DATA SHEET

ADSL WAN INTERFACE CARDS FOR THE CISCO 1700, 1800, 2600, 2800, 3700 AND 3800 SERIES MODULAR ACCESS ROUTERS

The ADSL WAN interface cards (WICs) supported on the Cisco 1700/2600/3700 series routers are also supported on the Cisco 1800 (modular), 2800, 3800 series Integrated Services Routers (ISRs). These WICs deliver business class ADSL over basic telephone service or otherwise known as Plain Old Telephone Service (POTS) (through WIC-1ADSL and WIC-1ADSL-DG) and ADSL over ISDN (through WIC-1ADSL-I-DG) services for small and medium-sized businesses to enterprise branch offices (Figure 1). These ADSL WICs, combined with the Cisco 1700/1800/2600/2800/3700/3800 Series routers, enable service providers and resellers to offer additional services by supporting features for business-class security, voice integration, differentiated classes of service, and managed network access with Cisco IOS® Software. These value-added features, along with the manageability and reliability of Cisco IOS technology, provide the mission-critical networking that businesses require.

Figure 1. ADSLoPOTS with Dying Gasp, ADSLoPOTS, and ADSLoISDN WICs

The single-port ADSL WICs, which fit into any of the WIC, VIC/WIC, HWIC slots on the Cisco 1700/1800/2600/2800/3700/3800 series modular access routers, provides high-speed digital data transmissions between the customer premises equipment (CPE) and a central office (CO). (Figure 1 shows a single WIC to represent all three WICs; all three WICs resemble each other.)

ADSL OVER POTS WIC (WIC-1ADSL)

Key Features

- One RJ-11 ADSL interface
- Supports ADSL over POTS with Annex A ITU 992.1 (G.dmt)
- Complies with ANSI T1.413 issue 2
- Supports ATM AAL5
- Supports ATM Class of Service features CBR, VBR-nrt, VBR-rt, UBR
- Supports IP QoS
- Supports up to 23 virtual circuits on WIC
- Interoperates with third party and Cisco DSLAMs

ADSL OVER POTS WIC WITH DYING GASP SUPPORT (WIC-1ADSL-DG)

Key Features

- One RJ-11 ADSL interface
- Supports ADSL over POTS with Annex A ITU 992.1 (G.dmt)
- Complies with ANSI T1.413 issue 2
- Dying Gasp Support
- Supports ATM AAL5
- Supports ATM Class of Service features CBR, VBR-nrt, VBR-rt, UBR
- Supports IP QoS
- Supports up to 23 virtual circuits on WIC
- Interoperates with third party and Cisco DSLAMs

ADSL OVER ISDN WIC (WIC-1ADSL-I-DG)

Key Features

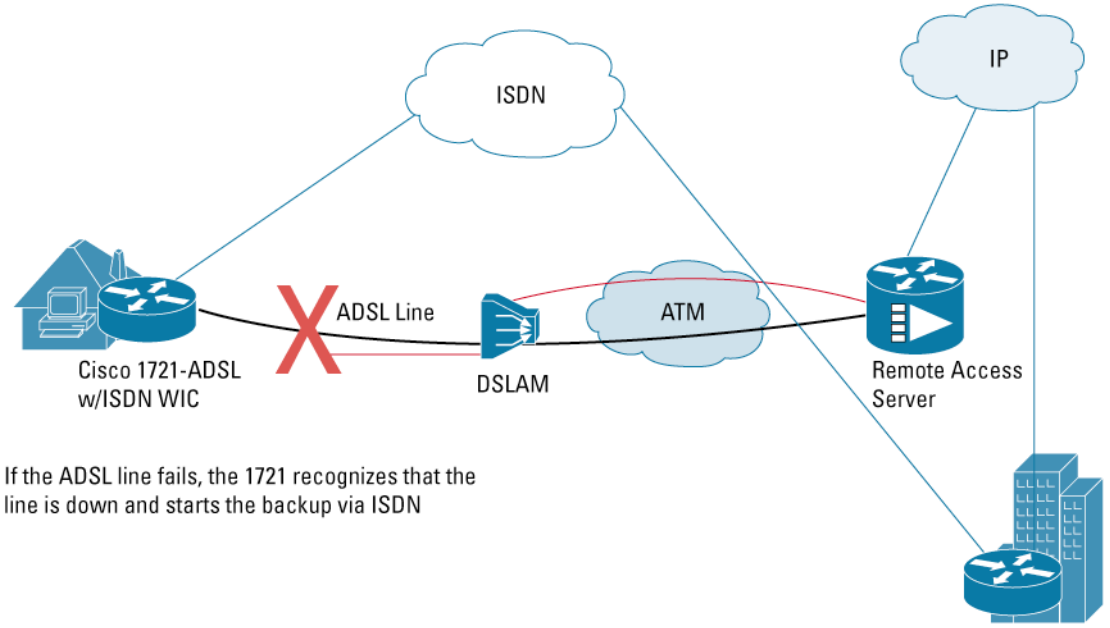
- One RJ-11 ADSL interface
- Supports ADSL over ISDN, UR-2/Annex B G.992.1 (G.dmt)
- Complies with ANSI T1.413 issue 2
- Supports ATM AAL5
- Supports ATM Class of Service features CBR, VBR-nrt, VBR-rt, UBR
- Supports IP QoS
- Supports up to 23 virtual circuits on WIC
- Supports Dying Gasp functionality
- Interoperates with third party and Cisco DSLAMs

