CHAPTER 1

Cisco AS5200 Universal Access Server Overview

The Cisco AS5200 access server is a versatile data communications platform that provides the functions of an access server, a router, and digital modems in a modular chassis.

The access server provides the greatest benefit for mid-sized organizations that need to centralize processing capabilities for mobile users and telecommuters.

The access server is optimized for high-speed modem access and is ideally suited for all traditional dial-up applications, such as access to a host, electronic mail, file transfer, and dial-in access to a LAN.

The access server accommodates up to three feature cards—one WAN card and one or two modem carrier cards. The choice of cards is as follows:

- Dual T1 Primary Rate Interface (PRI) card with integrated channel service units (CSUs)
- Dual E1 PRI card with integrated 12-port modem card
- Modem carrier card with one or two 12-port modem cards

A blank slot cover is installed over any unused slots.

The access server can be managed with software ranging from a simple terminal command line interface for device configuration to a simple network management protocol (SNMP) network manager. For more information about managing the access server using a network manager, refer to the *Cisco AS5200 Manager Guide* publication.

System Components

The access server consists of the following components:

- One 19-inch modular chassis containing three card slots and a high-speed backplane
- Up to three feature cards that provide either WAN or modem support
- Two serial WAN interface ports
- One Ethernet LAN port
- One console and auxiliary port
- An integral power supply (AC and DC versions are available)

Figure 1-1 shows the front panel of the access server.

Figure 1-1 Cisco AS5200 Front Panel

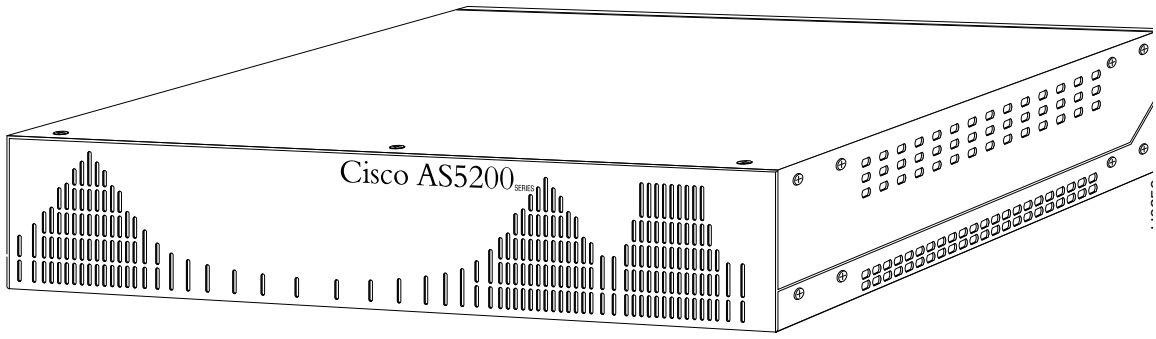
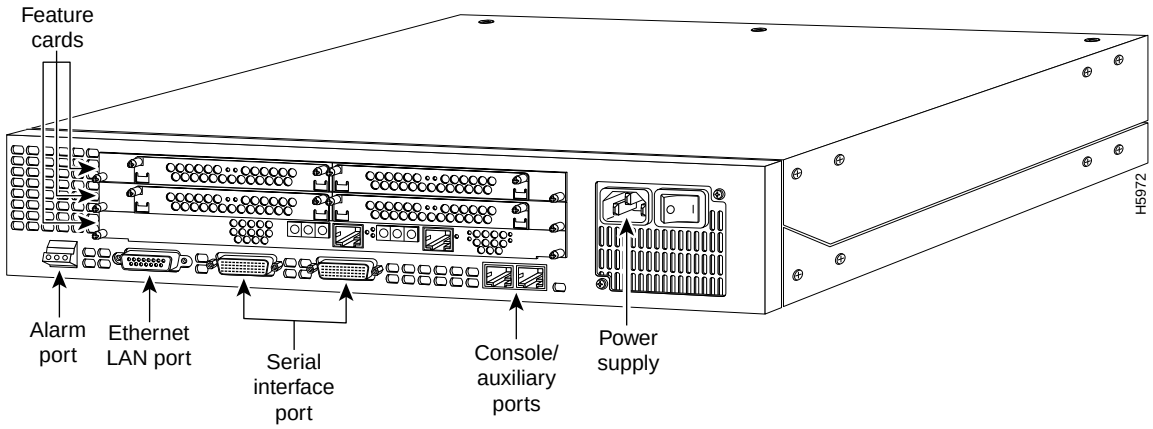


Figure 1-2 shows the interfaces on the rear panel of the access server.

