

## Catalyst 5000 Family Supervisor II G

SUPERVISOR II G IS A NEXT-GENERATION CATALYST® 5000 SUPERVISOR ENGINE OPTIMIZED FOR WIRING CLOSET APPLICATIONS. SUPERVISOR II G PROVIDES THE WIRING CLOSET SERVICES OF SUPERVISOR III, WITH THE PERFORMANCE AND PRICE OF SUPERVISOR II. ADDITIONALLY, SUPERVISOR II G OFFERS MODULAR UPLINKS FOR MAXIMUM 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 Wiring Closet

The Supervisor II G module can be deployed in any Catalyst 5500 Series or Catalyst 5000 Series chassis.

Figure 1 Supervisor II G Features Integrated NFFC II Functionality and Modular Uplinks



### Supervisor II G Delivers Advanced Multilayer Features

The Catalyst Supervisor Engine II G is a value oriented supervisor that supports advanced multilayer switching features including Quality of Service (QoS) via integrated NFFC II functionality. Although its overall throughput is lower, Supervisor II G offers the same switching logic found on the Catalyst 5000 Family's highest-performing supervisor, Supervisor Engine III with NFFC II. Supervisor Engine II 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.

Figure 2 Modular Uplink Design Offers Maximum Flexibility

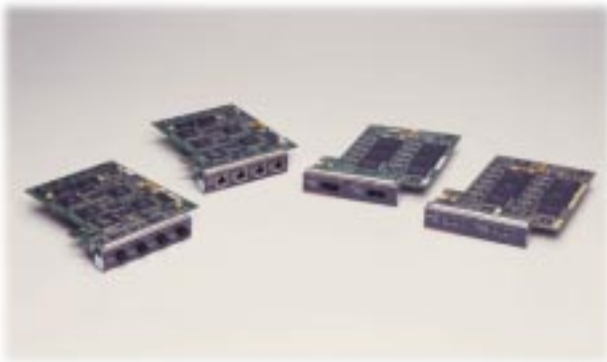


Figure 3 Our Newest Two-Port GBIC Uplink Offers QoS Capabilities



### Modular Uplink Ports Provide Flexibility

Supervisor II G shares uplink modules with the Catalyst 5000 Family's performance leader, Supervisor Engine III.<sup>1</sup> Modularity allows for the installation of the uplink that best suits current bandwidth requirements while ensuring an easy migration path. Available options are four-port autosensing 10/100 Fast Ethernet, four-port 100BaseFX, and two-port Gigabit Ethernet (SX, LX/LH or GBIC). Any Fast Ethernet uplink port can use Fast EtherChannel® technology, which provides up to 800 Mbps of wire-speed, resilient, and scalable bandwidth for both data center and backbone implementations. The latest two-port GBIC uplink module delivers QoS capabilities to the uplinks, allowing customers to build end-to-end QoS networks.

1. Note that Supervisor Engine II G does not support the two-port 10/100TX or two-port 100BaseFX modules of Supervisor Engine III

Table 1 Supervisor Engine II G and III Uplink Module Features

Feature	Four-Port 100BaseFX	Four-Port 10/100BaseTX	Two-Port 1000BaseSX	Two-Port 1000BaseLX	Two-Port GBIC
10/100 Autosensing	N/A	Yes	N/A	N/A	N/A
Fast EtherChannel	Yes	Yes	N/A	N/A	N/A
ISL	Yes	Yes	Yes	Yes	Yes
802.1Q/p	Yes	Yes	Yes	Yes	Yes
L3 Rewrite	Yes	Yes	No	No	Yes
802.3x Flow Control	Yes	Yes	No	No	Yes
Weighted Random Early Detection (WRED)	No	No	No	No	Yes
Multiqueue Scheduling	No	No	No	No	Yes

### Route Switch Feature Card Allows Maximum Density

Two design breakthroughs allow maximum wiring closet density and full multiprotocol routing to be achieved when Supervisor IIG is used in conjunction with the RSFC. First, integration of the NFFC II onto the main-board of Supervisor II 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 II 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 II G offers customers the following features:

- Two Supervisor II 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.

Table 2 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		X	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 Supervisors 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 Supervisors 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 II 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: 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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