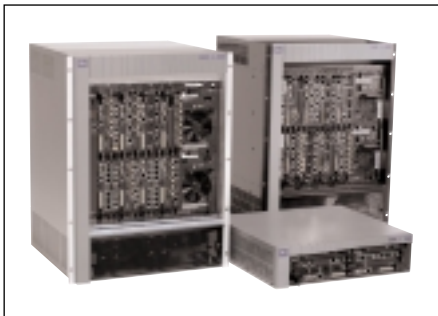




High performance, flexibility, resiliency

ASX®200BX/1000/1200 multiservice broadband switches



If you need non-blocking switching performance paired with maximum flexibility and resiliency, turn to the Marconi ASX®200BX, ASX1000, and ASX1200. In addition to advanced reliability features, these multiservice broadband switches offer intelligent partitioning, non-service-affecting upgrades, continuous investment protection, and a wide variety of network interfaces and service modules.

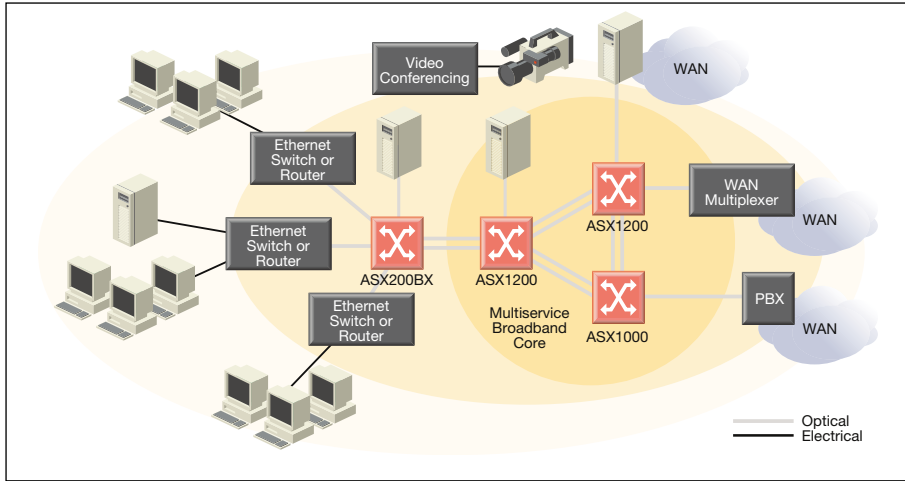
The ASX-200BX, ASX1000, and ASX1200 are designed for service provider edge and enterprise backbone networks. The ASX200BX offers up to 32 ports for connecting clients, servers, or access devices (hubs, routers, LAN switches, or WAN access devices). The ASX1000 and ASX1200 offer up to 128 ports for device connections.

The ASX line offers a wide range of interfaces, from T1 to OC-48c, and a variety of intelligent network modules, including Ethernet, N x 64 Kbps Circuit Emulation (CEM), and Inverse Multiplexing for ATM (IMA). These switches are the best choice for reliable and resilient multiservice deployments.

The ASX200BX, ASX1000, and ASX1200 switches from Marconi are built on award-winning technology. Analysts and editors alike have recognized the ASX switches as “the best in the industry.”

Key benefits

- High-performance, scalable packet switches with common ForeThought® software allow for future growth and investment protection from the smallest to largest switch
- Extensive range of network interfaces provides greater flexibility
- Redundant design with no single point of failure offers unrivaled network availability
- ForeThought intelligence and compliance with the latest standards ensures unparalleled network resiliency and security
- Advanced traffic management and hierarchical traffic shaping increase the performance of service provider edge and enterprise backbone networks



The ASX1000 and ASX1200 are intelligently partitioned so that power supplies, network modules, fan trays, switch control processors (SCPs), and switch fabrics can be hot-swapped while the unit is in operation. This minimizes downtime during switch maintenance and network expansions. It also allows users to upgrade individual “like” components as opposed to the whole system.

