



## Q&A

# CISCO CATALYST 6500 SERIES NEW FEATURES AND FUNCTIONALITY

## SUPERVISOR ENGINE 720

**Q.** What are some of the key features/benefits of the Supervisor 720?

**A.** The following are some of the key features and benefits of the Supervisor 720.

- Slot-efficiency and increased port density via the Supervisor 720's Integrated 720 Gbps Switch Fabric
- Advanced IP services for simplified management, greater operational control, higher performance using Intelligent Networks Services enable by Supervisor 720 hardware such as: Encapsulated Remote SPAN (ERSPAN), MPLS/VPN (HW), IPv6 (HW), GRE (HW), NAT (HW), Egress Policing, Multicast VPN, VRF Select/Explicit Routing.
- 400 Mpps system throughput using a 720 Gbps switch fabric—increasing Gigabit and 10 Gigabit aggregation capabilities
- Investment Protection backward compatible with all existing LAN, WAN interface and multigigabit services modules

**Q.** Will the Supervisor 720 be supported in all Cisco Catalyst 6500 Series chassis?

**A.** Yes. In the case of E-series chassis no fan upgrade is required. E-Chassis Fan tray is sufficient. In the case of non E-series chassis please follow the Table 2 for fan upgrade.

**Note:** In order for the Supervisor 720 to operate in all Cisco Catalyst 65xx chassis as well as Cisco 7603, 7606, 7613 and OSR-7609 require an upgraded system fan tray to support the additional cooling requirements for these modules. The following table outlines the requirements for each chassis (Table 2).

**Table 1.** Fan Options for the Cisco Catalyst 6500/Cisco 7600 Series Internet Router

Chassis	Original Fan	Fan Upgrade
6503/7603		WS-C6K-3SLOT-FAN2
6506	WS-C6K-6SLOT-FAN	WS-C6K-6SLOT-FAN2
7606		TBD
6509	WS-C6K-9SLOT-FAN	WS-C6K-9SLOT-FAN2
6509-NEBS/OSR-7609	WS-C6509-NEB-FAN	WS-C6509-NEB-FAN2
Cisco 7609		TBD
6513/7613	WS-C6K-13SLOT-FAN	WS-C6K-13SLT-FAN2

**Q.** Are there any other system upgrades required in order to use the new Supervisor 720?

**A.** In addition to upgrading the fan tray, you may also need to upgrade the power supply in order to properly power the system. The minimum is a 2500 watt power supply for 6, 9, and 13-slot chassis. The 2500W power supply can operate as a 1300(W) (110VAC) or a 2500W (220VAC, -48DC to -60DC). As with any chassis configuration, power requirements for a Supervisor 720-based system will depend on the configuration. Consult the Hardware Installation documentation on CCO for more specific power requirements.

**Q.** What are the key components that make up a Supervisor 720?

**A.** The Supervisor 720 incorporates a new version of the Policy Feature Card (PFC3A or PFC3B or PFC3BXL) as well as a new Multilayer Switch Feature Card (MSFC3) as well as an integrated 720 Gbps switch fabric. This level of integration increases slot efficiency of high performance and high availability configurations, by 1 slot and 2 slots in a Cisco Catalyst 6500 Series chassis, respectively.

**Q.** Can a Supervisor 720 be ordered without the MSFC or the PFC?

**A.** No, the MSFC and PFC are an integral part of a Supervisor 720.

**Q.** Do I still need a separate Switch Fabric Module (SFM)?

**A.** No, the new Supervisor Engine 720 integrates a 720 Gbps Switch Fabric on board providing for increased slot efficiencies.

**Q.** Does the current SFM and SFM2 work in the same chassis where a Supervisor Engine 720 is installed?

**A.** No, since the switch fabric is integrated, the use of the SFM would be superfluous.

**Q.** Can I support a classic (32 Gb bus) card, an 8 Gb fabric (CEF256) card and a new high performance 40 Gb fabric (dCEF720) card at the same time in the same chassis with a Supervisor Engine 720?

**A.** Yes. One of the primary objectives when designing the new Supervisor Engine 720 was Investment Protection. The Supervisor Engine 720 will support all previous generations of interface modules.

**Q.** What are the performance characteristics for a Cisco Catalyst 6500 system configured with the Supervisor 720?

**A.** The new Supervisor 720 has an integrated switch fabric providing two 20 Gb connection to each module slot. This enables performance up to 400 Mpps distributed CEF. See (Table 2).

