

H3C MSR 50 SERIES MULTI-SERVICE ROUTERS



H3C MSR 50-60



H3C MSR 50-40

OVERVIEW

The network is a critical component of a successful business, helping organizations expand into new markets, collaborate with customers, partners and employees and efficiently manage communications. It is imperative that the network enable these processes and communications reliably and cost effectively, while providing protection from potentially disruptive, expensive and reputation damaging security breaches.

With a modular design and support for innovative H3C Open Application Architecture (OAA), H3C® MSR 50 Series Multi-Service Routers deliver unmatched flexibility in satisfying customer business requirements, while reducing complexity, simplifying management and increasing control, providing lasting investment protection, and reducing capital and operating expenses.

The MSR 50 Series comprises two modular chassis designed for large branch and regional offices. The MSR 50-40 and the MSR 50-60 deliver:

- › OAA-enabled solutions, providing business productivity, enhanced security and performance accelerating applications and services;
- › unparalleled security and convergence support through the use of embedded and integrated hardware-based encryption and voice processing capabilities;
- › reliable, scalable, high-performance WAN and LAN connectivity in a single platform; and,

- › a comprehensive portfolio of interface and module options for LAN, WAN and voice communications.

H3C Multi-Service Routers enable an agile and flexible network infrastructure, with the ability to quickly adapt to changing business requirements, while delivering integrated, concurrent services on a single, easy-to-manage platform.

KEY BENEFITS

UNMATCHED FLEXIBILITY AND INVESTMENT PROTECTION

The MSR 50 enhances network functionality through extensible embedded applications, delivering unmatched application and service flexibility based on business requirements. The result is increased investment protection, reduced complexity and costs, simplified deployment and management, and increased visibility and control.

The modular design and high-performance engine of the MSR 50 Series, coupled with the flexibility of embedded applications, enables users to integrate individual or multiple business productivity, enhanced security and/or performance accelerating applications into the network. Additionally, users can deploy applications to meet their objectives today and easily update or change applications and services as the business evolves.

KEY BENEFITS (CONTINUED)

Examples of best-of-breed commercial, open source and H3C applications enabled through OAA include:

- › enhanced security functionality to fortify an organization's multi-layered security strategy;
- › network performance-enhancing WAN optimization and application acceleration that give branch office and remote employees faster and more reliable access to the tools and information needed to be successful; and,
- › monitoring and management applications to simplify network deployment and management as well as provide deep visibility in order to make informed business decisions.

CONVERGED COMMUNICATIONS SUPPORT

In addition to a comprehensive portfolio of voice gateway interfaces, the MSR 50 Series delivers services up to wirespeed T3/E3 rates. The MSR 50 also offers optional embedded Voice Processing Modules (VPM) and Voice Co-Processing Modules (VCPM), which enable advanced voice processing for high-performance analog and digital voice services without compromising performance of the other modules or of the router.

The VCPM provides local Time Division Multiplexing (TDM) functions while the VPM serves as a Digital Signal Processor (DSP) to support IP voice communication over the network. Scalable voice configurations and higher line density are supported through the use of multiple VPMs, based on the number of voice lines required. VPMs and VCPMs reside on a centralized, embedded multi-service processor module, conserving router I/O slots for maximum port density and configuration flexibility. Fully-populated, the MSR 50 Series can accommodate as many as 480 digital voice channels.

Building on H3C's commitment to open standards, the MSR 50 Series supports common industry voice protocols including Session Initiation Protocol (SIP) and H.323.

ADVANCED SECURITY AND CONTROL

To help protect sensitive information against unauthorized access, the MSR 50 Series integrates a number of comprehensive security services and access management capabilities, including:

- › Hardware-based Standard Network Data Encryption (SNDE) and Advanced Network Data Encryption (ANDE) embedded via Enhanced Services Modules (ESM) slots;

- › Encryption acceleration capabilities that ensure security without compromising network throughput as performance needs increase;
- › Progressive encryption methods such as DES and 3DES;
- › Additional security features such as advanced firewall, L2TP, MPLS and IPSec VPNs. SSHv2 and SNMPv3 protect router management sessions.

