

XR SERIES MODEL XR9112



Advantages

The XR Series 900 and XR Series PowerPC® are a family of systems for high-reliability and high-performance applications like those found in telecom exchange offices worldwide.

The XR Series family offers a wide range of rugged system platforms designed to operate in telecom central offices. With an extensive variety of totally modular and configurable memory, storage, and communications options, the XR Series allows OEMs to include just what they need in their systems. By embedding XR Series systems in their applications instead of producing their own computer platforms, OEMs can reduce their time to market and concentrate their resources on value-adding, revenue-generating activities.

The Model XR9112 is designed for telecom applications requiring 12 VME slots and integrated SCSI drive bays for a versatile OEM platform.

Features

- Designed to meet stringent telecom exchange office requirements
- 12-slot VME card cage with 13-slot transition module panel
- Processor performance ranging from 20 to 290 SPECint92
- Memory capacity from 8MB to 1GB
- Integrated Ethernet and SCSI interfaces, four serial ports, and one parallel port per system
- Expandable disk capacity
- Load sharing and hot-pluggable -36 to -72 VDC or 110/220 VAC (auto select) power module options
- Front access serviceability
- 19- or 23-inch telecom frame and industrial rackmounting options
- Designed to meet NEBS specifications

System Enclosure

- Front access 12-slot VME card cage
- Rear access 13-slot transition module cable connection panel
- Five integrated, front access SCSI device bays
- Front access fan tray for cooling
- One or two front access power modules
- Power and temperature fault indicators and alarm output port
- Power on/off and system reset key switches
- Translucent front bezel

The Motorola Commitment

Motorola Computer Group is committed to providing best-in-class embedded computing solutions. The XR Series reinforces this commitment by providing superior hardware, price performance, and faithfulness to the tenets of open computing: modularity, scalability, portability, and interoperability.

The XR9112 is offered with a five-year limited warranty which reduces the cost of ownership and demonstrates our commitment to quality and reliability of products to our OEM partners.

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

XR Series Options

A wide variety of VME options are available from Motorola for the XR Series 900 and XR Series PowerPC.

VME Options:

Eight-port asynchronous communications controllers
Synchronous communications controllers for SS7 and X.25 communications
T1/E1 controllers for SS7 and ISDN
SCSI drive modules holding two 3.5-inch drives

PCI Mezzanine Card (PMC) Options for XR Series PowerPC:

10/100BaseTx PMC adapter
FDDI PMC adapter
Differential or single-ended SCSI PMC adapters

Enclosure Options:

Rackmount Kits: These rackmounting options are used for the base system chassis and the SCSI device storage module when the units are mounted in a 23-inch rack, or if the units are to be "mid-mounted" (a.k.a. "frame mounted"). The system will mount directly into a 19-inch equipment rack without additional mounting brackets.

Crown/pedestal/side-panel Kits: These options are used to provide freestanding, floor mounted operation for the XR9112.

SCSI Device Expansion Module:

Additional bays for SCSI devices may be provided by means of the XR Series SCSI Device Expansion Module. This module houses four half-height peripheral bays. Two bays accommodate 3.5-inch hard disks, and two bays accommodate either 3.5-inch disks or half-height removable devices such as streaming tape, CD-ROMs, or 4 mm DAT.

The following SCSI devices are supported in the expansion module:

2GB and 4GB Disks	QIC-525 Streaming Tape Drive
4 mm DDS2 DAT Drive	8 mm Tape Drive
CD-ROM Drive	Floppy Disk Drive

The external SCSI connector and power/thermal alarm connector are positioned on the rear of the XR Series enclosure to facilitate connection with the SCSI Device Expansion Module.

Storage Options:

Disk Drives:

Formatted Capacity	Average Access Time (Read/Write)	Internal Transfer Rates (Sustained)	Maximum Transfer Rates (Burst) Narrow/Wide
2.1GB*	10.5/12.0 ms	9.375 to 15.0MB/s	20.0/40.0MB/s
4.3GB*	10.5/12.0 ms	9.375 to 15.0MB/s	20.4/40.0MB/s

*Also available with wide differential interface.

