

SCM Gigabit Ethernet Interface



The SCM Gigabit Ethernet Interface (10/100/1000 Mbit/s) is designed to facilitate high-performance signaling testing. Equipped with custom-designed field-programmable gate arrays, it ensures accurate time stamping of signaling messages with a 10-nanosecond time-stamp resolution.

KEY FEATURES

512 000 session initiation protocol (SIP) endpoints

512 000 home subscriber server (HSS) subscribers

3600 SIP registrations per second

8600 SIP messages flood per second

850 SIP calls per second

Accurate network delay, latency and session establishment time measurement

High-capacity secured connection supporting IPsec, TLS, IKE and IMS AKA

Dual-port Gigabit Ethernet interface (RJ-45)

UNPRECEDENTED PERFORMANCE FOR VoIP AND IMS TESTING

The Signaling Centric Module Gigabit Ethernet (SCM-GbE) Interface is designed to facilitate high-performance signaling testing over voice-over-IP (VoIP) and Internet protocol multimedia subsystem (IMS) networks. Thanks to its versatile testing capabilities including functional, load/stress, regression, negative and denial of service (DoS) attack, this dual Gigabit Ethernet module delivers the renowned quality, flexibility and performance of EXFO's VoIP and IMS testing solutions.

Each SCM-GbE dual-port module can support up to 512 000 SIP endpoints (2 048 000 per QualityAssurer QA-604) and 512 000 HSS subscribers (2 048 000 per QualityAssurer QA-604). The SCM-GbE Interface is designed to test IMS network core elements such as session control functions (S/I/P-CSCFs) and HSS, as well as key VoIP network control elements, namely SIP registrar, redirect or proxy server. Each module can also generate 3600 SIP registrations per second (14 400 per QualityAssurer QA-604), 850 SIP calls per second (3400 per QualityAssurer QA-604) as well as SIP message floods, which emulates a DoS attack at 8600 per second (34 400 per QualityAssurer QA-604).



Next-Generation Network Test Platform—QualityAssurer QA-604

Coupled with high-performance and flexible SIP and HSS test applications, the SCM-GbE module is an easy-to-use, all-in-one, powerful interface to perform comprehensive VoIP and IMS network testing. The entire IMS network core can be tested with a single SCM-GbE module by generating SIP traffic with EXFO's sipFlex Test Suite on one port, and emulating HSS with the hssFlex Test Suite on the other port.

The SCM-GbE module is equipped with custom-designed field-programmable gate arrays (FPGAs) to ensure accurate time-stamping of signaling messages with a 10-nanosecond time-stamp resolution. By measuring the precise time difference between any two messages, key performance indicators (KPIs), which gauge the network response latency and call session establishment time, can be precisely assessed in order to characterize the network's performance under various conditions and traffic loads.

This interface also supports high-performance security protocols by leveraging the hardware-assisted security feature of the processor. Security protocols such as transport layer security (TLS), Internet protocol security (IPSec) and Internet key exchange (IKE) are integral components of VoIP and IMS networks. The ability to support large amounts of such security connections is crucial to performing realistic IMS testing.

The SCM-GbE supports two RJ-45 connectors for Gigabit Ethernet unshielded twisted-pair (UTP) connections. Each port can be controlled separately in a multi-user environment through the QualityAssurer QA-604 platform, yielding a granularity of one user per port. Each of the SCM-GbE's two ports is connected to a dedicated PowerPC processor that runs an optimized Linux operating system to provide extremely high-processing capacity to each port. A single QualityAssurer QA-604 can house up to four modules (eight ports) that can be managed by one graphical user interface, making it the solution of choice for performing large-scale testing in a single test bed.

SPECIFICATIONS

Test solutions	IMS I/P/S CSCF, HSS, SIP proxy/registrar
Protocol supported	SIP, Diameter, TLS, IPSec, IKEv1, IPv4, IPv6, TCP, UDP, SCTP, DHCP, DNS
SIP endpoints per port (per module)	256 000 (512 000)
HSS subscribers per port (per module)	256 000 (512 000)
SIP registrations support per port (per module)	1800 (3600) per second
SIP calls per port (per module)	425 (850) per second
SIP message floods per port (per module)	4300 (8600) attempts per second
Connection type	Two RJ-45 connectors
Connection speed	Auto-negotiate 10/100/1000 Mbit/s
Number of ports	Two
Number of modules per platform	Four (maximum)
Hot swappable	Yes
Central processing unit (CPU)	2 x PowerPC
Interface types	10BASE-T (full or half duplex) 100BASE-TX (full or half duplex) 1000BASE-T (full duplex)
Status LEDs	Speed (no link, 10/100/1000 Mbit/s) Status Activity
Reset button	Two (one per port)
Platform supported	QualityAssurer QA-604 Next-Generation Network Test Platform

GENERAL SPECIFICATIONS

Physical characteristics	Single-slot module
Size (H x W)	20 mm x 320 mm ($\frac{3}{16}$ in x 12 $\frac{1}{4}$ in)
Weight	0.5 kg (1.1 lb)

ORDERING INFORMATION

For ordering information, please contact isales@EXFO.com

COMPLEMENTARY PRODUCTS

sipFlex Test Suite

This SIP endpoint and network cloud emulation tool simulates subscribers' behavior as they interact with the network. It also tests the device under test security capabilities such as protection against theft of service, registration floods, rogue media and media pinhole hijacking.

hssFlex Test Suite

This HSS emulator designed with built-in test functionality provides a comprehensive IMS test bed, which enables NEMs and NSPs to perform comprehensive device and end-to-end testing using a combination of the industry-leading HSS test emulator and IMS subscribers (sipFlex) in a single test application. It also enables characterization of device and network response latency measurement under various network load conditions.

h323Flex Test Suite

The h323Flex Test Suite is designed to assist NEMs and NSPs in performing H.323 to SIP interwork testing using real-world traffic load in lab environments. This easy-to-use application provides comprehensive capabilities covering the entire H.323 network at various stages of development and deployment.

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