

Dialogic® IMG 2020 Integrated Media Gateway

Integrated gateway solutions to supercharge connections between networks, services and subscribers with ease and scale

The Dialogic® IMG 2020 Integrated Media Gateway connects and secures sessions across IP and mixed network boundaries to support the seamless delivery of services. The IMG 2020 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 IP multimedia and Time Division Multiplexing (TDM) gateway functionality in a single chassis in the IMG 2020 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 IMG 2020 handles signaling and media in a single chassis and can deliver SIP services into SS7, SIGTRAN, PRI, and SIP-I networks. The IMG 2020 also provides basic IP session control and security features to help service providers deliver multimedia services with features that include Denial of Service (DOS) protection, IPv6 to IPv4 interworking, SIP mediation, SIP-to-H.323 interworking, SIP back-to-back user agent (B2BUA), SIP trunking support, and IP-to-IP transcoding of voice, mobile HD voice and video.

The IMG 2020 is part of a line of gateway solutions from Dialogic that help service providers and enterprises energize their networks and services with a better way to interconnect and deliver services through ease-of-use and low total cost of ownership (TCO).



Features	Benefits
Scalable from 50 to 2250 simultaneous SIP sessions with multimedia transcoding, and 128 to 2016 channels of SS7 signaling	Scalable IP and TDM connectivity solution provides high performance in a small footprint to help lower OPEX and CAPEX
Combined IP and TDM gateway features on a single platform	Integrated multimedia gateway features facilitate TDM and IP interworking to provide service delivery flexibility and automated failover between domains
Any-to-any signaling and media support	Support for SS7, SIP signaling, and IPv6 and IPv4 interworking along with voice and video transcoding 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
Integrated encryption and transcoding support for voice, video, tone and faxing	Eliminates the need to add separate hardware to support both security and transcoding requirements helping to reduce CAPEX and number of platforms deployed
Carrier class solution	Carrier class design and features provide high availability, reliable throughput and enhanced service delivery

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Scalable Gateway Solution

With its scalable density and versatility, the IMG 2020 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 IMG 2020 includes multimedia connectivity, security, service assurance and optimization and border management features. It can scale up to 2250 simultaneous IP sessions and at the same time provide media transcoding and impressive sessions per second performance. An optional encryption license enables authentication and privacy for SIP sessions over Transport Layer Security (TLS) and Secure RTP (SRTP) for media without the need for additional hardware add-ons.

The IMG 2020 supports voice densities ranging from 128 to 2016 channels of SS7 signaling, call routing, call translation and IP transcoding in a single 1U chassis for gateway operations. Hardware-assisted IP video transcoding allows service providers to offer innovative combinations of audio and video-enabled mobile services. The integrated gateway functionality not only provides interworking between IP and TDM domains, but also automated failover from IP to TDM or IPv4 and IPv6 networks for outbound routing. These features help service providers looking to improve network and routing resiliency, lower TCO and facilitate an evolution from gateway to session border control supported services. These capabilities make the IMG 2020 an excellent option for mobile VAS, SIP trunking, contact center and emergency service deployments, as well as for retail, wholesale, business, and enhanced Voice over IP (VoIP) services.

The IMG 2020 has carrier class features in only 1U of rack space and uses independent network interfaces to separate media, signaling, and OAM&P for reliability and enhanced service availability. Fast maintenance features, such as smart failover, hot-swappable power supplies, field-replaceable motherboard trays, persistent configuration, and graceful upgrades provide flexibility and ease of operation that carriers look for to help increase reliability in the field. The choice of single user WebUI or Multi-Node element management system provides operational flexibility and makes the IMG 2020 easy to manage.

Any-to-Any Signaling and Media Connectivity

The IMG 2020 provides any-to-any network connectivity through its ability to interwork multiple protocols used by telecommunications providers to deliver services to their retail, business and wholesale customers. 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 IMG 2020 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 (WebUI) is a real-time web based GUI used to configure, monitor, and provision the IMG 2020. It allows operators to graphically configure and perform real-time monitoring and provisioning of a single IMG 2020. Configuration changes can be applied to connected nodes with simple point-and-click actions, and high level alarms can be viewed without the need to reference or decode log files. SNMP support includes both standard and private MIBs, enabling customers to integrate statistics into their existing management systems, for example:

