

Dialogic® DSI Signaling Interface Unit Based on Dialogic® DSI SS7G3x Signaling Servers

Datasheet

The Dialogic® DSI Signaling Interface Unit (DSI SIU) is based on the Dialogic® DSI SS7G31 Signaling Server or Dialogic® DSI SS7G32 Signaling Server, which are known collectively as the Dialogic® DSI SS7G3x Signaling Servers.

The DSI SIU offers signaling connectivity for distributed, multi-system-based telecom applications by providing Time Division Multiplex (TDM) interfaces and Internet Protocol (IP) transport to application host servers. This architecture offloads the signal processing from the application servers and allows the load sharing of application processes over 1 to 128 separate systems.

The DSI SIU is suitable for a wide variety of solutions, notably those in which high throughput for signaling traffic is required.

It offers developers an integrated standards-based signaling platform, provides carrier-grade fault resiliency and scalability, and supports a wide range of signaling protocols, including specific local variants, enabling worldwide deployment in a variety of applications.

The DSI SIU provides access to all layers of the DSI SS7 stack for circuit and transaction related services. Programs running on the application host use the DSI protocol layers as though they were resident locally, while a Dialogic® driver provided with the DSI SIU software sends and receives messages over IP to and from the DSI SIU. This architecture facilitates scaling the service node without replicating the network-facing connections with additional hardware, protocol licenses, or point codes.

The DSI SIU supports standard operations, administration, and maintenance (OA&M) interfaces via Simple Network Management Protocol (SNMP), allowing easy integration into automated, centralized management systems.



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Features

Benefits

Accommodates high link density and performance; supports up to:

- 192 (DSI SS7G32) or 64 (DSI SS7G31) low-speed, channelized 64 Kbps SS7 links in 64 link sets
- 4 high-speed, 2 Mbps Q.703 SS7 links configurable on a per-link basis
- 256 M2PA or 256 M3UA associations
- 128 application hosts served over IP
- 64,000 ISUP circuits or 64,000 simultaneous TCAP, INAP, MAP, or ANSI-41 transactions per server
- 12,000 transactions per second or 12,000 calls per second per server

Enables the creation of powerful, scalable, cost-effective, high-density solutions to address the needs of demanding mobile and intelligent networking transaction-intensive applications

Common API across Dialogic® Distributed Signaling Interface (DSI) Components – boards, stacks, and servers

Can reduce development costs by allowing easy migration of applications to higher performance server platforms

Supports ITU-T, 3GPP, and local variants of SS7 protocols, including MTP, ISUP, BICC, SCCP, TCAP, MAP, ANSI-41, INAP, and CAMEL

Facilitates reliable, global deployment via protocols that are used in many networks worldwide

Supports operation using IETF SIGTRAN M2PA or M3UA in Application Server Process and peer-to-peer IP Server Process (IPSP) configurations

Can be deployed in a SIGTRAN network without the need for TDM interface hardware or separate signaling gateways

Supports resilient system architectures and multiple point codes

Enables fault-resilient system architectures with redundant systems and standby IP ports for single or multiple networks

Equipped with redundant hard drives

Provides data and system resiliency to maintain application uptime

Distributed Transaction Execution

When used with TCAP and other transaction based protocols, the DSI SIU acts as a central message server for one or more separate systems running the same or different applications. Incoming traffic to a point code can be initially routed to the application systems on an SCCP Subsystem Number (SSN), with subsequent exchanges routed via the TCAP transaction ID. The execution of protocol layers from TCAP to MAP/ANSI-41 or INAP can be distributed among the host systems or run entirely on the DSI SIU, depending on the performance requirements and resilience objectives of individual deployments.

System Resilience

DSI SIUs provide carrier-grade qualities, which are required for service provider applications. One of these qualities is fault resilience, which is illustrated in Figure 1:

