

Dialogic® BorderNet™ 2020 Session Border Controller

The Dialogic® BorderNet™ 2020 Session Border Controller (SBC) connects and secures sessions across IP and mixed network boundaries to support the seamless delivery of services and help provide service quality to help improve user experience. The BorderNet 2020 SBC connects IP and hybrid networks via high-density optical, telephony and Ethernet links in a compact 1U form factor appliance. It also transforms media and signaling to support efficient and reliable voice, fax and multimedia sessions for mobile, fixed and cloud-based applications.

The combination of SBC and integrated gateway functions in a single chassis in the BorderNet 2020 SBC offers the potential for significant reductions in CAPEX and OPEX when compared to less integrated alternatives.

Along with providing a broad range of session performance scalability in a small footprint, the BorderNet 2020 SBC handles signaling and media in a single chassis and can deliver SIP services into SS7, SIGTRAN, PRI, and SIP-I networks. The BorderNet 2020 SBC is well suited for access SBC applications to help service providers deliver multimedia services with features that include SIP mediation, SIP-to-H.323 interworking, SIP back-to-back user agent (B2BUA), SIP trunking support, and IP-to-IP transcoding of voice and video.

The BorderNet 2020 SBC is part of the Dialogic® BorderNet™ family of session border controllers that can help service providers transform, connect and secure their networks and services.



Features	Benefits
Scalable from 64 to 1008 simultaneous SIP sessions with multimedia transcoding, and 128 to 2,016 channels of SS7 signaling	Scalable SBC and gateway solution provides high performance in a small footprint to help lower OPEX and CAPEX
Combined SBC and gateway features	SBC functionality and gateway features facilitate Time Division Multiplexing (TDM) and IP interworking to provide service delivery flexibility
Any-to-any signaling and media support	Support for SS7, SIP signaling and codec interworking provides a cost-effective platform to help service providers evolve from a TDM to an all-IP environment
SIP profiler and web based user interface	Easy-to-use service configuration and management tools can help accelerate service deployment and simplify platform management
Carrier-ready platform	Carrier-ready design provides reliable throughput and enhanced service availability

Scalable SBC and Gateway Solution

With its scalable density and versatility, the BorderNet 2020 SBC can help enable wireless and wireline service providers to add new Value Added Services (VAS) quickly, and provide a clear migration path to an all-IP network. Access session border controller functionality in the BorderNet 2020 SBC includes multimedia connectivity, security, service assurance and optimization and border management features. It can scale up to 1008 simultaneous IP sessions and at the same time provide media transcoding. Other SBC features include B2BUA, SIP mediation, SIP proxy, and topology hiding.

The BorderNet 2020 SBC supports voice densities ranging from 128 to 2016 of SS7 signaling, call routing, call translation and IP transcoding in a single 1U chassis. Hardware-assisted IP video transcoding enables service providers to offer next-generation mobile services, which include video and audio content, and to facilitate an evolution from gateway to session border control supported services. The combined gateway and SBC functionality helps position service providers to reduce CAPEX and OPEX, and makes the BorderNet 2020 SBC an excellent option for retail, wholesale, business, and enhanced service VoIP deployments, as well as for contact centers, mobile VAS, and SIP trunking.

Any-to-Any Signaling and Media Connectivity

The BorderNet 2020 SBC provides any-to-any network connectivity that builds on industry proven protocol support used in service provider production networks. In addition to providing TDM-to-TDM signaling conversion (SS7 ISUP and ISDN), it can also provide interworking between SS7, SIGTRAN, SIP and SIP-T/I formats.

The BorderNet 2020 SBC also supports any-to-any media transcoding for popular voice and video codecs. T.38 and G.711 fax interworking and support for RTP, inband and SIP INFO method based tones and event handling complement the media transcoding capabilities to provide a high degree of flexibility to help deliver value added services economically.

Easy-to-use Service Configuration and Management Tools

The Web graphical user interface (Web UI) available in Release 2.0 is a real-time web based GUI used to configure, monitor, and provision the BorderNet 2020 SBC. It allows operators to graphically configure, and perform real-time monitoring and provisioning of the BorderNet 2020 SBC. Changes can be applied to connected nodes with simple point-and-click configuration, and high level alarms can be viewed without needing to reference or decode log files.

