Cisco 700 Family

This chapter provides information on the Cisco 760 series and Cisco 770 series routers. It is organized into the following sections:

- Product Overview
- Standard Features
- Hardware
- Software

Note   Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM, a member of the Cisco Connection Family, is updated monthly. Therefore, it might be more up to date than printed documentation. To order additional copies of the Documentation CD-ROM, contact your local sales representative or call customer service. The CD-ROM package is available as a single package or as an annual subscription. You can also access Cisco documentation on the World Wide Web at http://www.cisco.com, http://www-china.cisco.com, or http://www-europe.cisco.com.

Product Overview

The Cisco 700 family is the next generation of low-cost and easy-to-manage, multiprotocol, ISDN access routers. These devices provide small professional offices, home offices, and telecommuters with high speed remote access to enterprise networks and the Internet.

The Cisco 760 series and Cisco 770 series include the following models: Cisco 761, Cisco 762, Cisco 765, Cisco 766, Cisco 771, Cisco 772, Cisco 775, and Cisco 776.

The Cisco 760 series and Cisco 770 series routers provide the following features:

- Low cost of ownership for ISDN access

  The Cisco 761 and Cisco 771 routers provide a low cost solution for connecting an Ethernet LAN to ISDN Basic Rate Interface (BRI) services. These routers are approved for use worldwide. The Cisco 762 and Cisco 772 include an integrated Network Termination 1 (NT1) device for ISDN users in North America.

The Cisco 765, Cisco 766, Cisco 775 and Cisco 776 models include two analog telephone interfaces that allow standard telephones, fax machines, and modems to share the ISDN BRI line. This eliminates the need for multiple telephone lines or expensive ISDN telephones. These routers also support supplementary telephone services over ISDN including call waiting, cancel call-waiting, call retrieve, call hold, 3-way call conferencing, and call transfer.

The Cisco 770 series is similar to the Cisco 760 series, but it includes a 4-port Ethernet hub. The Cisco 770 series also includes a call connect/disconnect switch on the front of the unit, which allows you to manually make or disconnect a data call.

- Dynamic addressing

    The Cisco 700 family can have its IP or IPX addresses dynamically assigned by the central site network using the Internet standard Multilink Point-to-Point Protocol. The workstations on the remote LAN can also have their IP addresses dynamically assigned by the central network or the Cisco 700 family using the Internet standard Dynamic Host Configuration Protocol (DHCP). To do this, the routers use a DHCP Relay Agent or DHCP server.

- Dial-on-demand routing

    Cisco's dial-on-demand feature allows WAN connections to occur only when the router senses traffic that has been defined as "interesting" by the user or network administrator. With two ISDN BRI B channels, the Cisco 700 family can support simultaneous sessions with two sites and off-load network traffic from one channel to the other. For example, as bandwidth needs increase—such as when a large file transfer is initiated—the second B channel is brought up automatically to carry the additional traffic.

- Port and address translation

    The Cisco 700 family provides a new feature known as port and address translation (PAT). Using PAT, the remote LAN can be configured as a private network which is invisible to the outside world. All data from the remote LAN appears to come from the Cisco 700 family router. This is also referred to as "many into one" capability. Additionally, the IP address of the routers can be set as a single node address instead of the more typical subnet address. Cisco 700 family routers need only a single IP node address regardless of the number of remote workstations. This provides significant savings when connecting to an Internet service provider. It also relieves the network management burden for both the service provider and corporate network manager.

    An invisible network to the outside world provides firewall type capabilities to protect network resources from unauthorized access. PAT is also used to enable privileged access to the network. For example, you can enable only specific types of data requests, such as web browsing, e-mail, or file transfers to access a private network.

Note   PAT may be considered an extension to the Internet standard known as Network Address Translation (NAT).

- Ease of use

    All Cisco 700 family routers feature Cisco ClickStart, which allows you to configure the routers using a standard World Wide Web browser such as Netscape Navigator. Clickstart provides a graphical, user-friendly configuration interface that breaks the installation process into simple steps.

