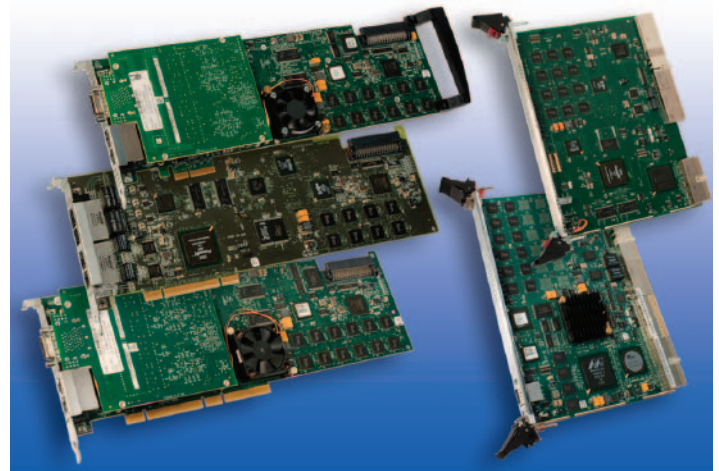


Dialogic® CG Series Media Boards

Products Discussed in this Datasheet

- Dialogic® CG 6060 PCI Media Board
- Dialogic® CG 6060C CompactPCI Media Board
- Dialogic® CG 6565 PCI Media Board
- Dialogic® CG 6565C CompactPCI Media Board
- Dialogic® CG 6565E PCI Express Media Board



The Dialogic® CG Series Media Boards can be used to create powerful communications solutions for public telephone network, IP-only, and converged IP/circuit-switched environments. By using these boards with Dialogic® NaturalAccess™ Software, developers can rapidly build and globally deploy a broad range of telephony applications on a single platform.

The CG Series Media Boards provide full-duplex universal port capabilities, which can support a combination of voice play/record, tone detection/generation, echo cancellation, and voice compression, as well as trunking, fax, conferencing, and VoIP functions in a single PCI, CompactPCI, or PCI Express slot. The universal port feature eliminates the need to use multiple specialized boards, provides easy access to all supported features, and significantly reduces the time spent on configuration and development.

Because they support up to 16 PSTN trunks and are equipped with high-density Digital Signal Processors (DSPs), high-speed PowerPC co-processors, and built-in IP capabilities, the CG Series Media Boards are an excellent option for a variety of applications from small enterprise call centers and announcement servers, to powerful, high-density service provider ring-back tone platforms and media servers.

Features	Benefits
Software-selectable T1 or E1 digital trunks	Reduces total cost of ownership by increasing flexibility, reducing inventory, and simplifying the purchasing process and test effort
Dual Ethernet interfaces that can be used either as two independent subnets or in automatic failover mode that switches traffic to an alternate interface without interrupting in-progress calls	Allows support for both IP and TDM networks on a single platform, plus redundant IP configurations for high reliability
NaturalAccess Software	Uses a consistent set of APIs throughout the product line, which support popular operating systems
From 1,064 to 12,768 MIPS for media processing (model dependant)	Allows developers to choose the most cost-effective board with the correct amount of processing power, whether an application is voice-only, is low-compute-intensive, or requires substantial DSP power
Supports the PICMG 2.1 hot-swap standard (CompactPCI models only)	Can significantly reduce downtime in case of a board failure
Full speed H.100/H.110 bus with 4,096 timeslots	Supports interoperability with other boards in open-architecture, high-capacity systems
64 ms echo cancellation tail	Provides high-quality audio and clarity

Technical Specifications

	CG 6565	CG 6565C	CG 6565E	CG 6060	CG 6060C
Digital interfaces	0, 4, 8 T1/E1; Gigabit Ethernet	8, 16 T1/E1; Gigabit Ethernet	0, 1, 2, 4, 8 T1/E1; Gigabit Ethernet	0, 1, 2, 4 T1/E1; 100 Mbps Ethernet	4, 16 T1/E1; 100 Mbps Ethernet
Boards/system	Application and server-dependent				
Control processor	PPC 7448; 867 MHz clock	PPC 7448; 867 MHz clock	PPC 7448; 867 MHz clock	PPC 405eP; 333 MHz clock	PPC 405eP; 333 MHz clock
Control processor (CP) memory	256 MB	256 MB	256 MB	128 MB	128 MB
I/O mapped memory	Memory mapped interface for efficient block data transfers			Memory mapped interface for efficient block data transfers	
Address/interrupts	Address and interrupts automatically configured by PCI BIOS (no jumpers or switches)			Address and interrupts automatically configured by PCI BIOS (no jumpers or switches)	