Powerful SIP Profiling tools on the BorderNet 2020 SBC allow operators to configure attributes and features needed to communicate with specific external gateways and IP endpoints. This allows the BorderNet 2020 SBC to easily mediate SIP signaling variants between networks that use different types of SIP headers to convey message attributes. The BorderNet 2020 SBC also features the Dialogic® Programmable Protocol Language (PPL), which allows rapid implementation of SS7 ISUP variants and other signaling changes.

Carrier-Ready SBC and Gateway Platform

The BorderNet 2020 SBC has a carrier-ready design in only 1U of rack space and uses independent network interfaces to separate transport, signaling, and OAM&P for reliability and enhanced service availability. Fast maintenance features, such as hot-swappable power supplies, field-replaceable motherboard trays, persistent configuration, and graceful upgrades provide flexibility and ease of operation that carriers look for and help increase reliability in the field. The choice of element management system or Web UI, plus software licensing, supports in-service capacity expansion and makes the BorderNet 2020 SBC easy to manage.

Technical Specifications *(continued)***Environment**

Operating temperature range	0 to +50 °C, 95% relative humidity non-condensing
Storage temperature range	-10 to +75 °C, 95% relative humidity non-condensing

Physical Specifications

Dimensions	1.72 in (43.7 mm) high
	16.97 in (431 mm) wide
	19.67 in (499.6 mm) deep
Weight	24 lb (10.9 kg)

Maintenance

Field replaceable items	Fan filter (available in 10-packs)
	Power supplies
	OC-3/STM-1 optical module
	Motherboard tray
	Up to four (4) DSP modules

Resiliency

SS7 signaling: 1+1 active/standby redundancy [1.1]
 Redundant Element Management System servers [1.1]
 IP probing [1.1]
 Automated failover (Ethernet links)
 Failover via automatic protection switching (optical links)
 Graceful software upgrade over multiple BorderNet 2020 SBCs [1.1]
 Graceful busy out per trunk group [1.1]
 Virtual IP addresses for SIP load balancing (via third-party server)
 Call release due to media inactivity timeouts
 Dual, hot swappable, AC/DC power supplies

Capacity

128 - 768 TDM channels per 1U shelf with Rear I/O Type 1 (scalable from 4 E1/5 T1 to 24 E1/T1)
 672 - 2016 TDM channels per 1U shelf with Rear I/O Type 2 (supports either Optical OC3 interface or 3 DS3s)
 128 - 2016 VoIP channels per 1U shelf
 64 to 1008 IP – IP voice sessions
 5 - 430 IP-to-IP video transcoding sessions per 1U shelf [2.0]

I/O Interfaces — Rear I/O Type 1 — T1/E1

Telephony — T1 and E1	24 T1/E1 for timing (BITS clock), signaling and bearer traffic (T1 — 100 ohms and E1 — 120 ohms)
Clock Sync	Stratum-3 via any T1/E1 interface

IP Interfaces

LAN IP	Dual redundant 100/1000 Base-T Ethernet for control; 2 - 100/1000 Base-T Ethernet Aux ports (reserved for later use)
WAN IP	4 - 100/1000 Base-T Ethernet for VoIP payload and signaling

Technical Specifications *(continued)***I/O Interfaces — Rear I/O Type 2 — High Density**

Telephony — T1 and E1, OC3/STM-1, and DS3	1 to 3 DS3 + 4 - T1/E1 for timing (BITS clock), signaling and bearer traffic 1 OC3/STM-1 with Automatic Protection Switching (APS) + 4 T1/E1 for timing (BITS clock), signaling, and bearer traffic (T1 — 100 ohms and E1 — 120 ohms)
Clock Sync	Stratum-3 via any T1/E1 interface or OC-3/STM-1 interface

IP Interfaces

LAN IP	Dual redundant 100/1000 Base-T Ethernet for control; 2 - 100/1000 Base-T Ethernet Aux ports (reserved for later use)
WAN IP	4 - 100/1000 Base-T Ethernet for VoIP payload and signaling (additional 4 reserved for later use)
Optical Transceiver	Hot plug LC connector type SFP modules (1310 nm 15 KM)

