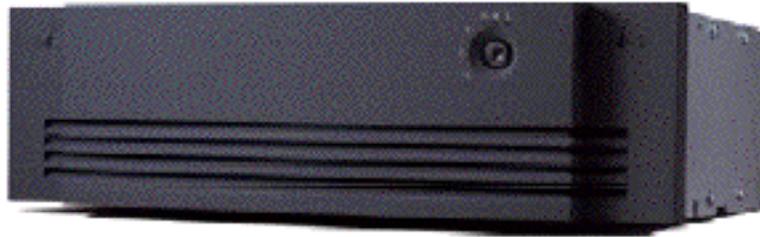


XR SERIES MODEL XR9103



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 XR9103 is designed for embedded and telecom applications requiring small, compact (3U), rackmountable chassis.

Features

- Designed to meet stringent telecom exchange office requirements
- Card cage with 3-slot VME backplane
- 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
- Expandable disk capacity
- -36 to -72 volt DC or wide ranging AC 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 3-slot VME backplane
- Front access fan and power supply modules
- Front access dual 3.5-inch SCSI peripheral bays
- Rear access I/O transition module slots
- Power, temperature, and operating LED indicators
- Power and temperature alarm outputs
- Power on/off and system reset key switch
- Protective front bezel

SCSI Devices

The following devices are supported inside the XR9103 SCSI bays:

- 2GB 3.5-inch hard disk drive
- 4GB 3.5-inch hard disk drive
- 8GB 3.5-inch DDS2 (DAT) drive
- 1.44MB 3.5-inch floppy drive

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 XR9103 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:

Synchronous communications controllers for SS7 and X.25 communications
T1/E1 controllers for SS7 and ISDN

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.

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 9103 offers a -36 to -72 VDC power module for telecom exchange office applications as well as a 90 to 264 VAC wide ranging power module for industrial and commercial environments.

Transition Modules

The enclosure contains six usable slots in the rear for I/O "transition module" panels for supporting a variety of connectivity and expansion options such as additional communications interfaces. The first VME slot has two transition module slots, while VME slots two and three have one transition module slot each. Remaining slots are used for SCSI and an optional relay alarm module respectively.

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
XR9103AC	Three-slot VME platform chassis with 170 watt wide ranging AC power supply, removable fan module, dual 3.5-inch SCSI drive bays, external SCSI cable interconnect, front bezel, VME filler panels (front and rear), short SCSI cable, 68-pin SCSI terminator
XR9103DC	Three-slot VME platform chassis with 170 watt DC power supply, removable fan module, dual 3.5-inch SCSI drive bays, external SCSI cable interconnect, front bezel, VME filler panels (front and rear), short SCSI cable, 68-pin SCSI terminator

Related Products

MC1103AC	Three-slot modular chassis with AC power supply and fan module
MC1103DC	Three-slot modular chassis with DC power supply
MC820K	Dual drive bracket kit for internal 1103 SCSI bay
MVME712-104	SCSI interconnect transition module
CA52	0.8-inch 68-pin-to-68-pin molded SCSI cable
P417K	68-pin SCSI single-ended terminator
MC1103K-AC170	170 watt 110/220 VAC power supply
MC1103K-DC170	170 watt -36 to -72 VDC power supply
MC1103K-FM	Fan module for XR9103 or MC1103 (AC or DC)

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 XR9103 Drive Bays

Part Number	Description	Kit*** Number
XRDP5-2GBN7F-B	2GB 7200 RPM Narrow SCSI disk	XRDP5-2GBN7K-B
XRDP5-4GBN7F-A	4GB 7200 RPM Narrow SCSI disk	XRDP5-4GBN7K-A
XR857FX-3S	4MM DAT Drive (3.5-inch cradle)	XR857KX-3S
XR885F-3S	1.44 MB SCSI floppy drive	XR885K-3S

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

Specifications

XR Series Model XR9103

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

Three VME slots

Six transition module slots (two for VME Slot 1, one for relay alarm, one for SCSI interconnect, and one each for VME Slot 2 and VME Slot 3)

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

Power Characteristics

System Chassis

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

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

Output Voltages: +5 VDC 20A, +12 VDC 4A, -12 VDC 1A

Output Power: 170 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: 132.6 mm (5.22 in.)

Depth of Internal Chassis: 317.5 mm (12.5 in.)

Depth of Front Bezel: 57.2 mm (2.25 in.)

Width: 482.6 mm (19.0 in.)

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 XR9103 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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