Host Interface

Bus compatibility	PCI Local Bus: R2.3 or PCI-X R1.0b	- PCI Local Bus: R2.3 or PCI-X R1.0b - CompactPCI: PICMG 2.0, Rev. 3.0	PCI Express Base R1.1 PCI Express CEM R2.0	PCI Local Bus R2.2	- PCI Local Bus: R2.2 - CompactPCI: PICMG 2.0, Rev. 3.0
Bus mode	PCI target and master mode operation				
Bus speed	100/133 MHz PCI-X bus or 33/66 MHz PCI bus	100/133 MHz PCI-X bus or 33/66 MHz PCI bus	2.5 Gbps per lane; 4 lanes	DC to 66 MHz	DC to 66 MHz
Telephony bus	ECTF H.100	PICMG 2.5 / ECTF H.110	ECTF H.100	ECTF H.100	PICMG 2.5 / ECTF H.110
Hot swap		PICMG 2.1, Rev. 2.0			PICMG 2.1, Rev. 2.0

Operating Systems Support Windows®, Linux, and Solaris. Details at <http://www.dialogic.com/systemreleases>

Platform

Form factor	- PCI universal expansion board - Compatible with both 5.0 V and 3.3 V signaling environments	PCI Express standard- height, full-length form factor	- PCI universal expansion board - Compatible with both 5.0 V and 3.3 V signaling environments
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DSP TI TMS320C5441 each with quad 133 MHz cores

Universal port capability	- IVR - Vocoding: G.711, G.723.1, G.729a/b, G.726, AMR-NB, EVRC, iLBC - Conferencing	- Echo cancellation - T.38 real-time; T.37 store-and-forward fax - Voice over IP
H.100/H.110 bus	- Flexible connectivity between DS0 streams and H.100 bus - Switchable access to any of 4,096 timeslots - H.100 bus termination (switch enabled)	- 2,048 full-duplex connections to bus - H.100 bus clock master or slave (software selectable)

IP Network Connectivity

Interfaces	Dual 10/100/1000Base-T Ethernet RJ-45 connectors on connection panel	Dual 10/100/1000Base-T Ethernet RJ-45 connectors on RTM or PICMG 2.16 on backplane	Dual 10/100/1000Base-T Ethernet RJ-45 connectors on connection panel	Dual 10/100Base-T Ethernet RJ-45 connectors on connection panel	Dual 10/100Base-T Ethernet RJ-45 connectors on rear transition module
Protocols	RTP/RTCP, UDP, IP (v4 and v6), IPSec				

