

Compaq GIGAswitch/Router System



The 8-Slot GIGAswitch/Router delivers 15,000,000 pps routing throughput and can be configured with up to 56 10/100 ports, 14 Gigabit Ethernet ports, 14 HSSI WAN ports or 30 serial WAN ports. The 16-Slot GIGAswitch/Router delivers 30,000,000 pps routing throughput and can be configured with up to 120 10/100 ports, 30 Gigabit Ethernet ports, 30 HSSI WAN ports or 60 serial WAN ports.

Highlights

- * **Best in performance**
- * **Industry-leading capacity**
- * **Extensive Quality of Service and security capabilities**
- * **Unsurpassed reliability**
- * **Unique LAN and WAN connections**
- * **Simplified Web-based management**

Description

The *Compaq GIGAswitch/Router* provides the industry's best price/performance enterprise switching router solution. This chassis-based switch combines full wire-speed performance and superior routing capacity to meet the needs of both today's and tomorrow's networks. Equally important, this standards-based switching router provides seamless interoperability with previous generations of networking equipment to protect existing network investment.

In addition to Layer 2 switching and Layer 3 wire-speed full-function routing, the *GIGAswitch/Router's* unique ability to switch Layer 4 application flows extends its functionality well beyond the boundaries of traditional routers. This advanced capability provides the pinpoint control of network traffic through extensive security, port-level accounting, and comprehensive Quality of Service (QoS), necessary for the backbone of an applications-aware network.

Powered by custom ASICs, the *GIGAswitch/Router* routes packets at wire speed based on conventional source-destination data and/or application-level information. These ASICs also store QoS policies and security filters, providing wire-speed performance even when all functions are enabled. This provides users with the performance and functionality needed without compromise, while extending their control to the application level.

The *Compaq GIGAswitch/Router* package -- price/performance, functionality, capacity, and manageability

The *Compaq GIGAswitch/Router*, offered in both an 8- and 16-slot chassis, provides a non-blocking switching fabric of 16 and 32 GB/s, respectively, and delivers full-function unicast and multicast wire-speed IP/IPX routing on all ports. With up to 15 or 30 million packets per second (pps) routing throughput, the *GIGAswitch/Router* system routes packets in hardware, to eliminate performance bottlenecks caused by conventional software-based routers.

The *GIGAswitch/Router* provides IS professionals with pinpoint control traditionally lacking in switching devices. Features include application-level QoS and access control, wire-speed multicast capabilities, VLANs, extensive performance monitoring, and Web-based management. For network managers, the *GIGAswitch/Router* provides the performance and functionality needed, while extending control to the application level.

Built on a foundation of fault tolerance and redundancy, the *GIGAswitch/Router* offers redundant CPUs, hot-swappable modules, power supplies, and fans, as well as the ability to add a redundant switching fabric module to the 16-slot chassis. The result is the stability and reliability users require in an enterprise-level, high-speed, network backbone.

For large networks, the *GIGAswitch/Router* offers table capacities that are an order of magnitude greater than any other solution available today, thus allowing it to scale seamlessly as the network evolves. With a switching fabric of 16 or 32 GB/s, this chassis-based switch/router can be configured with up to 56 or 120 10/100 ports, or up to 14 or 30 Gigabit Ethernet ports, depending on the number of slots. With support for up to 250,000 routes, up to 2,000,000 or 4,000,000 application flows, more than 400,000 or 800,000 Layer-2 MAC addresses, more than 4,000 VLANs, 20,000 security filters and large per-port buffers, the *GIGAswitch/Router* provides the capacity to handle peak traffic across even the largest enterprise backbones.

The *GIGAswitch/Router* can guarantee bandwidth on an application-by-application basis, thereby accommodating high-priority traffic even during peak periods of usage. Class of Service (CoS) policies can be broad enough to encompass all the applications in the network or they can relate specifically to a single host-to-host application flow. All QoS/CoS policies can be easily administered using *Compaq clearVISN CoreWatch* Network Management Software.

The *GIGAswitch/Router* paves the way for proactive planning of bandwidth growth and efficient network troubleshooting. *Compaq clearVISN CoreWatch* Network Management Software provides full remote monitoring (RMON) and future RMON2 capabilities on a per-port basis, such as viewing application-level statistics per port. Additional RMON capabilities, such as RMON packet capture and filter, allow network managers to store traffic information and export files to an external analyzer for decoding.

