

## Dialogic® CG Series Media Boards by Sangoma

### Products Discussed in this Datasheet

- Dialogic® CG 6060 PCI 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
<b>Software-selectable T1 or E1 digital trunks</b>	Reduces total cost of ownership by increasing flexibility, reducing inventory, and simplifying the purchasing process and test effort
<b>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</b>	Allows support for both IP and TDM networks on a single platform, plus redundant IP configurations for high reliability
<b>NaturalAccess Software</b>	Uses a consistent set of APIs throughout the CG Series Media Board product line, which support popular operating systems
<b>From 1,064 to 12,768 MIPS for media processing (model dependent)</b>	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
<b>Full speed H.100/H.110 bus with 4,096 timeslots</b>	Supports interoperability with other boards in open-architecture, high-capacity systems
<b>64 ms echo cancellation tail</b>	Provides high-quality audio and clarity



## Technical Specifications

	CG6565	CG6565C	CG6565E	CG6060
Digital interfaces	0, 8 T1/E1; Gigabit Ethernet	16 T1/E1; Gigabit Ethernet	0, 2, 4, 8 T1/E1; Gigabit Ethernet	1, 2, 4 T1/E1; 100 Mbps Ethernet
Boards/system	Application and server-dependent			
Control processor	PPC 7448; 867 MHz clock			PPC 405eP; 333 MHz clock
Control processor (CP) memory	256 MB			128 MB
I/O mapped memory	Memory mapped interface for efficient block data transfers		N/A	Memory mapped interface for efficient block data transfers
Address/interrupts	Address and interrupts automatically configured by PCI BIOS (no jumpers or switches)		N/A	Address and interrupts automatically configured by PCI BIOS (no jumpers or switches)
<b>Host Interface</b>				
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
Bus mode	PCI target and master mode operation			
Bus speed	100/133 MHz PCI-X bus or 33/66 MHz PCI bus		2.5 Gbps per lane; 4 lanes	DC to 66 MHz
Telephony bus	ECTF H.100	PICMIG 2.5 / ECTF H.110	ECTF H.100	
Hot swap	N/A	PICMG 2.1, Rev. 2.0	N/A	
<b>Operating Systems Support</b>	Windows®, Linux, and Solaris. Details at <a href="https://wiki.sangoma.com/display/DVC/Dialogic+Voice+Cards">https://wiki.sangoma.com/display/DVC/Dialogic+Voice+Cards</a>			
<b>Platform</b>				
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
Board dimensions	12.283 in. (31.2 cm) long 4.2 in. (10.67 cm) high	9.187 in. (23.34 cm) long 6.145 in. (15.61 cm) high	12.283 in. (31.2 cm) long 4.2 in. (10.67 cm) high	
<b>DSP</b>	TI TMS320C5441 quad core DSPs each running at 532 MIPS			
Universal port capability	- IVR - Vocoding: G.711, G.723.1, G.729a/b, G.726, AMR-NB, EVRC, iLBC - Conferencing		- Echo cancellation - T.38; T.37 - Voice over IP	
H.100/H.110 bus	- Flexible connectivity between DSO 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)	
<b>IP Network Connectivity</b>				
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	
Protocols	RTP/RTCP, UDP, IP (v4 and v6), IPSec			

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<b>PSTN Echo Cancellation</b>	<ul style="list-style-type: none"> <li>- Dialogic® e256 ASIC, no DSP load</li> <li>- Selectable on a per channel basis</li> <li>- Bi-directional automatic gain control</li> <li>- Numerous tone disabling options</li> <li>- Intelligent double-talk detector</li> </ul>		<ul style="list-style-type: none"> <li>- Up to 64 ms per channel</li> <li>- Greater than 18 dB of acoustic echo elimination</li> <li>- Accelerated adaptive convergence</li> <li>- Greater than 34 dB echo return loss enhancement</li> <li>- Meets or exceeds G.164, G.165, G.168 (2000)</li> </ul>	
<b>PSTN Network Connectivity</b>				
Digital trunk interface connectors	8 trunks: MD0 miniRJ-21 connector	16 trunks: Two RJ-21 connectors on included CompactPCI rear transition module	<ul style="list-style-type: none"> <li>- 2 trunks: Two RJ-48C connectors</li> <li>- 4 trunks: Two MD0 RJ-45 connectors, each with two trunks</li> <li>- 8 trunks: MD0 miniRJ-21 connector</li> </ul>	<ul style="list-style-type: none"> <li>- 1 trunk: One RJ-48C connector</li> <li>- 2 trunks: Two RJ-48C connectors</li> <li>- 4 trunks: Two MD0 RJ-45 connectors (each with two trunks)</li> </ul>
Impedance	Software-selectable; 100, 120 ohm		Software-selectable; 75, 100, 120 ohm	
<b>Telephony Interface DSX-1 T1</b>				
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.			
<b>Telephony Interface CEPT-E1 G/703</b>				
Interface	G.703 2048 kbps trunk interface			
Framing	CEPT G.703/G.704 Channel Associated Signaling			
<b>Power Requirements</b>	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
<b>Operating Requirements</b>				
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			