PSTN Echo Cancellation

- Dialogic® e256 ASIC, no DSP load - Selectable on a per channel basis - Bi-directional automatic gain control - Numerous tone disabling options - Patented intelligent double-talk detector	- Up to 64 ms per channel - Greater than 18 dB of acoustic echo elimination - Patented accelerated adaptive convergence - Greater than 34 dB echo return loss enhancement - Meets or exceeds G.164, G.165, G.168 (2000)
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	CG 6565	CG 6565C	CG 6565E	CG 6060	CG 6060C
PSTN Network Connectivity					
Digital trunk interface connectors	- 4 trunks: Two MDO RJ-45 connectors on front panel, each with two trunks - 8 trunks: MDO miniRJ-21 connector	- 8 or 16 trunks: One or two RJ-21 connectors on included CompactPCI rear transition module	- 1 or 2 trunks: One or two RJ-48C connectors - 4 trunks: Two MDO RJ-45 connectors, each with two trunks - 8 trunks: MDO miniRJ-21 connector	- 1 trunk: One RJ-48C connector - 2 trunks: Two RJ-48C connectors - 4 trunks: Two MDO RJ-45 connectors (each with two trunks)	- 4 trunks: 4 RJ-48C connectors on CompactPCI rear transition module - 16 trunks: Two RJ-21 connectors on CompactPCI rear transition module
Impedance	75, 100, 120 ohm				
Telephony Interface DSX-1 T1					
Interface	ANSI T1.102, T1.403				
Framing	D4, ESF				
Insertion/generation and extraction/ detection	ABCD bits				
Line code	AMI, B8ZS				
Zero bit suppression	Selectable B8ZS, no zero code suppression, zero code suppression				
Alarm signal capabilities	Yellow, Red, and Blue				
Counts	Bipolar violation, F(t) error, and CRC error				
Robbed bit	Selectable on a per-trunk basis				
Loopback	Per-channel and overall under software control. Automatic remote loopback with CSU option.				
Telephony Interface CEPT-E1 G/703					
Interface	G.703 2048 kbps trunk interface				
Framing	CEPT G.703/G.704 Channel Associated Signaling				
Power Requirements	2.7 A max @ 3.3 V 2.9 A max @ 5.0 V 0.1 A max @ 12.0 V	6.0 A max @ 3.3 V 4.5 A max @ 5.0 V 0.1 A max @ 12.0 V	3.3 A max @ 3.3 V 1.3 A max @ 12.0 V 25 W max	1.5 A @ 3.3 V 1.2 A @ 5 V	3.8 A @ 3.3 V 1.1 A @ 5 V
Operating Requirements					
Operating temperature	0 °C to +50 °C @ 200 LFM				
Storage temperature	-20 °C to +70 °C				
Cooling requirements	Ambient Temperature: 35°C, CFM (per board): 1.7 Altitude: Sea Level Ambient Temperature: 45°C CFM (per board): 3.1 Altitude: 1000 ft.			Ambient Temperature: 35°C CFM (per board): 0.8 Altitude: Sea Level Ambient Temperature : 45°C CFM (per board): 1.8 Altitude: 1000 ft.	
Humidity	5% to 80%, non-condensing				

	CG 6565	CG 6565C	CG 6565E	CG 6060	CG 6060C
Approvals and Compliance					
Hazardous	RoHS compliance information at http://www.dialogic.com/rohs				
Country Approvals	Located at http://www.dialogic.com/declarations				
Reliability/Warranty	Warranty information at http://www.dialogic.com/warranties				
Digital multiplexer requirements and objectives	AT&T pub. 43802, July 82				
Service description and interface specifications	AT&T TR 62411, ACCUNET T1.5				
Carrier to customer installation DS1 metallic interface	ANSI T1E1/88-001R1, Feb. 88				
ANSI T1 standard for ISDN Primary Rate Interface	T1E1.4/8868 (proposed text) April 88				
Primary Rate User-Network Interface Layer 1 specification	ITU-T I.431, June 88				
ISDN Primary Rate Interface specification	AT&T Pub. TR41449 AND TR41459, June 85				
Audio Signal Processing					
Sampling rates	8k samples/sec (telephone industry standard)				
Speech compression (IVR)	<ul style="list-style-type: none"> - 11 kHz, 8- or 16-bit linear (PCN); 16-bit may reduce the number of ports per board - 8 kHz 16-bit linear (PCN) - 64 kbps μ-law or A-law per ITU-T G.711 - 16, 24, and 32 kbps ADPCM using Dialogic® algorithm with Dialogic® framing and bit packing with up to 2x speedup on play back - OKI-compatible ADPCM 24 kbps @ 6 kHz or 32 kbps @ 8 kHz with up to 2x speedup on play back - IMA-compatible ADPCM 32 kbps with up to 2x speedup on play back - G.726-compatible ADPCM 32 kbps - MS-GSM with up to 2x speedup on play back - AMR-NB - G.723.1 - G.729a 				
Tone Dialing					
DTMF digits	0 to 9, *, #, and ABCD per ITU Q.23 and Q.24				
Rate	Programmable (10 digits/sec nominal) Wait-for-dial tone capability				
Dialing parameters	Software configurable (see Note)				
Dialing amplitude	Software configurable; range -33 dBm to +1 dBm (Note: Dialogic supplies configuration files that conform to national regulations for countries where certification has been received.)				
Pulse Dialing					
Digits	10 digits: 0 to 9				
Pulsing rate	10 pulse/sec (nominal)				
Make/break ratio	Software configurable; 40/60 nominal (Note: Dialogic supplies configuration files that conform to national regulations for countries where certification has been received.)				