APPLICATIONS OF CISCO ADSL WICS

Business-Class DSL with WAN Backup

The Cisco 1700/1800/2600/2800/3700/3800 series routers offer multiple WAN slots. These modular access routers can be configured with the ADSL WICs for primary WAN access and an ISDN WIC for WAN backup. This scenario provides redundancy for mission critical applications (Figure 2).

Figure 2. ADSL Access with ISDN Backup



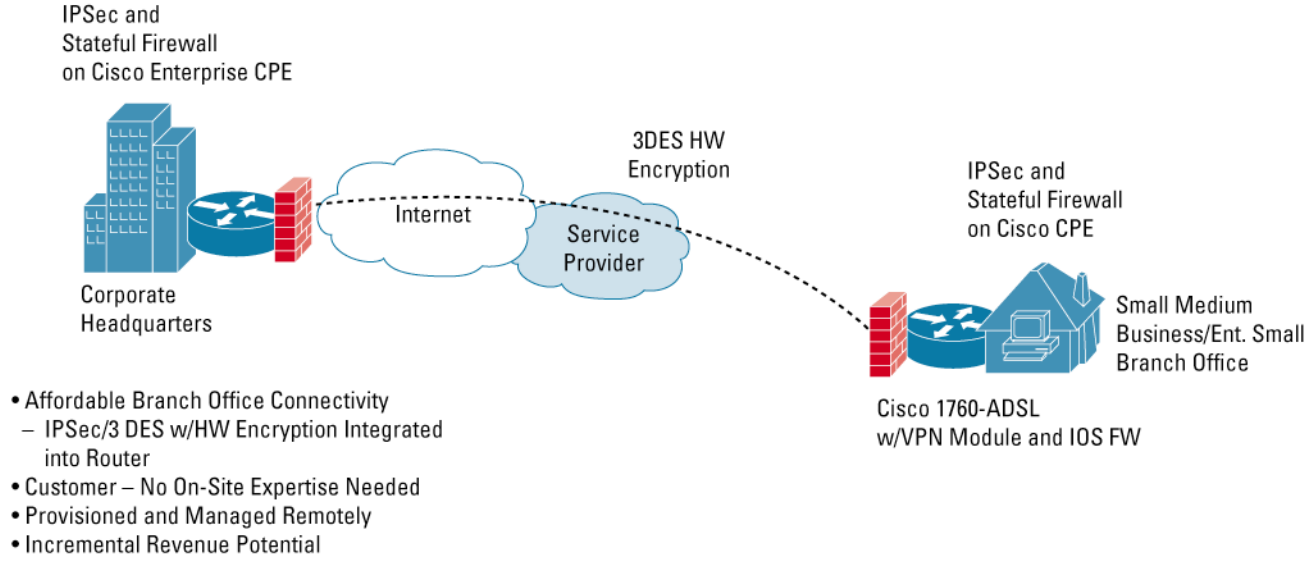
Business Class Security

The Cisco 1700/1800/2600/2800/3700/3800 series routers can be optimized for Internet security with Cisco IOS Firewall supporting stateful inspection firewall and intrusion prevention system features. With an always-on DSL connection, Internet security is vital to protect corporate resources from malicious network attacks. These features can be enabled on the modular routers by purchasing the optional Cisco IOS image with the Advanced Security feature set.

