Catalyst 5002 Switching System

High-Performance, Flexible Switching for the Wiring Closet, Workgroup, and Campus Backbone

The Catalyst[TM] 5002 switch delivers award-winning Catalyst 5000 family performance in a compact chassis. The Catalyst 5002 is a fully modular, two-slot Catalyst 5000 family member, using the same architecture and software as the Catalyst 5000. The switch can deliver more than 1 million packets-per-second throughput across a 1.2-Gbps media-independent backplane that supports Ethernet, Fast Ethernet, Fiber Distributed Data Interface (FDDI), and Asynchronous Transfer Mode (ATM). Token Ring switching will be supported in the future.

The Catalyst 5002 can be configured with any of the current or future Catalyst 5000 family modules. Slot one is reserved for the Supervisor Engine, which provides Layer 2 switching and network management. The Supervisor Engine includes two full-duplex Fast Ethernet uplinks for redundant connections to switches, routers, and servers. Users can choose dual 100BaseTX, dual multimode 100BaseFX, or dual single-mode 100BaseFX uplinks. Further, with Cisco's Fast EtherChannel[TM] technology, the two ports can be configured as a single 400-Mbps fault-tolerant connection.

The second slot accepts any Catalyst 5000 line card, enabling flexible solutions for a variety of applications. High-density switched Ethernet and group-switched Ethernet modules meet today's wiring closet requirements. Fast Ethernet solutions for workgroups and server farms include 10/100BaseTX and group switching. For the campus backbone, 10BaseFL and 100BaseFX provide connections in the riser and across the campus. With an ATM LAN Emulation (LANE) module, the Catalyst 5002 functions as a compact, high-performance LANE server.

The Catalyst 5002 chassis fits into a standard 19-inch rack, and all system components are accessible from the same side of the chassis. The chassis includes dual load-sharing, redundant power supplies. A single supply can support any configuration, making the system highly reliable.

The Catalyst 5002 complements Catalyst 5000 and 5500 switches, letting users benefit from common hardware, software, and spares from the data center to network periphery.

The modular Catalyst5002 can be configured with a Catalyst5000 family Supervisor Engine and any interface module, enabling flexible solutions.
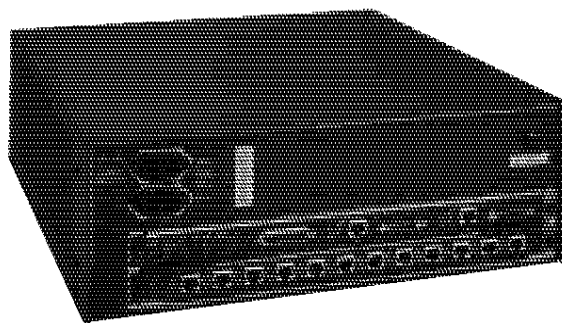
Catalyst5002 Interfaces

Catalyst5000 Switching Modules	Number of Interfaces Supported per Module	Fast Ethernet Uplinks
Group Switched 10BaseT Ethernet	48 interfaces	2
Switched 10BaseT Ethernet	24 interfaces	2
Switched 10BaseFL Ethernet	12 interfaces	2
Group Switched 100BaseTX	24 interfaces	2
Switched 10/ 100BaseTX Fast Ethernet	12 interfaces	2
Switched 100BaseFX Fast Ethernet	12 interfaces	2
ATM LAN Emulation	1 interface	2
CDDI/FDDI	1 interface	2

Catalyst5000 Switching Architecture

Some of the features of the Catalyst5000 switch include:

- Media-independent switching architecture designed to support Ethernet and Fast Ethernet, FDDI, ATM, and Token Ring
- Internal switching backplane that provides 1.2-Gbps throughput for nonblocking performance, delivering over one million packets per second (pps)
- Supports three priority queues on the backplane; users can configure individual ports with a higher priority level to accommodate time-sensitive applications such as voice and video

Supervisor Engine

- Controls data access to the backplane, prioritizes traffic, maintains up to 16,000 active Media Access Control (MAC) addresses in the bridge lookup table, and monitors system status
- Separate from the data path, a common management path delivers configuration information for all modules, gathers performance information, and updates operational software information
- Supports 1000 virtual LANs (VLANs) network wide using any FastEthernet (with Inter-Switch Link [ISL]), FDDI (with 802.10), or ATM (with LANE) interface between multiple Catalyst5000 family systems and Cisco routers