Figure 1-2 Cisco AS5200 Rear Panel



Power Supply

Two power supplies provide AC or DC power input and supply DC power to the installed cards via connectors in the backplane. Either the AC or DC power supply is required in the chassis.

12-Port Modem Card

The access server can contain 12 to 48 modem ports installed on two carrier cards in the chassis card slots. Each modem carrier card can hold two 12-port modem cards. The dual E1 PRI card includes an 12-port modem card for a configuration of 60 modems required by two E1 PRI lines.

The modem cards connect through the carrier card and the system backplane to the dual T1 PRI or E1 PRI card. Transmission or reception is then accomplished on T1or E1 lines connected to the dual T1 PRI or E1 PRI card.

Each modem supports V.42*bis* data compression and uses the Hayes Smartmodem AT and V.25*bis* command sets. The Microcom Networking Protocol (MNP) and V.42 error-correction protocol standards provide error-free performance. The modem offers MNP Class 10 with Adverse Channel Enhancements (ACE). MNP 10 includes:

- Multiple connection attempts during autoreliable link negotiation
- Negotiated speed upshifts
- Aggressive adaptive packet assembly
- Dynamic Transmit Level Adjustment

Each modem supports the following protocol and modulation standards:

- Compatibility with the ITU-T V.34 protocol (14400 to 28800 bps) modem port speeds.
- ITU-T protocol standards: V.21, V.22, V.22*bis*, V.23, V.32, and V.32*bis*
- Bell 212A and Bell 103 protocol standards
- V.25*bis* synchronous operation
- V.13 synchronous half-duplex simulation
- V.42 error correction, including LAPM and MNP Classes 2 to 4
- V.42*bis* compression and MNP Class 5 Data Compression
- MNP Class 10 Adverse Channel Enhancements (ACE)

Dual T1 PRI Card

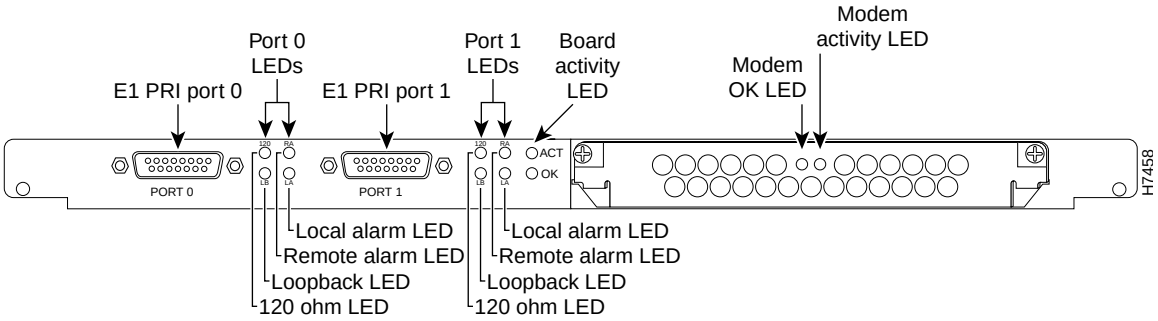
The dual T1 PRI card routes incoming digital T1 lines to the modem cards. The dual T1 PRI card provides RJ-48C connector(s) to terminate the trunk(s). The dual T1 PRI card performs all necessary equalization and gain functions to support 6000 feet of 24-gauge unshielded cable. This card complies with all Bell Core standards relating to T1 (ANSI T1.403) alarms, loopbacks, and error detection. The dual T1 PRI card is equipped with an integrated CSU.

The dual T1 PRI card handles up to 48 digital signal level 0 (DS-0) channels from two trunks. Each channel carries either a pulse code modulation (PCM)–encoded voice channel or digital data. The dual T1 PRI card supports 64-kbps clear channel operation for data or voice channels and feature group B operation for voice channels.