TDM Signaling Protocols

ISDN PRI (FAS and NFAS): NI2, Euro ISDN, DMS 250, 5ESS, JATE/Japan INS-NET1500, ISDN Net 5
 Q.699 ISDN to SS7 mapping
 ISDN/SS7 UUI mapping to SIP
 SS7/C7 ISUP: ITU and ANSI variants supported through the Dialogic® Programmable Protocol Language (PPL)
 SS7 TCAP for message-waiting-indication (MWI) and Caller Name (CNAM) service
 64 SS7 links in standalone configuration
 128 SS7 links in redundant configuration [1.1]
 A-links and F-Links supported
 E1 to DS3 mapping for third-party multiplexor compatibility
 ISDN call transfer and bridging via Explicit Call Transfer, Two B Channel Transfer, and Release Link Trunking (initiated via SIP REFER)
 Delayed ANM for ISUP (triggered by third-party SIP call transfers)
 ISDN Multilevel Precedence and Preemption (MLPP) [2.0]

IP Protocols

H.323
 H.323 v2 [1.1]
 H.323 RAS, H.245, and H.225 [1.1]
 H.323 Tunneling [1.1]
 H.246 Annex C – ISDN User Part Function — H.225.0 Interworking [1.1]

Core SIP Specifications and Notable Extensions

RFC 3261 SIP Basic
 RFC 3262 SIP PRACK
 RFC 3263 Locating SIP servers for DNS lookup SRV and A records (partial support)
 RFC 3264 SDP Offer/Answer Model
 RFC 3265 SIP Subscribe/Notify

Notable SIP Extensions – Partial List

RFC 2246 Transport Layer Security (TLS) for SIP
 RFC 3372 SIP for Telephones (SIP-T)
 RFC 3398 ISUP/SIP Mapping
 ITU-T Q.1912.5 - IP and ISUP interworking

Technical Specifications *(continued)***SIGTRAN**

RFC 3332 — M3UA Adaption Layer
M3UA Application Server
M3UA Signaling Gateway for TCAP/SCCP

QoS

Adaptive jitter buffer
Packet loss compensation
Configurable Type of Service (ToS) fields for packet prioritization and routing

Approvals and Compliance

For information about RoHS compliance and global approvals, visit www.dialogic.com/declarations or contact your Dialogic sales representative.

For information about RoHS compliance visit www.dialogic.com/rohs or contact your Dialogic sales representative.

The BorderNet 2020 SBC may be approved as Equipment Type MMG.

EMC/EMI

USA/Canada	FCC 47 CFR Part 15, ICES-003
European Union	EN55022: 2006/A1:2007, EN55024: 1998/A1:2001/A2:2003, EN 300 386 V1.4.1 (2008)
Australia/New Zealand	AS/NZS CISPR 22:2006
Japan	VCCI

Safety

USA/Canada	UL/CSA 60950-1 – 2nd Edition (2007)
European Union	EN60950-1:2006
Australia/New Zealand	AS/NZS 60950.1:2003
CB Scheme	International CB Scheme IEC 60950-1 2nd Edition

Telecom Approvals

USA/Canada	FCC Part 68 (TIA-968-A)/IC CS-03
European Union	TBRs 4, 12, 13
Australia/New Zealand	AS/ACIF S-016 and AS/ACIF S-038

Reliability/Warranty

Warranty information at www.dialogic.com/warranties

Estimated MTBF per Telcordia Method 1:

With Dual Redundant AC or DC Power Supplies

Technical Specifications *(continued)***Rear I/O Type 1 — T1/E1**

No DSP Modules	148000 hours
1 DSP Module	121000 hours
2 DSP Modules	103000 hours
3 DSP Modules	89000 hours
4 DSP Modules	79000 hours

Rear I/O Type — High Density: DS-3 OC-3 I/O

No DSP Modules	162000 hours
1 DSP Module	130000 hours
2 DSP Modules	109000 hours
3 DSP Modules	94000 hours
4 DSP Modules	83000 hours



www.dialogic.com

Dialogic Inc
1504 McCarthy Boulevard
Milpitas, California 95035-7405
USA

Dialogic and BorderNet are registered trademarks or trademarks of Dialogic Inc. and its affiliates or subsidiaries ("Dialogic"). Dialogic's trademarks may be used publicly only with permission from Dialogic. Such permission may only be granted by Dialogic's legal department at the address provided above. The names of actual companies and products mentioned herein are the trademarks of their respective owners.

Dialogic encourages all users of its products to procure all necessary intellectual property licenses required to implement their concepts or applications, which licenses may vary from country to country. None of the information provided in this Datasheet other than what is listed under the section entitled Technical Specifications forms part of the specifications of the product and any benefits specified are not guaranteed. No licenses or warranties of any kind are provided under this datasheet.

Dialogic may make changes to specifications, product descriptions, and plans at any time, without notice.