- Performance intelligence such as call reporting by channel group
- CPU and memory utilization
- Alarms

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

Technical Specifications

Routing Features

Call routing and translation based on ANI, DNIS, Generic Number (only translation is supported), Nature of Address (NOA)
Algorithms include percentage-based routing and disposition by Cause Code
Pre- and post-routing digit translations with wildcard support
Multiple routing algorithms per trunk group or groups of trunks for IP-to-TDM and IP-to-IP and both A-law and μ -law conversions
Pre-call announcement (branding)

IP Bearer Features

Coder support: AMR-NB, AMR-WB, G.711, G.723.1, G.729 A/B, G.726, G.722, GSM-FR, GSM-EFR, iLBC, RFC 4040 Clear Channel
Video support: Transcoding, transrating, and pass-through of CIF/QCIF resolutions for H.263, H.264, and MPEG-4
Echo cancellation: G.168 128 ms tail length
Voice activity detection and packet loss concealment
Comfort noise generation
T.38 real-time fax, T.38 – G.711 interworking
Fax/modem bypass
Digit transmission via RFC 2833 (SIP)
G.711 tones, SIP INFO, RFC 2833 interworking
Hosted NAT
VLAN tagging
Secure RTP (SRTP) to RTP interworking (SIP audio media only)

OAM&P

Web User Interface (WebUI) supports configuration via browser
Multi-Node Element Management System — Enables monitoring and provisioning of up to six (6) nodes via web browser
Centralized routing engine simultaneously configures gateways in the network
Radius (billing, authentication, prepaid)
Local time zone support and Network Time Protocol (NTP)
SNMP MIBs: MIB-2, Interface, Alarms, Private Call Reporting and System Statistics, Private Alarms, DS0, DS1, DS3, and OC3

Power Requirements

AC Power Supply Range	100 – 132 VAC (115 VAC nominal)
	180 – 264 VAC (230 VAC nominal)
DC Power Supply Range	-36 to -60 VDC (-48 VDC nominal)
The power supply will operate at frequencies between 47 Hz and 63 Hz	

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Power Consumption

	Typical	Maximum
No DSP Modules	90 Watts	120 Watts
1 DSP Module	110 Watts	145 Watts
2 DSP Modules	130 Watts	170 Watts
3 DSP Modules	150 Watts	195 Watts
4 DSP Modules	170 Watts	220 Watts

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
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Resiliency

SS7 signaling: 1+1 active/standby redundancy
Smart IP probing
Automated failover (Ethernet links)
Failover via automatic protection switching (optical links)
Graceful busy out per trunk group
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)
100 - 4500 VoIP channels per 1U shelf
50 to 2250 VoIP sessions
5 - 430 IP video transcoding sessions per 1U shelf

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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 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

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 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
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)

IP Protocols

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

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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

RFC 3711 SRTP (for SIP)

Tel URI – RFC 3966

RFC 6157 – IPV6 Transition in SIP

ITU-T Q.1912.5 - IP and ISUP interworking

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.

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The IMG 2020 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 22:2009

Japan

VCCI

Safety

USA/Canada

UL/CSA 60950-1 – 2nd Edition (2007)

European Union

EN60950-1:2006/A11:2009/A12:2011

Australia/New Zealand

AS/NZS 60950.1:2003

CB Scheme

IEC 60950-1 2nd Edition (2005)

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Telecom Approvals

USA/Canada

FCC Part 68/IC CS-03

European Union

TBRs 4, 12, 13

Australia/New Zealand

AS/ACIF S-016:2001 and AS/ACIF S-038:2001

Reliability/Warranty

Warranty information at www.dialogic.com/warranties

Estimated MTBF per Telcordia Method 1:

With Dual Redundant AC or DC Power Supplies

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



DISCLAIMER :

Please note that the Dialogic® BorderNet™ 2020 Session Border Controller (which was also referred to as the “BordetNet 2020 SBC” or “BN2020” or a variation thereof) is being revamped by Dialogic, and with that is being rebranded as the “Dialogic® IMG 2020 Integrated Media Gateway” (or “IMG 2020”) in areas such as product documentation and on the Dialogic web-site. However, references to the former name are still being used in certain circumstances. Should you have any questions, including with regard to the current features and functionality of the IMG 2020 versus those of the BN2020, please contact your Dialogic sales representative.



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