With their unique distributed switching fabric architecture, the ASX1000 and ASX1200 offer additional redundancy. In the event of a switching fabric failure, the remainder of the switch is unaffected and continues to operate. As well, each 2.5 Gbps switching fabric houses a primary SCP and an optional, secondary SCP. If the primary SCP fails, the secondary SCP preserves the virtual connections and provides continued operation of the switch. The switches also provide environmental monitoring of temperature, fan status (ASX1000, ASX1200), and power voltages.

The ASX family also implements Synchronous Optical Network (SONET)/Synchronous Digital Hierarchy (SDH) linear 1+1 automatic protection switching (APS)/multiplex section protection (MSP) and timing protection. As a result, the ASX switches can provide the availability needed to meet the demands of various SLAs.

ForeThought software comes with yet another intelligent feature: SPVCs that offer faster reestablishment of permanent virtual paths (PVPs). While this offers resiliency for the permanent virtual circuits (PVCs) on the switching side, the SPVC group redundancy feature allows the same redundancy to be extended all the way to the host or any other device that is connected to the switch.

To accommodate network software and hardware changes, the switches can be upgraded easily — without affecting network services. Switch software can be upgraded to newer versions and implemented without a service interruption. And SCPs, when configured for redundancy, can be upgraded without affecting services. These resiliency features significantly increase operational flexibility, as well as the ability to ensure service delivery to end users.

Stratum-level synchronization

For jitter-sensitive applications such as real-time voice and video, the ASX1000 and ASX1200 support options for carrier-class network synchronization. The ASX timing control module (TCM) is available in both Stratum 3 and Stratum 4 configurations and meets Telcordia and ANSI synchronization standards.

Increased performance for service provider and enterprise networks

The ASX200BX, ASX1000, and ASX1200 feature advanced traffic management hardware capabilities that improve performance of both service provider edge and enterprise backbone networks.

With advanced traffic management, service providers have the flexibility to offer multiple levels of services (i.e., for voice, video, or data) to their customers, plus the capability to manage each service level agreement (SLA) down to the virtual circuit (VC) level. As a result, service providers realize optimum bandwidth usage and maximum revenue.

For enterprise customers, the ASX traffic management features significantly enhance backbone performance significantly, enabling each traffic flow to be monitored and managed effectively. In addition, sophisticated ForeThought internetworking software provides connection management features, including:

- On-demand smart permanent virtual circuits (SPVCs)
- Switched virtual circuits (SVCs) at the user-to-network interface (UNI) and network-to-network (NNI) levels
- Transparent support for Internet Protocol (IP) applications using IP-over-ATM and LAN Emulation (LANE)

Capabilities overview

Capacity

The ASX200BX features a 2.5 Gbps switching fabric in a modular chassis that supports hot-swappable ATM, Frame Relay, CEM, 10/100 Ethernet, and Gigabit Ethernet modules; redundant switch control processors; and power supplies. It supports up to 32 ports ranging from T1/E1 (1.544 Mbps) to OC-12c/STM-4c (622 Mbps). The recently introduced channelized DS-3 and OC-3c network modules are also supported on the ASX200BX platform.

For higher-density connectivity, the ASX1000 and ASX1200 scale from 2.5 Gbps to 10 Gbps and support up to 128 discrete ports. When higher densities of DS-0 or DS-1 connections are required, the ASX switches support channelized DS-3 network modules for ATM/IMA, Frame Relay, and CEM, as well as a channelized OC-3c module for CEM connections. For applications that demand greater performance and bandwidth at the interface level, the ASX1200 is the perfect choice; it supports interfaces from T1 to OC-48c. Designed for growth, the ASX1000 and ASX1200 are world-class multiservice broadband switches that support in-service expansion of port and switching capacity.

The ASX family switch architecture is based on Marconi's award-winning output-buffered, distributed shared memory switching technology. This design enables the ASX switches to support the performance and throughput demands of the most demanding network environments.