In addition, the platform can be optimized for virtual private networks (VPNs). VPNs allow secure use of the Internet for communications with the same policies and levels of security and performance as a private network. VPNs provide security through encryption tunneling, and the Cisco routers support hardware-based 3DES IP security (IPSec) and Advanced Encryption Standard (AES)* support. Encryption features can be enabled on the routers by purchasing the optional Cisco Advanced Security IOS image.

* AES hardware support is currently only available on the 1800/2600/2800/3700 and 3800 Series Routers.

Figure 3. Managed VPN Service



IP and ATM Quality of Service

Cisco 1700/1800/2600/2800/3700/3800 series routers with the ADSL WIC enable service providers to offer differentiated service options based on premium, standard, or best-effort service classes. The routers employ QoS features such as application-aware networking with IP QoS features and traffic management with ATM CoS features.

Application-Aware Networking with IP QoS

Using Cisco IOS Class-Based Weighted Fair Queuing (CBWFQ), the Cisco 1700/1800/2600/2800/3700/3800 series routers with ADSL WIC enable service providers and resellers to offer services, which can differentiate bandwidth based on a specific application or a specific user. For example, an order entry department's traffic can be given priority over a marketing department's traffic.

Traffic Management Using ATM CoS

In addition to IP QoS features, the Cisco 1700/1800/2600/2800/3700/3800 series routers with the ADSL WIC provides mapping of IP QoS to ATM class of service (CoS) features. These features enable service providers to manage their core ATM network infrastructures to deliver scalable, cost-effective services with QoS guarantees to their customers. Per-virtual-circuit traffic shaping and queuing allows further optimization of the existing bandwidth between customers and various services. (Table 1 below shows a summary of the QoS features.)

Table 1. QoS Feature Matrix

QoS Features	Platforms	Initial Cisco IOS Release Support	Cisco IOS Release T Train Support
LLQ, Diffserv, CAR, WRED, MLPPP w/LFI on Single VC	Cisco 1700 series	12.2(2)XQ1	12.2(13)T
	Cisco 2610-51/3600	12.2(4)XK	12.2(13)T
	Cisco 2600XM/2691/3700	12.2(8)YN	12.3(2)T
	Cisco 1800/2800 series	12.3(8)T	12.3(8)T
	Cisco 3800 series	12.3(11)T	12.3(11)T
ATM CLP Bit Marking, MLPPP Across Interfaces and Multiple VCs, cRTP, Tx-Ring Buffer, FRF.5 and FRF.8, Serial Communications Controller Clock Rate	Cisco 1700/2600XM/3640/3640A/3660*	12.2(8)YN	12.3(2)T
	Cisco 2691/3700*	12.2(15)ZJ	12.3(2)T
	Cisco 1800/2800 series	12.3(8)T	12.3(8)T
	Cisco 3800 series	12.3(11)T	12.3(11)T

* These features will not be supported on Cisco 2610-50 (non-XM) and 3620 series routers due to platform memory limitations.

DSLAM Interoperability

ADSL over POTS WIC:

- Alcatel ASAM 1000 and 7300
- Cisco 6000 Series DSLAMs
- Lucent Stinger (24-port and 48-port linecards)
- ECI HiFOCuS (ADI 918 and ADI 930 linecards)

ADSL over POTS WIC with Dying Gasp:

- Alcatel ASAM 1000 and 7300
- Cisco 6000 Series DSLAMs
- Lucent Stinger (24-port and 48-port linecards)
- ECI HiFOCuS (ADI 918 and 930 linecards)

ADSL over ISDN WIC:

- Siemens Xpresslink DSLAM 2.0 (16-port linecard) and 2.1 (32-port linecard)
- ECI DSLAM Hi-FOCuS (linecards 16 & 16A)
- Lucent Stinger (48-port linecards)
- Cisco 6000 DSLAM (ATU-1-DMT8-I linecards)

Performance

ADSL performance varies according to a variety of factors including DSLAM linecard type, DSLAM Software version, training rate, line noise, and loop length.

