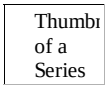
Series EX


Thumbnail of a Series A photograph of the system in GIF (123K) or JPEG (38K).

Advantages

The Series EX is Motorola's entry-level server based on PowerPC™ architecture. Combining the Peripheral Component Interconnect (PCI) bus and a compact desktop/deskside enclosure, the Series EX server offers a variety of memory, SCSI device, and PCI-based expansion options. PowerStack™ Series EX utilizes either the PowerPC 604™ or PowerPC 604e™ microprocessors, with your choice of 133 or 166 MHz processing speeds. This server can be configured to support up to 256 users in a wide range of applications from laptops to high-end servers.

To find out more about the expandable PowerStack Series EX call **1-800-759-1107.**

Features

Series EX System

- PowerPC motherboard with:
  - 133 MHz or 166 MHz MPC 32-bit superscalar RISC microprocessor
  - 32KB of on chip L1 cache
  - L2 cache upgradable to 1MB
  - Floating-point on chip
- Four or eight standard SIMM memory slots supporting capacities from 32MB to 512MB of ECC memory
- Small Computer Systems Interface (SCSI-2)
- Ethernet network controller
- Two asynchronous serial ports
- Two synchronous serial ports
- Parallel port (bidirectional)
- Keyboard and mouse ports
- Three PCI expansion slots
- 1.44MB floppy disk drive
- 2x SCSI (Base Chassis) CD-ROM
- Optional 8x SCSI CD-ROM
  (Requires SCSI expansion unit)
- Three peripheral bays supporting up to two tape or CD-ROM drives and SCSI disk configurations with up to 4GB of internal storage
- SCSI device expansion module options for additional SCSI devices
- Optional serial connectivity for up to 256 EIA-232-D serial ports
- Optional PCI expansion module

The Motorola Commitment

Motorola Computer Group is committed to providing best-in-class entry-level commercial server solutions.

The Series EX reinforces this commitment by providing superior hardware, price performance, and faithfulness to the tenets of open computing: modularity, scalability, portability and interoperability.

Motorola Computer Group is ISO9001 registered, and provides world class quality in manufacturing, engineering, sales, and marketing.

The Series EX Motherboard

The Series EX computer system's motherboard is a single-board computer containing a PowerPC microprocessor, two main memory connectors which allow for dual or quad SIMM cards, interfaces for SCSI, Ethernet LAN, parallel and serial I/O, and keyboard and mouse ports. A PCI riser card on the motherboard supports up to three short form factor PCI cards. A connector for a floppy disk (interfaced to the on-board ISA bus) is also provided.

PCI Bus

The open industry standard PCI bus is a 33 MHz high performance bus architecture. Three PCI expansion slots are provided.

The PCI bus is 32-bit and supports transfer speeds of up to 132MB/s.

A variety of PCI cards, available both from Motorola and third party suppliers, extends the functionality of Series EX.

I/O Ports

Two EIA-232-D asynchronous serial ports support transfer rates up to 19.2Kb/s. The ports are configured DTE and are accessed through two 9-pin D-shell male connectors.

Two synchronous ports support up to 1Mb/s. The ports are configured DTE and are accessed through two 26-pin miniD male connectors. These ports may be configured through software for asynchronous operation.

A keyboard and mouse port for use with a PCI graphics card are provided via two 6-pin miniature DIN connectors.

The parallel port is compliant with the IEEE 1284 specification for enhanced bidirectional parallel interface. The ECP (Extended Capability Port) protocol is supported. A high density 36-pin connector is provided.

Small Computer Systems Interface

An integrated, intelligent, fast/wide, single-ended SCSI-2 interface controls disk and tape drives and other devices. Up to fifteen SCSI devices are supported by the interface.

The internal disk drives available with the Series EX are 16-bit (wide) SCSI; the external SCSI connector supports 16-bit (wide) SCSI devices.

