

# Dialogic® D/80PCIE-LS Media Board

Datasheet

Analog Media Board

Analog Network Interface for Dialogic® Host Media Processing Software Planned for Q1'10

The Dialogic® D/80PCIE-LS Media Board, based on Dialogic® Springware Architecture, is a full-sized 8-port analog PCI Express board well-suited for developing advanced communications applications that require multiple media resources. This high performance, scalable product supports voice, fax, and software-based speech recognition processing in a single PCI Express slot, providing 8 analog telephone interface circuits for direct connection to analog loop start lines. **Note:** The D/80PCIE-LS is able to function as an analog network interface board for Dialogic® Host Media Processing (HMP) Software; initial support for this function is planned for Q1'10 when a service update for Dialogic HMP Software for Windows becomes available.



The D/80PCIE-LS offers enhanced capabilities that an evolving communications market segment demands. The product is suitable for advanced Computer Telephony (CT) based communications applications that require multiple media resources such as web-enabled contact centers, unified messaging, and speech-enabled Interactive Media Response (IMR) systems. The D/80PCIE-LS offers this rich set of advanced features in addition to supporting Digital Signal Processor (DSP) technology and signal processing algorithms, providing a competitive edge for a variety of solutions.

Features	Benefits
<b>Supports G.726 bit exact and GSM coders</b>	Enables implementation of unified messaging applications that meet VPIM standards
<b>Supports Dialogic® Continuous Speech Processing (CSP), a flexible speech processing technology that can offload critical real-time signal processing in speech-enabled applications to onboard DSPs when coupled with efficient drivers</b>	Reduces system latency, increases recognition accuracy, and improves overall system response time for high-density speech solutions
<b>G.711 A-law or <math>\mu</math>-law voice coding at dynamically selectable data rates; 48 kb/s or 64 kb/s, selectable on a channel-by-channel basis</b>	Allows a highly efficient tradeoff between disk storage and voice quality
<b>Telecordia CLASS, UK CLI, Japanese Caller ID, and other international protocols</b>	Supports an international Caller ID capability via an on-hook audio path
<b>A variety of country-specific approvals</b>	Expands an application's ability to serve several global market segments at no extra cost
<b>PCI Express form factor compatible with 1x slots (that is, x1 or higher compatible); RoHS 6/6 compliant</b>	Can meet the requirements of high-bandwidth applications and offers performance, cost, and scalability benefits; provides full compliance with RoHS standard
<b>Supports up to eight channels of DSP-based onboard fax</b>	Reduces the number of boards per system

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## Technical Specifications

Number of ports	8
Maximum boards per system	8; actual number may be limited by application and system performance
CT Bus loads per board	1
Maximum CT Bus loads per system	20
Analog network interface	Onboard loop start interface (8)
Resource sharing bus	CT Bus
Control microprocessor	FPGA-based Intel 80186 core running at 49.152 MHz with 2 MB SDRAM
Digital signal processor	Freescale DSP56321 @ 240 MHz, with three 512Kx8 private SRAM
Supported operating systems	Windows®, Linux. Details at <a href="http://www.dialogic.com/systemreleases">http://www.dialogic.com/systemreleases</a>
CSP	Yes
Signaling	Analog loop start

### Host Interface

Bus compatibility	Complies with PCI-SIG PCI Express Base Specification, Rev. 1.1
Bus speed	2.5 GHz maximum per direction
Bus mode	x1 lane configuration (x1 or higher compatible)
Shared memory	32 KB to 64 KB page
Interrupt level	Message Signaled Interrupt (MSI)
I/O ports	None

### Platform

Form factor	PCI Express x1 lane configuration (or higher) 12.28 in. (31.2 cm) long 4.2 in. (10.67 cm) high
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### Power Requirements

+3.3 VDC	1.1A maximum
+12 VDC	0.9A maximum

### Environmental Requirements

Operating temperature	+32°F (0°C) to +122°F (+50°C)
Storage temperature	-4°F (-20°C) to 158°F (+70°C)
Humidity	8% to 80% noncondensing

### Telephone Interface\*

Trunk type	Loop start, Ground start for inbound applications
Impedance	600 Ohms nominal**
Ring detection	40 Vrms to 130 Vrms, 15.3 Hz to 68.0 Hz
Loop current range	20 mA to 60 mA, (Euro) 20 mA to 120 mA, polarity insensitive
Echo return loss	17 dB minimum (at country impedance)
Crosstalk coupling	>-75 dB
Speech digitization	64 kb/s PCM
Frequency response	300 Hz to 3400 Hz ±3 dB
Connector	RJ-25, 6-port, 6-position

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## Technical Specifications (continued)

