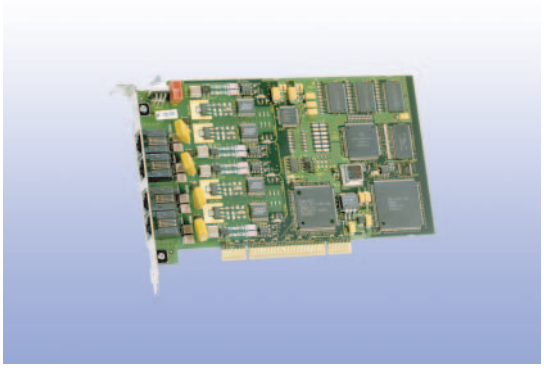
Dialogic® JCT Media Boards



Dialogic® JCT Media Boards can be used by developers to provide small- and medium-sized enterprise Computer Telephony (CT) applications that require high-performance, cost-aggressive voice and fax processing, but do not require the large-scale system sophistication of SCbus- or CT Bus-based products. The boards use the same Application Programming Interface (API) as their predecessor (Dialogic® D/4PCI Media Board), making it easy to scale existing applications to take advantage of their power and features in a single PCI or PCI Express slot. The boards have improved voice quality and Automatic Gain Control (AGC), so even a weak telephone signal can be recorded and replayed with complete clarity.

Products Discussed in This Datasheet

- Dialogic® D/4PCIUF Media Board
- Dialogic® D/4PCIU4S Media Board

The D/4PCIUF (voice and fax) and D/4PCIU4S (voice and speech/CSP) use Digital Signal Processor (DSP) voice processing technology, making it well-suited for server-based CT systems under Windows® and Linux. These boards provide a powerful platform for creating sophisticated Interactive Voice Response (IVR) applications for the small- and medium-sized enterprise market segment. Caller ID support lets applications, such as IVR, receive calling party information via a telephone trunk line. Caller ID is supported for North America (CLASS protocol), the United Kingdom (CLI protocol), and in Japan (CLIP protocol).

Features	Benefits
Supports up to four channels of DSP-based onboard fax (D/4PCIUF only)	Reduces the number of boards per system
Supports up to four channels of continuous speech processing (D/4PCIU4S only)	Provides a flexible speech processing technology, which wnen coupled with efficient drivers, off-loads critical real-time signal processing in speech-enabled applications to onboard DSPs. Reduces system latency, increases recognition accuracy, and improves overall system response time for speech solutions.
Separate models available with Universal PCI or PCI Express edge connector	Universal PCI form factor compatible with 3.3 V and 5.0 V bus signals enabling deployment in a wide variety of PCI chassis from popular manufacturers; PCI Express form factor compatible with 1x slots (x1 or higher compatible) also available
A variety of country-specific approvals	Expands an application's ability to serve several global market segments
Supports G.726 and GSM coders	Implements unified messaging applications that meet VPIM standards
Voice coding on a channel-by-channel basis	Allows for optimal tradeoff between disk storage and voice quality
Half-size PCI or PCI Express form factor	Build cost-effective systems using the most up-to-date industry-standard chassis

Technical Specifications

Number of ports	4
Maximum boards per system	16
Analog network interface	Onboard loop start interface circuits
Control microprocessor	Intel 80C186 @ 34.8MHz
Digital signal processor	Freescale DSP56303 @ 100 MHz, with 128Kx24 private
Supported operating systems	Windows®; Linux. Details at http://www.dialogic.com/systemreleases
CSP	Yes on D/4PCIU4S only
Signaling	Analog loop start

Host Interface — PCI and PCI Express

Bus compatibility	PCI and PCI Express
PCI bus speed	33 MHz maximum
Shared memory	32 KB page
Base addresses	Selected by PCI or PCI Express BIOS
Interrupt level	1 IRQ (IntA) shared by all boards

Platform — PCI and PCI Express

Form factor	PCI Universal or PCI Express 6.9 in. (17.25 cm) long 0.75 in. (1.875 cm) wide 3.85 in. (9.625 cm) high (excluding edge connector)

Power Requirements — PCI

+5 VDC	650 mA

Power Requirements — PCI Express

+12 VDC	450 mA maximum

Environmental Requirements — PC and PCI Express

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

Technical Specifications (cont.)

