

Catalyst 3000 Series

This chapter provides information on the Catalyst 3000 series. The information is organized into the following sections:

- Product Overview
- Standard Features
- Expansion Modules
- Product Numbers

Note Documentation for the Catalyst 3000 series is available in two forms: on a CD-ROM called Cisco Connection Documentation, Enterprise Series and printed books. A CD and hard-copy installation documentation ship with each chassis, and a configuration note ships with each component ordered. All configuration notes are available on the CD. Additional CDs and a subscription CD update service are also available.

You can also access Cisco technical documentation on the World Wide Web URL <http://www.cisco.com>. For more information, see the chapter “Documentation” at the end of the catalog.

Product Overview

The Catalyst 3000 series provides a stackable switching architecture that delivers Layer 2, stackable software and VLAN switching for growing workgroup applications. The Catalyst 3000 series allows you to deploy switches in a variety of applications and protect your investment. Greater switching capacity or multilayer traffic management functions can be added through a flexible, cost-effective, stackable architecture.

The following key elements make up the Catalyst 3000 series:

- Catalyst 3000 switch—a stackable switch with sixteen 10BaseT Ethernet ports, one AUI port, plus two slots for expansion modules. A console port supports operator input, a monitoring port provides mirroring of port data to an external port, and an I/O stack port enables connection to the stack.



- Catalyst 3200 switch—a modular chassis that has seven expansion slots including one FlexSlot. Stackable with other Catalyst 3200 or 3000 switches, the Catalyst 3200 can be configured with a wide variety of the Catalyst 3000 series expansion modules (up to 7) including a router/WAN module in the Catalyst 3200 FlexSlot.
- The expansion modules can include mixtures of 1-port 100BaseTX, 2-port 100BaseTX with Inter-Switch Link (ISL), 3-port 10BaseFL, 1-port 100BaseFX, 2-port 100BaseFX with ISL, 4-port 10BaseT, 2-port 100VG (fiber and UTP), 1-port ATM fiber modules, and 3-port WAN.
- Catalyst Matrix—an 8-port crosspoint matrix switch used to connect from three to eight Catalyst 3000 or Catalyst 3200 switches to create a single-stack entity. The Catalyst Matrix provides 3.84 Gbps of bandwidth for switch to switch connectivity. The Matrix has the option of installing a fully redundant module, which includes both logic and a power supply providing truly fault tolerant switching.

The Catalyst 3000 series offers the following features:

- Cisco IOS software for workgroup stack delivers “plug-and-play” manageable stack architecture
- Optional RMON support throughout the Catalyst 3000 series
- An integrated VLAN architecture that leverages Fast Ethernet, ISL, and ATM technologies to extend switched VLANs throughout the enterprise

The Catalyst 3000 series delivers media-rate switching. Its internal switching module interfaces allow you to add optional 100BaseT, 100 VG AnyLan, or ATM interfaces that connect to high speed servers, other switched 100-Mbps LANs or ATM networks.

The Catalyst 3000 workgroup stack software architecture (Cisco IOS software for workgroup stack) delivers easy-to-use and manage stacked switching. Catalyst 3000 and Catalyst 3200 switches can be interconnected via a common switching matrix so that multiple Catalysts can switch a wide variety of Ethernet, Fast Ethernet, VG AnyLan, and ATM environments. The stacking software is a distributed architecture that provides network resilience and supports automatic switch reconfiguration in addition to offering additional features to monitor and control switched network traffic.

The following figures show front and rear panel illustrations of the Catalyst 3000, Catalyst 3200, Catalyst Matrix, and Catalyst 3000 Series Stack.