Comprehensive Switched Network Management

- Superior traffic management—Remote Monitoring (RMON) statistics provide visibility of network activity: statistics, history, events, and alarms groups
- Enhanced Switched Port Analyzer (SPAN) functionality enables the user to mirror traffic on any port or VLAN to another Ethernet or Fast Ethernet port for analysis by a sniffer or RMON SwitchProbe™ device
- Support for load balancing using VLANs and spanning-tree on multiple parallel FastEthernet ISL trunks to increase capacity and fault tolerance between switches. Dynamic ISL Protocol (DISL) synchronizes configuration of two interconnected Fast Ethernet interfaces into ISL trunks. Fast EtherChannel enables aggregation of two or four full-duplex Fast Ethernet links for high-capacity backbone connections
- Complete VLAN solution that is easy to configure and manage: Fully integrated support for spanning tree per VLAN, ISL, DISL, Cisco Discovery Protocol (CDP), and VLAN Trunk Protocol (VTP)
- Support for local out-of-band management through a terminal or modem attached to the EIA/TIA-232 interface; remote in-band management through Simple Network Management Protocol (SNMP), Telnet client, BOOTP, and Trivial File Transfer Protocol (TFTP)
- Full SNMP management (gets and sets for Ethernet Management Information Base [MIB], FDDI MIB, bridge MIB, MIB II, VTP, and system extensions)
- Supports nonvolatile random-access memory (NVRAM) for storing configuration data and software images
- Managed with CiscoWorks™ integrated, standards-based management, including CiscoView, TrafficDirector, and VLANDirector

Catalyst5002 Specifications

Standard Network Protocols

- Ethernet: Institute of Electrical and Electronic Engineers (IEEE) 802.3, 10BaseT, and 10BaseFL
- Fast Ethernet: IEEE 802.3u, 100BaseTX, 100BaseFX
- FDDI: International Organization for Standardization (ISO) 9314-1 FDDI physical sublayer (PHY) standard; ISO 9314-3 FDDI physical medium dependent (PMD) standard; Copper Distributed Data Interface (CDDI) TP-PMD standard; American National Standards Institute (ANSI) FDDI X3T9.5 Station Management (SMT) 7.3
- ATM: ATM Forum—3.0/3.1 User-Network Interface (UNI) specification, Q.2931 signaling protocols, LAN

Physical Specifications
- Dimensions (H x W x D): 5.75 x 17 x 18 in. (14.6 x 43.2 x 45.7 cm)
- Weight: 35 lb (15.9 kg) (loaded)
- Mounting: 19-in. rack-compatible (rack and cable guide hardware included)

Power Requirements (one power supply)
- 5.0A @ 100 VAC 60 Hz
- KVA rating: 0.5 KVA
- 2.5A @ 200 VAC 50 Hz
- Power consumption: 250W

Environmental Conditions
- Operating temperature: 32 to 104F (0 to 40 C)
- Storage temperature: -40 to 167F (-40 to 75C)
- Relative humidity: 10 to 90%, noncondensing

Safety Certifications
- UL 1950
- EN 60950
- CSA-C22.2 No. 950–93

Electromagnetic Emissions Certifications
- FCC Class A (Part 15)
- CE mark
- EN 55022 Class B on shielded UTP
- VCCI Class 2 on shielded UTP

Memory
- Flash memory: 4 MB
- Erasable programmable read-only memory (EPROM): 512 KB
- RAM memory: 20MB
- NVRAM: 256 KB

Processor
- Network Management Processor: Motorola 68EC040
- Frame Processing
- Transparent bridging (802.1d)

Network Management
- CDP
- VTP
- SNMP agent V.1 (RFCs 1155 to 1157)
- Cisco workgroup MIB
- Ethernet MIB (RFC 1643)
- Ethernet Repeater MIB (RFC 1516)
- Simple Network Management Protocol (SNMP) MIB II (RFC 1213)
- Interface table (RFC 1573)

- Bridge MIB (RFC1493)
- Interim Local Management Interface (ILMI) MIB
- FDDI MIB (RFC 1512)
- ATOMIC MIB (RFC 1695)
- SMT 7.3 (RFC 1285)
- Telnet client
- Cisco LAN Emulation Client Server (LECS)/LAN Emulation Server (LES)/broadcast and unknown server (BUS) MIB
- LAN Emulation Client (LEC) MIB (ATM Forum LANE V.1.0)

Maximum Station-to-Station Cabling Distance
- 100BaseTX Fast Ethernet 328 ft (100m)
- 100BaseFX: 62.5/125-micron multimode fiber: 1312 ft (400m) half duplex; 1.2miles (2 km) full duplex
- 100BaseFX: 8/125-micron single-mode fiber: 6.2 miles (10 km) half or full duplex

Supervisor Engine Indicators and Interfaces
- System status: Green (operational)/red (fault)
- Switch load: 1 to 100% switch backplane usage
- Link good: Green (good)/orange (disabled)/off (not connected)
- 100-Mbps Fast Ethernet: Green (100 Mbps)
- Power supply status: Green (on)/red (fault)
- Fan status: Green (on)/red (fault)
- Supervisor console: DB-25 (female)
- 100BaseTX: RJ-45 (female), MII (female) for external transceiver
- 100BaseFX: SC (female)

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