As with the voice modules, ESM modules reside on a centralized multi-service processing module, conserving router I/O slots for maximum configuration flexibility, port density and routing performance.

INTEGRATED AND FLEXIBLE SERVICES ARCHITECTURE

The MSR 50-60 and 50-40 are modular in design and deliver integrated, concurrent services on a single platform, creating operational efficiencies, reducing costs and maximizing precious rack space and power. With a comprehensive set of integrated modules that deliver voice and data interfaces, and routing and switching capabilities, the MSR 50 Series has the capacity to deliver the functionality of multiple devices and appliances in a single platform.

The OAA applications are directly integrated into the router fabric to deliver deep monitoring capabilities and application functionality, with management via a single interface.

HIGH DENSITY ROUTING AND SWITCHING PERFORMANCE

When evaluating multi-service routers, performance, port density and configuration flexibility are all key considerations. The MSR 50 Series outperforms competing multi-service routers, delivering packet forwarding performance up to 600 Kpps and encryption performance of up to 600 Mbps.

With a comprehensive portfolio of WAN and LAN interface modules, the MSR 50 delivers concurrent services up to T3/E3 rates, in addition to Fast Ethernet and Gigabit Ethernet LAN connectivity, and offers in-line PoE to provision IP phones, WLAN access points and IP security cameras as part of a unified branch office solution. In addition, Flexible Interface Card (FIC) options include high-density Layer 2 10/100 Mbps Ethernet switching cards for integrated switching and routing in a single platform, simplifying infrastructure deployments for branch and regional offices.

KEY BENEFITS (CONTINUED)

RESILIENCE AND REDUNDANCY FOR MAXIMUM UPTIME

The MSR 50 Series is designed for the highest levels of availability and resiliency to ensure continuous operation and to meet the requirements of real-time applications such as VoIP and live and on-demand video. Hot swappable modules and power supplies allow for quick replacements without network interruption. Additional reliability capabilities include configuration rollback, Multilink PPP and Multilink Frame Relay and VRRP.

NEXT-GENERATION ROUTING CAPABILITIES

The evolution to next generation networks based on IPv6 is imminent; however, organizations worldwide will follow different paths as they transition from today's IPv4 networks. The MSR 50 Series offers comprehensive IPv4 and IPv6 routing capabilities to accommodate a variety of migration approaches such as IPv4 "islands" on IPv6 networks, IPv6 "islands" on IPv4 networks and interconnection (with protocol translation) of IPv6 and IPv4 networks, enabling a wide array of network design possibilities.

Through a powerful suite of MPLS features, including MPLS TE (Traffic Engineering) and Fast Re-Route (FRR), the MSR 50 Series maximizes the benefit of a MPLS backbone to provide bandwidth optimization, strict QoS guarantees for the transport of critical traffic and the ability to quickly re-route traffic following network failures.

FULLY FEATURED ROUTING PLATFORM

Unlike competitive offerings, the MSR 50 Series comes equipped with a complete routing and security suite, a robust application set and all required operating memory, eliminating the need for costly and inconvenient upgrades. Specifically, the MSR 50 Series includes:

- › Open, industry standards-based routing capabilities such as: IP and IPX routing; Open Shortest Path First (OSPF), RIP versions 1, 2 and 3; integrated intermediate system to intermediate system (IS-IS); multicast routing; QoS; IEEE 802.1Q VLANs; and IGMP versions 1, 2 and 3;

- › Built-in CompactFlash and USB slots that hold multiple configuration files and operating systems for recovery purposes; and,
- › A full complement of memory, including up to 1 Gb of SDRAM and 256 Mb of CompactFlash memory to support dual software images.

