Data Sheet

Cisco 7200 Series Network Processing Engine NPE-G1

To continue to meet the increasing needs for performance while maintaining exceptional value and flexibility, the Cisco® 7200 Series introduces its newest processor—the NPE-G1 (Figure 1). The Cisco 7200 Series Network Processing Engine NPE-G1 (NPE-G1) addresses the demand for performance and flexibility by doubling its processing capacity and enabling unprecedented LAN performance. Benefits of the NPE-G1 include the following (see Table 1 for details):

- Provides performance of up to 1 million packets per second (PPS) in Cisco Express Forwarding switching (an increase of up to 250 percent over the Cisco 7200 Series NPE-400)
- Offers three Gigabit Ethernet/Fast Ethernet ports that do not take up bandwidth points
- Doubles the amount of available DRAM (to 1 GB)
- Eliminates the requirement for an input/output (I/O) controller
- Eliminates I/O controller LAN interface bandwidth points
- Provides modular processors and the ability to upgrade
- Offers improved price performance

Figure 1. Cisco 7200 Series NPE-G1

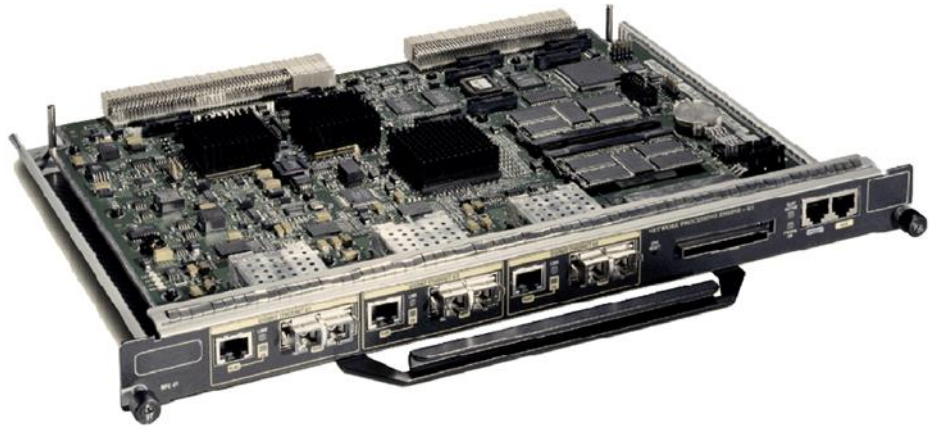


Table 1. Features and Benefits Overview

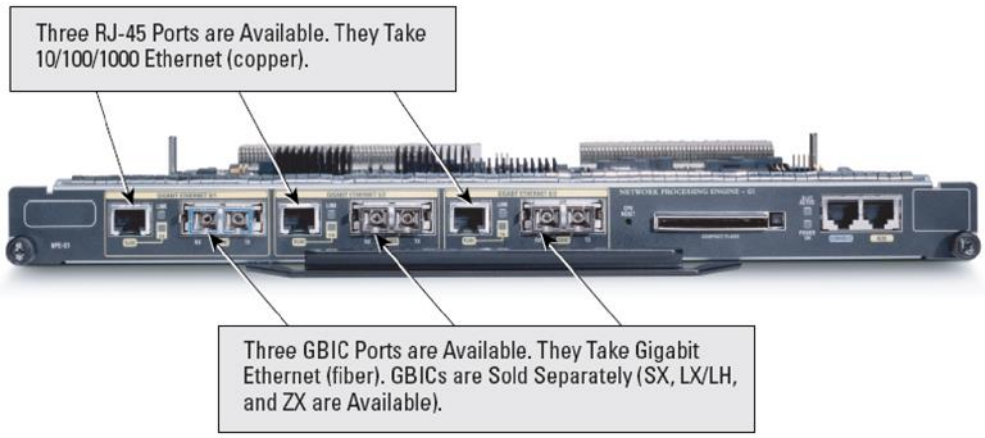
Features	Benefits
Performance of up to 1 million PPS in Cisco Express Forwarding switching	Dramatically increases the performance of the Cisco 7200 Series
3 fixed 10/100/1000-Mbps ports (RJ-45 or gigabit interface converter [GBIC]) directly on the processor	Maximizes LAN connectivity and performance without taking up bandwidth points or midplane capacity
256 MB (default), 512 MB, and 1 GB of DRAM are available	Doubles the amount of DRAM available on the Cisco 7200 Series, which offers the following benefits: • Supports more routing tables • Supports more Multiprotocol Label Switching (MPLS) virtual routing and forwarding instances (VRFs) • Supports more sessions for broadband aggregation • Enables higher scalability on features such as NetFlow, Network Address Translation (NAT), access control lists (ACLs), and more
Incorporates the functionality (flash memory and auxiliary and console ports) of the I/O controller	Reduces costs (Note: an I/O controller can still be used)
Supports a third peripheral component interconnect (PCI) bus to the I/O controller slot	Frees the current I/O controller ports from bandwidth limitations, allowing 2 PCI buses to be dedicated to the port adapter slots
Modular	Enables maximum investment protection through the ability to upgrade processors
Supports Cisco IOS® Software	Supports a wide range of IP network services including quality of service, MPLS, broadband aggregation, security, multiservice, compression, and IPSec Triple Data Encryption Standard (3DES) encryption