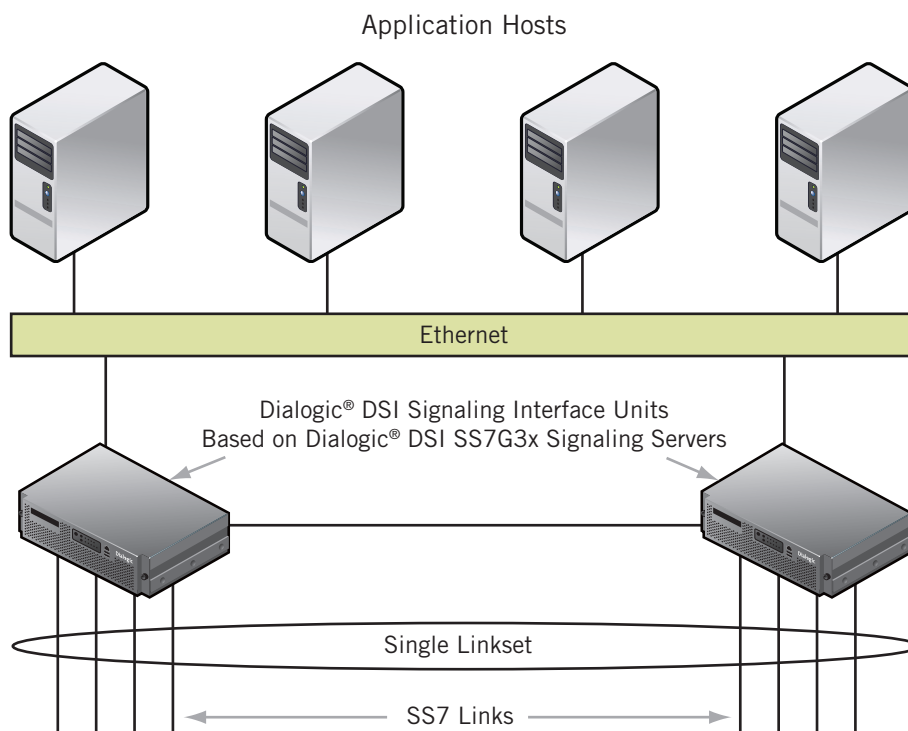


Figure 1 - Fault-Resilient Configuration Example

DSI SIUs can be configured in pairs that share the same SS7 point code or as multiple point codes. Both configurations provide resilient operation for the service node. In normal operation, the signaling load can be shared across the two units. If one unit fails, the remaining unit handles all signaling. For SIGTRAN networks, IP resilience can be enhanced by using 10/100/1000 Mbit/s Ethernet interfaces in groups, with an active and standby interface for a given IP address.

Optionally, each DSI SS7G3x can be configured with dual power supply units, allowing a hot-swap redundant configuration.

ATM Connectivity

A Dialogic® DSI SS7MDL4 Network Interface Board can be field-installed in the DSI SS7G32 Signaling Server. When equipped with a DSI SS7MDL4 Board, the DSI SIU is capable of connecting to networks using either MTP or ATM transport technologies. For more information about using an SIU with an SS7MDL4 Board, including ordering information and processing capabilities, please contact your Dialogic sales representative.

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Technical Specifications

Configurations	SS7G31	SS7G32
Form factor	1U	2U
Boards per server (may be configured without TDM boards for SIGTRAN-only operation)	1 Dialogic® DSI SPCI4 Network Interface Board or 1 Dialogic® DSI SS7HDP Network Interface Board	1 to 3 Dialogic® DSI SPCI4 Network Interface Boards or 1 to 3 Dialogic® DSI SS7HDP Network Interface Boards
Physical ports per unit T-1/E-1	Up to 4	Up to 12
HSL Q.703 links	Up to 2	Up to 6
SS7 links per unit (including M2PA)	64 (256)	192 (256)
SS7 linksets per unit	64	64
SIGTRAN M2PA associations	256	256
SIGTRAN M3UA associations	256	256
Remote application servers (IPSP)	256	256
Routes via signaling gateway	256	256
Number of SS7 routes	4096	4096
Number of networks	4	4
10/100/1000 Mbit/sec Ethernet interfaces	4	6
Calls per second over TDM	8,500	12,000*
Calls per second over SIGTRAN (M3UA)	9,700	12,000*
Transactions per second over TDM using TCAP, MAP, ANSI-41, or INAP	4,000	12,000*
Transactions per second over SIGTRAN (M3UA) using TCAP, MAP, ANSI-41, or INAP	12,000*	12,000*
Number of hosts supported	128	128
Power	AC or DC	AC or DC
NEBS-3 and ETSI Compliant	No	With 0 boards, DC power only
MTBF (hours) in Dual Power Supply configuration**	73,000	33,000

* In some cases, throughput may exceed these measurements. Contact your Dialogic sales representative if your requirements demand higher call or transaction volumes.

