Cisco Enhanced High-Speed WAN Interface Cards

Cisco Gigabit Ethernet Dual-Identity Small Form-Factor Pluggable and Copper Enhanced High-Speed WAN Interface Card.

Product Overview

The Cisco® Gigabit Ethernet Dual-Identity Enhanced High-Speed WAN Interface Card (EHWIC) brings both Small Form-Factor Pluggable (SFP) and copper (RJ-45) Gigabit Ethernet connectivity to Cisco Integrated Services Routers (ISRs) to accelerate applications such as Ethernet WAN access, inter-VLAN routing (IVR), and high-speed connectivity to LAN switches.

The single-port Cisco Gigabit Ethernet EHWIC provides Gigabit Ethernet optical and copper connectivity in a compact form factor to the Cisco Integrated Service Router Generation 2 (ISR G2).

The Gigabit Ethernet EHWIC enables branch offices to cost-effectively use high-speed uplinks in numerous environments (Figure 1). The enhanced performance of Gigabit Ethernet in Cisco ISR G2 routers enables new applications and services and provides greater capacity for existing IVR and bridging capabilities. Branch offices can now connect to Ethernet WAN (EWAN) Layer 2 and 3 services.

Note: The EHWIC provides Gigabit Ethernet connectivity but will not support line rate since throughput is limited by the platforms. The maximum throughput cannot exceed 800 Mbps bidirectionally.

For flexibility, the EHWIC includes one SFP slot, which supports a Cisco SFP (see Table 1 later in this document) and a copper RJ-45 port, where either the SFP port (operating at 100/1000 Mbps) or the RJ-45 (operating at 10/100/1000 Mbps) port can be active at one time. The SFP port supports digital optical monitoring (DOM) as specified by the industry-standard SFF-8472 multisource agreement (MSA). This feature enables the end user to monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

Cisco IOS® Software provides enhanced capabilities such as hierarchical quality of service (HQoS), Multiprotocol Label Switching (MPLS), IP Security (IPsec), and Layer 3 VPNs. Since this is a true routed port card, the user can configure an IP address directly on the EHWIC-1GE-SFP-CU interface and does not have to configure the port for VLAN trunking as is done in switched virtual interface (SVI) configurations.

Figure 1. Cisco Gigabit Ethernet EHWIC-1GE-SFP-CU

Gigabit Ethernet Applications

Figure 2 shows an ISR G2 with two EHWICs: one connected to the branch-office LAN, and one connected to an EWAN service. On the LAN side, the card can run multiple VLANs to segregate LAN networks. On the EWAN side, it can segregate traffic using multiple VPN types. Cisco IOS Software enables HQoS applications such as traffic shaping and Network-Based Application Recognition (NBAR). As with VLAN trunking, this configuration is well suited for situations in which fiber connectivity is desirable while providing the flexibility of an RJ-45 copper connection.

