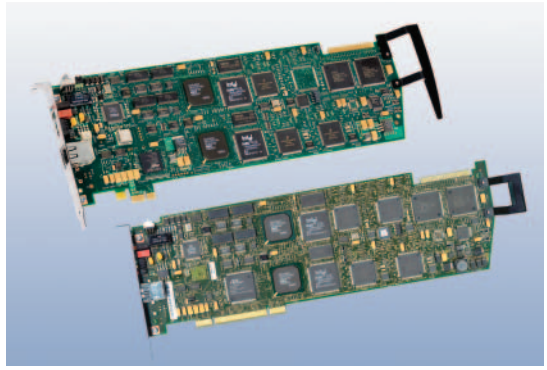
Dialogic® JCT Media Boards



Dialogic® JCT Media Boards can be used by developers to provide cost-effective, scalable, high-density communications applications. The applications include those requiring digital network interfaces as well as multimedia resources, such as voice and software-based speech recognition or fax in a single Personal Computer (PC) slot. These boards offer a rich set of advanced features and support Digital Signal Processor (DSP) technology, Continuous Speech Processing (CSP) technology, and industry-standard PCI or PCI Express bus and CT Bus technologies.

Products Discussed in This Datasheet

- Dialogic® D/240JCT-T1 Media Board
- Dialogic® D/300JCT-E1 Media Board

CSP technology — the DSP-based solution optimized for speech recognition — enables a friendly user interface and seamless integration of speech recognition software from leading speech technology vendors. CSP reduces system latency, increases recognition accuracy, and improves overall system response time for high-density speech solutions.

Onboard DSP-based fax and support for software-based speech recognition lets developers maximize the number of boards in the system for multimedia communications applications, such as web-enabled call centers, voice portals, unified messaging, or speech-enabled Interactive Voice Response (IVR). The option to use voice coders, such as Global System for Mobile Communications (GSM) and G.726, provides the capability to build unified messaging solutions while extending existing legacy messaging systems. In addition, Dialogic® Global Call Software facilitates global deployment to meet the growing needs of your business.

Features	Benefits
24 or 30 independent voice channels in a single PCI or PCI Express H.100 slot	Lower costs while creating larger high-density systems with fewer boards per chassis
Supports G.726 bit exact and GSM coders	Enables implementation of unified messaging applications that meet VPIM standards
Silence-compressed recording	Eliminates silence and preserves hard disk space
Unified call control access through Dialogic® Global Call Software interface	Provides worldwide application portability and shortens development time by using the same API for almost any network protocol
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 x1 slot (x1 or higher compatible) also available
Supports DSP-based onboard fax and host-based speech recognition on select boards (fax and host-based speech recognition are mutually exclusive)	Maximizes the number of boards in the system

Technical Specifications

D/240JCT-T1

Number of ports	24
Maximum boards per system	16. Number may be limited by application, system performance, and the number of CT Bus loads per board
CT Bus loads per board	1.5
Maximum CT Bus loads per system	20
Digital network interface	Onboard DSX-1 interface
Resource sharing bus	H.100 CT Bus
Control microprocessors	2 Intel486 GX processors
Digital signal processor	Freescale DSP56303 @ 100 MHz, with 128Kx24 private
Supported operating systems	Windows®; Linux. Details at http://www.dialogic.com/systemreleases
CSP	Yes
Signaling	Digital ISDN PRI (CAS)

Host Interface — PCI

Bus compatibility	PCI. Complies with PCISIG Bus Specification, Rev. 2.2
Bus speed	33 MHz maximum
Bus mode	32- to 16-bit conversion in target mode
Shared memory	2 x 64 KB page
I/O ports	None
Support	3.3 V or 5 V signaling environment (universal connectivity)

Platform — PCI

Form factor	PCI long card 12.3 in. (31.24 cm) long (without edge retainer) or 13.3 in. (33.78 cm) long (with edge retainer) 0.79 in. (2 cm) wide (total envelope) 3.87 in. (9.83 cm) high (excluding edge connector)

Power Requirements — PCI

+5 VDC	2.0 A typical; 2.2 A maximum
+12 VDC	6 mA typical; 6.6 mA maximum
–12 VDC	Not required

Host Interface — PCI Express

Bus compatibility	Complies with PCI-SIG PCI Express Base Specification, Rev. 1.0a
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 —PCI Express

Form factor	PCI Express x1 lane configuration (or higher) 12.3 in. (31.24 cm) long 0.79 in. (2.0 cm) wide 3.87 in. (9.83 cm) high (excluding edge connector)

Power Requirements — PCI Express

+3.3 VDC	2.39 A maximum
+12 VDC	0.55 A maximum

Technical Specifications (cont.)