Tape Drives:

Type	Capacity	Form Factor	Transfer Rate
QIC-525	525MB	HH 5.25 in.	200KB/s
4 mm DDS/2	8GB**	HH 3.5 in. or HH 5.25 in.	800KB/s**
8 mm Helical Scan	14GB**	HH 5.25 in.	1000KB/s**

**Capacities and transfer rates for compressed data formats. These will vary depending upon media and data types.

Diskette and CD-ROM Drives:

Drive Type	Formatted Capacity	Form Factor	Average Access Time	Transfer Rate
Diskette Drive	1.44MB	HH 3.5 in.	94 ms	125KB/s
8X CD-ROM Drive	600MB	HH 5.25 in.	150 ms	1200KB/s
12X CD-ROM Drive	600MB	HH 5.25 in.	125 ms	1800KB/s

The VME Standard

The modular design of the Motorola XR Series family is based on the VMEbus, the leading 32/64-bit bus standard in the world. As an industry standard, it increases the options available to OEMs and system integrators for controllers and other system components.

Power Modules

The XR Series XR9112 offers a -36 to -72 VDC power module for telecom exchange office applications as well as a 110/220 VAC power module for industrial and commercial environments.

The XR9112 supports either single or dual power module configurations. When dual power modules are configured, they run in load sharing mode. In load sharing mode, the system will continue normal operation if a power module fails. The faulty power module can be replaced without interrupting normal operation of the system (hot pluggable).

Transition Modules

The enclosure contains a 13-slot transition module panel for supporting a variety of connectivity and expansion options such as additional communications interfaces. Each transition module slot is associated with its respective VME backplane slot. VME Slot 1 accommodates two transition module slots.

Application Processors

The XR Series offers a wide choice of MC68000 (MVME147, MVME167), and PowerPC (603, 603e, 604, 604e) processor modules.

In general, the MVME147 and MVME167 processor modules are used for embedded real-time applications and the PowerPC processor modules are used for applications with relatively high compute and control requirements.

Main Memory

Application processors support memory with single- and double-bit error checking and single-bit error correction (ECC).

Memory sizes range from 8MB to 1GB depending on the processor module used.

Serviceability

The XR Series is easily serviceable with front access to all active components such as VME modules, I/O devices, fans, and power modules. Only cables are serviced from the rear of the system. After removal of the front bezel, all components are quickly replaceable with use of minimal fasteners.

The Motorola XR Series system diagnostics include:

- Hardware integrity verification at system power-up and reset.
- On-line diagnostics for use while the system is running the AIX® operating system.

Software Overview

AIX Operating System

The XR Series PowerPC is supported by releases 4.1 and 4.2 of the AIX operating system. AIX is available directly from Motorola and is supported by Motorola.

Real-Time Embedded Environments

The XR Series systems based on the MC68000 and PowerPC processor modules are also supported by a wide range of third-party real-time kernels and real-time operating systems.

Ordering Information

Part Number	Description
XR9112	12-slot VME platform with five half-height SCSI drive bays, short SCSI cable, 68-pin SCSI terminator

Related Products

MC1112F-FP	Front bezel for XR9112
MC1112K-FM	Spare fan module for the XR9112
MC1000F-AC700A	700 watt, 110/220 VAC (auto select) power supply for XR9112, factory installed
MC1000K-AC700A	700 watt, 110/220 VAC (auto select) power supply for XR9112
MC1000F-DC700A	-36 to -72 VDC, 700 watt power supply for XR9112, factory installed
MC1000K-DC700A	-36 to -72 VDC, 700 watt power supply for XR9112
MC1112	12-slot chassis
MC1112F	Factory integrated 12-slot chassis

For additional components common to all XR Series models, consult the XR Series Common Components Ordering Information.

Documentation

XRCHASA/IHx	XR Series System Chassis Reference Guide, revision x
XRPPCA/IHx	XR PPC VMEmodule Reference Guide, revision x
XR900A/IHx	XR 900 VMEmodule Reference Guide, revision x

SCSI Drives for the Integrated XR9112 Drive Bays

Part Number	Description	Kit*** Number
XRD12-2GBN7F-B	2GB 7200 RPM Narrow SCSI disk	XRD12-2GBN7K-B
XRD12-4GBN7F-A	4GB 7200 RPM Narrow SCSI disk	XRD12-4GBN7K-A
XR854TF	QIC 520 Tape Drive	XR854TK
XR856XLF	8MM Tape Drive	XR856XLK
XR857FX	4MM DAT Drive	XR857KX
XR885F	1.44 MB SCSI floppy drive	XR885K
XRCROM600X8F	8x speed SCSI CD-ROM drive	XRCROM600X8K
XRDPS-600X12F	12x speed SCSI CD-ROM drive	XRDPS-600X12K