SOPHISTICATED MANAGEMENT

Network infrastructure deployments and upgrades can be costly and time-consuming for organizations with several branch offices or remote locations. The MSR 50 Series offers an intuitive, easy-to-use CLI function that can be securely accessed locally or remotely for comprehensive configuration and management, with additional features that provide an extensive set of management capabilities.

For example, the MSR 50 Series is compatible with industry-standard NetFlow, an efficient and powerful technique for collecting IP traffic information, including information about network users and applications, peak usage times and traffic volumes.

The MSR 50 Series is also fully manageable via H3C Intelligent Management Center (IMC), a powerful graphical application with advanced remote diagnostics and network management capabilities. With capabilities such as QoS, systems infrastructure and voice applications, IMC ensures rapid deployments of IP telephony systems and robust support of both the data and voice components of a converged network.

Feature Summary

Advanced, embedded security functions with multiple hardware encryption options ensure the highest levels of security without sacrificing throughput performance.

Standards-based design ensures complete interoperability in multi-vendor environments, including Cisco.

Enhanced performance, security and reliability make the MSR 50 Series the perfect platform for delivering converged networks, including data, voice, video, and additional advanced applications through OAA.

Comprehensive IPv6 and IPv4 routing functionality ensures seamless migration.

SERVICE AND SUPPORT

H3C Global Services offers the resources and talents of a major corporation plus more than two decades of experience in resolving network challenges and delivering business benefits to enterprises around the world.

Global support with a personalized, local focus in the local language helps drive productivity and minimize expenses. Because H3C understands both the technology and the business, we're the partner you need to remain strong and competitive.

Suggested Service, Support and Training Offerings

H3C Guardian SM Maintenance Service	This service provides comprehensive on-site support and includes advance hardware replacement, expedited telephone technical support and software upgrades
H3C Express SM Maintenance Service	This service provides speedy access to H3C shipment of advance hardware replacements (including a four-hour option), expedited telephone technical support and software upgrades
Network Health Check	An activity-auditing service focused on improving network performance and productivity Includes traffic monitoring, utilization analysis, problem identification, and asset deployment recommendations Extensive report provides blueprint for action
Network Installation and Implementation Services	Experts set up and configure equipment and integrate technologies to maximize functionality and minimize business disruption For large and complex sites, implementation services include personalized configuration, project management, extended testing and coaching on network administration
Project Management	Provides extra focus and resources that special projects demand H3C engineers manage entire process from initial specifications to post-project review Using structured methodology, requirements are identified, projects planned and progress of implementation activities tracked
Global Education and Training	Self-paced and instructor-led technology and product courses, plus certification programs

For additional information, please visit www.h3cnetworks.com/services

PRODUCT WARRANTY

The H3C MSR 50 Series Multi-Service Routers have a 1-year hardware warranty that includes the power supply and fan assembly.

SPECIFICATIONS

All information in this section is relevant to the MSR 50-40 and 50-60 unless stated otherwise.

FIC = Flexible Interface Controller DFIC = Double-width Flexible Interface Controller

