

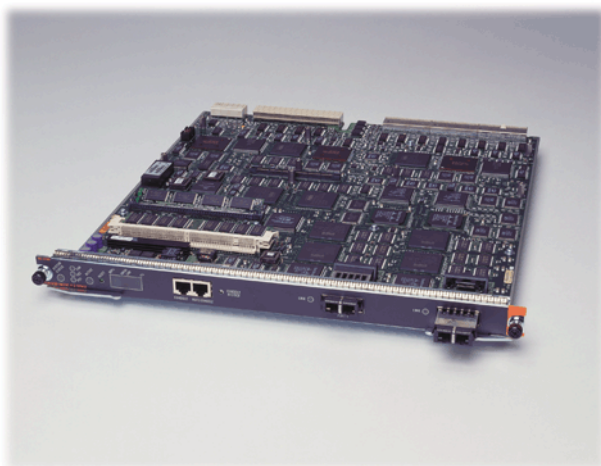
Catalyst 5000 Family Supervisor III G

SUPERVISOR III G IS A NEXT-GENERATION CATALYST® 5000 SUPERVISOR ENGINE OPTIMIZED FOR HIGH PERFORMANCE WIRING CLOSET APPLICATIONS. SUPERVISOR III G PROVIDES THE FUNCTIONALITY OF SUPERVISOR III INCLUDING THE NETFLOW FEATURE CARD II (NFFC II) FEATURE SET. ADDITIONALLY, SUPERVISOR III G OFFERS GBIC UPLINKS FOR HOT-SWAPPABLE FLEXIBILITY AND AN OPTIONAL ROUTE SWITCH FEATURE CARD (RSFC). THE RSFC PROVIDES FULL MULTIPROTOCOL ROUTING ON A DAUGHTER CARD MODULE, THEREBY PERMITTING MAXIMUM PORT DENSITIES TO BE ACHIEVED IN THE WIRING CLOSET.

Optimized for the High-Performance Wiring Closet

The Supervisor III G module can be deployed in any Catalyst 5500 series or Catalyst 5000 Series chassis. In the 5500 Series, the Supervisor III G enables the crossbar fabric, delivering superior levels of switching performance and system bandwidth.

Figure 1 Supervisor III G Features Integrated NFFC-II Functionality with Flexible GBIC Uplinks



Supervisor III G Delivers Advanced Multilayer Features

The Catalyst Supervisor Engine III G supports advanced multilayer switching features including Quality of Service (QoS) via integrated NetFlow Feature Card II functionality. This is the same switching logic found on the Catalyst 5000 Family's highest-performing supervisor, Supervisor Engine III with NFFC II. Supervisor Engine III G enables the following intelligent network services:

- High-performance multilayer switching—the Catalyst switching system provides multilayer switching performance that scales to gigabit speeds by embedding multilayer switching functions in silicon on the NFFC II. It identifies flows by using both network-and transport-layer information and switches packet by packet between subnets/virtual LAN (VLANs) using advanced application-specific integrated circuit (ASIC) switching hardware. The NFFC II uses any standard routing protocol, runs with any Catalyst line cards, and does not require any end-station changes.
- QoS—deployed in a wiring closet, the NFFC II can identify user applications and classify traffic with the appropriate priority level. The NFFC II enables a wiring-closet Catalyst 5000 Family switch to be a QoS edge device that is application-aware. It enables admission control in the closet to prevent unauthorized applications from being allowed on the network. The NFFC II can classify user data as high or low priority based upon physical source port, destination Media Access Control (MAC) address, or network and transport-layer source/destination addresses.
- Protocol filtering—on a port-by-port basis, the NFFC II is capable of filtering broadcast traffic by protocol, resulting in more efficient use of bandwidth for end stations.
- Internet Group Management Protocol (IGMP) snooping—the NFFC II enables Catalyst switches to intelligently forward multicast traffic such as video. This setup results in more bandwidth to the end user, as well as more efficient use of the workstation CPU.