Figure 117 Catalyst 3000 Switch Front Panel

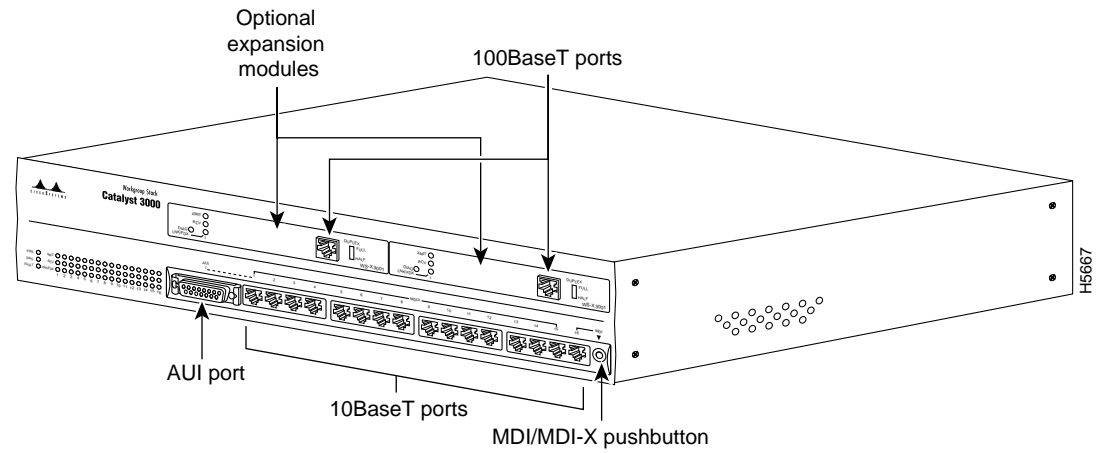


Figure 118 Catalyst 3000 Switch Rear Panel

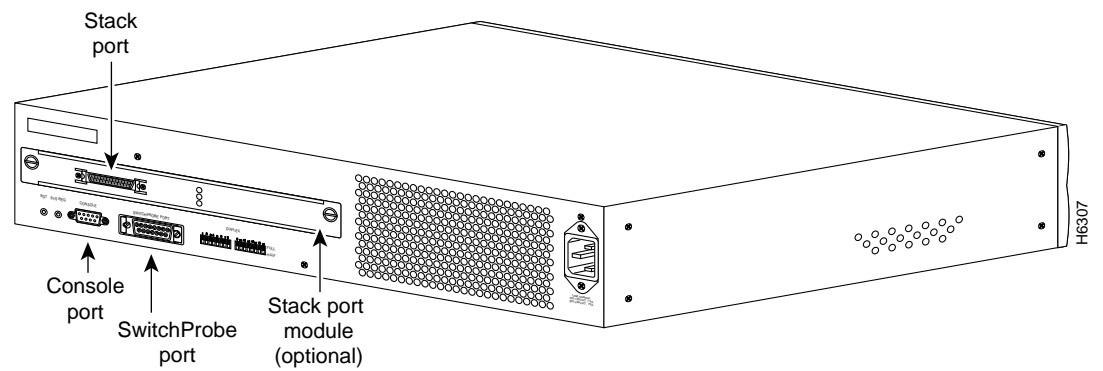