SIC = Smart Interface Controller DSIC = Double-width Smart Interface Controller

Features	MSR 50-40	MSR 50-60
Fic Slot Capacity	Can be populated with choice of: 4 single-width or 2 single-width and 1 double-width or 2 double-width	Can be populated with choice of: 6 single-width or 4 single-width and 1 double-width or 2 single-width and 2 double-width or 3 double-width
SIC Slots Capacity	Can be populated with choice of: 4 single-width or 2 single-width and 1 double-width or 2 double-width	
System Memory	4 Mb boot ROM 512 Mb (default) to 1 Gb DDR SDRAM 256 Mb Flash	
Power Supply	AC Power 100 to 240 VAC, 50/60 Hz 350W maximum	
Power over Ethernet (PoE power supply required)	IEEE 802.3af PoE 32 switched ports supported	
Physical Specifications (chassis only)	Height: 131mm (5.1 in) Width: 436 mm (17.2 in) Depth: 424 mm (16.7 in) Weight: 18 kg (39.7 lb)	Height: 175 mm (6.9 in) Width: 436 mm (17.2 in) Depth: 424 mm (16.7 in) Weight: 20 kg (44.1 lb)
Environmental	Operating temperature: 0° to 40° C (32° to 104° F) Storage temperature: -40° to 70° C (-40° to 158° F) Humidity (operating and storage): 5% to 90% non-condensing	
Regulatory Compliance	CE (European Union) UL (North America) FCC (North America)	
EMC Standards	FCC Part 15 (CFR 47) Class A ICES-003 Class A VCCI Class A CISPR 22 Class A EN 55022 Class A AS/NZS CISPR22 CLASS A EN 55024 CISPR 24 IEC 61000-3-2, 61000-3-3 EN 61000-6-1 ETSI EN 300 386 V1.3.3	
Safety Agency Certifications	UL 60950-1: 2003 CAN/CSA C22.2 No 60950-1-03 IEC 60950-1 2001 EN 60950-1/A11: 2004 AS/NZS 60950 EN 60825-1 and 60825-2 FDA 21 CFR Subchapter J	

SPECIFICATIONS (CONTINUED)

Features	MSR 50-40	MSR 50-60
Telecom Standards	FCC Part 68 (CFR 47) IC CS-03	
MTBF	Chassis: 289,000 hours	Chassis: 287,000 hours
Processors		
MSR 50 Processor Module	PowerPC 833 MHz 2 10/100/1000 Ethernet ports 1 console port 2 USB 1.1 ports 1 auxiliary port	
MSR 50 Multi-Service Module	4 Voice Processor Module slots, for optional 8-, 16-, 24- or 32-channel processors 2 Enhanced Service Module slots, for advanced or standard encryption accelerators 1 Voice Co-Processor Module slot	
Network Management		
Tools	H3C IMC (Intelligent Management Center) CLI	
Embedded Management Features	SNMP v1, v2c, v3 Standard and enterprise MIBs Telnet SSH Syslog BIMS RMON Zero-touch deployment Configuration rollback NetStream packet statistics	
LAN Interface Modules		
LAN Modules (SIC, DSIC)	1-port 10/100 Ethernet 1-port 10/100/1000 Ethernet 4- and 9-port 10/100 Ethernet switching 4- and 9-port 10/100 PoE Ethernet switching	
LAN Modules (FIC, DFIC)	2-port 10/100 Ethernet 1-port 10/100/1000 Ethernet 1-port Gigabit Ethernet fiber 16-port 10/100 and 1-port Gigabit Ethernet switching 16-port 10/100 PoE and 1-port Gigabit Ethernet switching 24-port 10/100 and 2-port Gigabit Ethernet switching 24-port 10/100 PoE and 2-port Gigabit Ethernet switching	

SPECIFICATIONS (CONTINUED)

Features	MSR 50-40	MSR 50-40
WAN Interface Modules		
WAN Modules (SIC, DSIC)	1-port enhanced serial sync/async 1- and 2-port ISDN-S/T 1- and 2-port ISDN-U 1-port E1/CE1/PRI 1-port T1/CT1/PRI 1-port ADSL 2+ 1-port analog modem	
WAN Modules (FIC, DFIC)	4- and 8-port E1/CE1/PRI 4-port fractional E1 4-port T1/CT1/PRI 4-port fractional T1 4-port E1 IMA 4-port T1 IMA 4-port enhanced ISDN-S/T 1-port FE3/CE3 1-port FT3/CT3 1-port OC-3 POS 1-port OC-3 ATM MM optical 1-port OC-3 ATM SM optical 1-port OC-3 ATM SM LH optical 1-port ATM, E3 1-port ATM, T3	
Voice Modules		
Voice Modules (SIC)	1- and 2-port voice FXS 1- and 2-port voice FXO 1-port E1 voice 1-port T1 voice	
Voice Modules (FIC)	4-port voice FXS 4-port voice FXO 1- and 2-port E1 voice 1- and 2-port T1 voice 4-port E&M	
Voice Support		
Interface	FXS FXO E&M E1VI/T1VI	
Signaling	SIP R2 DSSI Q.sig Digital E&M	
H.323	H.225 H.245	
CODECs	G.711A law G.711U law G.723R53 G.723R63 G.729a G.729R8	