**Table 2.** Summary Performance Matrix

System Configuration with Supervisor 720	Maximum Throughput (Mpps)	Bandwidth (Gbps)
All Classic Series Modules	Up to 15 Mpps (per system)	16 Gbps (shared)
All CEF256 Modules	Up to 30 Mpps (per system)	8 Gbps (dedicated per slot)
Mix of Classic and CEF256 Series Modules	Up to 15 Mpps (per system)	Classic—16 Gbps (shared) CEF25—8 Gbps (dedicated per slot)
CEF256 Modules + DFC3	Up to 15 Mpps (per slot)	8 Gbps (dedicated per slot)
dCEF256 Modules	Up to 24 Mpps (per slot)	2 x 8 Gbps (dedicated per slot)
dCEF720 Modules	Up to 48 Mpps (per slot)	2x 20 Gbps (dedicated per slot)

**Q.** Will the Supervisor 720 have more TCAM resources?

**A.** ACL TCAM, QoS TCAM, ACL labels, LOUs, and L4ops per ACL are all the same in Supervisor Engine 720 as they are in Sup2.

**Q.** Will the Supervisor 720 support High Availability?

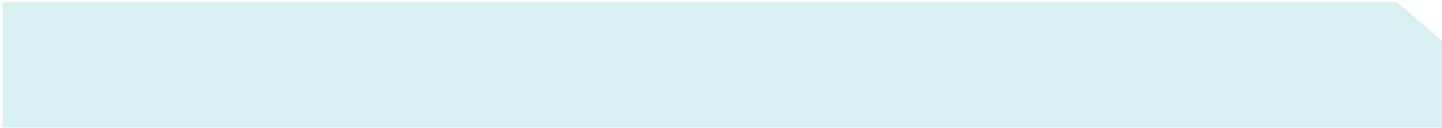
**A.** The Cisco Catalyst 6500 Series offers the highest levels of High Availability (HA) in the industry. The introduction of the Supervisor Engine 720 continues to support previous HA features such as RPR Failover, Full HW Redundancy, Hot-Swap Supervisors, Hot-Swap PSUs, Hot-Swap Modules, Multi Module EtherChannel, MISTP, PSU Load Balancing, HSRP, PortFast, UplinkFast, Backbone, Fast EtherChannel resiliency, 802.1w/802.1s, PAgP, L2 Load Balancing (PVST+), and L3 Load Balancing (Equal cost routing). At introduction, using Cisco IOS version 12.2(14)SX, the supervisor 720 will also support 255 HSRP groups, VRRP and Gateway Load Balancing Protocol. Additionally, the Supervisor 720 also supports NSF/SSO.

- Q.** Does the Supervisor 720 support all existing Cisco Catalyst 6500 series interface and services module, protecting customer investments?
- A.** Yes. The supervisor 720's integrated 720 Gbps switch fabric features auto-detect, auto-negotiation capabilities that connect to a module's required speed: 32 Gbps, 256 Gbps or 720 Gbps.
- Q.** What is the forwarding performance of a Cisco Catalyst 6500 Series configured with the Supervisor Engine 720 and all of the interface modules are dCEF720 fabric-enabled components?
- A.** ~ 400 Mpps sustained performance
- Q.** Will adding a Supervisor 720 increase the performance of my existing interface modules?
- A.** No, the Supervisor Engine 720 does not make any existing line cards go faster. Existing line cards will be able to take advantage of other Supervisor Engine 720 features, but not bandwidth. The switch fabric auto-negotiates with each linecard to match its connection requirement: classic 32 Gbps shared bus, 256 Gbps or 720 Gbps.
- Q.** What is the centralized forwarding performance of a 6509 with a Supervisor Engine 720 and all fabric-enabled (CEF256) components with no DFCs?
- A.** 30 Mpps.
- Q.** What slots can the Supervisor Engine 720 be installed in on the various chassis?
- A.** Because the switch fabric is integrated with the supervisor, the Supervisor Engine 720 must be installed in particular slots in the 3-, 6-, 9-, and 13-slot chassis. See Table 3 for slot requirements.