Unlike conventional routers, the *GIGAswitch/Router's* performance does not degrade when security filters are implemented. Wire-speed security, obtained through 20,000 filters, enables network managers to benefit from both performance and security. Filters can be set based on Layer 2, Layer 3, or Layer 4 information, enabling network managers to control access -- based not only on IP addresses, but also on host-to-host application flows.

The *GIGAswitch/Router's* rich functionality is made easy to use through a Web-based management tool that provides policy-based configuration and monitoring. *Compaq clearVISN CoreWatch* allows network managers to use any Web-enabled client station across the enterprise to manage remotely any *GIGAswitch/Router* running in Windows NT, Solaris 2.x, Windows 95 or Windows 98 environments. In addition, the *GIGAswitch/Router* is fully SNMP-compliant and can be managed by any standards-based management platform, including Computer Associates' Unicenter, Cabletron's SPECTRUM, and HP's Open View.

Features

- * Full-function routing -- wire-speed, standards-based, IP/IPX routing
- * Industry-leading performance -- 16 (32) GB/s switching fabric and 15 (30) million pps routing throughput

- * High-density configurations -- Up to 56 (120) 10/100 ports, 14 (30) Gigabit Ethernet ports, 14 (30) HSSI WAN ports, or 28 (60) SLI WAN ports
- * Unprecedented capacity -- Up to 250,000 Layer 3 routes, 2,000,000 (4,000,000) Layer 4 application flows, 400,000 (800,000) MAC addresses, and 20,000 security/access filters
- * Extensive QoS support -- allocate bandwidth or assign priority based on applications
- * Unique WAN capabilities
- * Comprehensive Web-based management

Benefits

- * Better price/performance saves costs over enterprise routers
- * Redundancy and hot-swap capabilities maximize uptime
- * Legacy equipment links and massive table capacities provide easy migration and investment protection
- * Quality of Service maximizes investment on network applications

Availability and ordering

The *Compaq GIGAswitch/Router* system is available now.

Part No.	Description
DGSRA-AA	<i>GIGAswitch/Router</i> 8-slot chassis includes backplane and fan
DGSRP-AA	<i>GIGAswitch/Router</i> 120/240V Autoswitch power supply
DGSRA-BA	<i>GIGAswitch/Router</i> 16-slot chassis includes backplane, fan and switch fabric module
DGSRP-AB	<i>GIGAswitch/Router</i> 16-slot 120/240 Autoswitch power supply
DGSRD-AA	<i>GIGAswitch/Router</i> Switch Fabric Module
DGSRC-BA	<i>GIGAswitch/Router</i> 64 MB Switch Control Processor
DGSRC-BB	<i>GIGAswitch/Router</i> 128 MB Switch Control Processor
DGSRU-AA	128 MB Memory upgrade for Switch Control Processor
	Accessories & Supplies
BN19A-2E	Power cord (Hong Kong, Ireland, Singapore, U.K.)
BN19C-2E	Power cord (Brazil, Chile, Central Europe including Austria, Belgium, France, Germany, Finland, Norway, Sweden, Spain)
BN19E-2E	Power cord (Switzerland)
BN19H-2E	Power cord (Argentina, Australia, New Zealand)
BN19K-2E	Power cord (Denmark)
BN19N-2E	Power cord (Italy)
BN19S-2E	Power cord (India, S. Africa)
BNE4H-2E	Power cord (U.S., Canada, Japan, Puerto Rico, Mexico, Korea, Thailand)
DGSRF-AA	8-port Fast Ethernet-FX 4 MB Linecard
DGSRF-AB	8-port Fast Ethernet-FX 16 MB Linecard
DGSRL-AA	2-port Gigabit Ethernet-LX 4 MB Linecard
DGSRL-AB	2-port Gigabit Ethernet-LX 16 MB Linecard
DGSRS-AA	2-port Gigabit Ethernet-SX 4 MB Linecard
DGSRS-AB	2-port Gigabit Ethernet-SX 16 MB Linecard
DGSRT-AA	8-port Fast Ethernet-TX 4 MB Linecard
DGSRT-AB	8-port Fast Ethernet-TX 16 MB Linecard
QB-64PAA-WA	<i>GIGAswitch/Router</i> Services
3X-DGSRH-AA	<i>GIGAswitch/Router</i> 2-port HSSI linecard
3X-DGSRK-AA	<i>GIGAswitch/Router</i> 4-port Serial linecard with HW compression and encryption
3X-DGSRK-AB	<i>GIGAswitch/Router</i> 4-port Serial linecard with HW compression