Telephone Interface

Trunk type	Loop start Ground start for inbound applications with AC ringing
Impedance	600 Ohm (nominal). Matching complex impedance specified in TBR-21 for D/4PCIU-EURO
Ring detection	15 Vrms min., 15 Hz to 68 Hz
Loop current range	20 mA to 120 mA, DC (polarity insensitive)
Crosstalk coupling	–80 dB at 3 kHz channel-to-channel
Connector	4 RJ-11

Approvals and Compliance

Hazardous substances	RoHS Compliance Information at http://www.dialogic.com/rohs/
Safety and EMC	
Canada	ICES-003 Class A ULc CSA 60950-1 File E96804
Europe	EN60950 EN55022 EN55024
Japan	VCCI Class A
United States	FCC Part 15 Class A UL 60950-1 File E96804
International	IEC60950-1 CISPR 22 CISPR 24
Telecom Approvals	
United States	US:EBZKX07BD4PCIU
Canada	IC: 885A-D4PCIU
European Union	DoC
Country-specific approvals	See the Product Declarations & Global Approvals list at http://www.dialogic.com/declarations/ or contact your Authorized Distributor

Reliability/Warranty

Estimated MTBF	Per Telecordia Method 1 Case 1 PCI: 434,000 hours PCI Express: 301,000
Warranty	Warranty information at http://www.dialogic.com/warranties

Springware/JCT Technical Specifications

Facsimile (available on D/4PCIUF only)

Fax compatibility	ITU-T G3 compliant (T.4, T.30) ETSI NET/30 compliant
Data rate	14,400 b/s (v.17) send 9600 b/s receive
Variable speed selection	Automatic step-down to 12,000 b/s, 9600 b/s, 7200 b/s, 4800 b/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-F) 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 in. (25.4 cm) 11.9 in. (30.23 cm)
Image scaling	Automatic horizontal and vertical scaling between page sizes
Polling modes	Normal Turnaround
Image resolution	Normal (203 pels/in. x 98 lines/in.; 203 pels/2.5 cm ? 98 lines/2.5 cm) Fine (203 pels/in. x 196 lines/in.; 203 pels/2.5 cm ? 196 lines/2.5 cm)
Fill minimization	Automatic fill bit insertion and stripping

Audio Signal

Receive range	–50 dBm to –9 dBm (nominal), for average speech signals** configurable by parameter†
Automatic gain control	Application can enable/disable Above –30 dBm results in full scale recording, configurable by parameter†
Silence detection	–40 dBm nominal, software adjustable†
Transmit level (weighted average)	–9 dBm nominal, configurable by parameter†
Transmit volume control	40 dB adjustment range, with application-definable increments, capped at legal limit

Frequency Response

24 kb/s	300 Hz to 2600 Hz ±3 dB
32 kb/s	300 Hz to 3400 Hz ±3 dB
48 kb/s	300 Hz to 2600 Hz ±3 dB
64 kb/s	300 Hz to 3400 Hz ±3 dB

Audio Digitizing

13 kb/s	GSM @ 8 kHz sampling
24 kb/s	ADPCM @ 6 kHz sampling
32 kb/s	ADPCM @ 8 kHz sampling
32 kb/s	G.726 @ 8 kHz sampling
48 kb/s	µ-law PCM @ 6 kHz sampling
64 kb/s	µ-law PCM @ 8 kHz sampling
Digitization selection	Selectable by application on function call-by-call basis
Playback speed control	Pitch controlled, available for 24 kb/s and 32 kb/s data rates Adjustment range: ±50% Adjustable through application or programmable DTMF control

Wave Audio

	Record/Play 11 kHz linear PCM, 8-bit mono mode (available only when running Windows®)

Springware/JCT Technical Specifications (cont.)