PRODUCT SPECIFICATIONS: COMPONENTS

Connectivity

Gigabit Ethernet ports: Three 10/100/1000 ports are available on the NPE-G1 (Figure 2). Either copper or fiber is available.

Figure 2. Cisco 7200 Series NPE-G1 Ports



- Gigabit Ethernet port features: all three ports support the IEEE 802.1Q standard.
- NPE-G1 supports three types of GBICS: SX, LX/LH, and ZX for varying fiber length requirements.
- Console and auxiliary ports: Because the NPE-G1 has a console port and an auxiliary port, and handles the other functionality of the I/O controller, the need for an I/O controller is eliminated. However, an I/O controller can still be used. If an I/O controller is detected in the I/O controller slot, I/O controller functionality defaults to the I/O controller (with the exception of Non-volatile Random Access Memory [NVRAM] and boot flash). The console and auxiliary ports of the NPE-G1 are then disabled.

Memory

- SDRAM: 256 MB (default), 512 MB, and 1 GB. There are two DRAM memory slots, so 256 MB of memory consists of two 128 MB memory SODIMMs, 512 MB consists of two 256 MB memory SODIMMs, and 1 GB consists of two 512 MB memory SODIMMs. It is necessary to have the same size SODIMM in each memory bank on an NPE-G1. The type of DRAM memory being used on the NPE-G1 is double data-rate (DDR) memory. DDR memory provides high-performance memory access rates.
- Compact flash: 64 MB (default), 128 MB, and 256 MB. The compact flash used on the NPE-G1 is the same compact flash used with the Cisco 7400 and 7300 series Internet routers.
- 512 KB NVRAM or 512 KB.
- 512 KB Layer 2 cache.
- 16 MB packet memory on 256 MB SDRAM and 32 MB packet memory on 512 MB and 1 GB SDRAM.
- ECC support (SDRAM and Layer 2 cache).

Processor

700 MHz Broadcom BCM1250 processor.

PRODUCT SPECIFICATIONS: ENVIRONMENTAL CONDITIONS

- Storage temperature: –38 to 150°F (–40 to 70°C)
- Operating temperature, nominal: 41° to 104°F (5 to 40°C)
- Operating temperature, short term: 23 to 131°F (–5 to 55°C)
- Storage relative humidity: 5 to 95% relative humidity (RH)
- Operating humidity, nominal: 5 to 85% RH
- Operating humidity, short term: 5 to 90% RH
- Operating altitude: –60 to 4000 m

PRODUCT SPECIFICATIONS: PHYSICAL SPECIFICATIONS

- Height: 1.40 in. (3.556 cm)
- Width: 15.15 in. (38.481 cm)
- Depth: 11.12 in. (28.245 cm)
- Weight: 3.25 lb (1.49 kg)

PRODUCT REGULATORY APPROVALS AND COMPLIANCE

Product Regulatory Approvals

- Safety and Electromagnetic Emissions
- Underwriters Laboratories (UL) for the United States
- Underwriters Laboratories, Canada (cUL) or Canadian Standards Association (CSA)
- European Norm (EN)
- International Electrotechnical Commission (IEC)
- Australia/New Zealand Standard (AS/NZS)