3X-BN42A-03	3 meter, 2-lead cable and 2 male V35 DTE 34-pin connectors
3X-BN43A-03	3 meter, 2-lead cable and 2 male RS530 DTE DB-25 25-pin connectors
3X-BN44A-03	3 meter, 2-lead cable and 2 male RS449 DTE DB-37 37-pin connectors
3X-BN45A-03	3 meter, 2-lead cable and 2 male X21 DTE DB-15 15-pin connectors
3X-BN46A-03	3 meter HSSI cable, male to male 50-pin connector

Ordering notes

Following is a seven-step process to simplify the ordering of a GIGAswitch/Router system. Follow this guide, step-by-step, to ensure that your customer receives the appropriate hardware, and a complete system.

1. Order the GIGAswitch/Router (GS/R) chassis

- DGSRA-AA: 8-slot GS/R chassis - includes backplane, fan and integral switch fabric
- DGSRA-BA: 16-slot GS/R chassis - includes backplane, fan, one switch fabric module.
- DGSRD-AA: Optional Redundant Switch Fabric Module for 16-slot only

2. Order a GIGAswitch/Router 120/240V Autoswitch Power Supply

- DGSRP-AA: 8-slot 120/240V Autoswitch Power Supply
- DGSRP-AB: 16-slot 12-/240V Autoswitch Power Supply

The power supply delivers 3.3, 5 and 12 volts DC to the GIGAswitch/Router and its components. A single power supply provides enough current to operate a fully-configured chassis. For redundancy, a second power supply may be ordered.

3. Order a GIGAswitch/Router Switch Control Processor (SCP)

- DGSRC-BA: 64 MB Switch Control Processor with support for up to 50 000 routes*
- DGSRC-BB: 128 MB Switch Control Processor with support for up to 100 000 routes*
- DGSRU-AA: 128 MB Memory upgrade Kit

The SCP (DGSRC-BA/BB) has a 10/100-Base-TX Management port, and supports a field installable memory upgrade with the Memory Upgrade Kit (DGSRU-AA). For redundancy, a second SCP may be installed in both the 8-slot or 16-slot chassis.

Note: The SCP (DGSRC-BA/BB) replaces the DGSRC-AA/AB. The DGSRC-AA/AB has a 10-Base-TX Management port, and supports redundancy, but can be used only in the GS/R 8-slot chassis.

*Although Router Table capacity will vary from configuration to configuration based on other processes, the above # of routes represent reasonable guidelines to follow.

4. Order a GIGAswitch/Router Services Software Kit.

QB-64PAA-WA: GIGAswitch/Router Services. This kit includes:

- 2 PCMCIA flash cards containing the GIGAswitch/Router System firmware V2.0 -- one is required, while the second one can be used if an optional redundant SCP is installed
- 2 CD-ROMs -- one contains the DIGITAL clearVISN CoreWatch element management software and the other contains user documentation
- 1 copy of the DIGITAL GIGAswitch/Router Getting Started Guide

QB-64PAB-WA: GIGAswitch/Router firmware upgrade kit*

QB-64PAB-WB: GIGAswitch/Router CoreWatch Upgrade kit*

*Latest versions of firmware/software for existing customers who want to upgrade

5. Order appropriate GIGAswitch/Router Linecards

DGSRT-AA: 8-port Fast Ethernet-TX 4 MB Linecard

DGSRT-AB: 8-port Fast Ethernet-TX 16 MB Linecard

DGSRF-AA: 8-port Fast Ethernet-FX 4 MB Linecard

DGSRF-AB: 8-port Fast Ethernet-FX 16 MB Linecard

DGSRS-AA: 2-port Gigabit Ethernet-SX 4 MB Linecard

DGSRS-AB: 2-port Gigabit Ethernet-SX 16 MB Linecard

DGSRL-AA: 2-port Gigabit Ethernet-LX 4 MB Linecard

DGSRL-AB: 2-port Gigabit Ethernet-LX 16 MB Linecard

3X-DGSRH-AA: 2-port HSSI Linecard

3X-DGSRK-AA: 4-port Serial Linecard with Hardware Compression & Hardware Encryption

