

Overview

The Cisco ASR-920-20SZ-M Router is a fixed configuration router that enables Service Providers to provide business, residential, and mobile access services to their users. It is the Carrier Ethernet access platform providing Ethernet services.

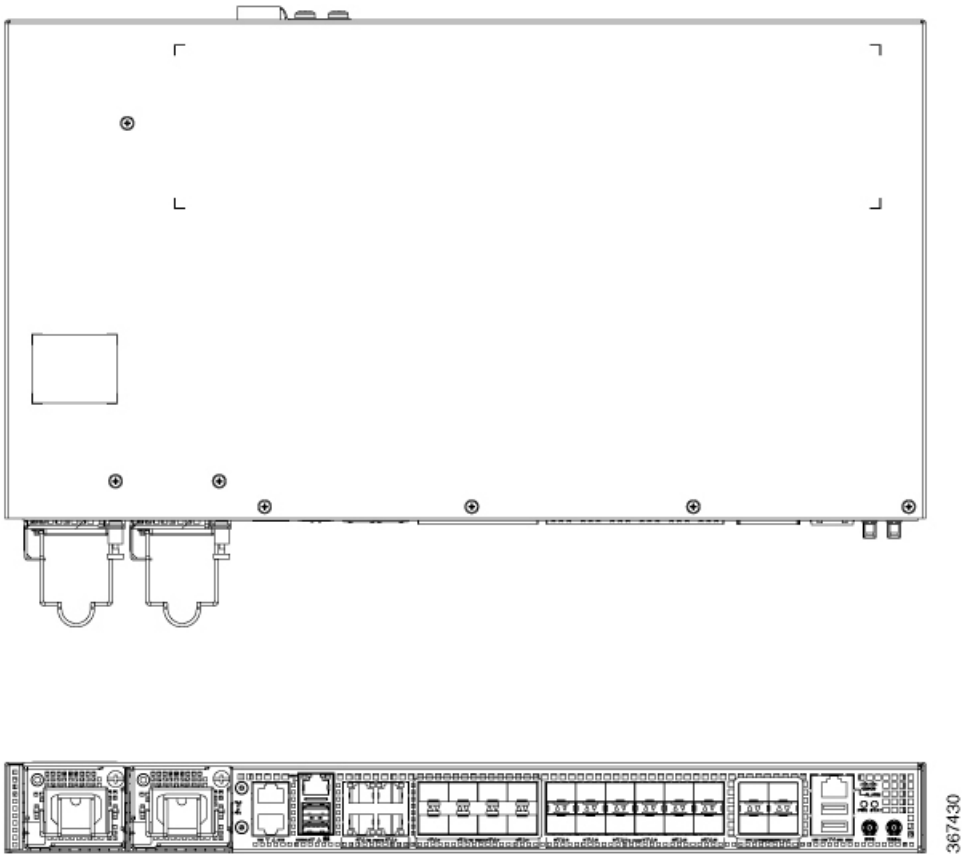
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Features

The Cisco ASR 920 Series Router family includes:

- Cisco ASR 920 [ASR-920-20SZ-M]—This sub-family with 1 RU form factor has fixed ENET interfaces (four 10GE and twenty-four 1GE) and redundant modular power supplies (AC/DC).

Figure 1: Cisco ASR-920-20SZ-M Top and Front Panel



The following table provides a snapshot of the number and type of supported ports:

Table 1: Supported Ports on Cisco ASR-920-20SZ-M Router

ASR 920 Sub-family	1 GE Port	10 GE Port	Type of 1 GE Port	Type of 10 GE Port
ASR-920-20SZ-M	24	4	20 Fiber 4 Copper	4 SFP+

GigabitEthernet Copper Ports

Fixed copper GigabitEthernet (GE) interfaces are provided through standard RJ-45 connectors. These ports support the following features:

- Standard 10/100/1000Base-T/TX operation with forced or auto-negotiation for speed and duplex.
- Automatic crossover (auto-MDIX) for straight-through and crossover connections.
- Pause flow control as defined by the 802.3x standard.
- Frame size of 9216 bytes.
- Synchronous ENET operation that provides its recovered receive clock as an input clock source for the SETS as well as uses the system-wide reference clock to derive its transmit clock.

GE SFP Ports

The GE SFP ports support the following features:

- 100Base-FX and 1000Base-X SFP modules.
- Copper SFP modules
- Digital optical monitoring as specified by the SFP.
- Any mix of SFPs is supported unless specifically noted.
- Pause flow control as defined by the 802.3x standard.
- Frame size of 9216 bytes.
- Synchronous ENET operation that provides its recovered receive clock as an input clock source for the SETS as well as uses the system-wide reference clock to derive its transmit clock.



Note Copper based SFPs do not support synchronous ENET operations.

SFP+ Ports

The SFP+ ports support the following features:

- Digital optical monitoring as specified by the optical transceiver module.
- Any mix of SFPs is supported unless specifically noted.
- Pause flow control as defined by the 802.3x standard.
- Frame size of 9216 bytes.