SPECIFICATIONS (CONTINUED)

Features	MSR 50-40	MSR 50-60
Voice Support (continued)		
Media Process	RTP/cRTP IPHC Voice backup	
Fax	Fax	
Other	Voice RADIUS Voice over Frame Relay (VoFR)	
Link Protocols		
LAN Protocols	Ethernet II Ethernet SNAP IEEE 802.3x VLAN IEEE 802.1P IEEE 802.1Q IEEE 802.3ad LACP IEEE 802.1w RSTP IEEE 802.1s MSTP IGMP snooping GVRP Port loopback Port multicast suppression	
WAN Protocols	PPP and Multilink PPP (MP) PPPoE client and server PPP/MP over FR FR and Multilink FR (MFR) Frame relay fragmentation, compression, and FR over IP Frame Relay Traffic Shaping (FRTS) ATM (IPoA, IPoEoA, PPPoA and PPPoEoA) DCC and dialer watch HDLC LAPB X25, X25 over TCP, X25 to TCP X25 PAD, X25 hunt groups and X25 CUG DLSW (V1.0/2.0) ISDN and ISDN network ISDN QSIG MODEM	

SPECIFICATIONS (CONTINUED)

Features	MSR 50-40	MSR 50-60
Network Protocols		
IP Service and Applications	TCP UDP ARP IP option IP unnumbered Policy-based routing (unicast/multicast) PING, traceroute DHCP server, relay, and client DNS client DNS static NQA IP accounting UDP helper NTP Telnet TFTP client FTP server, client	
IP Routing	Static RIP v1 and v2 OSPF OSPF v3 BGP IV IS-IS IGMP PIM-DM PIM-SM MBGP MSDP	
Non-IP	SNA/DLSw IPX SOT NetStream	
Quality of Service (QoS)		
Layer 2 QoS	SP WRED (Port) CAR LR Flow-based QoS policy Port-based mirroring Flow-based mirroring CoS-based Head of Line Blocking (HOLB) prevention Packet remarking Flow redirect Flow accounting Priority mapping Port trust mode Port priority Flow filter Flow control and backpressure ACL	

SPECIFICATIONS (CONTINUED)

Features	MSR 50-40	MSR 50-60
Quality of Service (QoS, continued)		
Traffic Policing	Committed Access Rate (CAR) Line Rate (LR)	
Congestion Management	FIFO PQ CQ WFQ CBQ RTPQ	
Congestion Avoidance	WRED/RED	
Traffic Shaping	Generic	
Other	FR QoS MPLS QoS MP QoS/LFI cRTP/IPHC ATM QoS Sub-interface QoS	
Network Security and Reliability		
Port-Based	PPPoE client and server Portal IEEE 802.1X	
AAA	Local authentication RADIUS TACACS	
Firewall	ASPF Access Control Lists (ACL) Filtering	
Data Security	IKE IPSec Encryption accelerator Portal	
Other	L2TP NAT/NAPT PKI RSA SSH v1.5 and v2 SSL URPF GRE	
Reliability	VRRP Backup Center	

ORDERING INFORMATION

MSR 50 Series Router Chassis

SKU No.	Description
0235A20N	H3C MSR 50-40 Router Chassis (with one AC power), 4 FIC slots
0235A20L	H3C MSR 50-60 Router Chassis (with one AC power), 6 FIC slots
0235A20P	H3C MSR 50-40 Router Chassis (with one DC power), 4 FIC slots
0235A20M	H3C MSR 50-60 Router Chassis (with one DC power), 6 FIC slots