Product Regulatory Compliance

- FCC Part 15 Class A device for electromagnetic interference limits
- FCC Part 68 for connection to the public telephone network
- Electrostatic Discharge EN61000-4

PRODUCT SYSTEM REQUIREMENTS

Hardware Requirements

- Chassis: The NPE-G1 is supported on the Cisco 7204VXR and Cisco 7206VXR chassis.
- I/O controllers: Although a Cisco 7200VXR chassis with an NPE-G1 does not require the use of an I/O controller, an I/O controller can still be used. The NPE-G1 is supported with the following Cisco 7200 Series I/O controller part numbers: C7200-I/O, C7200-I/O-2FE/E, C7200-I/O-GE+E.
- Port adapters: The NPE-G1 is supported with all port adapters that can be ordered with the Cisco 7200VXR chassis as of August 1, 2002 except for the following:
  - PA-A2-4T1C-OC3SM
  - PA-A2-4T1C-T3ATM
  - PA-A2-4E1XC-OC3SM
  - PA-A2-4E1XC-E3ATM

Software

The NPE-G1 is supported in 12.2(4)BW, 12.2(15)B, 12.2(14)S, 12.2(14)SU, 12.2(15)T, 12.1(14)E, 12.3(1), 12.3(2)T, 12.0(28)S, 12.3(1a)B, and later Cisco IOS releases. For the most current release information, refer to http://tools.cisco.com/Support/Fusion/FusionHome.do

PRODUCT ORDERING DETAILS

Please visit https://www.cisco.com/c/en/us/services/order-services.html to place an order. Refer to Table 2 for product part numbers.

Table 2. Product Ordering Details: Product Part Number

Product Number	Product Description
NPE-G1	Cisco 7200 Series NPE-G1 including 256 MB default DRAM and 64 MB default flash memory
NPE-G1=	Cisco 7200 Series NPE-G1 including 256 MB default DRAM and 64 MB default flash memory—Spare
MEM-NPE-G1-256MB	2 128 MB memory modules (256 MB total) for the Cisco 7200 NPE-G1
MEM-NPE-G1-256MB=	2 128 MB memory modules (256 MB total) for the Cisco 7200 Series NPE-G1—Spare
MEM-NPE-G1-512MB	2 256 MB memory modules (512 MB total) for the Cisco 7200 Series NPE-G1
MEM-NPE-G1-512MB=	2 256 MB memory modules (512 MB total) for the Cisco 7200 Series NPE-G1—Spare
MEM-NPE-G1-1GB	2 512 MB memory modules (1 GB total) for the Cisco 7200 Series NPE-G1
MEM-NPE-G1-1GB=	2 512 MB memory modules (1 GB total) for the Cisco 7200 Series NPE-G1—Spare
MEM-NPE-G1-FLD64	64 MB Compact Flash Disk for the Cisco 7200 Series NPE-G1
MEM-NPE-G1-FLD64=	64 MB Compact Flash Disk for the Cisco 7200 Series NPE-G1—Spare
MEM-NPE-G1-FLD128	128 MB Compact Flash Disk for the Cisco 7200 Series NPE-G1
MEM-NPE-G1-FLD128=	128 MB Compact Flash Disk for the Cisco 7200 Series NPE-G1—Spare
MEM-NPE-G1-FLD256	256 MB Compact Flash Disk for the Cisco 7200 Series NPE-G1
MEM-NPE-G1-FLD256=	256 MB Compact Flash Disk for the Cisco 7200 Series NPE-G1—Spare
IO-CONTROLR-BLANK	I/O controller slot blank
IO-CONTROLR-BLANK=	I/O controller slot blank—Spare

PRODUCT ORDERING DETAILS: MIGRATION PROGRAM

A Cisco Technology Migration Plan (TMP) has been established for this product.

The Cisco TMP is a sales program that allows customers to trade in Cisco products to receive a trade-in credit toward the purchase of any new Cisco product. The program underscores the Cisco commitment to the customer.

More specifics about this program can be found at: http://www.cisco.com/go/tradein

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