

Cisco Analog Station Interfaces 81 and 160 (ASI 81 and ASI 160)—High Density FXS Voice Gateways



The Cisco Integrated Communications System (ICS) 7750 brings the benefits of converged IP services to midmarket businesses and enterprise branch offices. The ICS 7750 is a versatile IP telephony and services solution that helps businesses harness the power of the Internet through converged applications enabling them to anticipate and respond to customer needs more efficiently. Call processing, voice applications and multiservice IP routing are integrated within the system chassis to deliver true convergence while enhancing system manageability. The modular system architecture enables expansion of call processing, routing capacity, and IP services to deliver system availability and scalability. The ICS 7750 gives customers the flexibility to choose the optimal configuration for their business environment, and allows them to increase profitability through improved customer interactions.

As companies adapt to the Internet economy, they need a solution that enables them to migrate their voice communications to a converged IP infrastructure while protecting their investment in existing analog telephone devices. The Cisco Analog Station Interface (ASI) 81 and 160 cards for the ICS 7750 provide businesses a cost-effective way to connect existing business communication devices such as fax machines, analog phones, and teleconferencing devices to their converged IP networks.



Product Description

The ASI 81 and ASI 160 are high-density foreign exchange station (FXS) voice gateway cards built from industry-proven Cisco hardware and Cisco IOS® Software technology to support both digital and analog voice trunks and station interfaces. The ASI 81 offers eight ports of foreign exchange station (FXS) along with one modular voice interface card/WAN interface card (VIC/WIC) slot. The ASI 160 offers greater analog density with 16 ports of FXS connectivity in a single slot. These two cards provide customers with the FXS density and flexibility to support the analog business communications devices in their offices.

The ASI 81 and ASI 160 are built on the same proven voice-over-IP (VoIP) technology used in the Cisco family of 1700, 2600 and 3600 series multiservice routers to ensure end-to-end



interoperability between IP and TDM endpoints. The ASI cards enable customers to take advantage of all existing Cisco VoIP services and voice compression formats to meet quality voice and data bandwidth transmission requirements.

Each ASI 81 card has one modular slot that accepts existing Cisco voice interface cards (VICs) and WAN interface cards (WICs). This slot provides the same VIC and WIC support available on the Cisco 1700, 2600, and 3600 series routers, allowing customers to build upon current Cisco networks while maintaining interoperability and consistent end-to-end communication service between locations. This is particularly important when networking an enterprise branch office throughout a distributed enterprise network.

Data Connectivity

The WICs support a wide range of services, including synchronous and asynchronous serial, Integrated Services Digital Network Basic Rate Interface (ISDN BRI), and serial with digital service unit/channel service unit (DSU/CSU) options for primary and backup WAN connectivity.

Voice Connectivity

The VIC cards include support for Foreign Exchange Office (FXO) for analog central office trunks in North America, Asia, Europe and Australia; Foreign Exchange Station (FXS) for analog station devices; ear and mouth (E&M) for analog tie line support; analog direct inward dial (DID); T1 Channel Associated Signaling (CAS) and Primary Rate Interface; and E1 PRI and BRI for digital central office trunks. This support makes it simple to link the Cisco ICS 7750 to the Public Switched Telephone Network (PSTN) and existing private branch exchanges (PBXs), as well as the most common analog devices (including fax machines and teleconferencing stations). The modular design enables the ASI 81 card to deliver new voice interface support, as the technology becomes available in the marketplace.

Voice Services

For IP voice networks, the ASI 81 and ASI 160 cards support G.711, G.726, and G.729 codecs to enable interoperability between different IP endpoints, such as analog devices and Cisco IP phones. Configurable digital signal processing (DSP) resource modules, called packet voice/data modules (PVDM), provide the codec

compression and transcoding services to support different voice and data network traffic configurations, particularly for branch offices using VoIP.

ASI support for Cisco IOS technology will ensure that customers keep up with the latest in VoIP advances to adapt to changing business communication needs.