Processing Units, Multi-Service Modules and Software

SKU No.	Description
0231A64J	H3C MSR 50 Main Processing Unit, 2GE (Combo), 4SIC, 256F/512D
0231A64P	H3C MSR 50-60 Multi-Service Module
0231A84Q	H3C MSR 50 High-Performance Main Processing Unit, 3GE (Combo), 256F/1GD
0231A85D	H3C MSR 50 High-Performance Multi-Service Module
3130A15D	H3C MSR 50 Series Router Software License

Power Supplies

SKU No.	Description
0231A64N	H3C MSR 50-60 Router AC Power Module, PSR350
0231A64M	H3C MSR 50-60 Router DC Power Module, PSR350
0231A781	Router PoE Power Module, PSL500A, Overseas Version

Encryption Sub-Cards

SKU No.	Description
0231A64Q	Advanced Network Data Encryption ESM Module
0231A64R	Standard Network Data Encryption ESM Module

Voice Modules

SKU No.	Description
0231A64S	Voice Co-Processing Module
0231A63L	32-Channel Voice Processing Module
0231A63M	24-Channel Voice Processing Module
0231A63N	16-Channel Voice Processing Module
0231A63P	8-Channel Voice Processing Module

ORDERING INFORMATION (CONTINUED)

Smart Interface Cards (SIC)

SKU No.	Description
SIC -FE/GE/FSW/POE	
0231A53T	1-Port 10/100M Ethernet Electrical Interface Board (RJ45)
0231A81M	1-Port 100M SFP Interface SIC Module
0231A61M	1-Port 10M/100M/1000M Combo Ethernet Interface SIC Module
0231A61N	4-Port 10M/100M Ethernet L2 Switch Module (RJ45)
0231A61P	9-Port 10M/100M Ethernet L2 Switch Module (RJ45)
0231A769	4-Port 10M/100M Ethernet L2 Switch Module (RJ45, with PoE)
0231A770	9-Port 10M/100M Ethernet L2 Switch Module (RJ45, with PoE)
SIC -E1/T1/CE1/CT1	
0231A53V	1-Port E1/CE1/PRI Interface Card
0231A53X	1-Port E1 Interface Card-Fractional
0231A52S	1-Port T1 and Fractional T1 Interface Module
SIC -Voice	
0231A706	1-Port ISDN-S/T Voice Interface SIC Module
0231A707	2-Port ISDN-S/T Voice Interface SIC Module
0231A56Q	1-Port Analog Trunk Interface Card, FXO
0231A56P	2-Port Analog Trunk Interface Card, FXO
0231A56S	1-Port Analog Line Interface Card, FXS
0231A56R	2-Port Analog Line Interface Card, FXS
0231A86Y	2FXS+1FXO Voice Interface SIC Module
0231A61Q	1-Port E1 Voice SIC Interface Module
0231A61R	1-Port T1 Voice SIC Interface Module
SIC -Others	
0231A50Y	1-Port ADSL over POTS Interface Module
0231A49M	1-Port Analog Modem Interface Module
0231A49N	2-Port Analog Modem Interface Module
0231A61A	1-Port ISDN-U Interface SIC Module
0231A56N	1-Port Enhanced Sync/Async Interface Card
0231A835	8-Port Asynchronous Serial Interface SIC Module
0404A095	SIC-8AS Cable
0231A94A	802.11b/g/n Wireless Access Point SIC Module
0231A949	WCDMA 3G Wireless WAN Interface SIC Module

Flexible Interface Cards (FIC)