Cisco's E-Z IP software feature set combines ease of use, flexibility, performance, and security to provide the most comprehensive remote access solution available. Cisco's E-Z IP features also address concerns regarding IP address space configuration, conservation, and management.

Personal network profiles enable Cisco 760 series and Cisco 770 series users to create customized sets of configuration parameters, such as filters, demand thresholds, and passwords for each remote site that is dialed. Personal network profiles allow on-demand calls to be made to different telephone numbers based on demand filters, which are tailored for each remote site.

- Interoperability

  The Cisco 700 family is fully interoperable with Cisco Internetwork Operating System (Cisco IOS)-based routers such as the Cisco 2500 series, Cisco 4000 series, and Cisco 7000 series using Multilink PPP for IP or IPX routing.

Figure 158 shows a front panel view of the Cisco 760 series ISDN routers, and Figure 159 shows a front panel view of the Cisco 770 series ISDN routers.

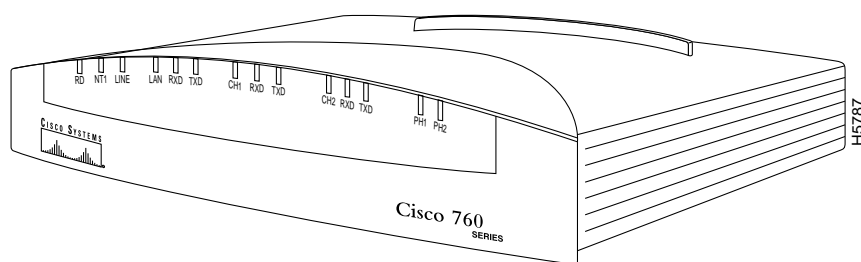**Figure 158 Cisco 760 Series Front Panel—All Models**

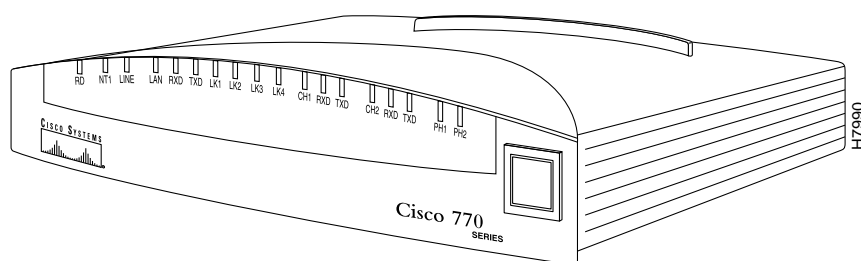**Figure 159 Cisco 770 Series Front Panel—All Models**

Table 191 summarizes the features for the Cisco 760 series routers, and Table 192 summarizes the features for the Cisco 770 series routers.

Table 191   Cisco 760 Series Summary of Features

Characteristic	Cisco 761	Cisco 762	Cisco 765	Cisco 766
Dimensions (H x W x D)	1.6 x 8.3 x 9 in. (4.1 x 21.1 x 24.4 cm)	1.6 x 8.3 x 9.6 in. (4.1 x 21.1 x 24.4 cm)	1.6 x 8.3 x 9.6 in. (4.1 x 21.1 x 24.4 cm)	1.6 x 8.3 x 9.6 in. (4.1 x 21.1 x 24.4 cm)
Weight	1.4 lb (0.6 kg)	1.5 lb (0.7 kg)	1.6 lb (.75 kg)	1.7 lb (.75 kg)
Speed and processor	25 MHz, 386	25 MHz, 386	25 MHz, 386	25 MHz, 386
Memory	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM
Network interface options	1 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45)	1 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45) 1 ISDN BRI U (RJ-45)	1 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45) 2 POTS (analog, RJ-11)	1 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45) 1 ISDN BRI U (RJ-45) 2 POTS (analog, RJ-11)
Console port	DB-9F (9-pin female)	DB-9F (9-pin female)	DB-9F (9-pin female)	DB-9F (9-pin female)
Market availability	Worldwide	North America	Worldwide	North America
Number of users	4 or 1500	4 or 1500	4 or 1500	4 or 1500
Compression	STAC software upgrade	STAC software upgrade	STAC software upgrade	STAC software upgrade
Built-in NT1	No	Yes	No	Yes