Reliability and fault tolerance

The ASX family of switches provides fault-tolerant software and highly reliable hardware for mission-critical applications that run over backbone and multiservice network deployments. When ASX switches are interconnected using multiple links, ForeThought software reroutes traffic in the event of a failure on any one of the links. This high-level resiliency makes the ASX switches suitable for service provider edge and enterprise backbone networks.

Redundant, load-sharing power supplies with dual power cords and redundant fans in the ASX switches increase network availability. Power is available in AC or DC options for connection to continual backup UPS power systems.

ASX switch comparison

	ASX200BX	ASX1000	ASX1200
Switching fabric	2.5 Gbps, non-blocking	2.5 Gbps to 10 Gbps, non-blocking	2.5 Gbps to 10 Gbps, non-blocking
Number of ports	2 to 32	2 to 128	2 to 128
Switch transit delay	<10 microseconds	<12 microseconds	<12 microseconds
Dimensions (H x W x D)	4.75 in. x 17.5 in. x 18 in. (12.07 cm x 44.45 cm x 45.72 cm)	24.5 in. x 19 in. x 18 in. (62.23 cm x 48.26 cm x 45.72 cm)	24.5 in. x 19 in. x 18 in. (62.23 cm x 48.26 cm x 45.72 cm)
Weight	24.9 lbs (11.3 kg)	89.7 lbs (40.7 kg)	89.7 lbs (40.7 kg)
Power (nominal)			
AC	90–270 VAC (auto ranging), 2.2 A	120/240 VAC @ 60/50 Hz, 12.0/6.0 amps, 1 kW	120/240 VAC @ 60/50 Hz, 12.0/6.0 A, 1 kW
DC	36–72 VDC, 7.0 A (maximum) @ 36 VDC, 200 W	36–72 VDC, 30 A (maximum), 1 kW	36–72 VDC, 30 A (maximum), 1 kW

The TCM can be configured to derive timing from a network transmission facility or from a local timing source connected to the module's building integrated timing supply (BITS) interface. Hitless switchover from a primary to secondary reference ensures that no traffic is lost during changes in reference clocks.

Maximum performance

All ASX switches provide the industry's most complete and advanced traffic management features, including the following:

- High-capacity smart buffers – up to 128,000 cells per port
- Per-VC queuing and hierarchical traffic shaping
- Frame discard
- Generic cell rate algorithm (GCRA) traffic policing
- Comprehensive counters, including G.826 SONET statistics
- Configurable buffer thresholds
- Explicit-rate ABR (ER-ABR) support

The switches also feature hierarchical shaping, which means they can shape traffic at the VC level. This feature optimizes enterprise backbone network utilization and helps service providers offer high-quality, guaranteed services to their customers.

In addition, ForeThought bandwidth management allows high-priority, delay-sensitive constant bit rate (CBR) — i.e., real-time video and voice — and variable bit rate (VBR) traffic to traverse the network unaffected by “bursty” available bit rate (ABR) or unspecified bit rate (UBR) data traffic. The ASX1000 was the first switch to cross the threshold of 2,000,000+ cell buffers per ATM switch, and the ASX1200 continues to support this milestone.

The combination of large cell buffers and hierarchical shaping enables the switches to efficiently manage traffic flows and bandwidth when connecting to lower-speed devices.

Customers often face the challenge of protecting their existing investments while pursuing technological developments so that they can reap maximum benefits. The ASX family of switches uses industry-leading, high-performance SCPs based on the Intel Pentium processor architecture. This keeps SCP performance in line with CPU growth while protecting existing investments. Customers seeking even more efficiency can purchase higher-speed, CPU-based SCPs, which more than quadruple connection performance. (Refer to the Multiservice Broadband SCPs Data Sheet for more information about SCP options.)