Figure 119 Catalyst 3200 Switch Front Panel

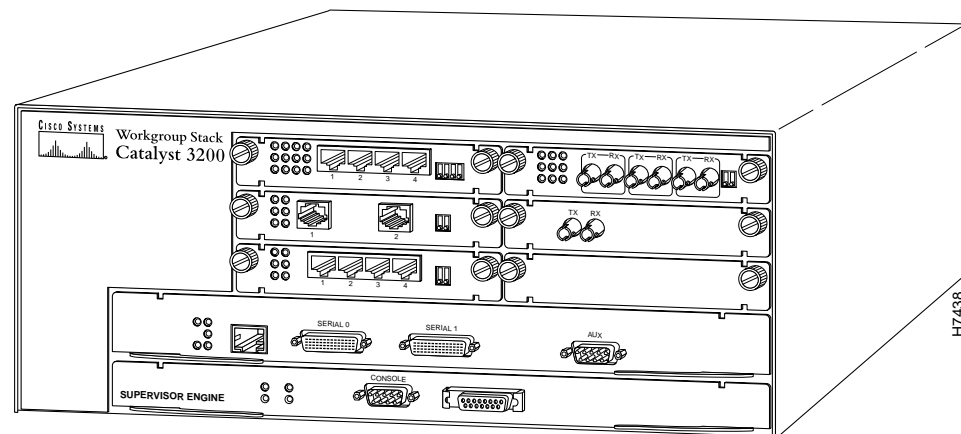


Figure 120 Catalyst 3200 Switch Rear Panel

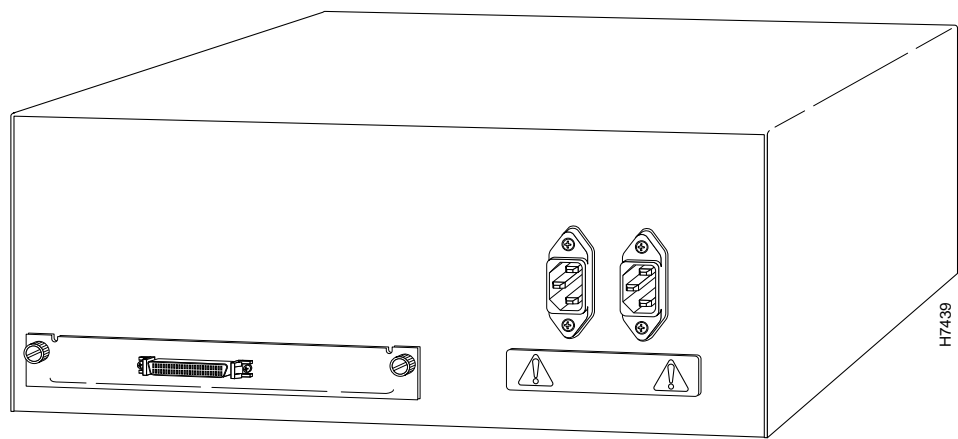


Figure 121 Catalyst Matrix Front Panel