	CG 6565	CG 6565C	CG 6565E	CG 6060	CG 6060C
DTMF Tone Detection					
DTMF digits	0 to 9, *, #, ABCD				
Dynamic range	-47 dBm to 0 dBm per tone, programmable				
Tone duration	40 ms (minimum)				
Acceptable twist	10 dB				
Talk-off	Exceeds Telcordia TR-TSY-000763 tests				
MF Tone Detection					
Versions	US MF, ITU Forward, ITU Backward				
MF digits	0 to 9, KP, ST, STP, ST2P, ST3P per US (R1)				
Dynamic range	Software configurable: -35 dBm to -5 dBm				
Fax (optional)					
Image formats	MH, MR (ITUT.4), MMR (ITUT.6)				
Error Correction Mode (ECM)	Yes				
Resolution	Standard, fine, super-fine;				
Page format	A3, A4, and B4				
Requirements	Dialogic® NaturalAccess™ NaturalFax™ API license, Dialogic® NaturalAccess™ Software, and at least one Dialogic® CG Series Media Board				
Fax modems	- V.21 (300 bps) for T.30 fax negotiation - V.29 (9,600, 7,200 bps)		- V.27ter (2,400/4,800 bps, required by Group 3) - V.17 (14.4, 12, 9.6, 7.2 kbps) transmit/receive		
Maximum fax ports per board	240	480	240	120	480
Conferencing (optional)					
Capacity	Up to 240 ports of 3-party conferencing	Up to 480 ports of 3-party conferencing	Up to 240 ports of 3-party conferencing	Up to 120 ports of 3-party conferencing	Up to 240 ports of 3-party conferencing
Maximum conference size	128 members				
Line echo cancellation delay	10 ms or 20 ms				
MRCP v1 Speech Engine Support (optional)					
Speech engine support	- Nuance ASR: Nuance 8.5 SP 9 - ScanSoft ASR: SpeechWorks Media Server (SWMS) 3.1, OSR 3.0 - Telsima ASR: teliSpeech 1.0 SP 4		- Nuance TTS: Nuance 8.5 SP 9, Vocalizer 3.0.8 - ScanSoft TTS: SWMS 3.1, RealSpeak 4.0 - Loquendo ASR: Loquendo ASR LSS 6.0		
SIP signaling support (optional)					
Requirements	Dialogic® NaturalAccess™ SIP for NCC license, Dialogic® NaturalAccess™ Software, and at least one Dialogic® CG Series Media Board (or Dialogic® NaturalAccess™ PacketMedia™ Host Media Processing Software)				
Supported Transport Layer Protocols	UDP, TCP				
SIP Methods supported	INVITE, ACK, BYE, CANCEL, REGISTER, INFO, PRACK, REFER, SIP Session Timer				
IETF standards and drafts	Supports many IETF SIP standards, including: - RFC3261 (SIP: Session Initiation Protocol) - RFC3262 (Reliability of Provisional Responses in SIP) - RFC3264 (An Offer/Answer Model with SDP) - RFC3265 (SIP Specific Event Notification) - RFC3515 (SIP: REFER Method) - RFC4566 (SDP: Session Description Protocol) Also supports numerous Internet Drafts for SIP extensions and various IETF and 3GPP SIP and SDP extensions				

	CG 6565	CG 6565C	CG 6565E	CG 6060	CG 6060C
Protocols					
ISDN PRI	NI-2, 4ESS, 5ESS, DMS100, DMS250, INS1500, EuroISDN, VN6, QSIG, Austel				
CAS	<ul style="list-style-type: none"> - Worldwide MFC-R2 variants - Feature Groups A, B, and D - OPS/OPX - Loop Start - Ground Start - SS5 - International wink start - Digital E&M variants - NEC PBX - MD110 EL7 - MELCAS - MF Socotel - European country-specific variants of CAS <ul style="list-style-type: none"> - Italy (Norma CEI 103-1/7) - Sweden (P7/P8) - Netherlands (ALS70D) - CAS R1.5 - Australian P2 				

Obtaining Third-Party Licenses

Using the AMR-NB resource or the EVRC resource in connection with the Dialogic® NaturalAccess™ Software does not grant the right to practice either such standard. To seek a patent license agreement to practice the AMR-NB standard, visit <http://www.voiceage.com/licensing.php>. To seek a patent license agreement to practice the EVRC standard, contact Qualcomm Inc. at qtl.info@qualcomm.com. Neither such license is provided by Dialogic.

