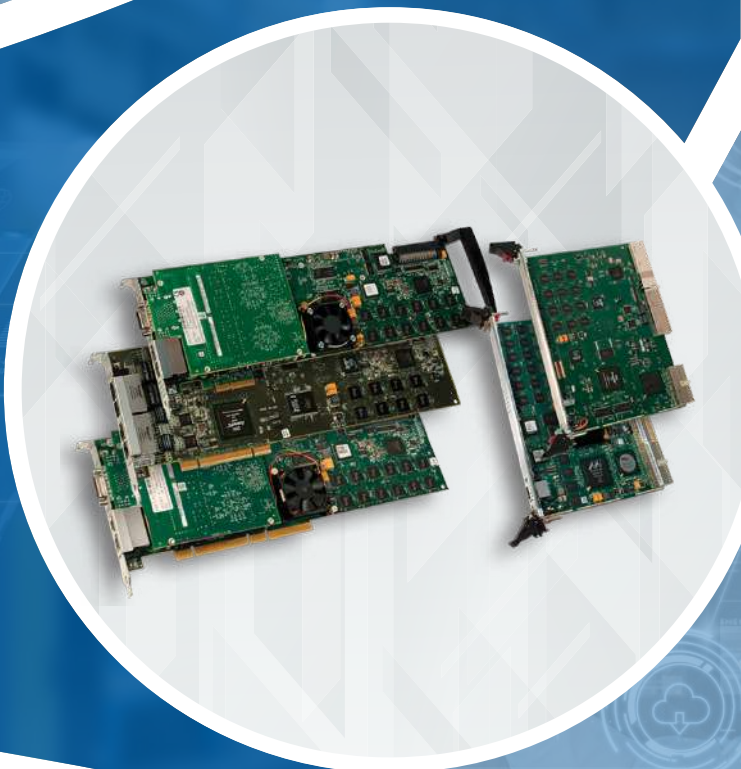
Dialogic®

CG Media Boards
6060 PCI, 6565 PCI, 6565C CompactPCI, 6565E PCI Express 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™ 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 tone detection/generation, echo cancellation, and voice compression, as well as trunking, fax, conferencing, and VoIP functions in a CompactPCI, or PCI Express slot. The universal port feature eliminates the need to use multiple specialized boards, provides single PCI, voice play/record, 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 Power co-processors, and built-in IP capabilities, the CG Series Media Boards are an excellent option for a variety of applications call centers and announcement servers, to powerful, high-density service provider ring-back tone platforms and media servers.

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

- 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 CG Series Media Board product line, which support popular operating systems

From 1,064 to 12,768 MIPS for Media Processing Model Dependent

- 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

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

Digital Interfaces

CG6565
- 0, 8 T1/E1
- Gigabit Ethernet

CG6565E
- 0, 2, 4, 8 T1/E1
- Gigabit Ethernet

CG6565C
- 16 T1/E1
- Gigabit Ethernet

CG6060
- 1, 2, 4 T1/E1
- 100 Mbps Ethernet

Boards/System
- Application and server-dependent

Control Processor

CG6565, CG6565C, CG6565E
- PPC 7448; 867 MHz clock

CG6060
- PPC 405eP; 333 MHz clock

Control Processor (CP) Memory

CG6565, CG6565C, CG6565E
- 256 MB

CG6060
- 128 MB

I/O Mapped Memory

CG6565, CG6565C, CG6060
- Memory mapped interface for efficient block data transfers

CG6565E
- N/A

Address/Interrupts

CG6565, CG6565C, CG6060
- Address and interrupts automatically configured by PCI BIOS (no jumpers or switches)

CG6565E
- N/A

Host Interface

Bus Compatibility
- CG6565 - PCI Local Bus: R2.3 or PCI-X R1.0b
- CG6565C - PCI Local Bus: R2.3 or PCI-X R1.0b, CompactPCI: PICMG 2.0, Rev. 3.0
- CG6565E - PCI Express Base R1.1, PCI Express CEM R2.0
- CG6060 - PCI Local Bus R2.2

Bus Mode
- PCI target and master mode operation

Bus Speed
- CG6565/CG6565C - 100/133 MHz PCI-X bus or 33/66 MHz PCI bus
- CG6565E - 2.5 Gbps per lane; 4 lanes
- CG6060 - DC to 66 MHz

Telephony Bus
- CG6565/CG6565E/CG6060 - ECTF H.100
- CG6565C - PICMIG 2.5 / ECTF H.110

Hot Swap
- CG6565/CG6565E/CG6060 - EN/A
- CG6565C - PICMG 2.1, Rev. 2.0

Operating Systems Support Platform
- Windows, Linux, and Solaris. Details at https://wiki.sangoma.com/display/DVC/Dialogic+Voice+Cards

Form Factor
- CG6565/CG6565E/CG6060 - PCI universal expansion board; Compatible with both 5.0 V and 3.3 V signaling environments
- CG6565C - PCI Express standard-height, full-length form factor

Board Dimensions
- CG6565 - 12.283 in. (31.2 cm) long, 4.2 in. (10.67 cm) high
- CG6565C - 9.187 in. (23.34 cm) long, 6.145 in. (15.61 cm) high
- CG6565E/CG6060 - 12.283 in. (31.2 cm) long 4.2 in. (10.67 cm) high