**Table 3.** Supervisor Engine 720 Slot Requirements

Chassis	Slots for Supervisor Engine 720
6503/6503-E/7603	1 or 2
6506/6506-E/7606	5 or 6
6509/6509-E	5 or 6
6509-NEBS/6509-NEBS-A/OSR-7609	5 or 6
Cisco 7609	5 or 6
6513/7613	7 or 8

- Q.** What is the connection speed for slots in a 6513?
- A.** When a Supervisor Engine 720 is installed in a 6513, it provides one 20 Gb connection in slots 1–8 and two 20 Gb (40 Gbps) connections to slots 9–13.
- Q.** Will the introduction of a classic card in a Supervisor Engine 720 configured Cisco Catalyst 6500 Series system reduce the centralized forwarding performance to 15 Mpps?
- A.** Performance is not limited to centralized forwarding, (for example, those modules that connect directly to the 256 Gbps or 720 Gbps switch fabric) distributed CEF256 or dCEF720 modules have the ability to communicate via the fabric and are not completely reliant upon the Central Bus.
- Q.** Will there be an upgrade program from SUP1A or SUP2s?
- A.** Cisco TMP program is always available Please contact your account team for details.
- Q.** What will be the NVRAM size on the Supervisor 720?
- A.** The new Supervisor 720 will have 512 KB on the Switch Processor and 2 MB on the Route Processor.
- Q.** Does the Supervisor Engine 720 support flash memory for software, configuration and crash dump purposes?
- A.** Yes, the Supervisor Engine 720 supports two Compact Flash Type II cards.

- 
- Q.** Does the Supervisor Engine 720 support the IBM compact flash microdrive?
- A.** Yes, the Supervisor Engine 720 will support the IBM 1 Gb microdrive in slot 1.
- Q.** Does the Supervisor Engine 720 have any uplink ports?
- A.** Yes, the Supervisor Engine 720 has three physical uplink ports, 2 x GE ports using modular Small Formfactor Pluggable (SFP) ports and 1 x 10/100/1000Tx port. Only two of the three ports can be active at any one point in time.
- Q.** What software options are available for the Supervisor Engine 720?
- A.** The Supervisor Engine 720 supports Cisco IOS starting 12.2(14)SX and Cisco Catalyst OS starting 8.1.
- Q.** Is AppleTalk supported on the Supervisor Engine 720?
- A.** Yes. Only in software on the MSFC3.
- Q.** Will you support IPX on the new Supervisor 720?
- A.** Yes, IPX will be supported in software only on the new Supervisor 720. If you require performance-based IPX support, you should consider a Supervisor 2 with running Cisco Catalyst OS or in Hybrid mode.
- Q.** Can I use a Supervisor Engine 720 with a WS-X6816-GBIC card?
- A.** Yes, but you must first upgrade the on-board DFC to a new DFC3 using the part number WS-F6K-DFC3A.
- Q.** Are there any compatibility issues between the Supervisor Engine 720 and Fabric-enabled (CEF256) line cards?
- A.** The only stipulation is that a line card with the current generation DFC must be upgraded to the new DFC3 to work with the Supervisor Engine 720.

**Corporate Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

**European Headquarters**

Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

**Americas Headquarters**

Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

**Asia Pacific Headquarters**

Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on **the Cisco Website at [www.cisco.com/go/offices](http://www.cisco.com/go/offices).**

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Cyprus  
Czech Republic • Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel  
Italy • Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal  
Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden • Switzerland • Taiwan  
Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

Copyright © 2005 Cisco Systems, Inc. All rights reserved. CCSP, CCVP, the Cisco Square Bridge logo, Follow Me Browsing, and StackWise are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, and iQuick Study are service marks of Cisco Systems, Inc.; and Access Registrar, Aironet, ASIST, BPX, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Empowering the Internet Generation, Enterprise/Solver, EtherChannel, EtherFast, EtherSwitch, Fast Step, FormShare, GigaDrive, GigaStack, HomeLink, Internet Quotient, IOS, IP/TV, iQ Expertise, the iQ logo, iQ Net Readiness Scorecard, LightStream, Linksys, MeetingPlace, MGX, the Networkers logo, Networking Academy, Network Registrar, Packet, PIX, Post-Routing, Pre-Routing, ProConnect, RateMUX, ScriptShare, SlideCast, SMARTnet, StrataView Plus, TeleRouter, The Fastest Way to Increase Your Internet Quotient, and TransPath are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or Website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0502R) 205309.C\_ETMG\_CC\_6.05

