Secure, stackable, high-capacity Ethernet edge switches with Power over Ethernet (PoE) capability

IBM Ethernet Switch g-series

IBM g-series Ethernet switches

Highlights

- ***Compact 48-port 10/100/1000 Mbps access switches are field upgradeable to support Class 3 Power over Ethernet (PoE) providing 15.4 watts of power per port***
- ***Full IPv4 Layer 2 switching capabilities facilitate network resiliency***
- ***Base Layer 3 capabilities enable routed topologies to the network edge; supported features include: RIP v1/v2 route announcement, static IP routes, virtual and routed interfaces, DHCP relay and VRRP.***
- ***Help optimize network traffic with Layer 2 multicast support***
- ***Available Edge Layer 3 upgrade extends routing to the network edge***
- ***B50G model features advanced IronStack stacking technology over 2x 10 GbE CX4 ports, allowing up to eight systems to be stacked and managed as a single virtual chassis***
- ***Highly available, hot-swappable, N+1 load-sharing AC power supplies***
- ***Advanced suite of security capabilities, including ACLs, MAC filters, TCP SYN and ICMP denial of service (DoS) protection, Spanning Tree Protocol BPDU guard, root guard, unicast, broadcast and multicast rate limiting, 802.1X authentication and enhanced lawful intercept features***

IBM® g-series Ethernet access switches provide enterprise organizations with a flexible and feature-rich solution for building a secure and converged network edge. The switches support 48x 1 GbE RJ45 ports including 4x 1 GbE SFP combination ports. The B48G is upgradeable with two 10 GbE uplink ports to consolidate connections into the enterprise aggregation point, campus LANs, or metro area networks. The B50G comes with 2x 10 GbE CX4 stacking ports, providing the flexibility of a "pay-as-you-grow" architecture.

Both models enable a converged solution for vital network applications such as VoIP, wireless access, WebTV, video surveillance, building management systems, triple play (voice + video + data) services and remote video kiosks in a cost-effective, high-performance compact design. Support for the IEEE 802.1AB LLDP and ANSI TIA 1057 LLDP-MED standards enables organizations to deploy interoperable, multi-vendor solutions for unified communications. Configuring IP endpoints, such as VoIP, stations can be a complex task requiring manual and time-consuming configuration.

LLDP and LLDP-MED address these challenges, providing organizations with a standard and open method for configuring, discovering and managing their network infrastructure. For example, LLDP-MED provides an open protocol for configuring QoS, security policies, VLAN assignments, PoE power levels and service priorities. Additionally, LLDP-MED provides for the discovery of device location and asset identity, information that is used for inventory management and by emergency response services, such as Enhanced 911 (E911). These sophisticated features make converged networks services easier to deploy and operate, while enabling new and critical services.

IBM g-series Ethernet access switches provide the scalability, QoS assurance, resilience and VoIP-readiness needed to implement a high-value converged solution that can scale to meet future growth at the network edge. Utilizing advanced IronStack technology on the B50G, an enterprise may initially deploy a standalone B50G and scale the installation from one to eight stacked units to meet growing user requirements, which can be managed as a single virtual chassis.

An IronStack system operates as a single logical chassis (with a single IP management address) and supports cross-member trunking, mirroring, switching, static routing, sFlow, multicast snooping and other switch functions across the stack. An IronStack stack has a single configuration file and supports remote console access from any stack member. Support for active-standby controller failover, stack link failover and hot insertion/removal of stack members delivers the resilience that is typical of higher-end modular switches.

As network traffic increases, network managers can easily upgrade the B48G with 2-port 10 GbE uplink modules to provide high-capacity connectivity to the network backbone or high-performance server. These modules are available with XFP or CX4 connectors for increased flexibility.

Additionally, the 10 GbE uplinks are ideal for deploying the switch into campus LANs or metro area networks, providing a high-speed connection from building to building or branch offices. In this environment, important features include Brocade® Metro Ring Protocol (MRP) for building resilient ring-based topologies, VLAN stacking, and advanced multicast capabilities including IGMP v1/v2/v3 and MLD v1/v2 snooping for controlling multicast traffic for high-bandwidth content delivery.

IBM g-series Ethernet access switches include full advanced Layer 2 switching and Base Layer 3 routing features such as Virtual Switch Redundancy Protocol, Foundry's Metro Ring Protocol, Rapid Spanning Tree Protocol, protected link groups and 802.3ad Link Aggregation. Trunk groups provide alternate paths for traffic in the event of a link failure. Sub-second fault detection utilizing Link Fault Signaling and Remote Fault Notification helps ensure rapid fault detection and recovery.

