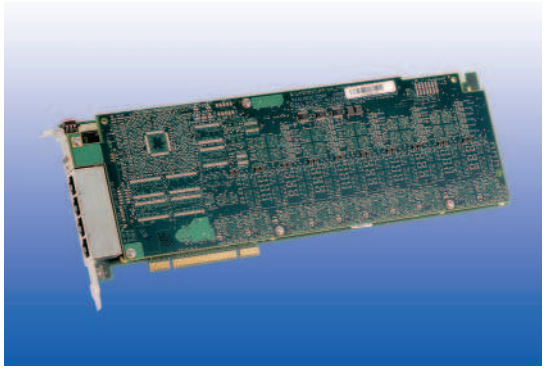
Dialogic® DM3 Media Boards

The Dialogic® DM3 Media Boards are among the industry's most powerful media platforms for developers seeking to rapidly build and globally deploy some of the highest density media server solutions for the enterprise and public networks. They provide a true universal port solution with a robust media feature set, including voice processing, speech recognition, fax, and conferencing capabilities, combined with an extensive suite of network protocols in a single PC slot.



Products Discussed in This Datasheet

- Dialogic® DM/V600BTEP Media Board
- Dialogic® DM/V1200BTEP Media Board
- Dialogic® DM/V600BTEC Media Board
- Dialogic® DM/V1200BTEC Media Board

These combined media boards feature software selectable T1/E1 digital network interfaces; universal media loads offering simultaneous fax, conferencing, and voice; improved media densities; the ability to mix select protocols; and a variety of conferencing media loads. Applications can be ported easily to lower or higher density platforms and new features can be added with only minimum modifications — thus protecting investment in hardware and application code.

Features	Benefits
Provides software selectable trunks to configure the board to be either T1 or E1	Reduces the total cost of ownership by increasing flexibility, reducing inventory, and simplifying the purchasing process and test effort
Features universal media loads for mixed media resources including voice, fax, and conferencing	Combines three boards into one Reduces the development, inventory, and solution costs by eliminating the need for dedicated media boards
Provides the ability to mix select protocols on each span	Maximizes slot efficiency and reduces total cost of ownership in environments where there are multiple protocols (for example, call centers)
Built on the industry-standard telephony bus — ECTF H.100/H.110 CT Bus	Allows applications expand (up to 1200 ports per system) through access to other communications boards, such as IP telephony, ATM, HDSI, and SS7
Supports TrueSpeech voice coder (a default coder with Windows® supported by Windows® Media Player)	Lets developers play Internet content and develop unified messaging systems without creating and supporting custom clients
Ability to select between 16 ms, 32 ms, and 64 ms echo cancellation tail on select media loads	The longer tail lengths are useful for environments and applications when optimum audio quality and clarity is a necessity
Separate models available with Universal PCI or CompactPCI form factor	Universal PCI form factor compatible with 3.3 V and 5.0 V bus signals enables deployment in a wide variety of PCI chassis from popular manufacturers; CompactPCI also available

Technical Specifications

Digital interfaces	Two or four T1/E1
Maximum boards/system	Application, call traffic, and CPU dependent
Control processor	Intel® i960HD
Control processor memory	32 MB
Baseboard global memory	32-bit wide DRAM accessible to all signal processors and control processor
Cache prompts	4 MB to 8 MB
Voice resources	Up to 120, depending on board and selected media load
Fax resources	Up to 60, depending on board and selected media load
Conferencing resources	Up to 180, depending on board and selected media load
Resource bus	CT Bus
Supported operating systems	Windows®; Linux. Details at http://www.dialogic.com/systemreleases
CSP	Yes
Signaling	Digital ISDN PRI CAS; R2MF; CCS; NFAS

Host Interface

Host interface memory	512 KB
Bus mode	Target and DMA master mode operation
Support	3.3 V or 5 V signaling environment (universal connectivity)
Network connectors	Two or four RJ-48C on front bracket

Platforms

Form factor	**PCI:** Universal PCI long card, single-slot width **CompactPCI:** 6U Eurocard form factor, single-slot width
Digital signal processors	**PCI:** Motorola 56321 10 DSPs @ 220 MHz each **CompactPCI:** Motorola 56321 10 to 18 DSPs @ 220 MHz each
DSP memory	512 k word SRAM local to each DSP
Bus compatibility	Rev 2.2 of PCI Bus Specification
Bus mode	Target and DMA master mode operation
Computer telephony bus	**PCI:** ECTF H.100 compliant CT Bus, offering onboard switching access to 4096 bi-directional 64 kb/s DS0 time slots 68-pin ribbon cable connector **CompactPCI:** ECTF H.100 compliant CT Bus, offering onboard switching access to 4096 bi-directional 64 kb/s DS0 time slots
Network connectors	**PCI:** Two or four RJ-48C on front bracket **CompactPCI:** Provided through rear I/O transition modules (not included with board) BNC for 75 Ohm lines RJ-48C for 100 Ohm and 120 Ohm lines

Telephone Interface	**DSX-1 T1**
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

Technical Specifications (cont.)