Flexibility

The ASX switches support a wide range of network interface modules, including the following:

- T1
- E1
- J2
- DS-3
- E3
- Ethernet (10/100, Gigabit Ethernet)
- LANE Services Module
- Frame Relay
- CEM (N x 64 Kbps)
- 155 Mbps SONET/SDH (Category 5 UTP copper, OC-3c/STM-1, and STM-1e)
- OC-12c/STM-4c
- OC-48c (ASX1200)
- T1/E1 IMA
- Channelized DS-3
 - Channelized DS-3/1 ATM/IMA
 - Channelized DS-3/E1 ATM/IMA
 - Channelized DS-3/1/0 Frame Relay
 - Channelized DS-3/1/0/E1 CEM
- Channelized OC-3/DS1/0/E1 CEM
- Channelized OC-3/DS1/E1 ATM/IMA

This wide range of interfaces gives the switches unmatched flexibility to meet most network requirements for service provider and enterprise customers. In the service provider space, the switches can be positioned as

multiservice switches to offer CEM, Frame Relay, inverse multiplexing, and ATM services to customers. In an enterprise network, these network interface modules can interconnect ATM switches to form the backbone, and they can connect LAN switches and WAN access devices to the backbone.

For more detailed information about these interfaces, see the Multiservice Broadband Network Modules Data Sheet.

Standards and compliance

All ASX switches support ATM Forum, IETF, and ITU (CCITT) standards. They also comply with the following standards:

- User–Network Interface (UNI) 3.0/3.1/4.0 specifications for signaling
- Private Network–Network Interface (PNNI) signaling and routing, including PNNI peer group leader hierarchy
- Traffic management – usage parameter control (UPC) policing
- Network management – Interim Local Management Interface (ILMI) and Simple Network Management Protocol (SNMP) Management Information Bases (MIBs)

In addition, the ASX switches support Classical IP (CLIP; RFC 1577) and LANE v1.0 with Distributed LAN Emulation (DLE) enhancements. More important, the ASX switches have been thoroughly field tested to interoperate with other vendors' products and services.

Intelligent broadband network solutions

Because Internet applications such as e-commerce and multimedia entertainment are growing at an exponential rate, they demand a highly reliable and high-performance network infrastructure that supports their growth. The ASX200BX, ASX1000, and ASX1200 switches have been designed and built for broadband solutions, with support for a wide range of network interface modules, reliable ForeThought software, and world-class customer support.

Simply the best multiservice switch

In the last few years, thousands of Marconi's multiservice switches have been installed throughout the world. That's because their industry-leading features and performance are acknowledged worldwide — and not only by Marconi customers. Several independent publications, including *Network Computing*, *Telecommunications*, *Network World*, *Information Week*, and *Internet Week*, have recognized the outstanding capabilities of Marconi multiservice solutions.

Key features

- 2.5 to 10 Gbps of non-blocking switching capacity
- Scalable to 128 ports
- Complete line of LAN and WAN interfaces
- Port speeds from T1/E1 to OC-12c/STM-4c (up to OC-48c for ASX1200)
- Hierarchical traffic shaping
- SONET/SDH APS/MSP on OC-3c/STM-1c network modules
- IMA support (via T1/E1 IMA network modules)
- T1/E1 (N x 64 Kbps) CEM for private branch exchange (PBX) connectivity
- Frame relay internetworking (FRF.5 and FRF.8) and Multilink Frame Relay (FRF.16)
- ForeThought network intelligence
- ATM Forum standards compliance
 - PNNI 1.0
 - Peer group leader hierarchy
 - ATM Inter-Network Interface (AINI)
 - Network Call Correlation Identifier (NCCI)
 - Path and Connection Trace
 - Control Plane Security — only Marconi offers this feature for ATM networks
- Enhanced ATM Forum LANE 1.0
- Virtual UNI
- Per-VC queuing
- Per-VC shaping and statistics
- >2,000,000 cell buffers
- Redundant common equipment
- Stratum 3 and 4 timing
- Enhanced connection performance
- Connection Modify — permanent and switched connections
- Transit Network Selection (TNS)
- Management plane security per Telcordia GR-815-CORE
- SNMPv3 with Triple Data Encryption Standard (3DES)
- Secure Shell (SSH) v2
- Secure Socket Layer (SSL), Remote Authentication Dial-In User Service (RADIUS), SecurID, and Kerberos
- Closed user groups (CUGs)
- Policed UBR
- Enhanced disaster recovery with patent-pending Marconi Distributed Protection Switching
- G4 link management interface (LMI) support on the channelized DS-3 Frame Relay network module