Environmental Requirements — PCI and PCI Express

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

Clock rate	1.544 Mb/s ±32 ppm
Level	3.0 V (nominal)
Pulse width	323.85 ns (nominal)
Line impedance	100 Ohm ±10%
Other electrical characteristics	Complies with AT&T TR62411 and ANSI T1.403-1989
Framing	SF (D3/D4) ESF for ISDN
Line coding	AMI AMI with B7 stuffing B8ZS
Clock and data recovery	Complies with AT&T TR62411 and Telcordia TA-TSY-000170
Jitter tolerance	Complies with AT&T TR62411 and ANSI T1.403-1989
Connectors	RJ-48C
Telephony bus connector	H.100-style 68-pin fine pitch card edge connector
Loopback	Supports switch-selectable local analog loopback and software selectable local digital loopback

Approvals and Compliance

Hazardous substances	RoHS Compliance Information at http://www.dialogic.com/rohs
Safety and EMC	
Canada	ICES-003 Class A ULc CSA 950 File E96804
Japan	VCCI Class A
United States	FCC Part 15 Class A UL 60950-1 File E310851
Telecom Approvals	
Canada	IC: 885 5959 A
Japan	D/240JCT-T1: C00-0628JP/L00-0163
United States	US: EBZUSA-20078-XD-N
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 Telcordia Method 1 PCI: 150,000 hours PCI Express: 150,000 hours
Warranty	Warranty information at http://www.dialogic.com/warranties

Technical Specifications (cont.)

D/300JCT-E1

Number of ports	30
Maximum boards per system	16. Number may be limited by application, system performance, and the number of CT Bus loads per board
CT Bus loads per board	1.5
Maximum CT Bus loads per system	20
Digital network interface	Onboard E-1 interface
Resource sharing bus	H.100 CT Bus
Control microprocessors	2 Intel486 GX processors
Digital signal processors	Freescale DSP56303 @ 100 MHz, with 128Kx24 private
Supported operating systems	Windows®; Linux. Details at http://www.dialogic.com/systemreleases
CSP	No
Signaling	R2MF

Host Interface — PCI

Bus compatibility	PCI. Complies with PCISIG Bus Specification, Rev. 2.2
Bus speed	33 MHz maximum
Bus mode	32- to 16-bit conversion in target mode
Shared memory	2 x 64 KB page
I/O ports	None
Support	3.3 V or 5 V signaling environment (universal connectivity)

Platform — PCI

Form factor	PCI long card 12.3 in. (31.24 cm) long (without edge retainer) or 13.3 in. (33.78 cm) long (with edge retainer) 0.79 in. (2 cm) wide (total envelope) 3.87 in. (9.83 cm) high (excluding edge connector)

Power Requirements — PCI

+5 VDC	2.0 A typical; 2.2 A maximum
+12 VDC	6 mA typical; 6.6 mA maximum
–12 VDC	Not required

Host Interface — PCI Express

Bus compatibility	Complies with PCI-SIG PCI Express Base Specification, Rev. 1.0a
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 – PCI Express

Form factor	PCI Express x1 lane configuration (or higher) 12.3 in. (31.24 cm) long 0.79 in. (2.0 cm) wide 3.87 in. (9.83 cm) high (excluding edge connector)

Power Requirements — PCI Express

+3.3 VDC	2.73 A maximum
+12 VDC	0.55 A maximum

Technical Specifications (cont.)

Environmental Requirements — PCI and PCI Express

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

Network clock rate	2.048 Mb/s ±50 ppm
Internal clock rate	2.048 Mb/s ±32 ppm
Level	2.37 V (nominal) for 75 Ohm lines 3.0 V (nominal) for 120 Ohm lines
Pulse width	244 ns (nominal)
Line impedance	75 Ohm, unbalanced 120 Ohm, balanced
Other electrical characteristics	Complies with ITU-T Rec. G.703
Framing	ITU-T G.704-1988 with CRC4
Line coding	HDB3
Clock and data recovery	Complies with ITU-T Rec. G.823-1988
Jitter tolerance	Complies with ITU-T Rec. G.823, G.737, G.739, G.742-1988
Connectors	BNC for 75 Ohm lines RJ-48C for 120 Ohm lines
Telephony bus connector	H.100-style 68-pin fine pitch card edge connector
Loopback	Supports switch-selectable local analog loopback and software selectable local digital loopback

Approvals and Compliance

Hazardous substances	RoHS Compliance Information at http://www.dialogic.com/rohs
Safety and EMC	
Europe	EN60950 EN55022 EN55024
International	IEC60950-1 CISPR 22 CISPR 24
Telecom Approvals	
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 Telcordia Method I PCI: 150,000 hours PCI Express: 150,000 hours
Warranty	Warranty information at http://www.dialogic.com/warranties

Springware/JCT Technical Specifications

Facsimile

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. (21.6 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 x 98 lines/2.5 cm) Fine (203 pels/in. x 196 lines/in.; 203 pels/2.5 cm x 196 lines/2.5 cm)
Fill minimization	Automatic fill bit insertion and stripping