Key Benefits

Versatile Voice/Data Connectivity and Cisco IOS Technology

The modular VIC and WIC design enables businesses to configure the ASI 81 to support their specific voice and data communication needs today, with the ability to easily add bandwidth, voice trunk capacity, new Cisco IOS services, and redundancy as business needs change.

Scalable, High-Density Capacity

Two high-density FXS cards offer choice to meet their system-wide analog station requirements. The universal card design allows customers to deploy multiple ASI cards to scale to their needs.

Simplified Management

The ASI 81 card enables voice and data services to be consolidated over a single card, simplifying management and support.

Industry-Proven Cisco IOS Software Delivers Availability

The proven Cisco IOS technology delivers reliable, end-to-end connectivity over the PSTN and WAN between branch offices, customers, and partners. Field-replaceable VIC and WIC cards increase system connectivity uptime.



Service and Support Solutions

Cisco Service and Support Solutions are designed for one purpose—to ensure customer success by delivering a suite of proactive services. Delivered directly or through an ecosystem of best-of-breed service partners, Cisco Service and Support offerings provide presales network audit planning, design consulting, network implementation, operational support, and network optimization.

- Advanced Services enable you to plan, design, build, implement, and optimize your solution for rapid deployment and increased system stability and availability.
- Technical Support Services provide the maintenance and troubleshooting you need to keep your solution operational.

By purchasing service and support with the Cisco ICS 7750 Integrated Communications System, customers can confidently deploy a converged network architecture using Cisco experience, expertise, and resources.

ASI 81 and ASI 160 Technical Specifications

Board:

- Universal slot card
- Standard memory: 64 MB DRAM (max 96 MB)
- Memory upgrade (options): 16 and 32 MB DRAM
- One modular voice/WAN interface card (VIC/WIC) slot per card (ASI 81 only)
- One Packet Voice/fax DSP module expansion slot (ASI 81 only): Supports 4-, 8-, 12-, 16-, and 20-channel packet voice/data modules (PVDM)
- Advanced data networking feature support, including:
 - IPsec 56 and 3DES, firewall

Fixed Foreign Exchange Station (FXS) ports:

Distance:

- Up to 1500 ft short loop, operation with CAT5 24awg wire

FXS port specifications:

- On-premise station (ONS) analog FXS ports
- Terminal equipment support for analog voice devices, including analog phones, fax machines, modems, and teleconferencing devices
- RJ-11 connectors
- One LED activity indicator per port
- Loop start, ground start, wink start, and battery reversal capability
- Loop start, balanced sinusoidal ringing at >40Vrms
- Up to 5REN load per Loop Start
- Ground start, non-RS-464 level conventional ringing (~25Vrms) at 1REN load
- 20REN maximum loading for entire ASI 81 or ASI 160 card
- Battery reversal supported for wink start signaling

Voice and WAN Interface Cards:

Cisco WAN Interface Cards for ASI 81 VIC/WIC Module	
VIC/WIC Module	Description
WIC-1T	One serial, async, and sync (T1/E1)
WIC-2T	Two serial, async, and sync (T1/E1)
WIC-2A/S	Two low-speed serial (up to 128 kbps), async, and sync
WIC-1B-S/T	One ISDN BRI S/T
WIC-1B-U	One ISDN BRI U with integrated NT1
WIC-1DSU-56K4	One integrated 56/64-kbps, four-wire DSU/CSU
WIC-1DSU-T1	One integrated T1/fractional T1 DSU/CSU



Cisco Voice/WAN Interface Cards for ASI 81 VIC/WIC Module		Description
VIC-2FXS		Two-port FXS voice/fax interface card
VIC-2FXO		Two-port FXO voice/fax interface card
VIC-2FXO-M1		Two-port FXO voice/fax interface card with battery reversal and Caller ID (for North America)
VIC-2FXO-M2		Two-port FXO voice/fax interface card with battery reversal and caller ID (for Europe)
VIC-2FXO-M3		Two-port FXO voice/fax interface card with battery reversal and caller ID (for Australia)
VIC-2E/M		Two-port E&M voice/fax interface card
VIC-2DID		Two-port direct inward dial voice interface card
VIC-2BRI-NT/TE (NT and TE)		Two-port basic rate interface (BRI) voice interface card
VWIC-1MFT-T1		One-port T1/fractional T1 multiflex trunk with CSU/DSU (for CAS and PRI)
VWIC-2MFT-T1		Dual-port T1/fractional T1 multiflex trunk with CSU/DSU (for CAS and PRI)
VWIC-1MFT-E1		One-port E1/fractional E1 multiflex trunk with CSU/DSU (for PRI)
VWIC-2MFT-E1		Dual-port E1/fractional E1 multiflex trunk with CSU/DSU (for PRI)

