

# Cisco 4-Port High-Density FXS/DID Analog Voice Interface Card for the Cisco 1700 Series Modular Access Routers

The Cisco 1700 Modular Access Router is designed to provide a cost-effective integrated access platform for small and medium-sized businesses and small enterprise branch offices. It supports advanced services e-Business features such as VPNs; secure Internet, intranet, and extranet access with optional firewall technology; broadband DSL and cable connectivity; and multiservice voice/video/data/fax integration.

## Introduction

The 4-port high-density FXS/DID VIC<sup>1</sup> can support up to 4 foreign-exchange-station (FXS) ports for directly connecting phones or fax machines, or it can be used to connect up to four direct-inward-dial (DID) analog trunks, providing customers the flexibility they need for their unique business environment (refer to Figure 1). Each port on the 4-Port FXS/DID VIC is selectable for use in either FXS or DID mode when using phones with 1 REN load or less<sup>2</sup>. The 4-Port FXS/DID VIC is the same size as the existing two-port voice interface cards (VICs), allowing it to slide into either WIC/VIC slot or VIC slot in

Cisco 1751 and 1760. The Cisco 1751 can support three VIC-4FXS/DID cards with a maximum of four ports in DID mode. The Cisco 1760 can support four VIC-4FXS/DID cards with a maximum of eight ports in DID mode. Figure 2 shows a typical application of 4-port VIC-FXS/DID in a small enterprise branch office with KTS or small PBX. The VIC-4FXS/DID in the Cisco 1700 is used to connect analog phones or fax machines. The long-distance calls between small enterprise branch offices and headquarters are carried by IP network, while the local calls are carried by PSTN, which also provide backup to the IP network.

## DSP Requirements for the Cisco VIC-4FXS/DID

For Cisco 1751 and 1760 routers, the medium-complexity analog digital-signal-processor (DSP) image is the factory default for supporting the 4-Port FXS/DID VIC. This DSP image provides support for four voice channels (of G.711, G.729a, or G.726) for each DSP chip. For example, the Cisco PVDM-256K-4 DSP Module has one DSP chip and is, therefore, capable of supporting four voice channels

1. VIC-4FXS/DID will not be able to register with Cisco CallManager currently.
2. If the REN load on any FXS port is greater than 1 REN, all four ports of a single VIC-4FXS/DID card must be configured as FXS; The mix of DID and FXS is not allowed in this case.

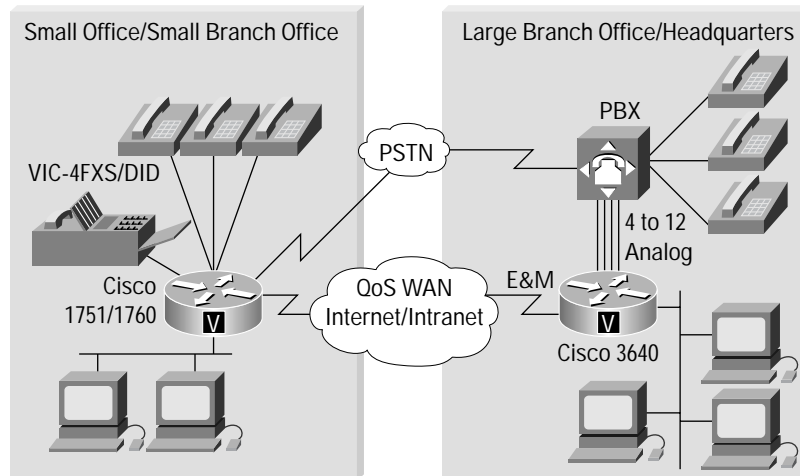
Figure 1  
 Cisco 4-Port FXS/DID VIC  
 with Caller ID Support in  
 FXS mode





on the 4-Port FXS/DID VIC. The medium-complexity analog DSP software image supports four channels of G.711, G.729a, G.726, fax relay, or modem or fax pass-through, and it provides support for 32-msec echo cancellation per DSP chip.

Figure 2  
Small Offices with POTS Phones and Fax Machines



The 4-Port FXS/DID VIC also support the high-complexity analog DSP software image. This DSP image provides support for two voice channels (of G.711, G.729, G.723.1, G.728, or G.726) for each DSP chip. Therefore, a Cisco PVDM-256K-8 Module (two DSP chips) is required to support four voice channels on the 4-Port FXS/DID VIC. The high-complexity analog DSP image supports two channels of G.711, G.729, G.726, G.728, G.723.1, fax relay, or modem or fax pass-through, and it provides support for 32-msec echo cancellation per DSP chip.