### Approvals and Compliance

Hazardous substances	RoHS Compliance Information at <a href="http://www.dialogic.com/rohs">http://www.dialogic.com/rohs</a>
<i>Safety and EMC</i>	
Canada	ICES-003 Class A ULc CSA 60950-1 File E310851
Europe	EN60950 EN55022 EN55024
United States	FCC Part 15 Class A UL 60950-1 File E310851
International	IEC60950-1 CISPR 22 CISPR 24
<i>Telecom Approvals</i>	
Canada	IC:885A-DPCIELS
European Union	DoC TBD
United States	US:EBZKX07BDPCIELS
Country-specific approvals	See the Product & Global Approvals list at <a href="http://www.dialogic.com/declarations/">http://www.dialogic.com/declarations/</a> or contact your Authorized Distributor

### Reliability/Warranty

Estimated MTBF	Per Telcordia Method: 163,250 hours
Warranty	Warranty Information at <a href="http://www.dialogic.com/warranties">http://www.dialogic.com/warranties</a>

## Technical Specifications Related to Dialogic® Springware Architecture

### Facsimile

Fax compatibility	ITU-T G3 compliant (T.4, T.30) ETSI NET/30 compliant
Maximum data rate	14.4 kb/s (v.17) send 9.6 kb/s (v.29) receive
Variable speed selection	Automatic step-down to 12 kb/s, 9.6 kb/s, 7.2 kb/s, 4.8 kb/s, and lower
Transmit data modes	Modified Huffman (MH) Modified Read (MR)
Receive data modes	MH, MR
File data formats	Tagged Image File Format-Fax (TIFF-Fax) for transmit/receive MH and MR
ASCII-to-fax conversion	Host-PC-based conversion Direct transmission of text files All Windows® fonts supported Page headers generated automatically
Error correction	Detection, reporting, and correction of faulty scan lines
Image widths	8.5 in. (21.5 cm) 10.0 in. (25.5 cm) 11.9 in. (30.3 cm)
Image scaling	Automatic horizontal and vertical scaling between page sizes

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## Technical Specifications (continued)

Polling modes	Normal Turnaround
Image resolution	Normal (203 pels/in. x 98 lines/in.) (203 pels/2.54 cm x 98 lines/2.54 cm) Fine (203 pels/in. x 196 lines/in.) (203 pels/2.54 cm x 196 lines/2.54 cm)
Fill minimization	Automatic fill bit insertion and stripping
<b>Audio Signal</b>	
Receive range	-40 dBm to -7 dBm nominal, configurable by parameter†
Automatic gain control	Application can enable/disable Above -22 dBm results in full-scale recording, configurable by parameter†
Silence detection	-40 dBm nominal, software adjustable†
Transmit level (weighted average)	-9.5 dBm nominal, configurable by parameter†
Transmit volume control	40 dB adjustment range, with application-definable increments and legal limit cap

### Frequency Response

-3 dB bandwidth from 300Hz to 3400Hz

### Audio Digitizing

13 kb/s	GSM @ 8 kHz sampling
24 kb/s	OKI ADPCM @ 6 kHz sampling
32 kb/s	OKI ADPCM @ 8 kHz sampling
32 kb/s	G.726 @ 8 kHz sampling
48 kb/s	G.711 A-law or $\mu$ -law PCM @ 6 kHz sampling
64 kb/s	G.711 A-law or $\mu$ -law and Linear PCM @ 8 kHz sampling
88 kb/s	Linear PCM @ 11 kHz sampling
176 kb/s	Linear PCM (16-bit) @ 11 kHz sampling
Digitization selection	Selectable by application on function call-by-call basis
Playback speed control	G.711 PCM 8-bit with A-law or $\mu$ -law, at 8 kHz sampling rate (64 Kbps bit rate) Linear PCM, 8-bit at 8 and 11 kHz sampling rate (64 and 88 Kbps bit rate) ADPCM, OKI 4-bit, at 6 and 8 kHz sampling rate (24 and 32 Kbps bit rate)

### DTMF Tone Detection

DTMF digits	0 to 9, *, #, A, B, C, D per Telecordia LSSGR Sec 6
Dynamic range	-38 dBm to -3 dBm per tone, configurable by parameter†
Minimum tone duration	40 ms, can be increased with software configuration
Interdigit timing	Detects like digits with a >40 ms interdigit delay Detects different digits with a 0 ms interdigit delay
Twist and frequency variation	Meets Telecordia LSSGR Sec 6 and EIA 464 requirements
Noise tolerance	Meets Telecordia LSSGR Sec 6 and EIA 464 requirements for Gaussian, impulse, and power line noise tolerance
Cut-through	Local echo cancellation permits 100% detection with a >4.5 dB return loss line
Talk-off	Detects less than 20 digits while monitoring Telecordia TR-TSY-000763 standard speech tapes (LSSGR requirements specify detecting no more than 470 total digits) Detects 0 digits while monitoring MITEL speech tape #CM 7291

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## Technical Specifications *(continued)*

### Global Tone Detection

Tone type	Programmable for single or dual
Maximum number of tones	Application-dependent
Frequency range	Programmable within 300 Hz to 3500 Hz
Maximum frequency deviation	Programmable in 5 Hz increments
Frequency resolution	± 5 Hz. Separation of dual-frequency tones is limited to 62.5 Hz at a signal-to-noise ratio of 20 dB
Timing	Programmable cadence qualifier, in 10 ms increments
Dynamic range	Programmable, default set at -6 dBm to -3 dBm per tone