Table 192   Cisco 770 Series Summary of Features

Characteristic	Cisco 771	Cisco 772	Cisco 775	Cisco 776
Dimensions (H x W x D)	1.6 x 8.3 x 9 in. (4.1 x 21.1 x 24.4 cm)	1.6 x 8.3 x 9.6 in. (4.1 x 21.1 x 24.4 cm)	1.6 x 8.3 x 9.6 in. (4.1 x 21.1 x 24.4 cm)	1.6 x 8.3 x 9.6 in. (4.1 x 21.1 x 24.4 cm)
Weight	1.4 lb (0.6 kg)	1.5 lb (0.7 kg)	1.6 lb (.75 kg)	1.7 lb (.75 kg)
Speed and processor	25 MHz, 386	25 MHz, 386	25 MHz, 386	25 MHz, 386
Memory	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM	1.5-MB standard DRAM 2.0-MB maximum DRAM 512-KB Flash memory 16-KB NVRAM
Network interface options	4 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45)	4 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45) 1 ISDN BRI U (RJ-45)	4 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45) 2 POTS (analog, RJ-11)	4 Ethernet 10BaseT (RJ-45) 1 ISDN BRI S/T (RJ-45) 1 ISDN BRI U (RJ-45) 2 POTS (analog, RJ-11)
Console port	DB-9F (9-pin female)	DB-9F (9-pin female)	DB-9F (9-pin female)	DB-9F (9-pin female)
Market availability	Worldwide	North America	Worldwide	North America
Number of users	4 or 1500	4 or 1500	4 or 1500	4 or 1500
Compression	STAC software upgrade	STAC software upgrade	STAC software upgrade	STAC software upgrade
Built-in NT1	No	Yes	No	Yes

Table 193 lists the environmental specifications for the Cisco 760 series and Cisco 770 series routers.

Table 193   Cisco 700 Family Environmental Specifications

Description	Specification
Power supply Voltage	External table-top power supply US: 110 VAC[1]; UK and Singapore: 240 VAC; Continental Europe: 220 VAC; Japan: 100 VAC
Frequency	US: 60 Hz; UK, Singapore, and Continental Europe: 50 Hz; Japan: 50 to 60 Hz
Operating temperature	32–120º F (0–50º C)
Storage temperature	–30 to 160º F (–35 to 70º C)
Operating humidity	20 to 95%, noncondensing

1. VAC = volts alternating current.

Standard Features

The following list summarizes the key features supported by the Cisco 700 family:

- Analog telephone ports for sharing the ISDN BRI line with devices such as standard telephones, fax machines, and modems (Cisco 765, Cisco 766, Cisco 775, and Cisco 776 only)

- Cisco Clickstart for simplified configuration using a standard World Wide Web browser

- Built-in NT1 device for North America and external S/T port for support of additional ISDN devices such as ISDN telephones (Cisco 762, Cisco 766, Cisco 772 and Cisco 776 only)

- Dynamic addressing of the Cisco 700 family and remote workstations, which eases configuration and network management

- Port and address translation for creating private networks and an additional layer of network security

- DTMF support for basic network configuration of the Cisco 700 family with a push button telephone, after which, a network manager can dial into the Cisco 700 to complete the installation (Cisco 765, Cisco 766, Cisco 775 and Cisco 776 only)

- Dial-on-demand routing, which transparently dials the ISDN line only when it is needed and then automatically takes the connection down

- Multilink PPP for standards-based B-channel aggregation (RFC1717)

- Snapshot routing for IP and IPX, which prevents the ISDN line from being dialed only to exchange periodic routing updates

- Available STAC data compression for throughput of up to 512 kbps

- PAP, CHAP, PPP dial-back, caller ID, and access lists protect network resources from unauthorized access

- Remote management and monitoring using SNMP, Telnet, and the console port

- Support for all major ISDN central office switches worldwide
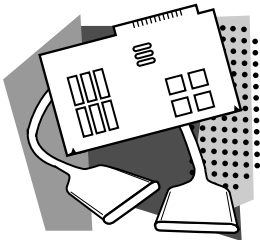
Hardware