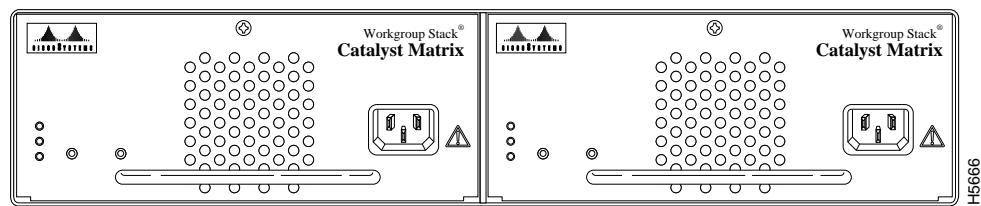


Figure 122 Catalyst Matrix Rear Panel

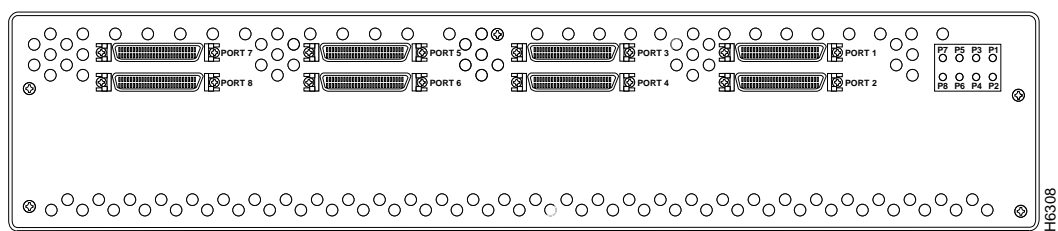
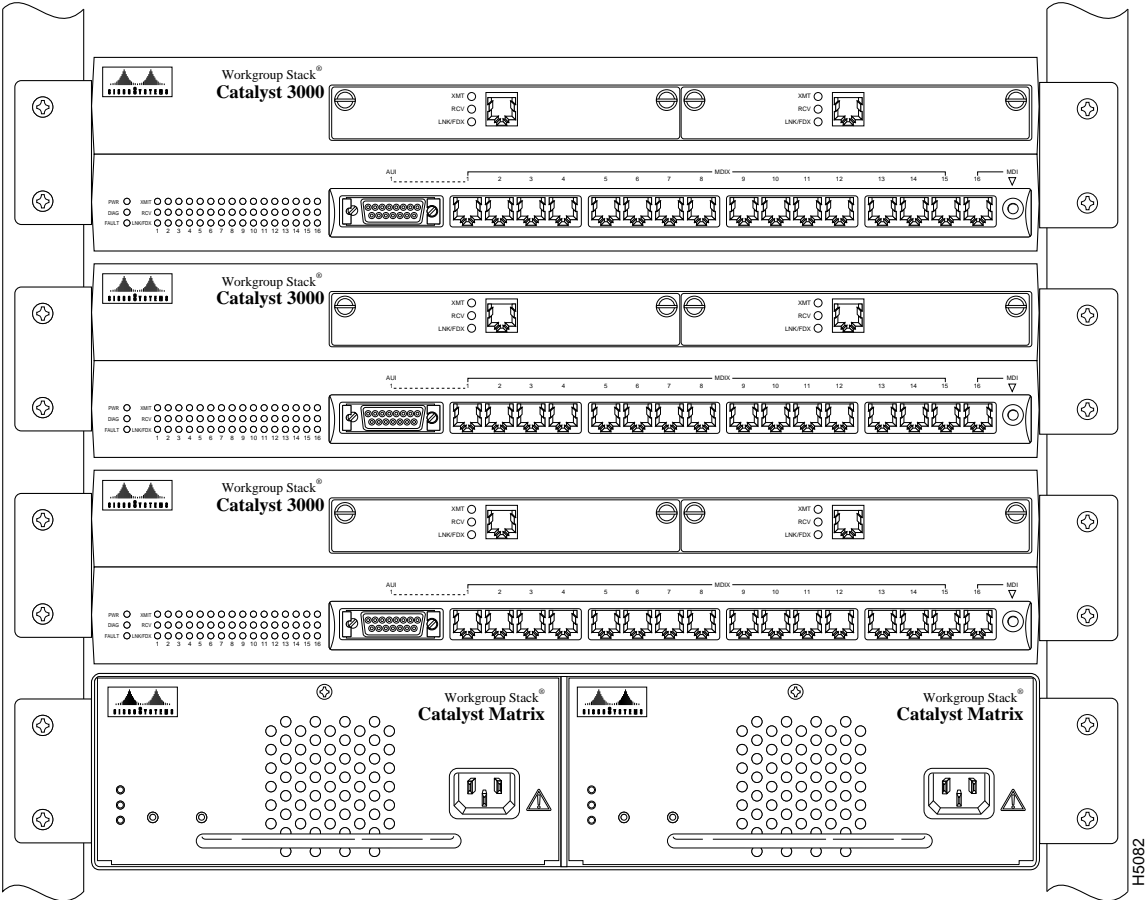