Data summary

Hardware

Output buffers	Maximum of 128,000 cells per port
Traffic policing	Leaky buck GCRA, CBR, and VBR

ForeThought bandwidth management

- Smart buffers
- Per-VC queuing
- Early packet discard (EPD)
- Partial packet discard (PPD)
- ER-ABR support

Connection performance

Call setup	<2 microseconds
Calls per second	
ASX200BX	675 (400 MHz high-memory SCP)
ASX1000	441–2,205, depending on configuration (266 MHz high-memory SCP)
ASX1200	675–3,375, depending on configuration (400 MHz high-memory SCP)
Interface	
Ethernet	IEEE 802.3 compatible, RJ-45 connector
Serial	DB-9 connector
Front panel indicators	Diagnostic indicators, CD and Tx/Rx data
Maximum port speed	OC-48c/STM-16c (ASX1200)

Redundancy

Power	Yes (optional or standard, depending on model)
SCP	Yes (optional on all models)
Software	Non-service-affecting upgrades supported

General

Electromagnetic compatibility (EMC)	
Emissions	FCC Part 15, Class A; EN55022, Class A; VCCI, Class 1 EMC
Flicker	EN61000-3-3
Harmonics	EN61000-3-2
Immunity	EN55024
Telecom	EN300386
Environmental	
ESD susceptibility	IEC 801-2 Level 3
Operating humidity	10% to 90% relative humidity, non-condensing
Operating temperature	41° F to 104° F (5° C to 40° C), up to 10,000 ft (3,048 m)
Storage humidity	5% to 95% relative humidity, non-condensing
Storage temperature	-40° F to +158° F (-40° C to +70° C), up to 30,000 ft (9,144 m)
Safety	UL/CSA 60950, IEC 60950
Standards compliance	ITU I.361 ATM Layer, UNI 3.0/3.1/4.0

CECPlus clock specifications (ASX1000, ASX1200 option)

	Stratum 3	Stratum 4
Free accuracy	+4.6 ppm	+20 ppm
Holdover accuracy	+0.05 ppm initial offset +0.04 ppm drift/day +0.028 ppm temperature	N/A
Pull-in rating	-4.6 ppm	+50 ppm

Ordering instructions for new switches

- 1.) If you wish to change SCP options when ordering (i.e., change SCP type or order redundant SCPs) or order network modules to populate the switch, you will also need the Multiservice Broadband SCPs Data Sheet and the Multiservice Broadband Network Modules Data Sheet for ordering instructions. Please obtain these documents before proceeding. (These are listed with other product information on the Marconi Web site.) In addition, ForeThought software ordering information, also available on the Marconi Web site, should be obtained before proceeding.
- 2.) Order the switch by "Part number" (see the table below). Substitute the "xx" in the number with "AC" or "DC," depending on your desired configuration. Your switch choice should be based on current needs, as well as anticipated future expansion. Switch includes one SCP, pre-installed software, and documentation. ASX200BX configurations include rack-mount brackets. Redundant power is standard on all ASX200BX models (AC or DC) and on DC configurations of the ASX1000 and ASX1200.