Software Support

The ADSL feature is supported in the IP/ADSL Image (“y7” image) for the Cisco 1700 Series. Cisco 2600/3600/3700 series routers require a PLUS IOS image for ADSL if using 12.2T. From 12.3 Mainline and beyond ADSL WIC support is available in the “IP Base” feature set. Some QoS features require an advanced image (IP PLUS, IP VOICE, or above) for Cisco 1700/2600/3600/3700 series router support. The ADSL WICs are supported on the “IP Base” feature set for the Cisco 1800/2800/3800 ISRs. The default IOS image for the Cisco 1841 ADSL bundles is the Cisco IOS IP Broadband image. In addition to all the features of the “IP Base” image, the IP Broadband image also has the Service Assurance Agent (SAA) features. The default IOS image for the Cisco 2800 series ADSL bundles is the Cisco IOS SP Services image.

The ADSL over POTS WIC (WIC-1ADSL), is available on the Cisco IOS 12.3 Mainline for the Cisco 1700/2600/ 3600/3700 series routers. This WIC is supported on the 1800/2800 series ISRs starting with the Cisco IOS 12.3(8)T Release, and on the 3800 series ISRs starting with the Cisco IOS 12.3(11)T Release..

The ADSL over POTS WIC with Dying Gasp Support (WIC-1ADSL-DG) is available on the Cisco IOS 12.3T Release starting with the Cisco IOS 12.3(7)T Release on the Cisco 1700/2600/3700 series routers. This WIC is supported on the 1800/2800 series ISRs starting with the Cisco IOS 12.3(8)T Release, and on the 3800 series ISRs starting with the Cisco IOS 12.3(11)T Release.

The ADSL over ISDN WIC (WIC-1ADSL-I-DG) is available on the Cisco IOS 12.3T Release starting with the Cisco IOS 12.3(7)T Release on the Cisco 1700/2600/3700 series routers. This WIC is supported on the 1800/2800 series ISRs starting with the Cisco IOS 12.3(8)T Release, and on the 3800 series ISRs starting with the Cisco IOS 12.3(11)T Release.

Platform Support

Table 2 provides platform support details. All the WICs are supported both in onboard WIC/HWIC slots and in the WIC carrier cards (NM-2W, NM-xFE2W, NM-xFE2W-V2, and NM-1FE1R2W) slots.

Table 2. Platform Support Details

	WIC-1ADSL	WIC-1ADSL-DG*	WIC-1ADSL-I-DG*
Platforms Supported	Cisco 1720, 1721, 1751, 1760, 1841, 2610-51, 2610-51XM, 2691, 2801, 2811, 2821, 2851, 3620, 3640, 3640A, 3660, 3725, 3745, 3825, and 3845	Cisco 1721, 1751, 1760, 1841, 2610-51XM, 2691, 2801, 2811, 2821, 2851, 3725, 3745, 3825, and 3845	Cisco 1721, 1751, 1760, 1841, 2610-51XM, 2691, 2801, 2811, 2821, 2851, 3725, 3745, 3825, and 3845

* WIC-1ADSL-I-DG and WIC-1ADSL-DG will not be supported on Cisco 2610-50 (non-XM) Series and 3600 routers.

Product Number and Ordering Information

ADSLoPOTS product numbers are listed in Table 3 and ADSLoISDN part numbers are listed in Table 4.