Figure 2. Ethernet WAN
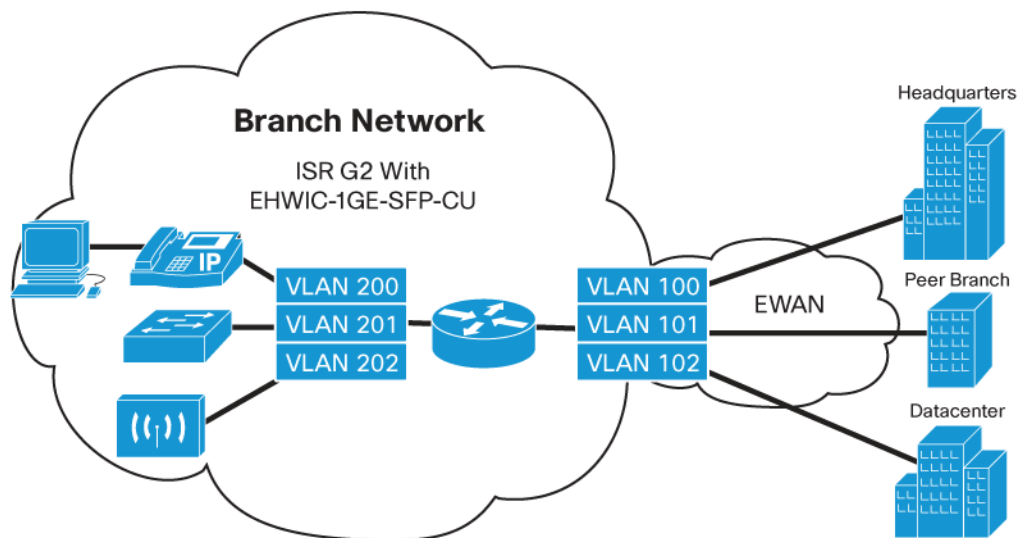
Main Features

QoS Features

- Weighted Random Early Detection (WRED)
- Precedence setting and mapping (IEEE 802.1p)
- Committed access rate (CAR)

- Access control lists (ACLs)
- MAC address filtering
- Extended ACLs
- Voice and remaining QoS features, per platform and per Cisco IOS Software release
- HQoS

Ethernet Specifications
- Support for the same Ethernet features as supported on the ISR G2 on-board Ethernet ports
- Gigabit Ethernet IEEE 802.3z, IEEE 802.3x, and IEEE 802.3ab
- IEEE802.3 with IEEE802.2 Service Advertising Protocol (SAP)
- IEEE802.3 with IEEE802.2 and Subnetwork Access Protocol (SNAP)
- IEEE 802.1p priority
- IEEE 802.1Q VLAN tagging
- Flow control (IEEE 802.3x)
- Gigabit EtherChannel for link redundancy
- DOM: SFF-8472

Network Management Features
- Simple Network Management Protocol (SNMP) support
- Remote Monitoring (RMON) support
- Cisco NetFlow accounting
- IP service-level agreement (IP-SLA)

Additional Features
- Jumbo frame support for up to 9576 bytes
- Cisco Group Management Protocol (GMP) and Internet Group Management Protocol (IGMP) for multicasting
- High availability, supporting Hot Standby Router Protocol (HSRP), Virtual Router Redundancy Protocol (VRRP), and Gateway Load-Balancing Protocol (GLBP)
- Hot insertion and removal for SFPs on all platforms
- Media or SFP type display through a command-line interface (CLI)
- No connection to the ISR G2 router's Multi-Gigabit Fabric (MGF)

Agency Approvals
- UL 60950-1, 2nd edition
- CAN/CSA C22.2 No. 60950-1, 2nd edition
- EN 60950-1, 2nd edition
- CB to IEC 60950-1, 2nd edition with all group differences and national deviations

Emissions
- FCC Part 15 Class A

- ICES-003 Class A
- EN55022 Class A
- CISPR22 Class A
- AS/NZS 3548 Class A
- VCCI Class A
- EN 300386
- EN61000-3-3
- EN61000-3-2

Specifications

Physical Specifications
- Single-wide EHWIC, with no slot restrictions
- Dimensions (H x W x D): 0.8 x 3.1 x 4.8 in. (2.1 x 7.9 x 12.2 cm)

Environmental Specifications
- Operating temperature: 32 to 104°F (0 to 40°C)
- Storage temperature: –4 to 149°F (–20 to 65°C)
- Relative humidity: 10 to 90 percent, noncondensing

Ordering Information

Table 1 presents part numbers and descriptions for the Cisco Gigabit Ethernet EHWIC.

Table 1.   Cisco Gigabit Ethernet EHWIC Product Part Numbers and Descriptions

Part Number	Description
EHWIC-1GE-SFP-CU	Enhanced HWIC, Dual Mode 1 port SFP/Copper
Standard SFPs	
GLC-LH-SM=	GE SFP, LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-ZX-SM=	1000BASE-ZX SFP
GLC-T=	1000BASE-T SFP
GLC-BX-D=	1000BASE-BX SFP, 1490NM
GLC-BX-U=	1000BASE-BX SFP, 1310NM
GLC-FE-100FX=	100BASE-FX SFP for FE port
GLC-FE-100LX=	100BASE-LX SFP for FE port
GLC-FE-100EX	100BASE-EX SFP for FE port
GLC-FE-100ZX	100BASE-XX SFP for FE port
GLC-FE-100BX-U=	100BASE-BX10-U SFP
GLC-FE-100BX-D=	100BASE-BX10-D SFP
GLC-GE-100FX=	100BASE-FX SFP for GE SFP port on 3750, 3560, 2970, 2960
CWDM SFPs	
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC

Part Number	Description
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
DWDM SFPs	
DWDM-SFP-3033=	DWDM SFP 1530.33 nm SFP (100 GHz ITU grid)
DWDM-SFP-3112=	DWDM SFP 1531.12 nm SFP (100 GHz ITU grid)
DWDM-SFP-3190=	DWDM SFP 1531.90 nm SFP (100 GHz ITU grid)
DWDM-SFP-3268=	DWDM SFP 1532.68 nm SFP (100 GHz ITU grid)
DWDM-SFP-3346=	DWDM SFP 1533.47 nm SFP (100 GHz ITU grid)
DWDM-SFP-3425=	DWDM SFP 1534.25 nm SFP (100 GHz ITU grid)
DWDM-SFP-3504=	DWDM SFP 1535.04 nm SFP (100 GHz ITU grid)
DWDM-SFP-3582=	DWDM SFP 1535.82 nm SFP (100 GHz ITU grid)
DWDM-SFP-3661=	DWDM SFP 1536.61 nm SFP (100 GHz ITU grid)
DWDM-SFP-3739=	DWDM SFP 1537.40nm SFP (100 GHz ITU grid)
DWDM-SFP-3819=	DWDM SFP 1538.19 nm SFP (100 GHz ITU grid)
DWDM-SFP-3898=	DWDM SFP 1538.98 nm SFP (100 GHz ITU grid)
DWDM-SFP-3977=	DWDM SFP 1539.77 nm SFP (100 GHz ITU grid)
DWDM-SFP-4056=	DWDM SFP 1540.56 nm SFP (100 GHz ITU grid)
DWDM-SFP-4134=	DWDM SFP 1541.35nm SFP (100 GHz ITU grid)
DWDM-SFP-4214=	DWDM SFP 1542.14 nm SFP (100 GHz ITU grid)
DWDM-SFP-4294=	DWDM SFP 1542.94 nm SFP (100 GHz ITU grid)

Software Support

Table 2 lists the minimum software requirements for the Cisco Gigabit Ethernet EHWIC.

Table 2.   Minimum Cisco IOS Software Requirements for Cisco Gigabit Ethernet EHWIC

Supported Platforms	Minimum Cisco IOS Software Image
Cisco 3945E ISR	Release 15.1(4)M
Cisco 3925E ISR	Release 15.1(4)M
Cisco 3945 ISR	Release 15.1(4)M
Cisco 3925 ISR	Release 15.1(4)M
Cisco 2951 ISR	Release 15.1(4)M
Cisco 2921 ISR	Release 15.1(4)M
Cisco 2911 ISR	Release 15.1(4)M
Cisco 2901 ISR	Release 15.1(4)M
Cisco 1941W ISR	Release 15.1(4)M
Cisco 1941 ISR	Release 15.1(4)M
Cisco 1921 ISR	Release 15.1(4)M

Platform Support

Table 3 lists the number of modules supported by various Cisco routers.

Table 3.   Cisco Gigabit Ethernet EHWIC Support Comparison

Supported Platforms	Number of Modules Supported
Cisco 3945E ISR	3
Cisco 3925E ISR	3
Cisco 3945 ISR	4
Cisco 3925 ISR	4
Cisco 2951 ISR	4
Cisco 2921 ISR	4
Cisco 2911 ISR	4
Cisco 2901 ISR	4
Cisco 1941W ISR	2
Cisco 1941 ISR	2
Cisco 1921 ISR	1

Minimum Memory Requirements

For information about memory requirements, please refer to the hardware-software compatibility matrix or the Cisco IOS Software release notes.

Cisco and Partner Services for the Branch Office

Services from Cisco and our certified partners can help you transform the branch-office experience and accelerate business innovation and growth in the Cisco Borderless Network. We have the depth and breadth of expertise to create a clear, replicable, optimized branch-office footprint across technologies. Planning and design services align technology with business goals and can increase the accuracy, speed, and efficiency of deployment. Technical services help improve operational efficiency, save money, and mitigate risk. Optimization services are designed to continuously improve performance and help your team succeed with new technologies.

For More Information

For more information, visit http://www.cisco.com/go/services.

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