***Kits are customer replaceable units useful as spares.

Specifications

XR Series Model XR9112

Processor Modules

MVME147

One 32 MHz MC68030 microprocessor
On-chip 256-byte instruction cache
On-chip demand paged memory management
Floating point coprocessor

MVME167

One 33 MHz MC68040 microprocessor
On-chip 4KB instruction and 4KB data cache
On-chip demand paged memory management

PowerPC 603™

One 66 MHz MPC603 microprocessor
On-chip 8KB instruction and 8KB data cache
On-chip demand paged memory management
On-chip floating point
256KB secondary cache

PowerPC 603e™

One 100 MHz or 200 MHz MPC603e microprocessor
On-chip 16KB instruction and 16KB data cache
On-chip demand paged memory management
On-chip floating point
256KB secondary cache

PowerPC 604™

One 100 MHz or 133 MHz MPC604 microprocessor
On-chip 16KB instruction and 16KB data cache
On-chip demand paged memory management
On-chip floating point
256KB secondary cache

PowerPC 604e™

One or two 167 MHz or 200 MHz MPC604e microprocessors
On-chip 32KB instruction and 32KB data cache
On-chip demand paged memory management
On-chip floating point
256KB secondary cache

VMEbus Backplane

12 VME slots

13 transition module slots (two for VME Slot 1)

32-bit address and data (J1 and J2)

Automatic IACK and BUS GRANT configuration

Cableless VME to transition module connection

Optional SCSI Device Expansion Modules

Four half-height drive bays per module

Two bays available for removable media devices

AC or DC power options

Single-ended or differential Wide SCSI

Optional VME SCSI Device Modules

Two 3.5-inch drive bays per module

One bay available for removable media device

Occupy three VME slots and one transition module slot—connectivity in the rear of the chassis

Power Characteristics

System Chassis

Input Voltage (DC): -36 to -72 VDC

Input Voltage (AC): 90 to 132 and 180 to 264 VAC (auto select), 47 to 63 Hz

Output Voltages: +5 VDC 100A, +12 VDC 20A, -12 VDC 10A

Output Power: 700 watts (max.)

Optional SCSI Device Expansion Module

Input Voltage (DC): -36 to -72 VDC

Input Voltage (AC): 90 to 264 VAC (wide ranging), 47 to 63 Hz

AC Input Power: 1.5 amps @ 115 volts, 3.0 amps @ 230 volts

Output Power: 100 watts

Physical Dimensions

Height: 531.9 mm (20.94 in.)

Width: 481.8 mm (18.97 in.)

Depth: 342.9 mm (13.5 in.)

Weight (fully loaded): 27.3 kg (60.0 lb.)

Environmental

	Operating	Nonoperating
Temperature:	0° C to 50° C, (32° F to 122° F)	-40° C to 70° C (-40° F to 158° F)
Altitude:	3,048 m (10,000 ft.)	9,144 m (30,000 ft.)
Humidity (NC):	20% to 80%	10% to 95%
Acoustic Noise Level:	50 dBA max. @ 1 meter	
Earthquake:	Tested to NEBS zone 4, 4.4.1	
Flammability and Flame Spread:	Tested to NEBS GR-63-CORE; 4.2	
Office Vibration:	Tested to NEBS GR-63-CORE, Section 4.4.3 (5-100-5Hz @ 0.1G, 0.1 octave/minute)	
Transportation:	Packaging and shipping containers comply with ASTM 4169 Level 1	
ESD:	IEC 801-2: 1991	

Safety

Meets UL 1950, CSA 22.2-950, VDE 0805 EN 60-950/IEC 950, CE Mark compliant (low voltage directive)

EMC Compliance

US: FCC Part 15, Sub-Part B Class A

Canada: ICES-003, Class A

Europe: CE Mark Class A

Warranty

The XR Series Model XR9112 is backed by a five-year limited warranty from Motorola.

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