SKU No.	Description
FIC- FE/GE/FSW/POE	
0231A62F	1-Port 10M/100M Ethernet Electrical Interface FIC Module (RJ45)
0231A61S	2-Port 10M/100M Ethernet Electrical Interface FIC Module (RJ45)
0231A71B	4-Port 10M/100M Ethernet Electrical Interface FIC Module (RJ45)
0231A62H	1-Port 1000M Ethernet Electrical Interface FIC Module (RJ45)
0231A63S	2-Port 1000M Ethernet Electrical Interface FIC Module (RJ45)
0231A62G	1-Port 1000M Ethernet Optical Interface FIC Module
0231A63T	2-Port 1000M Ethernet Optical Interface FIC Module
0231A63W	16-Port 10M/100M and 1-Port 1000BASE-T/1000BASE-X (Combo) Ethernet L2 Switch FIC Interface Module
0231A63V	24-Port 10M/100M and 2-Port 1000BASE-T/1000BASE-X (Combo) Ethernet L2 Switch FIC Interface Module
0231A75P	16-Port 10M/100M(With PoE) and 1-Port 1000BASE-T/1000BASE-X (Combo) Ethernet L2 Switch FIC Interface Module
0231A75Q	24-Port 10M/100M(With PoE) and 2-Port 1000BASE-T/1000BASE-X (Combo) Ethernet L2 Switch FIC Interface Module

ORDERING INFORMATION (CONTINUED)

Flexible Interface Cards (FIC, continued)

SKU No.	Description
FIC- SAE	
0231A62R	2-Port Enhanced Sync/Async Serial Interface FIC Module
0231A62J	4-Port Enhanced Sync/Async Serial Interface FIC Module
0231A62A	8-Port Enhanced Sync/Async Serial Interface FIC Module
0231A61Y	8-Port Asynchronous Serial Interface FIC Module (RJ45)
0231A62N	16-Port Asynchronous Serial Interface FIC Module (RJ45)
FIC-E1/T1/CE1/CT1/IMA	
0231A62E	1-Port E1/CE1/PRI Interface FIC Module
0231A61T	2-Port E1/CE1/PRI Interface FIC Module
0231A62S	4-Port E1/CE1/PRI Interface FIC Module
0231A62L	8-Port E1/CE1/PRI Interface FIC Module (75 ohm)
0231A64C	1-Port Fractional E1 Interface FIC Module
0231A64E	2-Port Fractional E1 Interface FIC Module
0231A62V	4-Port Fractional E1 Interface FIC Module
0231A62D	8-Port Fractional E1 Interface FIC Module (75 ohm)
0231A61V	1-Port T1/CT1/PRI Interface FIC Module
0231A64D	2-Port T1/CT1/PRI Interface FIC Module
0231A62U	4-Port T1/CT1/PRI Interface FIC Module
0231A62M	8-Port T1/CT1/PRI Interface FIC Module
0231A63R	1-Port Fractional T1 Interface FIC Module
0231A64F	2-Port Fractional T1 Interface FIC Module
0231A62W	4-Port Fractional T1 Interface FIC Module
0231A61X	8-Port Fractional T1 Interface FIC Module
0231A77P	4-Port E1 ATM IMA Interface FIC Module (75 ohm)
0231A77M	8-Port E1 ATM IMA Interface FIC Module (75 ohm)
FIC- E3/T1/OC-3	
0231A792	1-Port Fractional CE1 Interface FIC Module
0231A86Q	1-Port Fractional CT1 Interface FIC Module
0231A63D	1-Port ATM over E3 Interface FIC Module
0231A63B	1-Port ATM over T3 Interface FIC Module
0231A896	1-Port OC-3 ATM Interface FIC Module
0231A62C	1-Port Packet over SDH/SONET Interface FIC Module
0231A758	1-Port Channelized POS 155M to T1 Interface Module (SFP, LC)
0231A757	1-Port Channelized POS 155M to E1 Interface Module (SFP, LC)
FIC- Voice	
0231A62Q	2-Port Analog Line Interface FIC Module(FXS)
0231A62Y	4-Port Analog Line Interface FIC Module(FXS)
0231A64G	2-Port Analog Trunk Interface FIC Module(FXO)
0231A62X	4-Port Analog Trunk Interface FIC Module(FXO)
0231A64A	1-Port E1 Voice FIC Interface Module
0231A63X	1-Port T1 Voice FIC Interface Module
0231A62P	2-Port E1 Voice FIC Interface Module
0231A63Y	2-Port T1 Voice FIC Interface Module
0231A77J	4-Port ISDN BRI S/T Voice Interface FIC Module
0231A63Q	4-Port Analog Trunk Interface FIC Module (E&M)
FIC- Others	
0231A62T	4-Port Enhanced ISDN-S/T Interface FIC Module
0231A63H	1-Port G.SHDSL(ATM Mode) Interface FIC Module