Figure 123 Catalyst 3000 Series Stack Front Panels



H5082

Figure 124 Catalyst 3000 Series Stack Rear Panels with Connections

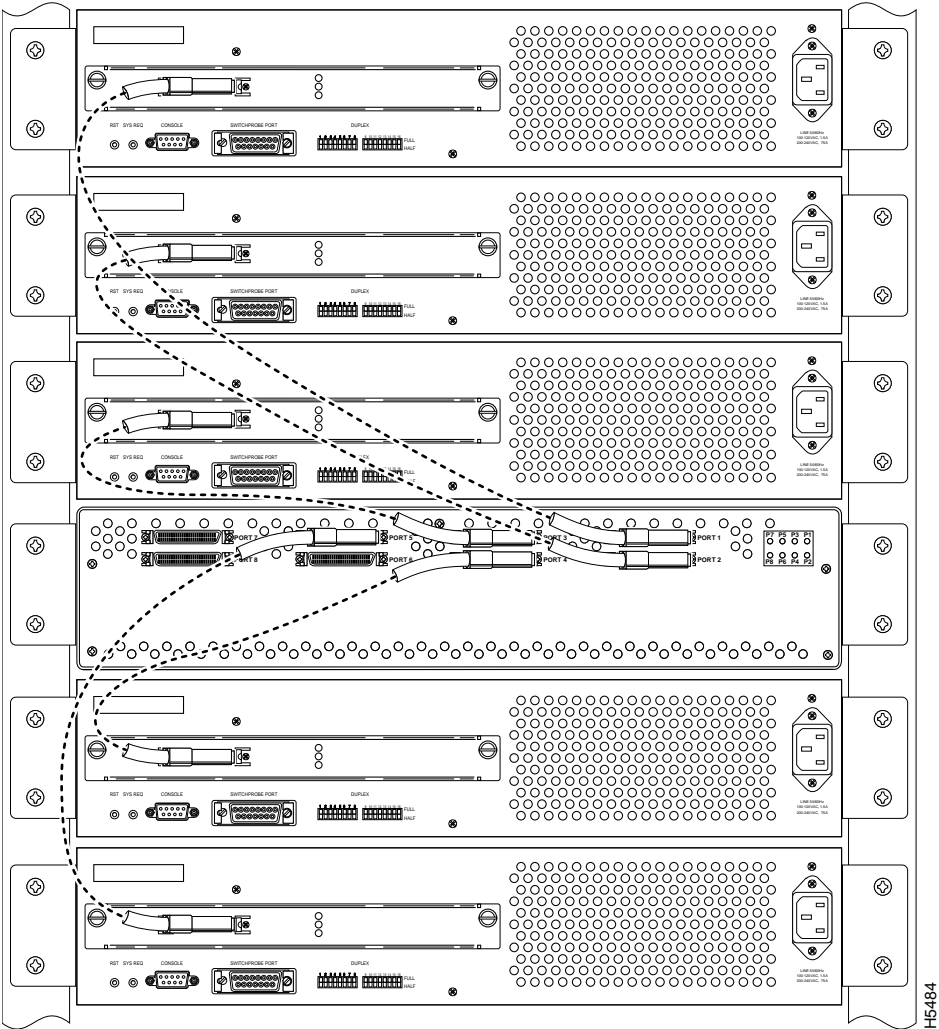


Table 251 Catalyst 3000 Series Summary of Features

Characteristic	Description
Ports	<p>Catalyst 3000:</p> <ul style="list-style-type: none"> 16 10BaseT, RJ-45 (ports 1–15 always MDI-X, port 16 can be MDI or MDI-X) 1 AUI 2 expansion slots 1 EIA/TIA-232 console 1 AUI DB15 SwitchProbe <p>Catalyst 3200:</p> <ul style="list-style-type: none"> 7 expansion slots including one FlexSlot for a double wide module 1 EIA/TIA-232 console 1 AUI DB/5 SPAN port <p>Stack port module (optional)</p> <ul style="list-style-type: none"> 1 SCSI-2 <p>Expansion modules (optional)</p> <ul style="list-style-type: none"> Varies with module type <p>Catalyst Matrix:</p> <ul style="list-style-type: none"> 8 SCSI-2 ports for connecting the Catalyst 3000 or Catalyst 3200 to the Matrix
Controls	<p>Catalyst 3000:</p> <ul style="list-style-type: none"> MDI/MDI-X pushbutton (for port 16) <p>Catalyst 3200:</p> <ul style="list-style-type: none"> Power supply 1 or 2 LEDs Diagnostic LED Fault LED Stack Port Expansion module power LEDs <p>Catalyst Matrix</p> <ul style="list-style-type: none"> Switch ID pushbutton Activate pushbutton Duplex DIP switches (for ports 1–16) <p>Expansion module (optional):</p> <ul style="list-style-type: none"> Duplex slide switch
Front panel indicators	<p>Catalyst 3000/3200:</p> <ul style="list-style-type: none"> Each port: transmit, receive, link/half duplex/full duplex System power Diagnostic Fault <p>Catalyst Matrix:</p> <ul style="list-style-type: none"> Ready Power Unit active <p>Expansion modules:</p> <ul style="list-style-type: none"> XMIT receive link Varies with module type
Rear panel indicators	<p>Catalyst 3000 switch:</p> <ul style="list-style-type: none"> Reset System request <p>Stack Port module:</p> <ul style="list-style-type: none"> Ready Power Active <p>Catalyst Matrix:</p> <ul style="list-style-type: none"> Link (port 1 to port 8)