Base Layer 3 allows enterprises to use simple Layer 3 features such as IPv4 static routes, virtual interfaces (VE), routing between directly connected subnets, RIPv1/v2 announce, VRRP, DHCP relay and routed interfaces. Network managers can remove complexity from an end-to-end Layer 3 network design and eliminate the cost required for a full Layer 3 edge switch.

IBM g-series Ethernet access switches are highly available with dual, redundant hot-swappable AC power supplies. The power modules are load-sharing supplies providing full 1+1 redundancy for as many as 48 Class 1 and Class 2 PoE ports and 31 Class 3 (15.4 watts) PoE ports. Additional design features include intake and exhaust temperature sensors and fan spin detection to aid in rapid detection of abnormal or failed operating conditions to help minimize mean time to repair.

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Product numbers	IBM Ethernet Switch B48G (4002-G4A and 4002AG5) IBM Ethernet Switch B50G (4002-G5A and 4002AG5)
Interface modules	1 Interface module slot on the B48S • 2-port 10 GbE module (XFP) • 2-port 10 GbE module (CX4)
Interface types	• 10/100/1000 Mbps Ethernet port with RJ45 connector • 100/1000 Mbps Ethernet port with SFP connector • 10 Gbps Ethernet port with XFP connector • 10 Gbps Ethernet port with CX4 connector
Optical transceivers	Choice of SFP (Small Form-factor Pluggable) transceivers for 100/1000 Mbps Ethernet ports with SFP connector and optical monitoring capabilities: • 1000BASE-T SFP Copper, 1 Gbps up to 100 m over CAT5 or higher cabling, RJ-45 connector • 1000BASE-SX 850 nm SFP optic, 1 Gbps up to 550 m over multi-mode fiber, LC connector • 1000BASE-LX 1310 nm SFP optic, 1 Gbps up to 10 km over single-mode fiber, LC connector • 1000BASE-LHA 1550 nm SFP optic, 1 Gbps up to 70 km over single-mode fiber, LC connector • 100BASE-FX 1310 nm SFP optic, 100 Mbps up to 2 km over multi-mode fiber, LC connector (no optical monitoring capability) Choice of XFP transceivers for 10 Gbps Ethernet ports with XFP connector and optical monitoring included: • 10GBASE-SR 850 nm XFP optic, 10 Gbps up to 300 m over multi-mode fiber, LC connector • 10GBASE-LR 1310 nm XFP optic, 10 Gbps up to 10 km over single-mode fiber, LC connector • 10GBASE-ER 1550 nm XFP optic, 10 Gbps up to 40 km over single-mode fiber, LC connector • 10GBASE-CX4 XFP copper, 10 Gbps up to 15 m over CX4 grade copper, CX4 connector

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Power supplies	2x 600 W power supplies supported for 1+1 redundancy
Hot-swappable components	SFP/XFP transceivers, power supplies
Non-rack support	Yes
Operating systems	B48G requires Brocade® IronWare® R4.3.01 or greater B50G requires Brocade IronWare R5.0.01 or greater
Fiber optic cable	Fiber optic cables are required and are available in various lengths in single-mode and multi-mode formats
Power cords	Power cords are not included and must be specified at time of order
Warranty	One year; warranty service upgrades are available
Optional features	• Edge Layer 3 Premium Activation
Physical characteristics	
Height	6.68 cm (1.5 RU)
Width	44.45 cm
Depth	49.78 cm
Weight (fully loaded)	11.36 kg
Power supply AC specifications	600 W Power Supply: • 100 - 240 VAC • 50 - 60 Hz • Max Watts (Output): 600 W
Power supply AC maximum thermal output (BTU/HR)	2,047 BTU/Hr
Technical specifications	
Performance	**Packet Routing Performance (Full Duplex)** 101 million pps
Data rate	**Switch Fabric Capacity** 136 Gbps

