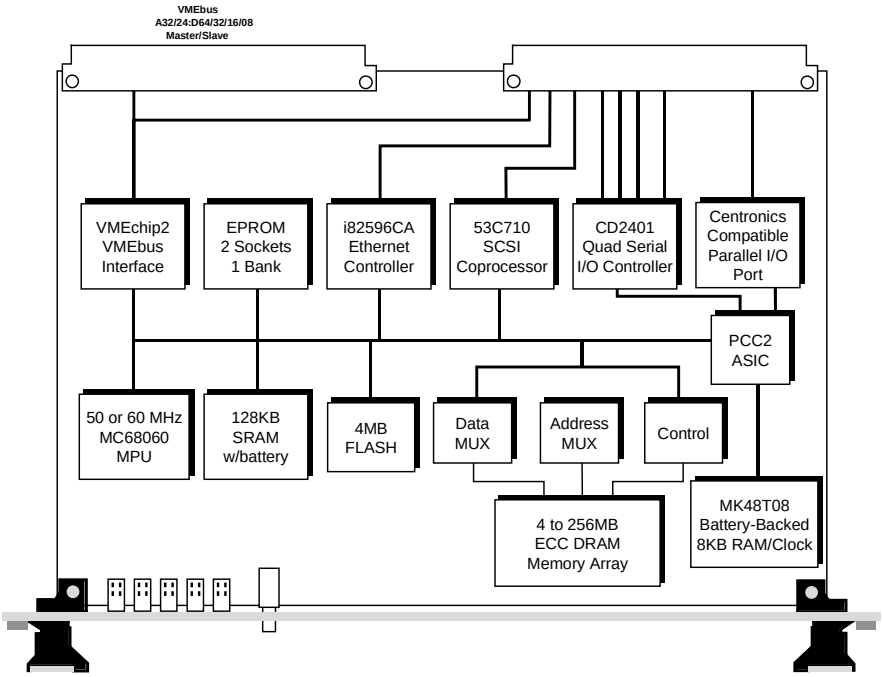
Related Products

MVME712A	Four DB-9 female serial port connectors, one RJ-11 connector, Centronics parallel port connector, and P2 adapter
MVME712B	DB-15 Ethernet connector and SCSI connector
MVME712P2	P2 adaptor module from VME backplane to cabling for transition modules
MVME712-012	Same as MVME712A but with DIN connector at P2 for use with MVME946 chassis

Related Documentation

VME177A/IH	MVME177 Installation and Use manual
V177DIAA/UM	177Bug diagnostics user's manual
68KBUG1/D and 68KBUG2/D	Debugging package user's manual, volumes 1 and 2
VMESBCA1/PG and VMESBCA2/PG	Programmer's reference guide, volumes 1 and 2
68-1X7DS	Includes user's manuals for each of the peripheral controllers used on the MVME177 series

Note: Documentation is also available on line at http://www.mcg.mot.com/literature.



Block Diagram

VMEbus Interface

A significant design advantage of the MVME177 is the use of a second-generation application-specific integrated circuit (ASIC). The ASIC interfaces the MVME177 to the VMEbus for higher levels of quality, reliability, and functionality.

In addition to controlling the system's VMEbus functions, the VMEbus interface ASIC also includes a local bus to/from VMEbus DMA controller, VME board support features, as well as global control and status register (GCSR) for microprocessor communications over the VMEbus. The MVME177 also provides support for the VME D64 specification within the VMEbus interface, further enhancing system performance.

Transition Modules

Optional MVME712 series transition modules are available to support the use of standard I/O connections for the MVME177 series. These modules take the I/O connections for the peripherals on-board the MVME177 series from the P2 connection of the module to a transition module that has industry standard connections.

Expansion Memory

Expansion memory is available for field upgrades. Two types of expansion are possible. The first requires replacing the existing memory mezzanine with a new module. The second requires the addition of a second mezzanine module, requiring a second VMEbus slot.

Development Software

Development software for the MVME177 series includes the on-board debugger/monitor firmware. Object and source code is available for application development. Debugger/monitor object firmware is included on the board.