### Global Tone Generation

Tone type	Generate single or dual tones
Frequency range	Programmable within 200 Hz to 2000 Hz
Frequency resolution	1 Hz
Duration	10 ms increments, to no limit
Amplitude	-40 dBm to 0 dBm per tone, programmable

### MF Signaling

MF digits	0 to 9, KP, ST, ST1, ST2, ST3 per Telecordia LSSGR Sec 6, TR-NWT-000506 and ITU-T Q.321
Transmit level	Complies with Telecordia LSSGR Sec 6, TR-NWT-000506
Signaling mechanism	Complies with Telecordia LSSGR Sec 6, TR-NWT-000506
Dynamic range for detection	-25 dBm to -3 dBm per tone
Acceptable twist	6 dB
Acceptable frequency variation	Less than ±1 Hz

### Call Progress Analysis

Busy tone detection	Default setting designed to detect 74 out of 76 unique busy/congestion tones used in 97 countries as specified by ITU-T Rec. E., Suppl. #2 Default setting uses both frequency and cadence detection Application can select frequency only for faster detection in specific environments
Ring back detection	Default setting designed to detect 83 out of 87 unique ring back tones used in 96 countries as specified by ITU-T Rec. E., Suppl. #2 Uses both frequency and cadence detection
Positive voice detection accuracy	>99% based on tests on a database of real world calls in North America Actual performance and performance in other markets may vary
Positive voice detection speed	Detects voice in as little as 1/10th of a second
Positive answering machine detection	>85% based on application and environment accuracy
Fax/modem detection	Pre-programmed
Intercept detection	Detects entire sequence of the North American tri-tone Other intercept tones sequences can be programmed
Dial tone detection before dialing	Application enable/disable Supports up to three different user-definable dial tones Programmable dial tone drop out debouncing

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## Technical Specifications *(continued)*

### Tone Dialing

DTMF digits	0 to 9, *, #, A, B, C, D per Telecordia LSSGR Sec 6, TR-NWT-000506
Frequency variation	Less than $\pm 1$ Hz
Rate	10 digits/s maximum, configurable by parameter†
Level	-4.0 dBm per tone, nominal, configurable by parameter†

### Pulse Dialing

10 digits	0 to 9
Pulsing rate	10 pulses/s, nominal 20 pulses/s for Japan, configurable by parameter†
Break ratio	60% nominal, configurable by parameter†

### Analog Caller Identification

Applicable standards	Telecordia TR-TSY-000030 Telecordia TR-TSY-000031 TAS T5 PSTN1 ACLIP: 1994 (Singapore)
Modem standard	Bell 202 or V.23, serial 1200 bits/sec (simplex FSK signaling)
Receive sensitivity	-48 dBm (-50 dBv) to -1 dBm
Noise tolerance	Minimum 18 dB SNR over 0 to -48 dBm dynamic range for error-free performance
Data formats	Single Data Message (SDM) and Multiple Data Message (MDM) formats via API calls and commands
Line impedance	AC coupled 600 Ohm (@ 1.8 kHz) termination during Caller ID on-hook detection interval (US and Canada only)
Message formats	ASCII or binary SDM, MDM message content

### Analog Display Services Interface (ADSI)

	FSK generation per Telecordia TR-NWT-000030
	CAS tone generation and DTMF detection per Telecordia TR-NWT-001273

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## Hardware System Requirements

Intel and AMD processor-based PCI Express bus or compatible computer. Operating system hardware requirements vary according to the number of channels being used.

## Additional Components (with Order Codes)

- Multidrop CT Bus cables (CBLCTB3DROPQ, CBLCTB4DROPQ, CBLCTB8DROPQ, CBLCTB12DROPQ, CBLCTB16DROPQ)
- Six-strand RJ-type cable (preferred solution for customers using all 8 channels) (RJ-11 connectors to standard 50-pin Amphenol connector) (CBLD120PCI25PPQ) plus breakout box (BOB25POSJ11W)
- “Two-into-one” conversion cable (preferred solution for customers using only one or two channels)
  - Up to four cables required for 8-port
  - US (CBLRJ14RJ11YAQ) and Euro (CBLD120PCIYADPQ) cables sold separately

## Ordering Information

Product Code	Order Code	Description
D80PCIELSQ	310932	8-port Analog, Loop-Start, PCIe
D80PCIELSQUEU	310931	8-port Analog, Loop-Start, PCIe, Europe

[www.dialogic.com](http://www.dialogic.com)

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\* Average speech mandates +16 dB peaks above average and preserves -13 dB valleys below average.

\*\* US and CA; other country specific assemblies meet the impedance requirements of their countries.

† Analog levels: 0 dBm corresponds to a level of +3 dBm at tip-ring analog point. Values vary depending on country requirements; contact your account manager.