Table 3. ADSLoPOTS and ADSLoPOTS with Dying Gasp Product Numbers

Product Number	Description
ADSL over POTS	
WIC-1ADSL	1-port ADSLoPOTS WAN Interface Card (System)
WIC-1ADSL=	1-port ADSLoPOTS WAN Interface Card (Spare)
CISCO1721-ADSL	1721 ADSL Bundle w/ADSLoPOTS WIC, IP/ADSL, 32MB FL/64 MB DR

Product Number	Description
CISCO1760-ADSL	1760 ADSL Bundle w/ADSLoPOTS WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1841-ADSL	1841 ADSLoPOTS Bdle,IP Broadband,32FL/128DR
CISCO2611XM-ADSL	2611XM ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32FLASH, 128 DRAM
CISCO2621XM-ADSL	2621XM ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32FLASH, 128 DRAM
CISCO2651XM-ADSL	2651XM ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32FLASH, 128 DRAM
CISCO2801-ADSL/K9	2801 DSL Bundle,WIC-1ADSL(ADSLoPOTS),SP Serv,64F/192D
CISCO2811-ADSL/K9	2811 with WIC-1ADSL (ADSLoPOTs), SP Ser IOS, 64F/256D
ADSL over POTS with Dying Gasp	
WIC-1ADSL-DG	1-port ADSLoPOTS WAN Interface Card with Dying Gasp (system)
WIC-1ADSL-DG=	1-port ADSLoPOTS WAN Interface Card with Dying Gasp (spare)
CISCO1721-ADSL-DG	1721 bundle with WIC-1ADSL-DG, IP/ADSL
CISCO1841-ADSL-DG	1841 ADSLoPOTS w/dying gasp Bdle,IP Broadband,32FL/128DR

Table 4. ADSLoISDN Product Numbers

Product Number	Description
WIC-1ADSL-I-DG	1-port ADSLoISDN WAN Interface Card (System)
WIC-1ADSL-I-DG=	1-port ADSLoISDN WAN Interface Card (Spare)
CISCO1721-ADSLI	1721 ADSL Bundle w/ADSLoISDN WIC, IP/ADSL
CISCO1841-ADSLI	1841 ADSLoISDN Bdle,IP Broadband, 32FL/128DR

Cable Information

The straight-through cable is the default cable and is included in the WIC packaging. For customers that have an external splitter, please order the crossover cable. This crossover cable can be ordered as a spare with the product id: CAB-ADSL-RJ11X=

Cisco 1700/2600/3600/3700 Series Regulatory Approvals

When installed in a Cisco 1700/2600/3600/3700 router, the ADSL WIC does not change the router standards (Regulatory Compliance, Safety, EMC, Telecom).

Please refer to the platform specific data sheets for their Regulatory Compliance, Safety, EMC, and Telecom standards.

- **Cisco 1721 Router:** http://www.cisco.com/warp/public/cc/pd/rt/1700/prodlit/1721d_ds.pdf
- **Cisco 1751 Router:** http://www.cisco.com/warp/public/cc/pd/rt/1700/prodlit/c1751_ds.pdf
- **Cisco 1760 Router:** http://www.cisco.com/warp/public/cc/pd/rt/1700/prodlit/1760e_ds.pdf
- **Cisco 1841 Router:** http://www.cisco.com/en/US/prod/collateral/routers/ps5853/product_data_sheet0900aecd8016a59b.html
- **For Cisco 2800 Series:** http://www.cisco.com/en/US/prod/collateral/routers/ps5854/ps5882/product_data_sheet0900aecd8016fa68.html
- **For Cisco 3600 Series:** http://www.cisco.com/warp/public/cc/pd/rt/3600/prodlit/36kmp_ds.htm

- **For Cisco 3700 Series:** http://www.cisco.com/warp/public/cc/pd/rt/ps282/prodlit/3700a_ds.htm
- **For Cisco 3800 Series:** http://www.cisco.com/en/US/prod/collateral/routers/ps5855/product_data_sheet0900aecd8016a8e8.html

ADSL Chipset Specifications

- WIC-1ADSL (ADSLoPOTS)—Alcatel MTK-20150
- WIC-1ADSL-DG (ADSLoISDN)—Alcatel MTK-20170
- WIC-1ADSL-I-DG (ADSLoISDN)—Alcatel MTK-20170

ADSL WIC Dimensions and Weight

- Width: 3.08 in. (7.82 cm)
- Height: .75 in. (1.91 cm)
- Depth: 4.38 in. (11.13 cm)
- Weight: 0.15 lb (68 grams)

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