The Cisco 700 family of ISDN routers includes the following models:

- Cisco 761 (see Figure 160)
- Cisco 762 (see Figure 161)
- Cisco 765 (see Figure 162)
- Cisco 766 (see Figure 163)
- Cisco 771 (see Figure 164)
- Cisco 772 (see Figure 165)
- Cisco 775 (see Figure 166)
- Cisco 776 (see Figure 167)
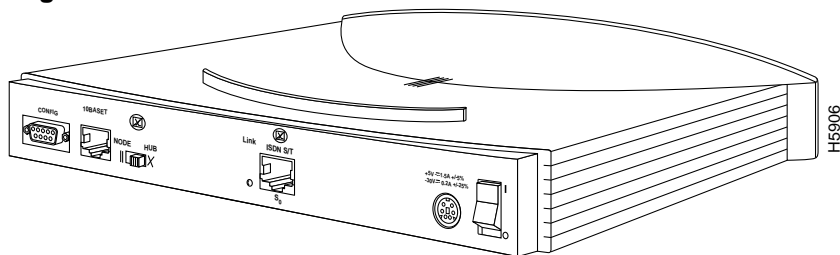
Figure 160 Cisco 761 Rear Panel
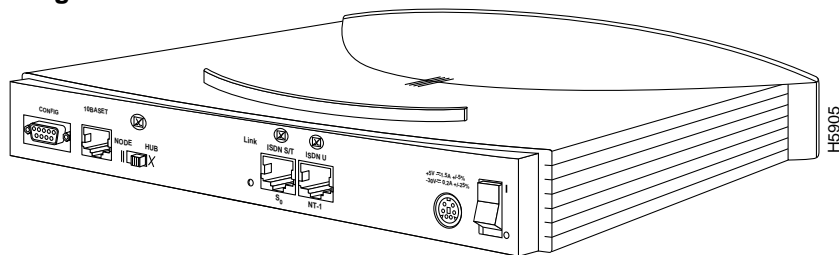

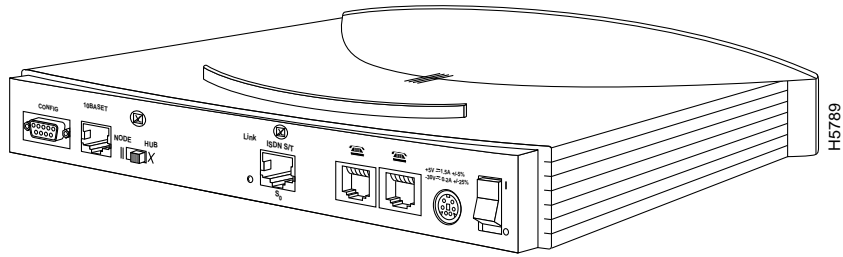**Figure 161 Cisco 762 Rear Panel**

Figure 162 Cisco 765 Rear Panel

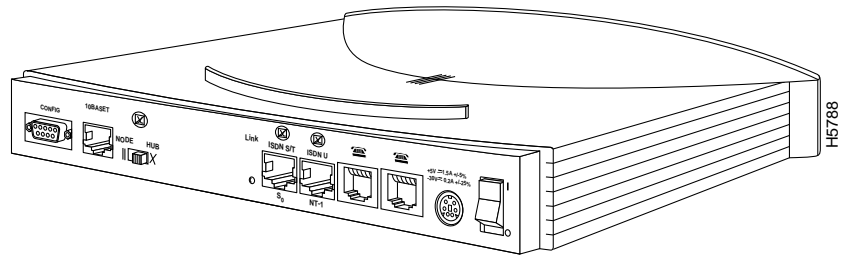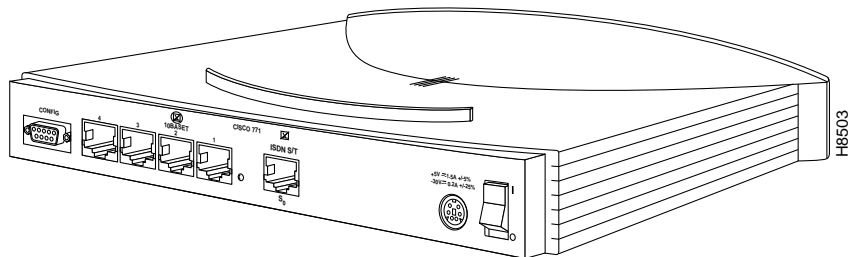**Figure 163 Cisco 766 Rear Panel**