Mounting	19-inch rack-mount
Expansion modules for the Catalyst 3000 and Catalyst 3200	1-port 100BaseTX, 2-port 100BaseTX with ISL, 3-port 10BaseFL, 1-port 100BaseFX, 2-port 100BaseFX with ISL, 4-port 10BaseT, 2-port 100VG fiber, 2-port 100VG UTP, 1-port ATM fiber, and WAN module (3200 only)
Buffers	192 KB per 10-Mbps port 256 KB per 100-Mbps port
Addresses	1,700 addresses per port, 6,000 per system 10,000 addresses per system
Software updates	Flash PROM
Protocol compatibility	Transparent to higher level protocols
Network management	SNMP MIB II, bridge MIB, optional RMON (4 groups)
Dimensions (H x W x D)	Catalyst 3000 switch: 3.5 x 17 x 13.4" (8.76 x 43 x 34 cm) Catalyst 3200 switch: 6 x 17.25 x 13.75" (15 x 43 x 34 cm) Catalyst Matrix: 3.5 x 17 x 13.4" (8.75 x 43 x 34 cm)
Weight	Catalyst 3000 switch: 17 pounds (7.7 kg) Catalyst 3200 switch: 32 pounds (14.5 kg) Catalyst Matrix: 14 pounds (6.35 kg)
Safety	UL1950, EN 60950, CSA-C22.2 No 950-93

Table 252 Catalyst 3000 Series Environmental Specifications

Description	Specification
Input	90 to 264 VAC autoranging
Frequency	47 to 63 Hz
AC current rating	Catalyst 3000: 1.5A @ 120V;.75A @ 220V Catalyst 3200: 4A @ 120V;.2A @ 220V Catalyst Matrix: 1.0A @ 120V;.5A @ 220V
Operating temperature range	50 to 104 F (10 to 40 C)
Storage temperature	-25 to 75 C
Operating humidity	8 to 80% noncondensing
Storage altitude	40,000'
Regulatory approvals	FCC Class A (CFR47, Part 15), EN55022 B, VCCI Class 2, CE Mark



Standard Features

The Catalyst 3000 series switches support sixteen 10BaseT ports that can be individually configured for full-duplex Ethernet, plus two slots for expansion modules. Two Catalyst 3000 series switches can be connected together by installing the 280-Mbps stack port module at the rear panel. Interconnecting two Catalyst 3000 switches with a cable provides connectivity for thirty-two 10BaseT ports, plus four expansion slots for a variety of additional interfaces. Using the Catalyst Matrix, you can interconnect up to eight Catalyst 3000 and Catalyst 3200 switches.

