


Cisco Systems Intelligent Gigabit Ethernet Switch Module for IBM BladeCenter



The Cisco Systems Intelligent Gigabit Ethernet Switch Module (IGESM) features four external copper Gigabit Ethernet ports and fourteen Gigabit Ethernet internal ports interfacing the blades via the BladeCenter midplane.

Enterprises like yours are becoming increasingly reliant on the performance of the data center. Growing competition combined with the need to reduce costs and improve efficiency make the data center a strategic factor contributing to business performance. So ensuring its end-to-end network security, high availability and quality of service are crucial to maintaining business-critical operations and competitive edge.

Highlights

- **Take advantage of new switching technology embedded in the server chassis, enabling you to consolidate access layer LAN switching capabilities into IBM  BladeCenter™**
- **Guard privacy and information with little or no interruption to operation with sophisticated security features**
- **Reduce network downtime, maintain mission-critical applications and help lower total cost of ownership with features that improve availability and resilience**
- **Leverage intelligent, integrated, robust networking capabilities to increase network manageability**
- **Optimize performance with simplified quality of service configuration and multicast functionality**

The Cisco Systems Intelligent Gigabit Ethernet Switch Module (IGESM) provides advanced manageability, security, availability and performance features to help you meet these business and IT challenges. It offers world-class Ethernet switching technology integrated within the BladeCenter chassis—a unique offering among blade vendors. The switching option also delivers complementary technology to customers using other Cisco equipment, providing a simple interface with existing data networks using industry-pervasive management tools like CiscoWorks.

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Improve data center manageability

Providing full interoperability into existing data centers, IGESM offers many advanced features that help enhance systems manageability and decrease complexity. Default VLAN settings enable IT staff to manage the switch through the BladeCenter management interface and IBM Director software—a central and convenient management point to help streamline and simplify administration. Administrators can also manage the switch through a Web browser or through the command-line interface (CLI)—giving users flexible management choices. The IGESM uses Cisco IOS for all switch operation and control. Other features that help improve overall manageability include:

- *Use of Cisco IOS allows for easy integration into Cisco data networks—switch module will appear as any other Cisco networking element to the datacenter’s network management tools*
- *Interoperability with SNMP network management platforms like CiscoWorks for Switched Internetworks—allowing you to configure IGESM to deliver end-to-end device, VLAN, traffic and policy management*
- *Full internetworking with CiscoWorks and Cisco Resource Manager Essentials—offering automated inventory collection, software deployment, network change tracking, device availability views and fast identification of systems error conditions*
- *Easy-to-use debugging and troubleshooting capabilities offered through the embedded Cisco Cluster Management Suite software—enabling administrators to simultaneously configure and troubleshoot multiple IGESMs across the chassis using a standard Web browser*
- *Port security capability, helping to limit access on the IGESM Ethernet ports and minimizing the total number of devices plugged into a switch port—reducing the risks of unauthorized wireless access points or hubs*
- *802.1x standard user authentication, allowing administrators to assign users a virtual VLAN or an ACL upon authentication regardless of where they connect to the network—helping your IT staff enforce strong security policies without compromising user mobility or requiring an excessive amount of administrative resources*

Protect information and access

IGESM offers sophisticated security features, enabling the data center to protect information, guard privacy and block unauthorized users from gaining network access—all while helping enable system uptime and uninterrupted operation. Key security features include:

- *Centralized access control of switches through the Terminal Access Controller Access Control System (TACACS+) and Remote Access Dial-In User Service (RADIUS)—providing simplified security management and authentication to restrict access to unauthorized users and prohibit them from altering configurations*

Maintain high system availability and resiliency

By helping reduce network downtime and maintain critical applications, the IGESM can help you lower the total cost of ownership of your BladeCenter. The IGESM offers several features that help keep systems highly available and promote operational resilience in the event of system problems. These features include:

- *Advanced Spanning-Tree Protocols (STP), including Per-VLAN Spanning-Tree Plus, UplinkFast and PortFast—helping to improve efficiency, reduce STP convergence time and maximize network uptime*