Cisco ICS 7750 IOS Software and Memory Requirements

Cisco IOS Software Data and Voice Feature Sets	DRAM
IP/Voice Plus	64 MB
IP/Voice Plus + Firewall + IPSec 56	64 MB
IP/Voice Plus + Firewall + 3DES	64 MB
IP/Voice Plus + IPX/AppleTalk/IBM	64 MB
IP/Voice Plus + IPX/AppleTalk/IBM + Firewall + IPSec 56	64 MB
IP/Voice Plus + IPX/AppleTalk/IBM + Firewall + 3DES	64 MB

Dimensions and Weight:

- Height: 10.5 in. (26.67 cm)
- Width: 1.6 in. (4.06 cm)
- Depth: 8.25 in. (20.96 cm) including ejector handle depth, 7.0 in. (17.78 cm) without ejector handle
- Weight (ASI 81): 1.15 lb (0.52 kg), with no VIC/WIC cards installed
- Weight (ASI 160): 1.36 lb (0.62 kg)

Power Requirements:

All voltages are DC:

- 0.95A at +5V
- 0.55A at +3.3V
- 1.5A at +12V
- Negligible current at -12V

Power Dissipation:

- 23W (worst case)



Environmental Range:

Operational

- Acoustic Noise: 43 dBA (under normal operating conditions)
- Temperature Range: 32 to 104 F (0 to 40 C)
- Altitude: 10,000 ft (3000 m)
- Relative Humidity: 10 to 85%
- Shock: 54 in./s (1.37 m/s)
- Vibration: 0.35 Grms from 3 to 500 Hz

Non-operational

- Temperature Shock: -4 to 149 F (-20 to 65 C) at 41 F (5 C) per minute
- Temperature Range: -4 to 149 F (-20 to 65 C)
- Altitude: 5027 yds (4570 m)
- Relative Humidity: 5 to 95%

Safety:

- UL 1950, 3rd edition
- C-UL per CSA C22.2 1950
- TUV Bauart per EN 60950

EMC:

- BSMI CNS13438, class B
- CAN/CSA-C22.2 No. 950-95 [Canada]
- CISPR22, 1997, class B
- CFR47, Part 15, Subpart B, 1995, class B
- EN 55024: 1998, Class B ITE Immunity Standard
- EN 60950: 1992 [CENELEC; includes EU and EFTA]
- GB 4943-95 [PRC]
- ICES003, issue 3: 1998, class B
- IEC 60950: 1991
- NOM-019-SCFI-1998 [Mexico]
- TS001 [Australia]
- UL 1950, 3rd Edition, 1995 [US]
- VCCI V- 3/97.04, class B
- EN 55024:1998
- ITE Immunity Standard

- IEC 1000-4-2:1995 Immunity to Electrostatic Discharges
- IEC 1000-4-4:1995 Immunity to Electrical Fast Transients
- IEC 1000-4-5:1995 Immunity to Power Line Transients (Surges)
- IEC 1000-4-6:1996 Immunity to Radio Frequency Induced Conducted Disturbances
- IEC 1000-4-8:1995 Immunity to Power Frequency Magnetic Fields
- IEC 1000-4-11:1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions

Telecom:

- FCC Part 68
- RS-464 compatible (exception for ground start conventional ringing voltage)
- European RTTE Directive 99/05/EC
- Australia ACA TS-002, TS-003, TS-004, TS-031
- Industry Canada CS-03



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