DSP
- 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 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
- T- H.100 bus clock master or slave (software selectable)

IP Network Connectivity

Interfaces
- CG6565/CG6565E/CG6060 - Dual 10/100/1000 Base-T Ethernet RJ-45 connectors on connection panel
- CG6565C - Dual 10/100/1000 Base-T Ethernet RJ-45 connectors on RTM or PICMG 2.16 on backplane

Protocols
- RTP/RTCP, UDP, IP (v4 and v6), IPSec

PTSN Echo Cancellation
- Dialogic e256 ASIC, no DSP load
- Up to 64 ms per channel
- Selectable on a per channel basis
- Greater than 18 dB of acoustic echo elimination
- Bi-directional automatic gain control
- Accelerated adaptive convergence
- Numerous tone disabling options
- Greater than 34 dB echo return loss enhancement
- Intelligent double-talk detector
- Meets or exceeds G.164, G.165, G.168 (2000)

PSTN Network Connectivity

Digital Trunk Interface Connectors
- CG6565 - 8 trunks: MD0 miniRJ-21 connector
- CG6565C - 16 trunks: Two RJ-21 connectors on included CompactPCI rear transition module
- CG6565E - 2 trunks: Two RJ-48C connectors; 4 trunks: Two MD0 RJ-45 connectors, each with two trunks; 8 trunks: MD0 miniRJ-21 connector
- CG6060 - 1 trunk: One RJ-48C connector; 2 trunks: Two RJ-48C connectors; 4 trunks: Two MD0 RJ-45 connectors (each with two trunks)

Impedance
- CG6565/CG6565C - Software-selectable; 100, 120 ohm
- CG6565E/CG6060 - Software-selectable; 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

CG6565
- 2.7 A max @ 3.3 V
- 2.9 A max @ 5.0 V
- 0.1 A max @ 12.0 V6

CG6565E
- 3.3 A max @ 3.3 V
- 1.3 A max @ 12.0 V
- 25 W max

CG6565C
- .0 A max @ 3.3 V
- 4.5 A max @ 5.0 V
- 0.1 A max @ 12.0 V

CG6060
- 1.5 A @ 3.3 V
- 1.2 A @ 5 V

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.

Technical Specifications

Operating Requirements

Operating Temperature
- 0 °C to +50 °C @ 200 LFM

Storage Temperature
- 20 °C to +70 °C

Cooling Requirements
- CG6565/CG6565C/CG6565E - Ambient Temperature: 35°C,CFM (per board): 1.7 Altitude: Sea Level; Ambient Temperature: 45°CCFM (per board): 3.1; Altitude: 1000 ft.
- CG6060 - Ambient Temperature: 35°CCFM (per board): 0.8 Altitude: Sea Level; Ambient Temperature: 45°CCFM (per board): 1.8 Altitude: 1000 ft.

Humidity

5% to 80%, non-condensing

Approvals, Compliance and Warranty

Country Approvals
- https://portal.sangoma.com/

Warranty Information
- https://www.sangoma.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

Speech Compression (IVR)
- 11 kHz, 8- or 16-bit linear (.WAV); 16-bit may reduce the number of ports per board
- 8 kHz 16-bit linear (.WAV)
- 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
- 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
- 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
- Dialogic supplies configuration files that conform to national regulations for countries where certification has been received.

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)

Error Correction Mode (ECM)
- MH, MR (ITUT.4), MMR (ITUT.6)

Resolution: standard, fine, super-fine;

Page Format: A3, A4, and B4
- Yes

Requirements (in addition to at least one Dialogic Media Board)
- Dialogic NaturalAccess™ NaturalFax™ API license and Dialogic NaturalAccess™ Software

Fax Modems
- V.21 (300 bps) for T.30 fax negotiation -
- V.27ter (2,400/4,800 bps, required by Group 3)
- V.29 (9,600, 7,200 bps)
- V.17 (14.4, 12, 9.6, 7.2 kbps) transmit/receive

Fax Port Capacities (Maximum Fax Ports per Board)
- CG6565 - 240
- CG6565E - 240
- CG6565C - 480
- CG6060 - 120

Conferencing (Optional)

Capacity
- CG6565 - Up to 240 ports of 3-party conferencing
- CG6565C - Up to 480 ports of 3-party conferencing
- CG6565E - Up to 240 ports of 3-party conferencing
- CG6060 - Up to 120 ports of 3-party conferencing

Maximum Conference Size
- 128 members

Line Echo Cancellation Delay
- 10 ms or 20 ms

SIP Signaling Support (Optional)

Requirements (in addition to at least one Dialogic Media Board)
- Dialogic NaturalAccess™ NaturalFax™ API 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

SIP Signaling Support (Optional)

ISDN PRI
- NI-2, 4ESS, 5ESS, DMS100, DMS250, INS1500, EuroISDN, VN6, QSIG, Austel

CAS
- 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
  - Italy (Norma CEI 103-1/7)
  - Sweden (P7/P8)
  - Netherlands (ALS70D)
- CAS R1.5
- Australian P2

Ordering Information
- Please see the Models tab for this product

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