MVME177 Memory Map

Address Range	Devices Accessed	Port Size	Size	Software Cache Inhibit	Notes
$00000000 to DRAM size	User Programmable (On-Board DRAM)	D32	DRAM size	No	1, 2
DRAM size to $FF7FFFFF	User Programmable (VMEbus)	D32/D16	3GB	No	2, 3, 4
$FF800000 to $FFBFFFFF	EEPROM/Flash	D32	4MB	No	1
$FFC00000 to $FFDFFFFF	Reserved	—	2MB	—	5
$FFE00000 to $FFE1FFFF	SRAM	D32	128KB	No	—
$FFE20000 to $FFEFFFFF	SRAM (repeated)	D32	896KB	No	—
$FFF00000 to $FFFEFFFF	Local I/O Devices	D8-D32	1MB	Yes	3
$FFFF0000 to $FFFFFFFF	User Programmable (VMEbus A16)	D32/D16	64KB	No	2, 4

Notes:

1. Flash/EPROM devices appear at $FF800000–$FFBFFFFF and also appear at $0–$3FFFFF if ROM0 bit in VMEchip2 EPROM control register is high (ROM0 = 1). ROM0 is set to 1 after each reset. ROM0 bit must be cleared before other resources (DRAM or SRAM) can be mapped in this range ($0–$3FFFFF). On MVME177, the Flash memory is mapped at $0–$3FFFFF by hardware default through VMEchip2.
2. This area is user-programmable. The suggested use is shown in the table. The DRAM decoder is programmed in the MCECC chip, and the local-to-VMEbus and local-to-VSB decoders are programmed in the VMEchip2.
3. Size is approximate.
4. Cache inhibit depends on devices in area mapped.
5. This area is not decoded. If these locations are accessed and the local bus timer is enabled, the cycle times out and is terminated by a TEA signal.

Specifications

MVME177 Single-Board Computer

Processor

Type:	MC68060
Clock Frequency:	50 MHz or 60 MHz

Memory

ECC Dynamic RAM

Capacity:	4, 8, 16, 32, 64, 128, 256MB
Wait States (Read/Write):	3/0
Read Burst Mode:	5-1-1-1
Write Burst Mode:	2-1-1-1
Shared:	VMEbus/Local bus

Flash (120ns)

Capacity:	4MB
Access Cycles:	5-read, 6-write

EPROM

Socket Type:	44-pin PLCC
Number of Sockets (max. capacity):	2 (256K x 16)
Data Width/Capacity:	32-bit/2MB

VMEbus (IEEE 1014)

DTB Master:	A16, A24, A32, D08(EO), D16, D32, D64, BLK, UAT
DTB Slave:	A16, A24, A32, D08(EO), D16, D32, D64, BLK, UAT
Arbiter:	RR/PRI
Interrupt Handler:	IRQ 1–7
Interrupt Generator:	Any 1 of 7
System Controller:	Yes, jumperable
Location Monitor:	4, LMA32

SCSI Bus

Controller:	53C710
Asynchronous:	5.0MB/s
Synchronous:	10.0MB/s
Local Bus DMA:	Yes, with local bus burst

Ethernet

Controller:	i82596CA
Local bus DMA:	Yes

TOD Clock

TOD Clock Device:	M48T08; 8KB NVRAM

Timers

Timers:	Four 32-bit, 1 µsec resolution
Local Bus DMA:	Yes

Serial Ports

Controller:	CD2401
Console (EIA-232-D DTE):	4
Async Baud Rate, bps max.:	38.4K
Sync Baud Rate, bps max.:	64K

Parallel Ports

Parallel Interface:	1 x 8-bit, input, output, control

Dimensions

Card Height:	233.4 mm (9.2 in.)
Card Depth:	160.0 mm (6.3 in.)
Front Panel Height:	261.8 mm (10.3 in.)
Front Panel Width:	19.8 mm (0.8 in.)

Power Dissipation

Maximum (5V):	30 watts
+5V ± 5%	6.0A (max.) 4.5A (typical @ 50 MHz)
+12V ± 10%	1.0A (max., with off-board LAN transceiver)
–12V ± 10%	100mA (typical)

Hardware Support

Multiprocessing Hardware Support:	4 Mailbox interrupts, RMW, shared RAM
Debug/Monitor (included):	MVME177FW
Transition Module (optional):	MVME712 Series

Environmental

Temperature (operating):	0° C to +55° C, exit air, forced air cooling
Temperature (storage):	–40° C to +85° C
Vibration (non-operating):	2 Gs RMS, 20–2000 Hz random
Altitude (operating):	15,000 feet
Humidity (noncondensing):	5% to 90%

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 (nonresidential)

Canada: ICES-003, Class A (nonresidential)

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

Demonstrated MTBF

Mean:	190,509 hours
90% Confidence:	107,681 hours

Kernel and Operating System Software Support

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Microtec:	VRTX32™
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