Audio Signal

Receive range	(T-1) –40 to +2.5 dBm0 nominal, configurable by parameter** (E-1) –43 to +2.5 dBm0 nominal, configurable by parameter**
Automatic gain control	Application can enable/disable Above –18 dBm0 (T-1) or –21 dBm0 (E-1) results in full-scale recording, configurable by parameter**
Silence detection	–38 dBm0 nominal, software adjustable**
Transmit level (weighted average)	(T-1) –9 dBm0 nominal, configurable by parameter** (E-1) –12.5 dBm0 nominal, configurable by parameter**
Transmit volume control	40 dB adjustment range, with application-definable increments and legal limit cap

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	OKI ADPCM @ 6 kHz sampling
32 kb/s	OKI ADPCM @ 8 kHz sampling
32 kb/s	G.726 @ 8 kHz sampling
48 kb/s	A-law G.711 PCM @ 6 kHz sampling
48 kb/s	µ-law G.711 PCM @ 6 kHz sampling
64 kb/s	A-law G.711 PCM @ 8 kHz sampling
64 kb/s	µ-law G.711 PCM @ 8 kHz sampling
Digitization selection	Selectable by application on function call-by-call basis
Playback speed control	Pitch controlled Available on OKI ADPCM and G.711 PCM Adjustment range: ±50% Adjustable through application or programmable DTMF control

Springware/JCT Technical Specifications (cont.)

DTMF Tone Detection

DTMF digits	0 to 9, *, #, A, B, C, D per ITU-T Q.23
Dynamic range	(T-1) –36 dBm0 to –3 dBm0 per tone, configurable by parameter** (E-1) –39 dBm0 to 0 dBm0 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
Acceptable twist and frequency variation	(T-1) Meets Telcordia LSSGR Sec 6 and EIA 464 requirements (E-1) Meets appropriate ITU-T specifications**
Noise tolerance	Meets Telcordia LSSGR Sec 6 and EIA 464 requirements for Gaussian, impulse, and power line noise tolerance
Cut-through	(T-1) Local echo cancellation permits 100% detection with a >4.5 dB return loss line (E-1) Digital trunks use separate transmit and receive paths to network Performance dependent on far-end handset's match to local analog loop
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	±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	(T-1) Programmable, default set at –36 dBm0 to –0 dBm0 (single tone), –3 dBm0 (dual tone) (E-1) Programmable, default set at –39 dBm0 to +0 dBm0 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	(T-1) –43 dBm0 to –3 dBm0 per tone nominal, programmable (E-1) –40 dBm0 to +0 dBm0 per tone nominal, programmable

MF Signaling (T-1)	**R1**
MF digits	0 to 9, KP, ST, ST1, ST2, ST3 per Telcordia LSSGR Sec 6, TR-NWT-000506 and ITU-T Q.321
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 dBm0 to –3 dBm0 per tone
Acceptable twist	6 dB
Acceptable frequency variation	Less than ±1 Hz

MF Signaling (E-1)	**R2**
MF digits	All 15 forward and backward signal tones per ITU-T Q.441
Transmit level	–8 dBm0 per tone, nominal, per ITU-T Q.454; programmable
Signaling mechanism	Supports the R2 compelled signaling cycle and non-compelled pulse requirements per ITU-T Q.457 and Q.442
Dynamic range for detection	–35 dBm0 to –5 dBm0 per tone
Acceptable twist	6 dB
Acceptable frequency variation	Less than ±1 Hz

Springware/JCT Technical Specifications (cont.)

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	Standard
Positive voice detection speed	Detects voice in as little as 1/10th of a second
Positive answering machine detection	Standard
Fax/modem detection	Preprogrammed
Intercept detection	Detects entire sequence of the North American tri-tone Other intercept tone 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 per Telcordia LSSGR Sec 6, TR-NWT-000506
Frequency variation	Less than ±1 Hz
Rate	10 digits/s, configurable by parameter**
Level	–7.5 dBm0 per tone, nominal, configurable by parameter**

Pulse Dialing

10 digits	0 to 9
Pulsing rate	10 pulses/s, nominal, configurable by parameter**
Break ratio	60% nominal, configurable by parameter**

Analog Display Services Interface (ADSI)

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

Additional Components

- Multidrop CT Bus cables
  - CBLCTB68C3DROP
  - CBLCTB68C4DROP
  - CBLCTB68C8DROP
  - CBLCTB68C12DROP
  - CBLCTB68C16DROP

Ordering Information

Product Code	Order Code	Description
D240JCTT1W	881-766	24-port Digital T1, PCI
D240JCTT1WJP	881-877	24-port Digital T1, PCI, Japan
D300JCTE1120W	881-767	30-port Digital E1, PCI
D300JCTE175W	881-768	30-port Digital E1, PCI
D240JCTT1EW	887-531	24-port Digital T1, PCIe
D300JCTE1120EW	887-533	30-port Digital E1, PCIe
D300JCTE175EW	887-530	30-port Digital E1, PCIe
D30E1P120WCN	881-818	30-port Digital E1, PCI, China
D30E1P75WCN	881-820	30-port Digital E1, PCI, China
D30E1P120WIN	881-850	30-port Digital E1, PCI, India

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