

## Product Overview

A main processing unit (MPU) is a combination of multiple functional modules. It integrates the system control and management unit, clock unit, and system maintenance unit to implement the functions of the control plane and system maintenance plane.

## Product Characteristics

The MPU implements system control and management, including route calculation, device management and maintenance, and device monitoring. As a system synchronization unit, it provides high-precision and highly reliable synchronous clock and time signals. Details are as follows:

- **Route calculation:** All routing protocol packets are sent by a forwarding engine to the MPU for processing. In addition, the MPU broadcasts and filters routing protocol packets, and downloads routing policies from a policy server.
- **Outband communication between boards in the entire system:** The LAN switch module integrated on an MPU provides outband communication between boards and controls, maintains, and exchanges messages between SFUs and LPUs.
- **Device management and maintenance:** A management port (such as a serial port) on an MPU is used to manage and maintain devices.
- **Data configuration:** System configuration data, startup files, accounting information, upgrade software, and system running logs are stored on MPUs.
- **System clock function:** The clock module provides highly reliable synchronous digital hierarchy (SDH) interface clock signals for each line board.

MPUs are working in 1:1 redundancy mode. The MPUs monitor the status of each other. Once the master MPU fails, the slave MPU automatically becomes the master.

### Features provided by MPUs of the NE9000

Feature	Description
Huawei versatile routing platform (VRP) software	<ul style="list-style-type: none"> <li>• Supports the parallel multi-core, multi-CPU, and multi-process.</li> <li>• Supports distributed applications.</li> <li>• Supports virtualization (VS).</li> <li>• Supports NSx (NSS, NSR, NSB, and NSF).</li> <li>• The VRPv8 supports NETCONF management and two-phase configuration submission and configuration rollback, facilitating user management.</li> </ul>

Feature	Description
High reliability	Provides optional redundancy processors. Main control modules, clock modules, and LAN switch modules support the 1:1 hot backup mode, improving system reliability.
System clock	Provides high reliability synchronous SDH interface clock signals for each line board.
Large SSD storage	Supports the storage of a great amount of data, which facilitates the management of configuration data, startup files, accounting information, upgrade software, and system running logs.
Modular	MPUs adopt the modular structure to maximize the ROI and allow customers to upgrade the NE9000 flexibly.

## Interfaces in MPU Components

### Interfaces of NE9000-20 Main Processing Unit Q2(MPUQ2)

#### Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
10GE	10GE	SFP+	Cascading interface.	Optical fibers
10GE	10GE	SFP+	Reserved cascading interface.	Optical fibers
USB	USB 2.0	USB	Reserved USB interface.	-
CLK/TEST	External clock test interface	SMA	It connects to an external clock.	50-ohm clock cable
FSP0/FSP1	Serial interface	RJ45	Reserved. Functions as an interface for fast chassis switchovers.	8-core shielded cable
Console	RS-232 serial interface	RJ45	Baud rate: 9600 bit/s (default value), which is configurable Data device type: Data circuit-terminating equipment (DCE) It connects to the console for onsite system configuration.	8-core shielded cable
AUX	RS-232 serial interface	RJ45	Reserved. Baud rate: 9600 bit/s (default value), which is configurable Data device type: Data terminal equipment (DTE) It connects to the modem for remote maintenance by means of dial-up.	8-core shielded cable
CLK-INT	External synchronization interface	RJ45	Used to input or output 2 Mbit/s clock signals, 2 MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120Ω clock shielded cable
CLK	External synchronization interface	RJ45	Used to input or output 2 Mbit/s clock signals, 2 MHz clock signals, or 1 PPS signals.	120-ohm clock cable
TOD	External synchronization interface	RJ45	Used to input or output 1pps+ASCII or DCLS time signals.	120-ohm clock cable
MGMT-ETH	Ethernet interface	RJ45	Connects to a network system station.	Super category 5

Interface Name	Interface Type	Connector Type	Description	Cable
	(10M/100M/1000 M Base-TX auto-sensing)			Shielded Twisted Pair (STP) cables are recommended.
HP-GE0/HP-GE1	External synchronization interface	SFP	Used to input or output High-precision GE.	Optical fibers