Part number	External timing		Aggregate backplane speed (Gbps)		Switch fabrics		SCP capacity		Multiservice broadband network module capacity	
	As ordered	Upgrade or option	As ordered	Maximum with upgrade	As ordered	Maximum with upgrade	As ordered	Maximum with upgrade	As ordered	Maximum with upgrade*
ASX200BX/xx	No	No	2.5	N/A	1	N/A	2	N/A	4	N/A
ASX1000/2.5xx	No	Yes	2.5	10	1	4	2	8	4	16
ASX1000/5xx	No	Yes	5	10	2	4	4	8	8	16
ASX1000/7.5xx	No	Yes	7.5	10	3	4	6	8	12	16
ASX1000/10xx	No	Yes	10	10	4	4	8	8	16	16
ASX1200/2.5xx	No	Yes	2.5	10	1	4	2	8	4	16
ASX1200/5xx	No	Yes	5	10	2	4	4	8	8	16
ASX1200/7.5xx	No	Yes	7.5	10	3	4	6	8	12	16
ASX1200/10xx	No	Yes	10	10	4	4	8	8	16	16

* Maximum for all except OC-48 network module. OC-48 network module is only supported in the ASX1200 series.

Divide indicated network module capacity by 4 to calculate maximum OC-48 network module capacity.

- 3.) Optionally upgrade SCP or add redundant SCPs. New ASX series switches ship with one SCP per switch fabric. This SCP can be reconfigured to be any supported SCP type for the switch. Use the Multiservice Broadband SCPs Data Sheet for ordering instructions. The maximum SCPs that can be ordered for full redundancy can be found in the "As ordered" column under the "SCP capacity" heading of the table above. Note that each switch ships with half this number as the default. (SCP upgrades at purchase are shipped with the switch and inserted into the switch by the customer after unpacking unless insertion at factory is specified at the time of purchase.)
- 4.) For AC-powered units, specify one power cord using the table below. (The power cord is provided at no charge.) ASX switches use power supplies that automatically sense the correct voltage. (Please note that the ASX200BX has built-in provisions for two power sources. An additional cord can be ordered to supply power from a second source at no charge.) Additional cords can be ordered at an extra charge to facilitate either spares or a multi-country use of switch.

Part number	Country	Connector	Amps	Volts
PC-NAMERICA	North America	NEMA 5-15P	10	125
PC-EUROPE	Continental Europe	CEE 7/7	10	230
PC-AUSTRALIA	Australia, New Zealand, parts of PRC	AS3112	10	230
PC-DENMARK	Denmark	Afsnit 107-2-01	10	230
PC-INDIA	India, South Africa	BS546	10	230
PC-ISRAEL	Israel	SI-32	10	230
PC-ITALY	Italy	CE 123-16/VII	10	230
PC-JAPAN	Japan	JIS8303	10	100
PC-SWIZ	Switzerland	SEV1011	10	230
PC-UK	United Kingdom, Ireland	BS1363	10	230

- 5.) Optionally populate the switch with network modules using the "As ordered" column under the "Multiservice broadband network module capacity" from the table used in step 2. The Multiservice Broadband Network Modules Data Sheet provides part numbers and ordering instructions. (Network modules purchased with the switch are shipped with the switch and inserted into the switch by the customer after unpacking unless insertion at factory specified at the time of purchase.)
- 6.) Switches include basic ForeThought software with ATM switching capabilities (IISP static routes, SNMP and command-line management, single ELAN support) at no extra cost. Most customers extend this basic functionality. Please see ForeThought software literature for ordering instructions.
- 7.) If ordering an ASX200BX, proceed to step 10.
- 8.) Order part number "PS-1000AC-R" for AC-powered ASX1000 and ASX1200 units if redundant power is desired. Also order appropriate power cord for the supply from the table used in step 4. Note that redundant power is standard with all DC-based ASX series switches.

Ordering instructions for new switches (continued)

9.) If desired, order one Stratum timing option from the table below. If timing options are ordered, specify DS-1 or E1 timing on the purchase order. If not specified, timing options will default to DS-1 for most ordering destinations (except for European destinations, which will default to E1).