The Catalyst 3200 has seven media expansion slots including one Catalyst FlexSlot. These expansion slots support all existing and future Catalyst 3000 media expansion modules. The Catalyst 3200 FlexSlot can be used for a seventh expansion module or a WAN/router module used to connect an individual switch or an entire stack to the WAN. The Catalyst 3200 also has built-in dual power supplies to provide fault tolerant connectivity.

The Catalyst 3000 series provides the following features:

- Powerful software features “plug-and-play” expansion of switching capacity. Stacked switch platforms interact and are manageable as if they were a single logical entity. The switches automatically reconfigure themselves as new switches are added or removed.
- Adaptive cut-through switching technology that delivers wire-speed, low-latency switching. In addition, the Catalyst 3000 series has the ability to automatically switch between cut-through and store-and-forward technologies depending upon the error rate of a network at any given time.
- Optional modules that provide additional interfaces for additional Ethernet, Fast Ethernet, VG, ATM, or WAN connectivity. These user-installable options provide flexibility for changing or growing switching applications.
- Extensive packet buffering and address filtering database supporting 192 KB of per-port buffering for Ethernet and up to 10,000 end-user stations connected to the switch; ensures reliable delivery of network traffic in switched desktop and hub applications.
- User-definable per-port and secure-mode filtering that provide access control for sensitive information resources.
- Support for up to 64 VLANs internally or across switches using Cisco’s LAN emulation (LANE)-based ATM, and InterSwitch Link (ISL)-based Fast Ethernet VLANs.
- Optional RMON traffic management providing four groups of RMON that can be utilized through Cisco’s TrafficDirector application.

- IEEE 802.1d spanning-tree bridging per VLAN for loop detection and support of fault-tolerant switching applications.
- Optional Stack Port interface module that connects the switch to another Catalyst 3000 or Catalyst 3200 switch, or to the Catalyst Matrix. Delivers 280 Mbps per switch of bandwidth ensuring unrestricted traffic flow.
- Redundant option: the standard matrix chassis supports one crosspoint matrix module, with a slot, or bay, to add a second redundant module. Each module is a self-contained unit with complete logic and power supply. In the redundant configuration, if the primary module fails, the secondary module detects the failure and resumes operation immediately.

FlexSlot Modules

The Cisco 3200 double-wide FlexSlot can be used in conjunction with the 3011 WAN Access module to provide an individual Catalyst 3200 WAN connectivity or an entire stack can be connected to the WAN. The 3011 is based on the Cisco 2503 router, which provides two serial ports, an ISDN BRI port, and an auxiliary (AUX) port. The same software images available for the Cisco 2500 series (version 11.1(6) and higher) are used for the 3011. Thus, all the features and benefits of Cisco IOS software that are available on the popular 2500 router series are included with the 3011. The 3011 WAN module is compatible with the Catalyst 3200 double-wide FlexSlot.

The two serial ports operate in either DCE or DTE mode at speeds up to 2.048 Mbps. These ports can be configured to operate in either synchronous or asynchronous mode. This provides support for both dedicated leased lines as well as dial-up lines. The serial port connectors have a universal design common to the Cisco 2500 series and Cisco 7000 FSIP card. This feature enables easy transition to any of the common physical interfaces, including V.35, RS-232, RS-449, RS-530, and X.21.

In addition to the two serial interfaces, the AUX port can be configured to provide an additional dial-up line for asynchronous routing. The ISDN Basic Rate S/T Interface (BRI) removes the requirement for an external ISDN terminal adapter (TA). The BRI S/T interface provides one 16-Kbps D channel for ISDN signaling and two 64-Kbps B channels for user data access to the ISDN network.

The 3011 WAN module provides no external Ethernet or AUI ports. Packets are routed to the 3011 WAN module through the Catalyst 3200's AXIS bus. The 3011 provides WAN connectivity to any one VLAN or network segment within a Catalyst 3200 system.