Ordering Information

Dialogic® Product	Order Code	Description
CG 6060 Series		
CG 6060	82926	CG 6060/11-2L/1TE media processing board (1 RJ-48C)
	82383	CG 6060/11-2L/2TE media processing board (2 RJ-48Cs)
	82911	CG 6060/16-2L/2TE media processing board (2 RJ-48Cs)
	82384	CG 6060/16-2L/4TE media processing board (2 RJ-45s)
	82385	CG 6060/32-2L/4TE media processing board (2 RJ-45s)
	82386	CG 6060/42-2L media processing board (no trunks)
	82387	CG 6060/42-2L/4TE media processing board (2 RJ-45s)
CG 6060C	82378	CG 6060C/42-2L/16TE media processing bd (2 RJ-21s)
	82390	CG 6060C/42-2L/4TE media processing bd (4 RJ-48Cs)
CG 6565 Series		
CG 6565	82397	CG 6565/32-2L/4TE, media processing board (2 RJ-45s)
	82398	CG 6565/64-2L/4TE, media processing board (2 RJ-45s)
	82400	CG 6565/32-2L/8TE, media processing board (1 MRJ-21)
	82401	CG 6565/64-2L/8TE, media processing board (1 MRJ-21)
	82402	CG 6565/64-2L, media processing board (no trunks)
CG 6565E	83196	CG 6565E/11-2L/1TE media processing board (1 RJ-48C)
	83197	CG 6565E/11-2L/2TE media processing board (2 RJ-48C)
	83198	CG 6565E/16-2L/2TE media processing board (2 RJ-48Cs)
	83199	CG 6565E/16-2L/4TE media processing board (2 RJ-45s)
	83202	CG 6565e/32-2L/4TE, media processing board (2 RJ-45s)
	83105	CG 6565e/64-2L/4TE, media processing board (2 RJ-45s)
	83201	CG 6565e/32-2L/8TE, media processing board (1 MRJ-21)
	83108	CG 6565e/64-2L/8TE, media processing board (1 MRJ-21)
	83110	CG 6565E/64-2L, media processing board (no trunks)
CG 6565C	82405	CG 6565C/64-2L/8TE, media processing board (1 RJ-21)
	82407	CG 6565C/32-2L/16TE, media processing board (2 RJ-21s)
	82408	CG 6565C/64-2L/16TE, media processing board (2 RJ-21s)
	82409	CG 6565C/128-2L/16TE, media processing board (2 RJ-21s)
Digital Trunk Connector Cables		
	83233	Cable, RJ-45 male-to-male, 3' (91cm), ISDN Japan
	83234	Cable, RJ-21M/ RJ-21M-RA, 10' (3.0m), unshielded
	83230	Cable, RJ-45/ 2X RJ-48C, 120-ohm, 4" (10cm)
	83232	Cable, RJ-45 to (2) E-75-ohm BNC pairs, 9" (23), shielded, RoHS
	83235	Cable, RJ-45/RJ-45, 6' (1.8m), shielded, RoHS
	83226	Cable, MiniRJ-21/ RJ-21M-180, 6' (1.8m), shielded, RoHS
	83225	Cable, RJ-21M-180/RJ-21M-180, 6' (1.8m), shielded, RoHS
	83228	Cable, RJ-21M-180/ RJ-21M-RA, 6' (1.8m), shielded, RoHS
Signal Entry Panel (SEP)		
	83252	SEP – 2X (NMS RJ-21 to (8) RJ-48C interface), 1U
	82923-1	SEP/cable kit – 1X (NMS RJ-21 to (8) RJ-48C interface), 1U
	82923-2	SEP/cable kit – 2X (NMS RJ-21 to (8) RJ-48C interface), 1U
	82924-1	SEP/cable kit – 1X (NMS MRJ-21 to (8) RJ-48C interface), 1U
	82924-2	SEP/cable kit – 2X (NMS MRJ-21 to (8) RJ-48C interface), 1U

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The logo for Network Fuel, featuring the words "NETWORK FUEL" in a bold, sans-serif font. The word "NETWORK" is in white on a dark rectangular background, and "FUEL" is in black on a white rectangular background. A small "TM" trademark symbol is to the right of "FUEL". The logo is centered within a decorative background of a network graph with nodes and connecting lines.

NETWORK FUEL™