The SCSI port also supports additional serial connectivity (see options).

The Enclosure

The Series EX enclosure is similar in design to Motorola Computer Group's award-winning Series E enclosure. A single module contains:

- Motherboard
- PCI riser card supporting up to three PCI cards with connector access (if required) through the rear panel
- Floppy disk access from the front panel
- Bays for up to three SCSI devices, all of which may be 1" form factor removable media devices

The enclosure is a snap-together assembly, without internal cables or screws. The front bezel and side panels are easily removable without tools for reconfiguration of memory or SCSI devices, PCI card insertion, or air filter replacement.

The front panel provides LEDs indicating power good, SCSI activity, Ethernet activity, and cooling failure detection. Power on/off and system reset switches are provided.

The enclosure contains an auto-ranging switching power supply and air cooling system in a single pluggable unit.

Provision is made for expansion of the base module with one or two SCSI device expansion modules or PCI expansion module.

Series EX Options

SCSI Devices

The following devices are supported inside the Series EX enclosure in the three 1 form factor bays:

- 4GB TR4 tape drive for backup
- 1GB 3.5" x 1" hard disk drive, one only per 1" SCSI bay, maximum of two per system
- 2GB, 4GB, or one 9GB*, 3.5" x 1" hard disk drive, one only per 1" SCSI bay, maximum of two per system

Field installation of any of the above devices is a simple plug-in operation, requiring no tools.

SCSI Device Expansion Modules

Additional bays for SCSI devices may be provided by means of SCSI device expansion modules. Each module houses four half-height peripheral bays. Two bays accommodate 3.5" hard disks; two accommodate either 3.5" disks or half-height removable devices such as streaming tape or 4 mm DAT.

One or two SCSI device expansion modules may be combined with a Series EX enclosure to provide up to eight additional devices.

Use of the expansion module permits hard disk capacities of up to 36GB* with the single on board SCSI channel.

Expansion module supports these devices:

- 2GB, 4GB and 9GB* disks
- QIC-525 streaming tape drive
- 4 mm DAT tape drive
- 8 mm tape drive

PCI Options Expansion Module

The series EX base system provides three PCI short 7" form cards. The optional Series EX PCI Expansion Module may be added to provide eight additional 7" PCI slots, making the Series EX expandable to 11 PCI slots for maximum expandability.

Audio Option

16-bit business audio is provided as an option with the floppy disk drive. This option includes an internal speaker. When a CD-ROM drive is installed in the bottom bay, its audio-out is connected internally to the business audio option. Rear-facing 3.5 mm phone jacks are provided for the following:

- stereo headphones
- stereo microphone input

- stereo line out

Serial Connectivity Option

Options are available for the addition of 8 or 16 serial ports. The serial multiplexors support standard EID-232-D ports utilizing RJ-45 connectors; they are located externally to the
E enclosure, connected to the external SCSI port.

Ports are individually programmable with transfer rates of up to 19.2Kb/s.

RAID Subsystem

A Redundant Array of Inexpensive Disks (RAID) subsystem is available. The subsystem supports RAID levels 0, 1, and 5 with up to four 2GB or four 4GB disk drives.

Software Overview

AIX Operating System

The Series EX supports the AIX® 4.1X operating system. AIX is available directly from, and is supported by, Motorola.

Windows NT

Series EX supports Windows NT® Server for PowerPC and future releases of Windows NT. Windows NT products and support are available from Motorola and through Microsoft® distribution channels.