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<b>Approvals, Compliance and Warranty</b>				
Country Approvals	Located at <a href="https://www.portal.sangoma.com">https://www.portal.sangoma.com</a>			
Reliability/Warranty	Warranty information at <a href="https://www.sangoma.com/warranties">https://www.sangoma.com/warranties</a>			
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			
<b>Audio Signal Processing</b>				
Sampling rates	8k samples/sec			
Speech compression (IVR)	<ul style="list-style-type: none"> <li>- 11 kHz, 8- or 16-bit linear (.WAV); 16-bit may reduce the number of ports per board</li> <li>- 8 kHz 16-bit linear (.WAV)</li> <li>- 64 kbps <math>\mu</math>-law or A-law per ITU-T G.711</li> <li>- 16, 24, and 32 kbps ADPCM using Dialogic® algorithm with Dialogic® framing and bit packing with up to 2x speedup on play back</li> <li>- OKI-compatible ADPCM 24 kbps @ 6 kHz or 32 kbps @ 8 kHz with up to 2x speedup on play back</li> <li>- IMA-compatible ADPCM 32 kbps with up to 2x speedup on play back</li> <li>- G.726-compatible ADPCM 32 kbps</li> <li>- MS-GSM with up to 2x speedup on play back</li> <li>- AMR-NB</li> <li>- G.723.1</li> <li>- G.729a</li> </ul>			
<b>Tone Dialing</b>				
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 <b>(Note:</b> Dialogic supplies configuration files that conform to national regulations for countries where certification has been received.)			
Dialing amplitude	Software configurable; range -33 dBm to +1 dBm <b>(Note:</b> Dialogic supplies configuration files that conform to national regulations for countries where certification has been received.)			
<b>Pulse Dialing</b>				
Digits	10 digits: 0 to 9			
Pulsing rate	10 pulse/sec (nominal)			
Make/break ratio	Software configurable; 40/60 nominal <b>(Note:</b> Dialogic supplies configuration files that conform to national regulations for countries where certification has been received.)			

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<b>DTMF Tone Detection</b>				
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			
<b>MF Tone Detection</b>				
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			
<b>Fax (optional)</b>				
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	Yes			
Requirements (in addition to at least one Dialogic® CG Series Media Board)	Dialogic® NaturalAccess™ NaturalFax™ API license and Dialogic® NaturalAccess™ Software			
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	
Fax port capacities (Maximum Fax Ports per Board)	240	480	240	120
<b>Conferencing (optional)</b>				
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
Maximum conference size	128 members			
Line echo cancellation delay	10 ms or 20 ms			
<b>SIP signaling support (optional)</b>				
Requirements (in addition to at least one Dialogic® CG Series Media Board)	Dialogic® NaturalAccess™ SIP for NCC license and Dialogic® NaturalAccess™ 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			

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

## 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 either or both standards please contact the applicable patent holder(s). Neither such license is provided by Dialogic.

## Ordering Information:

Please see the [Models](#) tab for this product.



# ABOUT SANGOMA

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Sangoma Technologies Corporation is a trusted leader in delivering globally scalable Voice-Over-IP telephony systems, both on-site and cloud-based. As the communication landscape evolves and businesses invest in new strategies to provide effective communications, Sangoma Technologies is your trusted partner; delivering Unified Communications solutions for SMBs, Enterprises, OEMs, Carriers, and service providers.

Founded in 1984, Sangoma Technologies Corporation is publicly traded on the TSX Venture Exchange (TSX VENTURE: STC).



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