Data Sheet

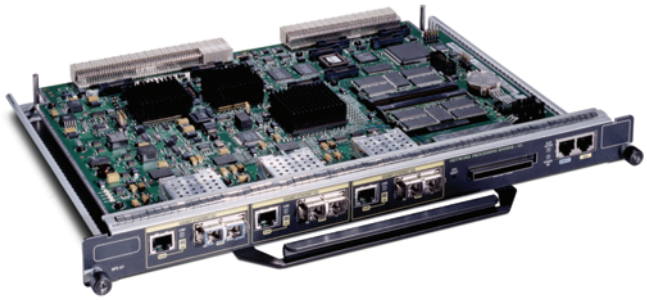
Cisco uBR7200-NPE-G1 Network Processing Engine for the Cisco uBR7246VXR Universal Broadband Router

Cisco Systems introduces its newest processor—the Cisco uBR7200-NPE-G1 Network Processing Engine. The Cisco uBR7200-NPE-G1 dramatically increases processor capacity, meeting increasing performance demands while offering exceptional value and flexibility. The Cisco uBR7200-NPE-G1 is supported on the Cisco uBR7246VXR Universal Broadband Router. The Cisco uBR7200-NPE-G1 is the highest-performance processor in the family of Network Processing Engines (NPEs) for the Cisco uBR7246VXR.

Cisco uBR7200-NPE-G1 Description

The Cisco uBR7200 Series continues to upgrade its performance levels, ensuring customers can easily and cost-effectively upgrade their networks to meet demands of next-generation networking. The Cisco uBR7200-NPE-G1 (see Figure 1) provides dramatically increased performance compared to the Cisco NPE-400, addressing increased demands for performance and flexibility.

Figure 1
Cisco uBR7200-NPE-G1



Benefits of the Cisco uBR7200-NPE-G1 include:

- Provides 2x performance improvement[1] over the Cisco NPE-400
- Offers three on-board Gigabit Ethernet/Fast Ethernet ports that do not take up backplane bandwidth
- Doubles the amount of available DRAM (to 1 GB)
- Eliminates the requirement for an I/O controller card
- Adds two new I/O controller buses that do not take up backplane bandwidth
- Assures investment protection through processor modularity and upgradeability
- Provides improved price performance

1. Actual performance improvement varies depending on factors including traffic and usage patterns, number of subscribers, and features turned on.

Table 1

Cisco uBR7200-NPE-G1 Features and Benefits

Features	Benefits
Performance enhancement	Up to 2x performance improvement[1] over the Cisco NPE-400
Three fixed 10/100/1000 Mbps ports; RJ-45 or Gigabit Interface Converter (GBIC) directly on the processor	Maximizes LAN/WAN connectivity and performance without taking up backplane capacity
256 MB (default), 512 MB, and 1 GB of DRAM available	Doubles the amount of DRAM available on the Cisco uBR7246VXR; more memory offers the following benefits: • Supports more routing tables • Supports more Multiprotocol Label Switching (MPLS) virtual private network (VPN) routing/ forwarding (VRF) instances • Supports more sessions for broadband aggregation • Enables higher scalability on features such as NetFlow, network address translation (NAT), and access control lists (ACLs)
Incorporates functionality of the I/O controller	Because the Cisco uBR7200-NPE-G1 incorporates all the functionality of an I/O controller (Flash memory and auxiliary and console ports), customers are no longer required to use an I/O controller. That saves them money. If customers desire to use an I/O controller, they can
Supports a third PCI bus to the I/O controller slot	Frees current I/O controller ports from sharing backplane bandwidth, allowing two PCI buses to be dedicated to port adapter and line card slots
Modular	Enables maximum investment protection through upgradeability
Supports Cisco IOS® Software	Supports IP network services including qualify of service (QoS), MPLS, and security

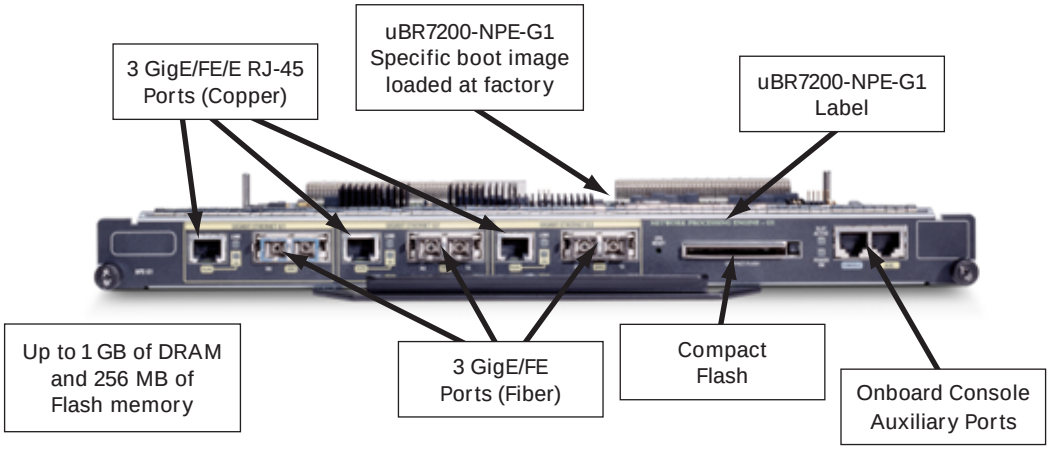
1. Actual performance improvement varies depending on factors including traffic and usage patterns, number of subscribers, and features turned on.