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Standards compliance	• IEEE 802.1D-2004 MAC Bridging • IEEE 802.1w Rapid Spanning Tree • IEEE 802.1s Multiple Spanning Tree • IEEE 802.1X Port-based Network Access Control • IEEE 802.3 10Base-T • IEEE 802.3ak CX4 • IEEE 802.3ad Link Aggregation (dynamic and static) • IEEE 802.3af Power over Ethernet • IEEE 802.3u 100Base-TX • IEEE 802.3x Flow Control • IEEE 802.3z 1000Base-SX/LX • IEEE 802.3ab 1000Base-T • IEEE 802.3ae 10 Gbps Ethernet • IEEE 802.3 MAU MIB (RFC 2239) • IEEE 802.3AB LLDP/LLDP-MED • IEEE 802.1p Mapping to Priority Queue
Layer 2 features	• 4,096 VLANs • 16,000 MAC addresses • 802.1s Multiple Spanning Tree Protocol • Per VLAN Spanning Tree (PVST/PVST+/PVRST) • Private VLAN • Protocol VLAN (802.1v), subnet VLAN • Policy controlled MAC-based VLANs • MAC Learning disable • Port security • MAC address locking • Port-based access control lists • Dual-mode VLANs • Fast Port Span • BPDU guard, root guard • GARP VLAN Registration Protocol • MAC-layer filtering • Port-based, ACL-based, MAC filter-based and VLAN-based mirroring • Single-instance Spanning Tree • Trunk groups • Trunk threshold • Single link LACP • Unidirectional Link Detection (UDLD) • Auto MDI/MDIX • Port speed downshift and selective auto-negotiation • Dynamic voice VLAN assignment • Jumbo frames up to 10,240 bytes for 10/100/1000 and 10 GbE ports • IGMP snooping (v1/v2/v3)1 • MLD snooping (v1/v2) • PIM–SM snooping • Private VLANs and uplink-switch • Protected link groups • Port loop detection • VLAN-based static MAC denial • Flexible static multicast MAC address configuration

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Layer 2 metro features	• VLAN stacking • Metro Ring Protocol (MRP I) • Virtual Switch Redundancy Protocol • Topology groups • Super aggregated VLANs (SAV)
Base Layer 3 features	• Virtual interfaces (VE) • Routed interfaces • IPv4 static routes • Routing between directly connected subnets • RIP v1/v2 announce • Virtual Route Redundancy Protocol
Quality of service (QoS)	• MAC address mapping to priority queue • ACL mapping to priority queue • ACL mapping to ToS/DSCP • Honoring DSCP and 802.1p • ACL mapping and marking of ToS/DSCP • DiffServ support • Classifying and limiting flows based on TCP flags • DHCP relay • QoS queue management using weighted round robin (WRR), strict priority (SP), and a combination of WRR and SP
Traffic management	• Inbound rate limiting per port • ACL-based inbound rate limiting and traffic policies • Outbound rate limiting per port and per queue • Broadcast, multicast and unknown unicast rate limiting

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Management and control	• RFC 2571 architecture for describing SNMP Framework • RFC 2131 DHCP relay • RFC 1493 Bridge MIB • Configuration logging • RFC 1643 Ethernet Interface MIB • RFC 1643 Ethernet MIB • Foundry Discovery Protocol (FDP) • RFC 2068 Embedded HTTP • RFC 2818 Embedded HTTPS • Industry Standard Command Line Interface (CLI) • IronView® Network Manager (INM) Web-based graphical user interface • Embedded Web management • RFC 3176 sFlow • RFC 1213 MIB-II • RFC 1516 Repeater MIB • RFC 1724 RIP v1/v2 MIB • RFC 1757 RMON MIB • RFC 2572 SNMP Message Processing and Dispatching • RFC 1573 SNMP MIB II • RFC 2575 SNMP View-based Access Control Model SNMP • RFC 1157 SNMPv1/v2c • RFC 2573 SNMPv3 Applications • RFC 2570 SNMPv3 Intro to Framework • RFC 2574 SNMPv3 User-based Security Model • Simple Network Time Protocol (SNTP) • Support for multiple syslog servers • RFC 854 Telnet Client and Server • RFC 783 TFTP • MIB support for MRP, port security, MAC authentication and MAC-based VLANs • Display log messages on multiple terminals
Embedded security	• IEEE 802.1X username export in sFlow • Bi-level access mode (standard and EXEC level) • Protection for denial-of-service (DoS) attacks • EAP pass-through support
System Management	IronView Network Manager (INM) Web-based Graphical User Interface (GUI) • Embedded Web Management GUI • Industry Standard Command Line Interface (CLI) • SNMP v1, v2c, v3 • RMON • IBM Tivoli® Netcool®/OMNIbus
Element Security Options	• AAA • RADIUS • Secure Shell (SSH v2) • Secure Copy (SCP v2) • HTTPs • TACACS/TACACS+ • Username/Password (Challenge and Response) • Bi-level Access Mode (Standard and EXEC Level) • Protection against Denial of Service attacks, such as TCP SYN or Smurf Attacks

For more information

To learn more about the IBM g-series Ethernet switches, please contact your IBM marketing representative or IBM Business Partner, or visit:
ibm.com/systems/networking

Additionally, IBM Global Financing can tailor financing solutions to your specific IT needs. For more information on great rates, flexible payment plans and loans, and asset buyback and disposal, visit:
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Produced in the United States of America
April 2009

TSD03071-USEN-01