- *802.1Q VLAN trunking enhancements, allowing administrators to control consistent quality of service (QoS) traffic prioritization and service differentiation—helping mission-critical network traffic get proper treatment and maintaining end-to-end application response time*
- *Broadcast control/storm control—per-port broadcast, multicast and unicast storm control helping to prevent faulty end stations from degrading overall switch performance*

Optimize network performance and application delivery

Offering granular QoS features, the IGESM helps properly classify and prioritize network traffic. The result is enhanced performance across the network, improved network availability and optimized delivery of network services. To achieve this, IGESM provides:

- *Use of the Differentiated Services Code Point field (DSCP) or the 802.1p class-of-service (CoS) field to identify and classify traffic flows or packet groups—enabling administrators to implement Layer 2 through Layer 4 QoS*

- *IGMP Snooping and Multicast functionality, giving the switch the ability to select multicast traffic to travel only to those network destinations that require it—yielding multicast addressing with unicast efficiency and reducing the amount of traffic on the Ethernet LAN to improve network speed and performance*

Reap the benefits of intelligent switching

Intelligent switching capabilities can help you consistently achieve end-to-end network security, high availability and QoS.

Intelligent switching embedded in BladeCenter—like IGESM—delivers the benefits of adding intelligent services into your network, providing:

- *Rich security features to help protect confidential information*
- *Highly available systems to deliver time-sensitive business needs and maintain availability of business applications*

- *Simplified systems management, streamlining IT processes and reducing the number of IT resources needed to keep systems running*
- *Scalable architectures that accommodate future growth*
- *Capability to differentiate and control network traffic flows to handle increasing numbers of critical business applications*

BladeCenter with IGESM is a building block for the Cisco Business Ready Data Center Optimized with IBM for the On Demand Operating Environment providing customers with a resilient, reliable, scalable data center using a joint design based on IBM On Demand architecture and Cisco’s Business Ready Networks.

Need more information?

World Wide Web

U.S.	ibm.com/servers/eserver/bladecenter
Canada	ibm.com/pc/ca/eserver/xseries/bladecenter_family.shtml

Reseller locator and generation information

U.S.	1 800 426-4968
Canada	1 800 426-2255
	ibm.com/pc/us/businesspartner

Intelligent Gigabit Ethernet Switch Module Key product features

Connectors and Cabling

- 1000BASE-T ports: RJ-45 connectors

Scalability

- 32MB DRAM and 8MB flash memory
- Configurable up to 8000 MAC addresses
- Configurable up to 256 IGMP groups and bridging entries
- Configurable up to 250 VLAN
- Configurable maximum transmission unit (MTU) of up to 1530 bytes (mini-jumbo frame) for bridging on Gigabit Ethernet ports

Availability/Resiliency

- Advanced STP Protocols for faster Spanning Tree Convergence (Rapid PVST, PVST+, Uplink Fast, Root Guard, Port Fast, STP Backbone Fast)
- 802.1d
- 802.1s/w
- 802.3ad and LACP
- VTP
- 802.1q VLAN Trunking
- Broadcast control/storm control

Optimized Delivery

- IGMP Snooping (Multicast)
- IGMP Filtering (Multicast)
- L2-L4 QoS with CoS/DSCP
- Shaped Round Robin
- Strict Priority Queuing
- Rate Limiting
- Dynamic VLANs

Integrated Security

- SSH
- SNMPv3 (Crypto)
- ACPs based on Layer 2-4
- Port Security with aging
- ACLs based on DSCP filtering
- Unicast MAC filtering
- Private VLAN Edge
- MAC address notification
- RADIUS / TACACS+
- Spanning Tree Root Guard
- Trusted Boundary
- Aggressive UDLD
- 802.1x authentication

Enhanced Manageability

- Cisco IOS CLI
 - Console Port (IBM Service Port)
 - Embedded CMS
 - SNMP MIBs for Enterprise Management Systems
 - Port Mirroring (SPAN, RSPAN)
 - Cisco Discovery Protocol (CDP)
 - Network Time Protocol (NTP)
 - Show interface capabilities
 - Extensive debugging and troubleshooting capabilities
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