3X-DGSRK-AB: 4-port Serial Linecard with Hardware Compression

The Fast Ethernet-TX linecards (DGSRT-AA/AB) contain 8 independent 10/100 Ethernet ports. Each port senses whether it is connected to a 10 Mb/s segment or a 100 Mb/s segment and automatically configures itself as a 10Base-T or 100Base-TX port.

The Fast Ethernet-FX linecards (DGSRF-AA/AB) contain 8 independent Fast Ethernet ports, and uses multi-mode fiber-optic cables (MMF) to connect to the network.

The Gigabit Ethernet-SX linecards (DGSRS-AA/AB) contain 2 independent Gigabit Ethernet ports, with each port connecting to multi-mode fiber (MMF) cables.

The Gigabit Ethernet-LX linecards (DGSRL-AA/AB) contain 2 independent Gigabit Ethernet ports, with each port connecting to single mode fiber (SMF) cables.

The 2-port HSSI Linecard and 4-port Serial Linecards provide WAN connections

Note: The memory size of the linecards will be in correlation with of the number of flows.

If you are positioning the GS/R in the wiring closet,

- 4 MB Fast Ethernet linecards will be sufficient for Layer 3 and Layer 4 flows to the desktops.
- 16 MB Gigabit Ethernet linecards can be used to aggregate Layer 3 and Layer 4 flows over Gigabit uplinks to the backbone.

If you are positioning the GS/R in the backbone, 16 MB linecards are suggested because of the number of Layer 3 and Layer 4 flows aggregating into the backbone.

6. Order Cables for Linecard Connections

3X-BN42A-03: 3 meter 2 -lead cable and 2 male V35 DTE (male) 34-pin connectors

3X-BN43A-03: 3 meter 2-lead cable and 2 RS530 DTE (male) DB-25 25-pin connectors

3X-BN44A-03: 3 meter 2-lead cable and 2 male RS449 DTE (male) DB-37 37-pin connectors

3X-BN45A-03: 3 meter 2-lead cable and 2 male X21 DTE (male) DB-15 15-pin connectors

3X-BN46A-03: 3 meter HSSI cable, male-to-male 50-pin connector

7. Order one country-specific power cord for each power supply

BNE4H-2E: U.S., Canada, Japan, Puerto Rico, Mexico, Korea, Thailand

BN19A-2E: Hong Kong, Ireland, Singapore, UK

BN19C-2E: Central Europe (Austria, Belgium, France, Germany, Finland, Norway, Sweden, Spain), Brazil, Chile

BN19E-2E: Switzerland

BN19K-2E: Denmark

BN19N-2E: Italy

BN19S-2E: India, South Africa

Physical Configuration Considerations:

Slot 0 is in the lower left corner of the chassis and is labeled "CM". The primary Switch Control Processor (SCP) must be installed in this slot. The CM slot cannot be used for linecards.

Slot 1 is in the lower right corner of the chassis, and may contain a redundant SCP or a linecard.

Slots 2-7 or 2-15 may contain any combination of linecards.

You must place the PCMCIA flash card with the GIGAswitch/Router firmware in the top PCMCIA slot of the Switch Control Processor.

Warranty

One year parts exchange warranty for hardware, delivered by advance exchange.

Resources

- * Network Product Business Web page -- <http://www.networks.digital.com>
- * Network Product Business Web Page (Australia) -- <http://www.digital.com.au/networks>
- * Network Product Business Web Page (Europe) -- <http://www.networks.europe.digital.com>
- * Network Product Business Web Page (Japan) -- <http://www.dec-j.co.jp/ic/network>
- * Compaq US Call Center -- 800-344-4825
- * DIGITAL Business Link Web site -- <http://www.businesslink.digital.com>

Compaq, the Compaq logo, DIGITAL, and the DIGITAL logo are registered in the U.S. Patent and Trademark Office.

Other product and company names mentioned herein may be trademarks and/or service marks of their respective owners.