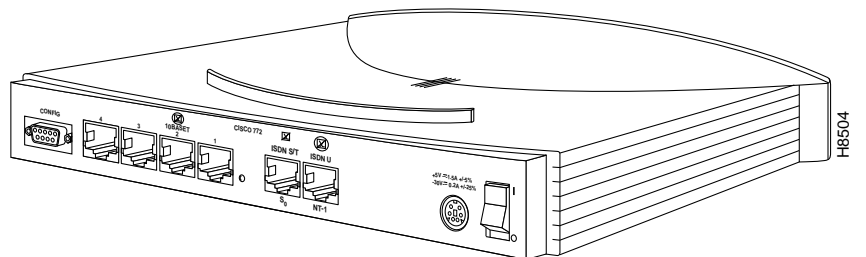**Figure 164 Cisco 771 Rear Panel**

Figure 165 Cisco 772 Rear Panel
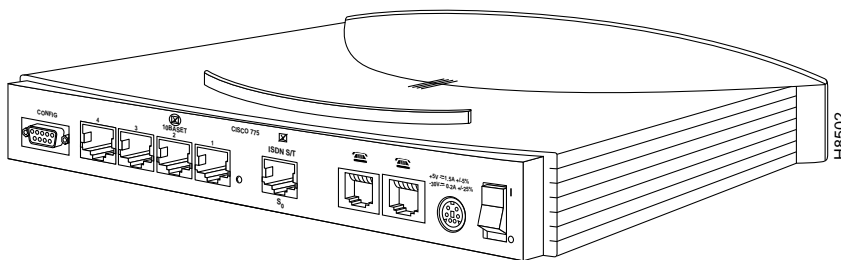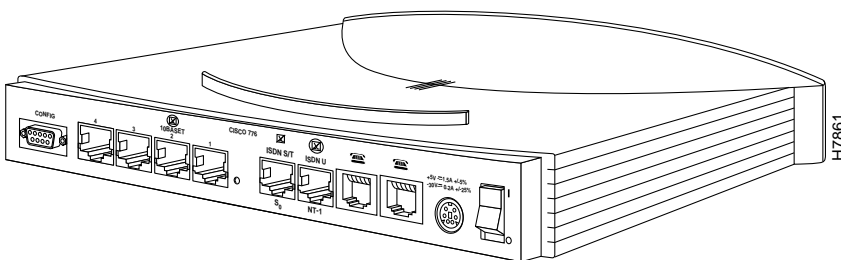
Figure 166 Cisco 775 Rear Panel
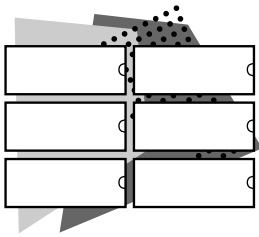

Figure 167 Cisco 776 Rear Panel

The Cisco 760 series and Cisco 770 series routers ship with all necessary software and hardware, including power supplies and cables. Table 194 lists the product numbers you can use to order Cisco 700 family routers and spare power supplies and cables. If a product number ends with an equal sign (=), the item can be ordered only as a spare. If a product number does not end with an equal sign, the item can be ordered as a spare or as a configurable part of a system order.