Part number*	Description
CEC-PLUS/4S-I	Stratum 4 simplex (single timing source) CEC-Plus
CEC-PLUS/3S-I	Stratum 3 simplex (single timing source) CEC-Plus
CEC-PLUS/4D-I	Stratum 4 duplex (dual timing source) CEC-Plus
CEC-PLUS/3D-I	Stratum 3 duplex (dual timing source) CEC-Plus

* These items can only be ordered with a new switch. If timing options are required for an existing switch, the CEC-PLUS/CXR should be ordered along with appropriate TCM modules from the table used in step 10 (below).

10.) Optionally order spares and accessories from the table below.

Compatible switch(es)	Part number	Description
ASX200BX only	SM-200BX	Spare switch fabric; contains empty slots for 4 network modules and 2 SCPs
	ENCL200BX/AC	Switch enclosure with AC power supply; requires SM-200BX to populate with network modules and SCP
	ENCL200BX/DC	Switch enclosure with DC power supply; requires SM-200BX to populate with network modules and SCP
	PS-200BX/AC-B	AC power supply; maximum of 2 per chassis
	PS-200BX/DC-B	DC power supply; maximum of 2 per chassis
	RMB23-ANGLE/12	Facilitates mounting of switch at angle to fit into 12-in.-deep rack
ASX1000 only	SM-1000	Switch fabric; contains empty slots for 4 network modules and 2 SCPs; used as spare or to populate empty slot in ASX1000; maximum of 4 per chassis
	ENCL-1000	Switch enclosure; contains empty slots for 4 SM-1000 fabrics, 2 DC power supplies, and 1 fan tray
ASX1200 only	SM-1200	Switch fabric; contains empty slots for 4 network modules and 2 SCPs; used as spare or to populate empty slot in ASX1200; maximum of 4 per chassis
	ENCL-1200	Switch enclosure; contains empty slots for 4 SM-1200 fabrics, 2 DC power supplies, and 1 fan tray
ASX1000 or ASX1200	PS-1000/AC-B	AC power supply; maximum of 2 per chassis
	PS-1000/DC-B	DC power supply; maximum of 2 per chassis
	PS-1000-INS	Required for insertion of AC power supplies into ENCL-1000, ENCL-1200, or DC configuration; requires minimum of 1 PS-1000/AC-B to power the switch
	FAN-1000	Fan tray, including fans; maximum of 1 per chassis
	CEC-1000-B	Common equipment card; maximum of 1 per chassis; use of CEC-PLUS/CXR replaces this card
	CEC-PLUS/CXR	Common equipment carrier module; maximum of 1 per chassis with slots for 2 TCMs; use of CEC-1000-B replaces this card
	TCM/DS1-3	TCM with Stratum-3 DS-1 interface; occupies 1 slot of CEC-PLUS-CXR
	TCM/DS1-4	TCM with Stratum-4 DS-1 interface; occupies 1 slot of CEC-PLUS-CXR
	TCM/E1-3	TCM with Stratum-3 E-1 interface; occupies 1 slot of CEC-PLUS-CXR
	TCM/E1-4	TCM with Stratum-4 E-1 interface; occupies 1 slot of CEC-PLUS-CXR
	CMT-19	19-in. cable management tray
	CMT-23	23-in. cable management tray
	RMB23-14UI	23-in. rack-mounting brackets (1 pair)
	MM-SOFF-RMB23	23-in. mid-mount bracket kit
ASX200BX, ASX1000, and ASX1200	SC-BX/ASX	Serial cable; connects to SCP asynchronous port

Ordering instructions for ASX1000 to ASX1200 switch upgrades

The items in the table below are used to upgrade an ASX1000 to an ASX1200. All switch fabrics in an ASX1000 must be upgraded if these options are being used. A credit is given for the destruction of each SM-1000 switch fabric and previous SCP. (This credit is not reflected in the list price.)