Specifications

Storage Devices (in base module)

AT Floppy Drive (Super Low Profile):

Formatted Capacity	Form Factor	Average SeekTime	Transfer Rate
.7/1.44MB	3.5"	94 ms	500KB/s

SCSI CD-ROM Drive (2X):

Formatted Capacity	Form Factor	Average Seek Time	Transfer Rate
600MB	1"	320 ms	300KB/s

SCSI Tape Drive:

Formatted Capacity	Type	Form Factor	Transfer Rate
4GB	TR-4	1"	600KB/s

SCSI Disk Drives (choose from):

Formatted Capacity	Average Seek Time (Read)	Transfer Rate Sustained	Transfer Rate Max.
	3.5"x1" form factor (max 2):		
1GB	10ms	8.8MB/s	20MB/s
2GB	9 ms	15MB/s	20MB/s
4GB	9 ms	15MB/s	20MB/s
9GB*	9 ms	15MB/s	20MB/s

Storage Devices (in SCSI device expansion module)

Disk Drives (choose from):

Formatted Capacity	Avg. Seek Time (Read)	Transfer Rate Sustained	Transfer Rate Max.
	3.5"x1" form factor (max 4):		
1GB	10 ms	8.8MB/s	20MB/s
	HH form factor (max 4):		
2GB	9 ms	15MB/s	20MB/s
4GB	9 ms	15MB/s	20MB/s

9GB*	9 ms	15MB/s	20MB/s

SCSI CD-ROM Drive:

Formatted Capacity	Form Factor	Average Seek Time	Transfer Rate
600MB	HH	150 ms	150-1200KB /s

Tape Drives (choose from):

Formatted Capacity	Type	Form Factor	Transfer Rate
525MB	QIC-525	HH 5.25"	240KB/s
4GB	4 mm DAT	HH 3.5"	400KB/s
Same drive with 2:1 compression (typical):			
8GB		HH 3.5"	800KB/s
7GB	8 mm	HH 5.25"	500KB/s
Same drive with 2:1 compression(typical):			
14GB		HH 5.25"	1000KB/s

Warranty

Five-year limited systems warranty:	Year one on-site, next business day Years two and three depot Years four and five return to factory

Operating Environment

Electrical Service Requirements

AC Input Voltage Ranges	90 to 132 VAC 180 to 264 VAC
AC Input Frequency Range	47 to 63 Hz
Enclosure Labeled Amperage Rating: (This must include expansion enclosure)	7.0 Amp @ 115 volt

AC Power Ratings

Enclosure Rating:	3.6 amps @ 115 VAC, 50/60 Hz 1.8 amps @ 240 VAC, 50/60 Hz
Maximum: Expansion Module Rating:	3.0 amps @ 115 VAC, 50/60 Hz 1.5 amps @ 240 VAC, 50/60 Hz
SCSI Device: Expansion Module Rating:	2 amps @ 115 VAC, 50/60 Hz 1 amps @ 240 VAC, 50/60 Hz

Power Factor of 0.5 (use for derating UPS)

Power source loading with typical configuration as listed: 140VA

DC Output Power Ratings

Power supply maximum continuous output:	174 watts
Power supply maximum continuous output allowed in system:	150 watts
Power supply load with typical configuration as listed:	50 watts

Physical Dimensions

Base Module

Height (base included):	5.4 in. (137 mm)
Width (at base):	15.9 in. (403 mm)
Depth (at base):	11.3 in. (286 mm)

SCSI Device Expansion Module

Height (base included):	5.0 in. (127 mm)
Width (at base):	15.9 in. (403 mm)
Depth (at base):	11.3 in. (286 mm)
Weight of typical configuration:	19 lb. (8.5 kg)
Weight of optional fully loaded SCSI Device Module:	20 lb. (9 kg)

Miscellaneous

MTBF:	50,000 hours for typical configuration
Transportation:	Packaging and shipping containers comply with ASTM 4169 Level 3

Safety Specifications

Safety: Meets UL 1950, CSA 950, VDE EN 60 950/0805, IEC 950, CE

Regulatory Compliance

Intended for use in systems meeting the following EMC regulations:

US: FCC Part 15 Class B

Canada: ICES-003 Class B

Europe: EN55022 Class B, EN50082-1, CE

*Available in 1st Quarter, 1997

For more information visit our World Wide Web site at **http://www.mot.com/computer**
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