- Accounting and traffic management—a key requirement when deploying Layer 3 switching is to provide visibility of flows as they are switched for troubleshooting, traffic management, and accounting purposes. The NFFC II enables detailed data collection of flow statistics maintained in hardware, with no impact on switching performance. The records for expired flows are grouped together and exported to applications such as Netsys for network planning and Remote Monitoring II (RMON II) traffic management and monitoring, as well as to accounting applications.

- Other features—more intelligent Cisco IOS® services such as fast convergence, resilience, access lists, and others are described in the NFFC II data sheet.

Hot-swappable GBIC Uplink Ports Provide Flexibility

Supervisor III G uplink ports are Gigabit Interface Converter (GBIC) based, allowing users the flexibility to choose Gigabit interface technology on a port-by-port basis. Each supports ISL and 802.1Q VLAN trunking as well as 802.1p/IP precedence and can be configured as either SX (over multimode fiber) or LX/LH (over singlemode and multimode fiber).

Table 1 Supervisor III G Uplink Cabling Distances

Fiber Core	62.5 m Multimode		50 m Multimode		9/10 m Single Mode
Fiber Modal Bandwidth	160/500 MHz-km	200/500 MHz-km	400/400 MHz-km	500/500 MHz-km	NA
1000BaseSX	220 m	275 m	500 m	550 m	NA
1000BaseLX/LH ¹	550 m	550 m	550 m	550 m	10 km

1. Cisco 1000BaseLX/LH interfaces fully comply with the IEEE 802.3z 1000BaseLX standard. However, their higher optical quality allows them to reach 10 km over single-mode fiber versus the 5 km specified in the standard.

Route Switch Feature Card Allows Maximum Density

Two design breakthroughs allow maximum wiring closet density and full multiprotocol routing to be achieved when Supervisor III G is used in conjunction with the RSFC. First, integration of the NFFC II onto the main board of Supervisor III G empties the daughter card slot previously occupied by the NFFC II. Second, incorporation of Route Switch Module (RSM) functionality onto a daughter card module empties the chassis slot previously occupied by an RSM. In this manner integrated multiprotocol routing and NFFC II functionality can be attained in a single chassis slot, thereby preserving port density in the wiring closet where it is needed most.

Supervisor III G is equipped with 32 MB of synchronous DRAM to support:

- Large numbers of VLANs
- Large virtual membership policy server (VMPS) databases
- Ample storage capacity for RMON history and alarms statistics

Unmatched Management Options

Supervisor III G offers customers the following features:

- Two Supervisor III Gs can be installed for redundancy. The modules are hot-swappable and provide fast failover recovery.
- Supervisor and RSFC console ports can be switched to operate in DCE or DTE mode.

Feature Summary

Much of the functionality of the Catalyst 5000 series switches can be summarized as features of the supervisor engine modules. The table below describes features of Supervisor II, II G, III F, III G, and III.

Table 2 Feature Comparison—Supervisor II, II G, III F, III G, and III

Feature	Supervisor II	Supervisor II G	Supervisor III F	Supervisor III G	Supervisor III
Support for 16,000 MAC Addresses Dynamically Allocated Between Active Ports	X	X	X	X	X
Catalyst 5500/5000 Series Chassis	X	X	X	X	X
Switching Engine that Provides Data Path and Control for All Network Interfaces	X	X	X	X	X
Hardware Support for 1024 VLANs	X	X	X	X	X
Environmental Status of Switch	X	X	X	X	X
Simple Network Management Protocol (SNMP)	X	X	X	X	X
Remote Monitoring (RMON)	X	X	X	X	X
Console/Telnet Interface	X	X	X	X	X
Fast Ethernet Uplinks	X	X			X
Fast EtherChannel®	X	X			X
Redundant Supervisor Support	X	X	X	X	X
Greater RMON Storage Capacity		X	X	X	X
Support for Larger VMPS		X	X	X	X
NetFlow Feature Card II Functionality		X		X	X
Route Switch Feature Card (RSFC) Support with Console Port		X		X	
Modular FE or GE Uplinks		X			X
Fixed SX or LX/LH Gigabit Uplinks			X		
Enables 3.6 Crossbar Fabric			X	X	X
DTE/DCE Supervisor/RSFC Console Port Toggle		X		X	
GBIC Uplinks				X	
PCMCIA Flash Memory					X
Enhanced Spanning-Tree Performance					X
Enhanced Spanning-Tree Scalability					X
Enhanced RMON/SNMP Response					X