An additional SCP can be purchased for each item ordered to provide SCP redundancy. (See the Multiservice Broadband SCPs Data Sheet for ordering instructions.) Service levels should also be upgraded to ensure hardware and software support is available with the new configuration. It is recommended that all SCPs in all switching fabrics be of the same type and memory.

The number of items ordered from the table below must equal the number of switch fabrics in the ASX1000 switch. If additional switching capacity is desired in the upgraded switch (now an ASX1200) it should be ordered from the "ASX1200" portion of the table used in the "switch additions" section below. Please also note the minimum version of ForeThought software required for each of the upgrade elements.

All items include a 2.5 Gbps SM-1200 switch fabric and ASX1200 chassis label.

Part number	Description
ASX12-UPG-P200	Upgrade with Pentium 200 MHz SCP, 64 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
ASX12-UPG-P200-HM	Upgrade with Pentium 200 MHz SCP, 256 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
ASX12-UPG-P266	Upgrade with Pentium 266 MHz SCP, 64 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
ASX12-UPG-P266-HM	Upgrade with Pentium 266 MHz SCP with 256 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
ASX12-UPG-P400	Upgrade with Pentium 400 MHz SCP, 256 MB DRAM, 32 MB Flash; requires Forethought 8.0 or greater software, or a software patch to ForeThought 7.0 or ForeThought 7.1
ASX12-UPG-P400-HM	Upgrade with Pentium 400 MHz SCP, 512 MB DRAM, 32 MB Flash; requires Forethought 8.0 or greater software, or a software patch to ForeThought 7.0 or ForeThought 7.1
ASX12-UPG-P200	Upgrade with Pentium 200 MHz SCP, 64 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2

Ordering instructions for switch additions

The items in the table below enable the addition of a switch fabric to an ASX1000 or ASX1200, which adds 2.5 Gbps of switching capacity. The switch fabric contains slots for four network modules and two SCPs. One SCP is included in this upgrade.

An ASX1000 or ASX1200 can be configured with one to four switching fabrics, each offering an incremental 2.5 Gbps of switching capacity (2.5 Gbps to 10 Gbps). The number of items ordered from the table below should not exceed the free number of slots in the ASX switch.

An additional SCP can be purchased for each item ordered to provide SCP redundancy. (See the Multiservice Broadband SCPs Data Sheet for ordering instructions.) Service levels should also be upgraded to ensure hardware and software support is available with the new configuration. It is recommended that all SCPs in all switching fabrics be of the same type, memory configuration, and ForeThought software version.

Please note the minimum version of ForeThought software required for each of the addition elements.

The switch additions for ASX1000 include an SM-1000 switch fabric. The switch additions for ASX1200 include an SM-1200 switch fabric.

Compatible switch	Part number	Description
ASX1000 only	ASXUPG1000-P200	Addition with Pentium 200 MHz SCP, 64 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
	ASXUPG1000-P200-HM	Addition with Pentium 200 MHz SCP, 256 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
ASX1200 only	ASXUPG1200-P200	Addition with Pentium 200 MHz SCP, 64 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
	ASXUPG1200-P200-HM	Addition with Pentium 200 MHz SCP, 256 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
	ASXUPG1200-P266	Addition with Pentium 266 MHz SCP, 64 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
	ASXUPG1200-P266-HM	Addition with Pentium 266 MHz SCP, 256 MB DRAM, 16 MB Flash; requires ForeThought 7.0 or greater software, or a software patch to ForeThought 6.1.1 or ForeThought 6.2
	ASXUPG1200-P400	Addition with Pentium 400 MHz SCP, 256 MB DRAM, 32 MB Flash; requires ForeThought 8.0 or greater software, or a software patch to ForeThought 7.0 or ForeThought 7.1
	ASXUPG1200-P400-HM	Addition with Pentium 400 MHz SCP, 512 MB DRAM, 32 MB Flash; requires ForeThought 8.0 or greater software, or a software patch to ForeThought 7.0 or ForeThought 7.1

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