## Interfaces of NE9000-8 Main Processing Unit R2(MPUR2)

### Management interfaces

Interface Name	Interface Type	Connector Type	Description	Cable
10GE	10GE	SFP+	Cascading interface	Optical fibers
USB	USB 2.0	USB	Reserved USB interface	-
SMA	External clock test interface	SMA	It connects to an external clock.	50-ohm clock cable
FSP	Serial interface	RJ45	Reserved. Functions as an interface for fast chassis switchovers.	8-core shielded cable
Console AUX	RS-232 serial interface	RJ45	Baud rate: 9600 bit/s (default value), which is configurable Data device type: Data circuit-terminating equipment (DCE) It connects to the console for onsite system configuration.	8-core shielded cable
CLK-INT	External synchronization interface	RJ45	Used to input or output 2 Mbit/s clock signals, 2 MHz clock signals, 1pps+ASCII time signals, or two channels of DCLS time signals.	120Ω clock shielded cable
CLK	External synchronization interface	RJ45	Used to input or output 2 Mbit/s clock signals, 2 MHz clock signals, or 1 PPS signals.	120-ohm clock cable
TOD	External synchronization interface	RJ45	Used to input or output 1pps+ASCII or DCLS time signals	120-ohm clock cable
MGMT-ETH	Ethernet interface (10M/100M/1000 M Base-TX auto-sensing)	RJ45	Connects to a network system station.	Super category 5 Shielded Twisted Pair (STP) cables are recommended.
ALM IN	ALM IN interface	RJ45	Used for Boolean detection.	8-core shielded cable
ALM OUT	ALM OUT interface	RJ45	Used for Boolean detection.	8-core shielded cable
RS485	RS485 interface	RJ45	RS485 monitoring interface	8-core shielded cable
HP-GE0/HP-GE1	External	SFP	Used to input or output High-precision GE.	Optical fibers

Interface Name	Interface Type	Connector Type	Description	Cable
	synchronization interface			

## Product Specifications

### NE9000-20 Main Processing Unit Q2(MPUQ2) Specifications

#### NE9000-20 Main Processing Unit Q2(MPUQ2) Specifications

Item	Description
Order Name	CR9D0MPUQ280
Silkscreen	NE9000 MPUQ2
Dimensions (H x W x D)	42.7 mm x 467.2 mm x 533.4 mm (1.68 in. x 18.39 in. x 21 in.)
Weight	7.5 kg (16.54 lb)
Typical power consumption	160.0 W
Typical heat dissipation	519.1 BTU/hour
Ambient temperature	Long terms: 0 °C to 40 °C (32°F to 104°F) ; Short terms: -5 °C to 50 °C (23°F to 122°F)
Processing unit	24-core 2.5GHz
SDRAM	32 GB x 2
Flash	64 MB
Storage	M.2:32 GB
Reliability and availability	This board is responsible for system control and management operations, including route calculation, device management and maintenance, and device monitoring. As a system synchronization unit, this board provides high-precise and reliable clock and time signals. 1:1 backup mode.

### NE9000-8 Main Processing Unit R2(MPUR2) Specifications

#### NE9000-8 Main Processing Unit R2(MPUR2) Specifications

Item	Description
Order Name	CR9D0MPUR280
Silkscreen	NE9000 MPUR2
Dimensions (H x W x D)	31.3 mm x 521.9 mm x 533.4 mm (1.23 in. x 20.55 in. x 21 in.)
Weight	8 kg (17.6 lb)
Typical power consumption	150.0 W
Typical heat dissipation	486.7 BTU/hour
Ambient temperature	Long terms: 0 °C to 40 °C (32°F to 104°F) ; Short terms: -5 °C to 50 °C (23°F to 122°F)
Processing unit	24-core 2.5GHz

Item	Description
SDRAM	32 GB x 2
Flash	64 MB
Storage	SSD:32 GB
Reliability and availability	This board is responsible for system control and management operations, including route calculation, device management and maintenance, and device monitoring. As a system synchronization unit, this board provides high-precise and reliable clock and time signals. 1:1 backup mode.

## For More Information

For more information about the Series Routers, visit <http://e.huawei.com> or contact us in the following ways:


- Global service hotline: <http://e.huawei.com/en/service-hotline>
- Logging into the Huawei Enterprise technical support web: <http://support.huawei.com/enterprise/>
- Sending an email to the customer service mailbox: [support\\_e@huawei.com](mailto:support_e@huawei.com)

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