DTMF Tone Detection

DTMF digits	0 to 9, *, #, A, B, C, D per Telcordia LSSGR Sec 6
Dynamic range	Programmable, default set at –45 dBm to –3 dBm per tone
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 Telcordia LSSGR Sec 6 and EIA 464 requirements
Acceptable twist	10 dB
Signal/noise ratio	10 dB (referenced to lowest amplitude tone)
Noise tolerance	Meets Telcordia LSSGR Sec 6 and EIA 464 requirements for Gaussian, impulse, and power line noise tolerance
Cut-through	Detects down to –36 dBm per tone into 600 Ohm load impedance
Talk-off	Detects less than 20 digits while monitoring Telcordia 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

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	Less than 5 Hz Note: Certain limitations exist for dual tones closer than 60 Hz apart
Timing	Programmable cadence qualifier, in 10 ms increments
Dynamic range	Programmable, default set at –36 dBm to –3 dBm per tone

Global Tone Generation

Tone type	Generate single or dual tones
Frequency range	Programmable within 200 Hz to 4000 Hz
Frequency resolution	1 Hz
Duration	10 ms increments
Amplitude	–43 dBm to –3 dBm per tone, programmable

MF Signaling

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

Springware/JCT Technical Specifications (cont.)

Acceptable freq. 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 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	>98% based on tests on a database of real-world calls
Positive voice detection speed	Detects voice in as little as 1/10th of a second
Positive answering machine detection accuracy	Standard
Fax/modem detection	Preprogrammed
Intercept detection	Detects entire sequence of the North American tri-tone Other SIT sequences can be programmed
Dial tone detection before dialing	Application enable/disable Supports up to three different user-definable dial tones Programmable dial tone dropout debouncing

Tone Dialing

DTMF digits	0 to 9, *, #, A, B, C, D; 16 digits per Telcordia LSSGR Sec 6, TR-NWT-000506
MF digits	0 to 9, KP, ST, ST1, ST2, ST3
Frequency variation	±0.5% of nominal frequency
Rate	10 digits/s max., configurable by parameter†
Level	–5 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	Telcordia TR-TSY-000030 Telcordia TR-TSY-000031 TAS T5 PSTN1 ACLIP: 1994 (Singapore) British Telecom SIN 242 (Issue 01) British Telecom SIN 227 (Issue 01) Japan NTT CLIP
Modem standard	Bell 202 or V.23, serial 1200 b/s (simplex FSK signaling)
Receive sensitivity	–48 dBm to –1 dBm
Noise tolerance	Minimum 18 dB SNR over 0 dBm 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
Impedance	600 Ohm for D/PCIUF Matching complex impedance specified in TBR-21 for D/4PCIUF-EURO.
Message formats	ASCII or binary SDM, MDM message content

Analog Display Services Interface (ADSI)

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

Hardware System Requirements

Pentium processor or compatible computer. Operating system hardware requirements vary according to the number of channels being used.

Ordering Information

Product Code	Order Code	Description
D4PCIUFW	881-775	4-port Analog, Loop-Start, PCI
D4PCIU4SW	881-703	4-port Analog, Loop-Start, PCI
D4PCIUFWEU	881-803	4-port Analog, Loop-Start, PCI, Europe
D4PCIU4SWEU	881-773	4-port Analog, Loop-Start, PCI, Europe
D4PCIUFEQ	310-935	4-port Analog, Loop-Start, PCIe
D4PCIU4SEQ	310-936	4-port Analog, Loop-Start, PCIe
D4PCIUFEQEU	310-942	4-port Analog, Loop-Start, PCIe, Europe
D4PCIU4SEQEU	310-941	4-port Analog, Loop-Start, PCIe, Europe
D4PCIUFEQCN	310-937	4-port Analog, Loop-Start, PCIe, China

To learn more, visit our site on the World Wide Web at **http://www.dialogic.com**

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

† Analog levels: 0 dBm0 corresponds to a level of +3 dBm at tip-ring analog point. Values vary depending on country requirements; contact your Dialogic Sales Engineer.

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