Ports

The figure below illustrates the Cisco uBR7200-NPE-G1 ports and memory options:

Figure 2

Cisco uBR7200-NPE-G1 Front View



LAN/WAN Ports

Three LAN/WAN ports are available on the Cisco uBR7200-NPE-G1.

GBICs

The Cisco uBR7200-NPE-G1 supports three types of GBICs: SX, LX/LH, and ZX.

DRAM Memory

The Cisco uBR7200-NPE-G1 supports 256 MB (default), 512 MB, and 1 GB of DRAM memory. 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.

The type of DRAM memory being used on the Cisco uBR7200-NPE-G1 is DDR memory. DDR memory provides high performance memory access rates. With DDR memory, it is not necessary to have the same size SODIMM in each memory bank on the Cisco uBR7200-NPE-G1.

Compact Flash Memory

The Cisco uBR7200- NPE-G1 supports 64 MB (default), 128 MB and 256 MB of Compact Flash memory. The Compact Flash memory used on the Cisco uBR7200- NPE-G1 is the same as that used with the Cisco 7200, 7300 and 7400 Series routers.

Console and Auxiliary Ports

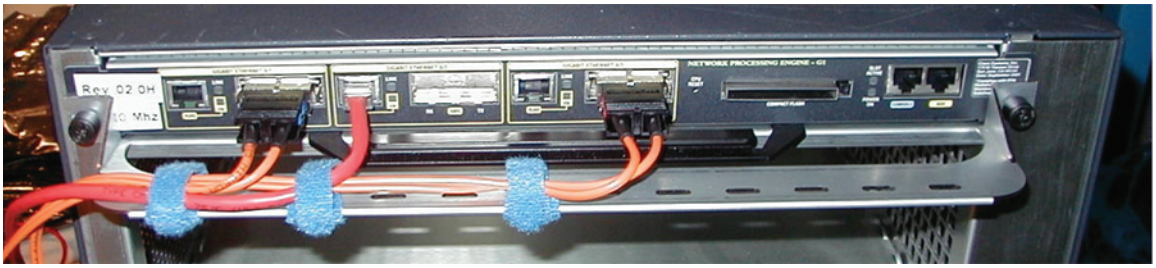
Because the Cisco uBR7200-NPE-G1 has a console port and an auxiliary port, and handles functionality of an I/O controller, the need for an I/O controller is eliminated. An I/O controller, however, can still be used.

If an I/O controller is detected in the I/O controller slot, all I/O controller functionality defaults to the I/O controller. The I/O controller functionality of the Cisco uBR7200-NPE-G1 is disabled.

Cable Management Bracket

The Cisco uBR7200-NPE-G1 is the first NPE on the Cisco uBR7246VXR that requires external cabling (fiber or copper) for different types of ports, including GBIC, RJ-45, console, and auxiliary. There will be cables, therefore, on both sides of the Cisco uBR7246VXR. To ensure that customers are offered the appropriate and sufficient cable management support for the Cisco uBR7246VXR, Cisco has designed a cable management bracket for the Cisco uBR7200-NPE-G1. Cisco offers this cable management bracket as an option for the Cisco uBR7200-NPE-G1.

Figure 3
Cisco uBR7200-NPE-G1 Cable Management Bracket



Product Specifications: Compatibility

Chassis

The Cisco uBR7200-NPE-G1 is supported on the Cisco uBR7246VXR which belongs to the Cisco uBR7200 Series family.

I/O Controllers

Although a Cisco uBR7246VXR chassis with a Cisco uBR7200-NPE-G1 does not require the use of an I/O controller, an I/O controller can still be used.

The Cisco uBR7200-NPE-G1 is supported with the following Cisco uBR7200 Series I/O controllers:

- Cisco uBR7200-I/O
- Cisco uBR7200-I/O-FE
- Cisco uBR7200-I/O-2FE/E

Port Adapters

The Cisco uBR7200-NPE-G1 is compatible with all port adapters currently available on the Cisco uBR7246VXR, except for the Cisco PA-2FEISL-TX and PA-2FEISL-FX port adapters.

IOS Software

The Cisco uBR7200-NPE-G1 is supported in Cisco IOS Software Release 12.2(11)CX. This release is based on the Data over Cable Service Interface Specification (DOCSIS) 1.1 and European DOCSIS (EuroDOCSIS) 1.1-qualified Cisco IOS Software train. Support for the Cisco uBR7200-NPE-G1 in Cisco IOS Software Release 12.2(x)BC and 12.1(x)EC follows product release.