** Mean Time Between Interruptions (MTBI) in hours is based on the assumption that a failed power supply module or hard drive is replaced within 24 hours. MTBF prediction for Telcordia Method @ +104°F (+40°C)

Technical Specifications (*continued*)

Interfaces

LAN interface	SS7G31: 4 x 10/100/1000 Mbps Ethernet SS7G32: 6 x 10/100/1000 Mbps Ethernet
Line interface: PCM Pulse mask	Up to 12 interfaces, each software-configurable as either T1 or E1 T1: TIA-968-A, CS-03, and AT&T TR62411 E1: ITU-T G.703
Data rate	T1: 1544 kbps \pm 50 ppm E1: 2048 kbps \pm 50 ppm
Frame format	T1: D4, ESF, and ESF-CRC6 E1: E1 and E1-CRC4
Line codes	HDB3 AMI (ZCS) AMI B8ZS
Connector type	RJ-45

Power

SS7G31

DC-powered products	
Supply voltage (range nominal)	-48 VDC to -60 VDC
Input power (fully equipped)	230 W
Range limits	-38 VDC to -75 VDC
AC-powered products	
Supply voltage (auto ranging)	100 VAC to 127 VAC / 200 VAC to 240 VAC
Input power (fully equipped)	230 W
Frequency	50 Hz/60 Hz

SS7G32

DC-powered products	
Supply voltage (range nominal)	-48 VDC to -60 VDC
Input power (fully equipped)	300 W
Range limits	-38 VDC to -75 VDC
AC-powered products	
Supply voltage (auto ranging)	100 VAC to 127 VAC / 200 VAC to 240 VAC
Input power (fully equipped)	300 W
Frequency	50 Hz/60 Hz

Technical Specifications *(continued)*

Physical Dimensions

SS7G31

Height	1.7 in. (4.32 cm)
Width	17.11 in. (43.53 cm)
Depth	20 in. (50.8 cm)
Weight – fully equipped	24.2 lbs (11 kg)

SS7G32

Height	3.45 in. (8.76 cm)
Width	17.11 in. (43.53 cm)
Depth	20 in. (50.8 cm)
Weight – fully equipped	40 lbs (18 kg)

Environmental

SS7G31

Operating temperature	+50°F (+10°C) to +95°F (+35°C)
Storage temperature	–40°F (–40°C) to +158°F (+70°C)

SS7G32

Operating temperature	+41°F (+5°C) to +104°F (+40°C)
Storage temperature	–40°F (–40°C) to +158°F (+70°C)

Safety and EMC

International	CB Certificate to IEC 60950-1, EN60950-1 EN 300 386, EN55022, EN55024, CISPR 22
United States	UL 60950-1 FCC Part 15 Class A
Canada	CAN/CSA-C22 No 60951-1 ICES-003

Telecommunications

International	TBR12, TBR13
United States	TIA-968-A
Canada	CS-03
Hazardous substances	RoHS compliance information at www.dialogic.com/rohs
Country-specific approvals	Global product approvals database at www.dialogic.com/declarations
Warranty	Warranty information at www.dialogic.com/warranties
Service plan	See Service plan information at www.dialogic.com/products/services

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Host System Requirements

Operating systems: Linux, Solaris, Windows®

Ordering Information

Dialogic® DSI SS7G3x Signaling Servers are preconfigured with 0 to 3 low-density (4 link) Dialogic® DSI SPCI Network Interface Boards or high-density (64 link) Dialogic® DSI SS7HDP Network Interface Boards. A server software license from Dialogic is required for the Dialogic® DSI Signaling Interface Unit. Additional protocol software and accessories may be added.