For DSP requirements on the Cisco 1751 and 1760 routers with Cisco IOS® 12.2(8)YN or later releases, refer to the DSP Calculator at the following URL:

<http://www.cisco.com/cgi-bin/Support/DSP/dsp-calc.pl>

### Key Benefits and Technical Specifications

Table 1 provides the benefits and specifications and Table 2 provides the Electro Magnetic Compatibility (EMC) standards for the 4-Port FXS/DID VIC.

**Table 1** Benefits and Specifications of the Cisco 4-Port FXS/DID VIC

<b>Part Number: VIC-4FXS/DID</b>	• 4-port FXS or DID voice/fax interface card with caller ID support in FXS mode only (DID for United States, Canada, and other countries)
<b>Interface type</b>	• FXS and DID trunk
<b>Supported platforms</b>	• Cisco 1751 and Cisco 1760
<b>First Cisco IOS® Release</b>	• Cisco IOS 12.2(8)YN (this is a short lived Early Deployment (ED) release which will merge into IOS 12.3(1)T)
<b>Minimum Feature Sets</b>	• IP/VOX PLUS



**Table 1** Benefits and Specifications of the Cisco 4-Port FXS/DID VIC (Continued)

<b>Ringer Equivalence Number (REN)</b>	<ul style="list-style-type: none"> <li>• A maximum of five REN loads can be supported on each voice port</li> <li>• A maximum of eight REN loads can be supported on each 4-port FXS/DID VIC</li> <li>• A maximum of twenty REN loads can be supported on each Cisco 1751 and 1760 router</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>• UL 60950 (United States), CSA C22.2 No. 60950-00 (Canada), EN 60950 (Europe), AS 3260 (Australia), TS 001 (Australia)</li> </ul>
<b>FXS homologation</b>	<ul style="list-style-type: none"> <li>• United States (TIA/EIA-1S-968), Canada (CS-03 I)</li> </ul>
<b>DID homologation</b>	<ul style="list-style-type: none"> <li>• United States (TIA/EIA-1S-968), Australia (ACIF S002/S003)</li> </ul>
<b>EMC</b>	<ul style="list-style-type: none"> <li>• Refer to Table 2</li> </ul>
<b>Spare</b>	<ul style="list-style-type: none"> <li>• Part number VIC-4FXS/DID=</li> </ul>
<b>Signaling modes</b>	<ul style="list-style-type: none"> <li>• FXS—Loop Start</li> <li>• DID—Wink, Immediate, and Delay Dial</li> </ul>
<b>Address Signaling formats</b>	<ul style="list-style-type: none"> <li>• In-band dual tone multifrequency (DTMF)</li> <li>• Out-of-band pulse (10/20 pps)</li> </ul>
<b>Tone disconnect supervision</b>	<ul style="list-style-type: none"> <li>• DID—Power denial (caller party control, far-end disconnect)</li> </ul>
<b>Ringling frequencies</b>	<ul style="list-style-type: none"> <li>• 20 Hz, 50 Hz</li> </ul>
<b>Physical connector</b>	<ul style="list-style-type: none"> <li>• RJ-11</li> </ul>
<b>Number of connectors</b>	<ul style="list-style-type: none"> <li>• 4</li> </ul>
<b>Mean time between failure (MTBF)</b>	<ul style="list-style-type: none"> <li>• 2,131,306 hours</li> </ul>

**Table 2** EMC for the Cisco 4-Port FXS/DID VIC

<b>FCC Part 15 Class B</b>	Emissions
<b>EN55022: 1998, Class B</b>	Emissions
<b>EN61000-3-2: 1995</b>	Harmonics
<b>EN61000-3-3: 1995</b>	Flicker
<b>EN50082-1: 1997</b>	Immunity
<b>EN55024: 1998</b>	Immunity
<b>EN61000-3-2</b>	Harmonics
<b>EN61000-3-3</b>	Flicker
<b>EN61000-4-2</b>	ESD
<b>EN61000-4-3</b>	RF fields
<b>EN61000-4-4</b>	EFT
<b>EN61000-4-5</b>	Surge

**Table 2** EMC for the Cisco 4-Port FXS/DID VIC

EN61000-4-6	Conducted RF
EN61000-4-11	Voltage dips/sags/interruptions



Corporate Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

European Headquarters  
Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

Americas Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

Asia Pacific Headquarters  
Cisco Systems, Inc.  
168 Robinson Road  
#28-01 Capital Tower  
Singapore 068912  
www.cisco.com  
Tel: +65 6317 7777  
Fax: +65 6317 7799

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