Cisco IOS Boot Image

The mandatory Boot image for Cisco uBR7200-NPE-G1 is "ubr7200-kboot-mz.122-xx.CX.bin (where xx = IOS 12.2CX release #)". It loads on an on-board flash of the Cisco uBR7200-NPE-G1.

Cisco uBR7200-NPE-G1 Key Features

Hardware and Software Features

- 700 MHz Broadcom BCM12500 processor
- 512 KB NVRAM, 16 MB Bootflash (Note: This size NVRAM and Bootflash are only available when a Cisco I/O controller is not used)
- 16 MB L3 cache
- 256 MB SDRAM default memory (expandable to 1 GB)
- 64 MB of Compact Flash memory (expandable to 256 MB)
- 16 MB packet memory on 128 MB or 256 MB SDRAM and 32 MB packet memory on 512 MB or
- 1 GB SDRAM
- Error Correcting Code (ECC) support

Product Specifications

Physical

- Weight: 3.25 lb. (1.49 kg)
- Dimensions: 15.15 x 11.12 x 1.40 in. (38.481 x 28.245 x 3.556 cm)

Environmental

- 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 m to 4000 m

Regulatory Compliance

Safety and Electromagnetic Emissions Certification

Products bear CE Marking indicating compliance with the 89/366/EEC and 73/23/ECC directives, including the following safety and EMC standards.

Safety

- UL 1950
- CAN/CSA-C22.2 No. 60950-00
- EN 60950
- IEC 60950
- TS 001
- AS/NZS 3260
- IEC 60825-1
- IEC 60825-2
- EN 60825-1
- EN 60825-2
- 21 CFR 1040

EMC

- FCC Part 15 (CFR 47) Class B*
- ICES-003 Class B*
- EN55022 Class B*
- CISPR22 Class B*
- AS/NZS 3548 Class B*
- VCCI Class B*
- EN55024
- ETS300 386-2
- EN50082-1
- EN61000-3-2
- EN61000-3-3

*Requires use of shielded cables for Class B compliance

Product Ordering Details

Table 2

Product Ordering Information

Product Number	Product Description
uBR7200-NPE-G1	Cisco uBR7200 Network Processing Engine including three GE/FE/E ports, 256 MB default DRAM, and 64 MB default Flash memory
uBR7200-NPE-G1=	Cisco uBR7200 Network Processing Engine including three GE/FE/E ports, 256 MB default DRAM, and 64 MB default Flash memory - SPARE

Table 3

SDRAM Memory Ordering Information

Product Number	Product Description
MEM-NPE-G1-256MB=	Two 128 MB memory modules (256 MB total) for the Cisco uBR7200-NPE-G1 — SPARE
MEM-NPE-G1-512MB	Two 256 MB memory modules (512 MB total) for the Cisco uBR7200-NPE-G1
MEM-NPE-G1-512MB=	Two 256 MB memory modules (512 MB total) for the Cisco uBR7200-NPE-G1 — SPARE
MEM-NPE-G1-1GB	Two 512 MB memory modules (1GB total) for the Cisco uBR7200-NPE-G1
MEM-NPE-G1-1GB=	Two 512 MB memory modules (1GB total) for the Cisco uBR7200-NPE-G1 — SPARE

Table 4

Compact Flash Memory Ordering Information

Product Number	Product Description
MEM-NPE-G1-FLD64=	64 MB Compact Flash Disk for the Cisco uBR7200-NPE-G1 — SPARE
MEM-NPE-G1-FLD128	128 MB Compact Flash Disk for the Cisco uBR7200-NPE-G1
MEM-NPE-G1-FLD128=	128 MB Compact Flash Disk for the Cisco uBR7200-NPE-G1 — SPARE
MEM-NPE-G1-FLD256	256 MB Compact Flash Disk for the Cisco uBR7200-NPE-G1
MEM-NPE-G1-FLD256=	256 MB Compact Flash Disk for the Cisco uBR7200-NPE-G1 — SPARE

Table 5

Gigabit Ethernet Transceiver Ordering Information

Product Number	Product Description
GBIC-SX	Gigabit Interface Converter For 1000BASE-SX (Short wavelength)
GBIC-SX=	Gigabit Interface Converter For 1000BASE-SX (Short wavelength) — SPARE
GBIC-LX/LH	Gigabit Interface Converter for 1000BASE-LX standard
GBIC-LX/LH=	Gigabit Interface Converter for 1000BASE-LX standard — SPARE
GBIC-ZX	Gigabit Interface Converter for 1000BASE-ZX
GBIC-ZX=	Gigabit Interface Converter for 1000BASE-ZX — SPARE

Table 6

Spares and Accessories Ordering Information

Product Number	Product Description
MAS-7200-CBLMGMT	Cable Management Bracket for the Cisco uBR7200-NPE-G1. Orderable as an option for the Cisco uBR7200-NPE-G1.
IO-CONTROLR-BLANK=	Cisco 7200 IO controller blank - SPARE. Included with the Cisco uBR7200-NPE-G1.

Service and Support

Cisco offers a wide range of service and support options for its customers. For more information on Cisco service and support programs and benefits, visit http://www.cisco.com/public/Support_root.shtml.

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