Order Code	Model	Description
Signaling Servers		
310-893	SS7G310A0W	SS7G31, AC powered, 0 SS7 links, 0 T1/E1 ports
310-897	SS7G31QA1W	SS7G31, AC powered, 4 SS7 links, 4 T1/E1 ports
310-895	SS7G31HA1W	SS7G31, AC powered, 64 SS7 links, 4 T1/E1 ports
310-894	SS7G310D0W	SS7G31, DC powered, 0 SS7 links, 0 T1/E1 ports
310-900	SS7G31QD1W	SS7G31, DC powered, 4 SS7 links, 4 T1/E1 ports
310-896	SS7G31HD1W	SS7G31, DC powered, 64 SS7 links, 4 T1/E1 ports
310-901	SS7G320A0W	SS7G32, AC powered, 0 SS7 links, 0 T1/E1 ports
310-910	SS7G32QA1W	SS7G32, AC powered, 4 SS7 links, 4 T1/E1 ports
310-905	SS7G32QA2W	SS7G32, AC powered, 8 SS7 links, 8 T1/E1 ports
310-902	SS7G32QA3W	SS7G32, AC powered, 12 SS7 links, 12 T1/E1 ports
310-912	SS7G32HA1W	SS7G32, AC powered, 64 SS7 links, 4 T1/E1 ports
310-903	SS7G32HA2W	SS7G32, AC powered, 128 SS7 links, 8 T1/E1 ports
310-904	SS7G32HA3W	SS7G32, AC powered, 192 SS7 links, 12 T1/E1 ports
310-906	SS7G320D0W	SS7G32, DC powered, 0 SS7 links, 0 T1/E1 ports
310-909	SS7G32QD1W	SS7G32, DC powered, 4 SS7 links, 4 T1/E1 ports
310-899	SS7G32QD2W	SS7G32, DC powered, 8 SS7 links, 8 T1/E1 ports
310-907	SS7G32QD3W	SS7G32, DC powered, 12 SS7 links, 12 T1/E1 ports
310-911	SS7G32HD1W	SS7G32, DC powered, 64 SS7 links, 4 T1/E1 ports
310-908	SS7G32HD2W	SS7G32, DC powered, 128 SS7 links, 8 T1/E1 ports
310-898	SS7G32HD3W	SS7G32, DC powered, 192 SS7 links, 12 T1/E1 ports
Server Software		
G06-035	SS7SBG30SIUV	Signaling Interface Unit license for Signaling Server, 4 MTP links, 128 CICS (ISUP/BICC), SNMP
G07-035	SS7SBG30SIUU	Signaling Interface Unit license for Signaling Server, 16 MTP links, 4096 CICS (ISUP/BICC), SCCP, SNMP
G08-035	SS7SBG30SIUL	Signaling Interface Unit license for Signaling Server, 64 MTP links, 65535 CICS (ISUP/BICC), SCCP, SNMP
G18-035	SS7SBG30SIUJ	Signaling Interface Unit license for Signaling Server, 192 MTP links, 65535 CICS (ISUP/BICC), SCCP, SNMP

Dialogic® DSI Signaling Interface Unit Based on Dialogic® DSI SS7G3x Signaling Servers

Ordering Information *(continued)*

Order Code	Model	Description
Protocol Software		
G19-035	SS7SBG30TCAPL	TCAP protocol license for Signaling Server, 65535 simultaneous active dialogs
G20-035	SS7SBG30INAPL	INAP protocol license for Signaling Server, 65535 simultaneous active dialogs
G21-035	SS7SBG30IS41L	IS41 protocol license for Signaling Server, 65535 simultaneous active dialogs
G14-035	SS7SBG30MAPL	MAP protocol license for Signaling Server, 65535 simultaneous active dialogs
G05-035	SS7SBG30M2PAS	M2PA protocol license for Signaling Server, 16 link eq/assoc
G04-035	SS7SBG30M2PAR	M2PA protocol license for Signaling Server, 32 link eq/assoc
G03-035	SS7SBG30M2PAL	M2PA protocol license for Signaling Server, 64 link eq/assoc
G02-035	SS7SBG30M2PAK	M2PA protocol license for Signaling Server, 128 link eq/assoc
G01-035	SS7SBG30M2PAJ	M2PA protocol license for Signaling Server, 256 link eq/assoc
G13-035	SS7SBG30M3UAS	M3UA protocol license for Signaling Server, 16 link eq/assoc
G12-035	SS7SBG30M3UAR	M3UA protocol license for Signaling Server, 32 link eq/assoc
G11-035	SS7SBG30M3UAL	M3UA protocol license for Signaling Server, 64 link eq/assoc
G10-035	SS7SBG30M3UAK	M3UA protocol license for Signaling Server, 128 link eq/assoc
G09-035	SS7SBG30M3UAJ	M3UA protocol license for Signaling Server, 256 link eq/assoc
Accessories		
300-388	SS7G31SACPSU	SS7G31 450W AC power supply
300-392	SS7G31SDCPSU	SS7G31 450W DC power supply
300-387	SS7G31BHDD	SS7G31 spare hard drive
300-389	SS7G32SACPSU	SS7G32 600W AC power supply
300-391	SS7G32SDCPSU	SS7G32 600W DC power supply
300-390	SS7G32BHDD	SS7G32 spare hard drive
310-869	SS7G30R19LBR	2-post 19" rack mount "L" bracket kit
310-870	SS7G30R19MNT	2/4-post 19" rack mount
310-871	SS7G30R23MNT	2/4-post 23" rack mount
310-872	SS7G30RSLKIT	Enabling kit for use with slide rails

Note: The DSI SS7G32 provides a form, fit, and function replacement for the Dialogic® DSI SS7G2x Signaling Servers.

Optional Dialogic® Pro™ Premium Per Unit Plan and Dialogic® Pro™ Premium Service Agreement

Support and service plans are available for the Dialogic® DSI SS7G3x Signaling Servers as separately ordered items.

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