ORDERING INFORMATION (CONTINUED)

Cables

SKU No.	Description
SAE	
04043589	V.24 Serial Port Cable, DTE, 3m
04043590	V.24 Serial Port Cable, DCE, 3m
04043591	V.35 Serial Port Cable, DTE, 3m
04043592	V.35 Serial Port Cable, DCE, 3m
04043593	X.21 Serial Port Cable, DTE, 3m
04043594	X.21 Serial Port Cable, DCE, 3m
04043595	RS449 Serial Port Cable, DTE, 3m
04043596	RS449 Serial Port Cable, DCE, 3m
04043597	RS530 Serial Port Cable, DTE, 3m
04043770	RS530 Serial Port Cable, DCE, 3m
E1/T1	
04026104	E1 Cable 3m-DB15 Male/RJ45, 120 ohm
04040150	E1 Cable 20m-DB15 Male/RJ45, 120 ohm
04040151	E1 Cable 40m-DB15 Male/RJ45, 120 ohm
04026106	E1 Cable 3m-DB15 Male/2*BNC, 75 ohm
04040148	E1 Cable 20m-DB15 Male/2*BNC, 75 ohm
0404A09P	2E1 Cable, 3m,DB15 Male/4*BNC, 75 ohm
14040202	Coaxial Connector, BNC, 75 ohm, Dual Female
04026813	Refiner Converter Cable (with BNC connector jack)
04042020	T1VI Cable with DB15 Male/RJ45-3m
14080099	Connector for T1VI and E1 RJ45 Interface
04041054	T1 Cable RJ45/RJ45-3m
0404A042	4-Port E1 ATM IMA Cable, 4 BNC, 3m, 75 ohm
0404A00Q	8-Port E1 ATM IMA Cable, 8 BNC, 3m, 75 ohm
0404A00R	8-Port E1 ATM IMA Cable, 8 RJ45, 3m, 120 ohm
E3/T3/OC-3	
0404A043	8-Port T1 Cable, 8 RJ45, 3m
04060353	E3/T3 Cable 15m-BNC, 75 ohm
04060414	E3/T3 Cable 30m-BNC, 75 ohm
Others	
04021299	Auxiliary Cable-3m [D25 Male]
0404A048	Single Cable, Transit Cable, 0.5m [RJ45]
0404A01K	Single Cable, Transit Plug, D25, MP8(S)-III

ORDERING INFORMATION (CONTINUED)

SFP Modules

SKU No.	Description
0231A320	100BASE-FX SFP Transceiver, Multi-Mode (1310nm, 2km, LC)
0231A564	100BASE-LX SFP Transceiver, Single Mode (1310nm, 15km, LC)
0231A089	100BASE-LH40 SFP Transceiver, Single Mode (1310nm, 40km, LC)
0231A090	100BASE-LH80 SFP Transceiver, Single Mode (1550nm, 80km, LC)
0231A562	1000BASE-SX SFP Transceiver, Multi-Mode (850nm, 550m, LC)
0231A563	1000BASE-LX SFP Transceiver, Single Mode (1310nm, 10km, LC)
02312170	1000BASE-LH40 SFP Transceiver, Single Mode (1310nm, 40km, LC)
02312172	1000BASE-LH40 SFP Transceiver, Single Mode (1550nm, 40km, LC)
02312173	1000BASE-LH70 SFP Transceiver, Single Mode (1550nm, 70km, LC)

Accessories

SKU No.	Description
06200058	256MB DDR Memory
06200059	512MB DDR Memory
0601A004	Industrial Compact Flash Card 256MB
0601A003	Compact Flash 512MB
0601A001	Compact Flash 1G

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