Table 194   Cisco 700 Family Product Numbers

Description	Product Number
Cisco 760 Series	
Cisco 761 Ethernet, ISDN BRI, and IP/IPX (North America)	CISCO761-US
Cisco 761 Ethernet, ISDN BRI, IP/IPX router (Net-3, Euro-ISDN, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Liechtenstein, Luxembourg, Monaco, Norway, Portugal, Spain, Sweden, and Switzerland)	CISCO761-CE
Cisco 761 Ethernet, ISDN BRI, IP/IPX (UK and Hong Kong)	CISCO761-UK
Cisco 761 Ethernet, ISDN BRI, and IP/IPX (Italy)	CISCO761-IT
Cisco 761 Ethernet, ISDN BRI, and IP/IPX (Singapore)	CISCO761-SG
Cisco 761 Ethernet, ISDN BRI, and IP/IPX (Australia)	CISCO761-AU
Cisco 761Ethernet, ISDN BRI, and IP/IPX (Japan)	CISCO761-JP
Cisco 761 Ethernet, ISDN BRI, and IP/IPX (New Zealand)	CISCO761-NZ
Cisco 761 Ethernet, ISDN BRI, and IP/IPX (Taiwan)	CISCO761-TW
Cisco 762 Ethernet, ISDN NT1, and IP/IPX (North America)	CISCO762
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (U.S. and Mexico)	CISCO765-US
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Canada)	CISCO765-CA

Description	Product Number
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (NET-3, Euro-ISDN, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Liechtenstein, Luxembourg, Monaco, Norway, Portugal, Spain, Sweden, and Switzerland)	CISCO765-CE
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Netherlands and Korea)	CISCO765-NL
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (UK, Ireland, Scotland, and Hong Kong)	CISCO765-UK
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Italy)	CISCO765-IT
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Singapore)	CISCO765-SG
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Japan)	CISCO765-JP
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (New Zealand)	CISCO765-NZ
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Taiwan)	CISCO765-TW
Cisco 765 Ethernet/ISDN BRI IP/IPX 2 POTS router (Australia)	CISCO765-AU
Cisco 766 Ethernet/ISDN BRI IP/IPX 2 POTS router (U.S.)	CISCO766-US
Cisco 766 Ethernet/ISDN BRI IP/IPX 2 POTS router (Canada)	CISCO766-CA
Cisco 770 Series	
Cisco 771 4-port Ethernet hub and ISDN BRI S/T router	CISCO771
Cisco 772 ISDN BRI S/T, 4-port Ethernet hub, ISDN BRI U with NT-1 router (North America)	CISCO772
Cisco 775 ISDN BRI S/T, 4-port Ethernet hub, and 2 POTS router (U.S. and Mexico)	CISCO775
Cisco 775 ISDN BRI S/T, 4-port Ethernet hub, and 2 POTS router (Japan)	CISCO775-JP
Cisco 775 ISDN BRI S/T, 4-port Ethernet hub, and 2 POTS router (Canada, Netherlands, Taiwan, Singapore, Korea)	CISCO775-G1
Cisco 775 ISDN BRI S/T, 4-port Ethernet hub, and 2 POTS router (Europe, Australia, Hong Kong)	CISCO775-G2
Cisco 776 ISDN BRI S/T, ISDN BRI U with NT-1, 4-port Ethernet hub, and 2 POTS router (U.S.)	CISCO776
Cisco 776 ISDN BRI S/T, ISDN BRI U with NT-1, 4-port Ethernet hub, and 2 POTS router (Canada)	CISCO776-G1
Power Supply for the Cisco 700 Family	
Cisco 760 series and Cisco 770 series AC power supply	PWR760-770=
Cables for the Cisco 700 Family	
Console cable	CAB760-770-CON=
AC power cord for U.S.	CAB-AC
AC power cord for Europe	CAB-ACE
CD-12 power cord for UK	CAB-ACU
AC power cord for Australia	CAB-ACA
Memory Upgrade for the Cisco 700 Family	
Memory upgrade of 512 KB DRAM	760-MEM-0.5D=

Software

The following three software feature sets are available for each Cisco 700 family router:

- Internet Ready
- Small Office/Home Office
- Remote Office

The base Internet Ready software feature set supports routing of the IP protocol for up to four devices. The Small Office/Home Office software feature set supports routing of IP and IPX for up to four devices with STAC compression. The Remote Office feature set supports IP and IPX routing with STAC compression for up to 1,500 devices. (See Table 195.)