Catalyst 5000 Series Supervisor Software

The Catalyst Supervisor modules support industry-leading functionality, with features for scalability, bandwidth management, security services, network resiliency, and embedded manageability. Here are some of the highlighted features:

Scalability

- Fast EtherChannel
- Port Aggregation Protocol (PAgP)
- Policy server, VMPS I
- Dynamic VLANs
- ISL Trunking Protocol
- Dynamic ISL (DISL)
- VTP, VTP version, and VTP pruning
- 802.1Q
- Token Ring VLANs
- ISL support for Token Ring

Bandwidth Management

- Broadcast suppression
- Link load balancing
- CGMP
- CGMP fast-leave processing

Security Services

- Port security by MAC address
- TACACS+ authentication
- IP permit list
- Traps and syslog messages sent on security violations

Network Resiliency

- Redundant supervisors
- Spanning-Tree Protocol (STP)
- Multiple spanning trees (spanning tree per VLAN)
- PortFast—STP enhancement
- UplinkFast—STP enhancement

Embedded Manageability

- CDP
- SNMP agent
- SNMPv2c agent
- MIB-II support
- RMON agent
- SNMP traps
- SPAN
- E-SPAN

- SPAN from multiple source ports
- Syslog support
- Telnet (outbound)
- DNS
- NTP
- Multiple module software image download
- Login banner for console

Memory

Table 3 Default Memory for Supervisor II, II G, III F, III G, and III

Memory	DRAM	Flash	NVRAM
Supervisor II	32 MB	8 MB	256 KB
Supervisor II G	32 MB	8 MB	512 KB
Supervisor III F	32 MB	8 MB	512 KB
Supervisor III G	32 MB	8 MB	512 KB
Supervisor III	32 MB	8 MB	512 KB

Note: for Supervisor III, Flash memory specified is internal Flash. Customers can purchase additional PCMCIA Flash.

CPU (NMP Processor)

Table 4 NMP Processor for Supervisor II, II G, III F, III G, and III

Supervisor	Processor
Supervisor II	25-MHz Motorola MC68EC040 processor
Supervisor II G	37.5-MHz Motorola MCF5102 processor
Supervisor III F	IDT RISC processor (comparable to Supervisor II)
Supervisor III G	37.5-MHz Motorola MCF5102 processor
Supervisor III	150-MHz R4700 RISC processor with Level 1 and Level 2 cache

Supervisor Engine III G Indicators and Interfaces

- System status: green (operational)/red (faulty)
- Switch load: 1 to 100-percent aggregate switching usage
- Link good: green (good)/orange (disabled)/off (not connected)
- Power supply status: green (on)/red (faulty)/off (not present)
- Fan status: green (on)/red (faulty)
- Supervisor console: DTE or DCE (switchable)
- RSFC console port: DTE or DCE (switchable)

Physical Specifications

- Occupies first slot in the Catalyst 5000 platform (redundant supervisor engine in slot 2 for Catalyst 5500, 5509, or 5505)
- Dimensions (H x W x D): 1.2 x 14.4 x 16 in. (3 x 35.6 x 40.6 cm)

Environmental Conditions

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

Regulatory Compliance

Safety Certifications

- UL 1950
- EN 60950
- CSA-C22.2 no. 950
- IEC 950
- TS 001
- AS/NZS 3260

Electromagnetic Emissions Certifications

- FCC 15J Class A
- VCCI Class B
- CE Marking
- EN 55022 Class B
- CISPR 22 Class B
- AS/NZS 3548 Class B



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