External Interfaces

The Cisco ASR 920-20SZ-M Router has these external physical interfaces on the front panel:

Network Interfaces

The network interfaces are provided through fixed ports.

- GE SFP ports—supports 100/1000 modes
- GE copper ports—supports 10/100/1000 operation
- 10GE SFP+—supports 10G mode

Network Timing Interfaces

- BITS input or output—The BITS interfaces support clock recovery from either a T1 at 1.544MHz or an E1 at 2.048MHz, configurable by software. BITS interface is provided through a standard RJ-48 connector on the front panel.

- 1PPS input or output and ToD input or output—This shielded RJ-45 interface is used for input or output of time-of-day (ToD) and 1PPS pulses. ToD format includes both NTP and IEEE 1588-2008 time formats.

The same RS422 pins for 1PPS and TOD are shared between input and output directions. The direction for each can be independently configurable through software.

Use an SMB connector on the front panel for the following:

- GPS 10Mhz input and output—10MHz input for GPS synchronization.
- GPS 1 PPS input and output—1 PPS input for GPS synchronization.

External Alarm Inputs

The router supports four dry contact alarm inputs through an RJ-45 jack on the front panel.

- Normally Open—indicates that no current flows through the alarm circuit and the alarm is generated when the current is flowing.

Each alarm input can be provisioned as critical, major, or minor.

Console

The RS232 console port provides transmission (Tx), reception (Rx), and ground (Gnd).

Auxiliary Console

The Auxiliary Console port provides transmission (Tx), reception (Rx), and ground (Gnd).

USB Console

A single USB 2.0 Type-A receptacle on the front panel of the router provides console access to ROMMON, Cisco IOS-XR and diagnostics. While it uses the Type-A connector, it operates as a USB peripheral only for connection to an external host computer. This interface requires the use of a Type-A to Type-A connector instead of a standard USB cable.



Note Use of the USB console is mutually exclusive of the RS232 console port. This interface requires the use of a Type-A to Type-A USB cable.

USB Memory

A single USB 2.0 Type-A receptacle on the front panel of the router allows external USB mass storage devices, such as standard USB flash drives. This interface is used to load images, load or store configurations, write logs, and so on.

Note More than 8 GB is not supported in ROMMON mode.

Online Insertion and Removal

The router supports the following Online Insertion and Removal (OIR) operations:

- When an SFP is removed, there is no effect on traffic flowing on other ports.
- When an SFP is installed, the system initializes that port for operation based on the current configuration. If the inserted SFP is incompatible with the current configuration of that port, the port does not become operational until the configuration is updated.
- When both power supplies are installed and active, the load may be shared between them or a single PSU supports the whole load. When a power supply is not working or the input cable is removed, the remaining power supply takes the entire load without disruption.

Power Supply and Fans

The Cisco ASR-920-20SZ-M Router supports a 1+1 redundant configuration with the combination of an AC and a DC, or two AC, or two DC power supplies. One AC and one DC power supply in the same router is also a supported configuration. The PSUs are hot-swappable. Load is shared between PSUs when both the PSUs are inserted and powered-up. Status LED provided on both AC and DC PSU indicates the status and output condition.

Note DC PSU can be switched on or off using a switch on the front panel of the DC PSU.

Note This product requires surge protection as part of the building installation. To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, an external surge protective device (SPD) is required at the AC power service equipment.

Note For DC systems, if a surge of more than 1KV is expected, add an appropriate external surge protective device.

The Cisco ASR-920-20SZ-M Router has six fixed fans as a part of the system. The system is designed to operate at its maximum operating temperature of 70ºC and at an altitude of 300 meters. If a single fan fails, the system runs at a maximum operating temperature of 65ºC. The fan is not removable and therefore, during a failure, the system must be replaced.

Note In case of fan failure, we recommend that you get a qualified technician to replace the faulty device within 96 hours.

Licensing

The Cisco ASR-920-20SZ-M Router support the following types of licenses:

- Port Licensing—Port Upgrade license is available as a "Pay as you Grow" model.
  - 1G upgrade license
  - 10G upgrade license
- Bulk licensing—Bulk port licensing allows you to enable all the ports with a single license.
- Timing license (1588)—Timing license is required if the router is used as a master clock.
- Advanced Metro IP Access
- Metro IP Access
- Metro Access (default)

The following methods are used to activate the above licenses:

- Cisco Software Licensing—The Cisco Software License Activation feature is a set of processes and components to activate Cisco software feature sets by obtaining and validating fee-based Cisco software licenses.



Note Licenses generated by the Cisco Software Licensing are tied to the UDI of the chassis and a corresponding watchtower device certificate (WDC) is stored in the system.

- Cisco Smart Licensing—Smart Licensing is usage-based licensing where devices register with the Cisco Secure server.