Dual E1 PRI Card

The Dual E1 PRI card is installed in the access server to provide physical termination for two E1 PRI lines. The card is designed to support the E1 cable standard of 30 Bearer (B) channels for voice and data, one Data (D) channel for signaling, and one channel for framing. Each channel transmits at up to 64 kbps for a combined total of 2.048 Mbps for each E1 PRI line. The rear panel of the Dual E1 PRI card is shown in Figure 1-3.

Figure 1-3 Dual E1 PRI Card Rear Panel



The access server is used to service calls from users accessing remote services using a variety of network protocols. Calls are terminated in the access server through 60 modems installed in the chassis. User data can then be routed through the Ethernet or synchronous serial ports on the access server chassis.

The following list describes the features of the Dual E1 PRI card:

- Two DB-15 connectors for physically terminating two E1 PRI lines.
- Channelized E1 support for assigning E1 time slots in 1 to 30 channel groups.
- 12 modems for call termination on E1 channels. The 12 modems and two Cisco AS5200 modem carrier cards with 48 modems are required for servicing the 60 Bearer (B) channels contained in two E1 PRI lines.

- LEDs to indicate the operating condition of the card, modems, and E1 PRI lines.
- Full management of the Dual E1 PRI card though a command line interface or CiscoWorks.

Specifications

The specifications of the access server are listed in Table 1-1.

Table 1-1 System Specifications

Description	Specification
Dimensions (H x W x D)	3.5 x 17.5 x 15" two rack units (8.89 x 44.45 x 38.1 cm)
Weight	25 lb (11.4 kg)
Input voltage, AC power supply Current Frequency Power dissipation	100 to 240 VAC[1] 1.5 to 3.0A 50/60 Hz 180W (maximum), 135.5 Btus[2]/hr
Input voltage, DC power supply Maximum input current Typical input current Power dissipation Output voltage 5V Output voltage 12V Output voltage –12V Protection	–48 to –60 VDC 6.0A 4.0A 180W (maximum) 5.0 VDC 26A 12.00 VDC 3A –12.00 VDC 2A Current limit, overpower
Processor	20-MHz Motorola 68EC030
WAN interface options	Dual T1 PRI (RJ-48C) Dual E1 PRI (DB-15) Five-in-one synchronous serial (DB-60)
LAN interface options	Ethernet AUI[3] (DB-15)

Description	Specification
Synchronous serial interfaces (five-in-one synchronous serial WAN ports)	EIA/TIA[4]-232, EIA/TIA-449, V.35, X.21 (NRZ/NRZI[5] and DTE/DCE[6] mode) EIA-530 (NRZ/NRZI and DTE mode) The five-in-one synchronous serial interface uses the DB-60 connector at the chassis
Console and auxiliary ports	Asynchronous serial (RJ-45)
Alarm relay rating: Voltage Current Max switching power Maximum switching voltage	 30VDC 5A 150 W[7] 250 VAC
Operating environment	32–104°F (0–40°C)
Nonoperating temperature	–40 to 185°F (–40 to 85°C)
Operating humidity	5 to 95%, noncondensing
Noise level	34 dB[8] @ 3 feet(0.914 m)

1. VAC = volts alternating current; VD = volts direct current.
2. Btu = British thermal unit.
3. AUI = attachment unit interface
4. EIA/TIA = Electronic Industries Association/Telecommunications Industries Association
5. NRZ = nonreturn to zero; NRZI = nonreturn to zero inverted.
6. DTE = data terminal equipment; DCE = data communications equipment.
7. W = Watts
8. dB = decibels.

FCC Part 68

The following text is required for Federal Communications Commission (FCC) Part 68 regulatory compliance:

This equipment complies with Part 68 of the FCC rules. On the side of this Network Module interface card is a label that contains, among other information, the FCC registration number. If requested, this information must be provided to the telephone company.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice for you to make the necessary modifications to maintain uninterrupted service.

If you experience any trouble with this equipment, please contact the following for repair and (or) warranty information.

Cisco Systems, Inc.
RMA Receiving
1135 Walsh Avenue
Santa Clara, California 95050

If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

It is recommended that the customer install an AC surge arrestor in the AC outlet to which this device is connected. This is to avoid damaging the equipment caused by local lightning strikes and other electrical surges.

The Cisco AS52-2CT1 has the 6.0F service order cable.

The unit has the following facility interface codes: 04DU9-BN, 04DU9-DN, 04DU9-IKN, 04DU9-ISN.