Table 195   Summary of Software Support for the Cisco 700 Family

Feature Sets	Routed Protocols	LAN Devices	Data Compression
Internet Ready	IP	4	No
Small Office/ Home Office	IP and IPX	4	Yes
Remote Office	IP and IPX	1500	Yes

All Cisco 700 family routers are software upgradeable. For example, you can select the Internet Ready feature set today and upgrade to the Small Office/Home Office or Remote Office feature set in the future. (See Table 197 for ordering information.)

Table 196 and Table 197 list the feature sets and product numbers provided for the Cisco 700 family.

Table 196   Software Feature Sets for the Cisco 700 Family

Description[1,2]	Product Number[3]
Internet Ready Feature Sets	
IP routing, 4 users (U.S.)	SF700-IR-US-x.x
IP routing, 4 users (NET-3)	SF700-IR-CE-x.x
IP routing, 4 users (1TR6)	SF700-IR-1T-x.x
IP routing, 4 users (Australia)	SF700-IR-TP-x.x
IP routing, 4 users (Japan)	SF700-IR-IN-x.x
Small Office/Home Office Feature Sets	
IP/IPX routing, 4 users, data compression (U.S.)	SF700-SO-US-x.x
IP/IPX routing, 4 users, data compression (NET-3)	SF700-SO-CE-x.x
IP/IPX routing, 4 users, data compression (1TR6)	SF700-SO-1T-x.x
IP/IPX routing, 4 users, data compression (Australia)	SF700-SO-TP-x.x
IP/IPX routing, 4 users, data compression (Japan)	SF700-SO-IN-x.x

Description[1,2]	Product Number[3]
Remote Office Feature Sets	
IP/IPX routing, 1500 users, data compression (U.S.)	SF700-RO-US-x.x
IP/IPX routing, 1500 users, data compression (NET-3)	SF700-RO-CE-x.x
IP/IPX routing, 1500 users, data compression (1TR6)	SF700-RO-1T-x.x
IP/IPX routing, 1500 users, data compression (Australia)	SF700-RO-TP-x.x
IP/IPX routing, 1500 users, data compression (Japan)	SF700-RO-IN-x.x

1. WAN services include HDLC, ISDN, and PPP. Support for ISDN includes BRI, CLI/ANI, subaddressing, link compression, dial-on-demand, bandwidth on demand, access security, and IPX spoofing where applicable. Support for PPP includes Multilink PPP, RFC 1717, and PAP/CHAP authentication.
2. IP routing includes RIP v1 and RIP v2. IPX routing includes IPX RIP.
3. Substitute the software release number for x.x in the product number. For example, SF700-IR-US-xx.

Table 197   Software Upgrades for the Cisco 700 Family

Description	Product Number[1]
Internet Ready Feature Sets	
IP routing, 4 users (U.S.)	SW700-IR-US-x.x=
IP routing, 4 users (NET-3)	SW700-IR-CE-x.x=
IP routing, 4 users (1TR6)	SW700-IR-1T-x.x=
IP routing, 4 users (Australia)	SW700-IR-TP-x.x=
IP routing, 4 users (Japan)	SW700-IR-IN-x.x=
Small Office/Home Office Feature Sets	
IP/IPX routing, 4 users, data compression (U.S.)	SW700-SO-US-x.x=
IP/IPX routing, 4 users, data compression (NET-3)	SW700-SO-CE-x.x=
IP/IPX routing, 4 users, data compression (1TR6)	SW700-SO-1T-x.x=
IP/IPX routing, 4 users, data compression (Australia)	SW700-SO-TP-x.x=
IP/IPX routing, 4 users, data compression (Japan)	SW700-SO-IN-x.x=
Remote Office Feature Sets	
IP/IPX routing, 1500 users, data compression (U.S.)	SW700-RO-US-x.x=
IP/IPX routing, 1500 users, data compression (NET-3)	SW700-RO-CE-x.x=
IP/IPX routing, 1500 users, data compression (1TR6)	SW700-RO-1T-x.x=
IP/IPX routing, 1500 users, data compression (Australia)	SW700-RO-TP-x.x=
IP/IPX routing, 1500 users, data compression (Japan)	SW700-RO-IN-x.x=

1. Spares and upgrades are provided on DOS diskette only.