Expansion Modules

The Catalyst 3000 series switches support any mixture of the following modules:

- One-port 100BaseTX
- Two-port 100BaseTX with ISL
- One-port 100BaseFX
- Two-port 100BaseFX with ISL

- Three-port 10BaseFL
- Four-port 10BaseT
- Two-port 100VG fiber
- Two-port 100VG UTP
- One-port ATM multimode fiber with ST connectors

Product Numbers

The Catalyst 3000 series is available in a standard or enhanced version. The standard version includes SNMP, Spanning-Tree Protocol, and address filtering. The enhanced version adds full-duplex Ethernet, EtherChannel, and VLAN support. The Catalyst Matrix is available in the nonredundant version with the option to order a redundant switch module. Table 253 lists system product numbers.

Table 253 Catalyst 3000 Series Product Numbers

Description	Product Number
Catalyst 3000 switch with 6,000 addresses, SNMP, address filter, Spanning-Tree Protocol	WS-C3016
Catalyst 3000 switch with 6,000 addresses, SNMP, address filter, Spanning-Tree Protocol plus VLAN support, full-duplex, EtherChannel	WS-C3016A
Catalyst 3000 switch with 10,000 addresses, SNMP, address filter, Spanning-Tree Protocol plus VLAN support, full-duplex, EtherChannel	WS-C3016B
Catalyst 3200 switch with 10,000 addresses, SNMP, address filter, Spanning-Tree Protocol plus VLAN support, full-duplex	WS-C3200B
3011 WAN router module, 2 serial ports, and ISDN BRI port and an auxiliary port. 4 MB of flash EPROM memory and 2 MB of DRAM system memory. Can be configured with any Cisco 2500 software upgrades. This module is a double-wide module used in conjunction with the Catalyst 3200's FlexSlot.	WS-X3011
Catalyst Matrix, nonredundant configuration	WS-C3020
Catalyst Matrix, redundant module	WS-X3021
Catalyst Matrix, redundant module (spare)	WS-X3021=
1-port 100BaseTX interface module, RJ-45 connector	WS-X3001
1-port 100BaseTX interface module (spare), RJ-45 connector	WS-X3001=
4-port 10BaseT interface module, RJ-45 connector	WS-X3002
4-port 10BaseT interface module (spare), RJ-45 connector	WS-X3002=
3-port 10BaseFL interface module, ST connector	WS-X3003
3-port 10BaseFL interface module (spare), ST connector	WS-X3003=
1-port 100BaseFX interface module, ST connector	WS-X3005
1-port 100BaseFX interface module (spare), ST connector	WS-X3005=
2-port 100BaseTX interface module with ISL, RJ-45 connector	WS-X3010

Description	Product Number
2-port 100BaseTX interface module (spare) with ISL, RJ-45 connector	WS-X3010=
2-port 100BaseFX interface module with ISL, SC connector	WS-X3009
2-port 100BaseFX interface module (spare) with ISL, SC connector	WS-X3009=
2-port 100VG AnyLan interface, RJ-45 connector	WS-X3008
2-port 100VG AnyLan interface (spare), RJ-45 connector	WS-X3008=
2-port 100VG AnyLan interface, ST connector	WS-X3007
2-port 100VG AnyLan interface (spare), ST connector	WS-X3007=
1-port ATM interface, SC connector	SW-X3006A
1-port ATM interface (spare), SC connector	SW-X3006A=
Catalyst 3000 Stack Port module ¹	WS-X3004
Catalyst 3000 Stack Port module (spare)	WS-X3004=
Upgrade from WS-C3016 to WS-C3016A (enables enhanced software services: VLAN support, full duplex, EtherChannel)	WS-C3017
Catalyst 3200 SMARTnet maintenance	CON-SNT-WS-C32XX
Catalyst 3000 SMARTnet maintenance	CON-SNT-WS-C3001
RMON license for Catalyst 3200	WS-X3200-EMS-LIC
RMON license for Catalyst 3000	WS-X3000-EMS-LIC
Documentation	See the chapter "Documentation"

1. Includes cable for stack port.