Telephone Interface	**DSX-1 T1 (cont.)**
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 (PCI) and H.110 (CompactPCI) style connectors
Loopback	Supports switch-selectable local analog loopback and software selectable local digital loopback
Zero code suppression	Bell ZCS (Jam bit 7) GTE ZCS (Jam bit 8) Digital Data Service ZCS No zero code suppression

Telephone Interface	**CEPT E1**
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 (PCI) and H.110 (CompactPCI) style connectors
Loopback	Supports switch-selectable local analog loopback and software selectable local digital loopback

Power Requirements

Configuration	**+5 VDC**	**+12 VDC**	**–12 VDC**	**+3.3 VDC**
PCI				
DM/V600BTEP	4.0 A	N/A	N/A	N/A
DM/V1200BTEP	4.0 A	N/A	N/A	N/A
Compact PCI				
DM/V600BTEC	0.4 A	N/A	N/A	5.2 A
DM/V1200BTEC	0.3 A	N/A	N/A	5.8 A

Cooling Requirements

Operating temperature	+32°F (0°C) to +122°F (+50°C)
Cooling condition for maximum operating temperatures	
	+122°F (+50°C) 2.3 CFM per board
	+104°F (+40°C) 1.5 CFM per board
	+86°F (+30°C) 1.1 CFM per board
Storage temperature	–4°F (–20°C) to +158°F (+70°C)
Humidity	8% to 80% noncondensing

Technical Specifications (cont.)

Approvals and Compliance

Hazardous substances	RoHS Compliance Information at http://www.dialogic.com/rohs
Safety and EMC	
United States	UL 60950 File E96804 FCC Part 15 Class A
Canada	ULc CSA 60950 File E96804 ICES-003 Class A
Europe	EN60950 EN55022 EN55024
International	IEC60950 CISPR 22 CISPR 24
Telecom Approvals	
United States	US:EBZUSA-31207-XD-T
Canada	IC:885A 7969 A
Europe	DoC TBR4
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:** DM/V600BTEP: 105,000 hours DM/V1200BTEP: 98,000 hours **CompactPCI:** DM/V600BTEC: 92,000 hours DM/V1200BTEC: 87,000 hours
Warranty	Warranty information at http://www.dialogic.com/warranties

Audio Signal

Usable receive range	–40 dBm0 to 0 dBm0 nominal, configurable by parameter**
Automatic gain control	Application can enable/disable output level, configurable by parameter**
Silence detection	–40 dBm nominal, software adjustable**
Transmit level (weighted average)	–12.5 dBm 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
64 kb/s	300 Hz to 3400 Hz ±3 dB

Audio Digitizing

8.5 kb/s	TrueSpeech
13 kb/s	GSM (TIPHON, MSGSM)
16 kb/s, 24 kb/s, 32 kb/s, and 40 kb/s	G.726
24 kb/s	OKI ADPCM @ 6 kHz sampling
32 kb/s	OKI ADPCM @ 8 kHz sampling
32 kb/s	IMA ADPCM @ 8 kHz sampling
48 kb/s	G.711 PCM (µ-law for T1and A-law for E-1) @ 6 kHz sampling rate
64 kb/s	G.711 PCM (µ-law for T1and A-law for E-1) @ 8 kHz sampling rate
64 kb/s	Linear 8 kHz 8-bit WAV
128 kb/s	Linear 8 kHz 16-bit WAV
88 kb/s	Linear 11 kHz 8-bit WAV

Technical Specifications (cont.)

Audio Digitizing (cont.)

176 kb/s	Linear 11 kHz 16-bit WAV
A-law/μ-law conversion	Standard (with Dialogic® System Release 6.1 for Linux)
Digitization selection	Selectable by application on function call-by-call basis
Playback speed control	Pitch controlled Available on the following 8 kHz coders: OKI ADPCM, G.711 PCM, Linear Adjustment range: ±50% Adjustable through application or programmable DTMF control

DTMF Tone Detection

DTMF digits	0 to 9, *, #, A, B, C, D per Telcordia LSSGR Sec. 6
Dynamic range	(T1) –36 dBm to +3 dBm per tone, configurable by parameter** (E1) –39 dBm to 0 dBm per tone, configurable by parameter**
Minimum tone duration	32 ms, can be increased with software configuration
Interdigit timing	Detects like digits with a >45 ms interdigit delay Detects different digits with a 0 ms interdigit delay
Acceptable twist and frequency variation	(T1) Meets Telcordia LSSGR Sec 6 and EIA 464 requirements (E1) Meets ITU-T Q.23 recommendations**
Noise tolerance	Meets Telcordia LSSGR Sec 6 and EIA 464 requirements for Gaussian, impulse, and power line noise tolerance
Cut-through	(T1) Local echo cancellation permits 100% detection with a >4.5 dB return loss line (E1) 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 10 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	(T1) Default set at –36 dBm to +3 dBm per tone, programmable (E1) Default set at –39 dBm to +0 dBm per tone, programmable

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 (T1)	**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 dBm to +3 dBm per tone
Acceptable twist	6 dB
Acceptable frequency variation	Less than ±1 Hz

Technical Specifications (cont.)

MF Signaling (E1)	**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 dBm to –5 dBm per tone
Acceptable twist	7 dB
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	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 drop out debouncing (when not part of regulatory approval)
Tone Dialing	
DTMF digits	0 to 9, *, #, A, B, C, D per Telcordia LSSGR Sec 6, TR-NWT-000506, ITU-T Q.23
Frequency variation	Less than ±1 Hz
Rate	10 digits/s, configurable by parameter**
Level	(T1) –4.0 dBm per tone, nominal, configurable by parameter** (E1) –7.0 dBm per tone, nominal, country-specific**
Conferencing	
Max. parties per conference	Up to 90 (without bridging) on select media loads
Bridging/cascade conferencing	Lets you bridge together conferences from different DSPs and boards, consuming just two conferencing resources per bridge
Echo cancellation	16 ms
Tone clamping	Enable/disable at board level
Summing modes	Automatically configures to active talker or pure summation based on number of parties in a conference Application can specify minimum number of parties before active talker mode is used
Automatic gain control	Normalizes the parties' power levels to a unified target Key features include speech/noise discrimination, tolerance to impulsive noise, faster convergence, and increased steady-state stability
Tone detection/generation	Generates tariff tones and warning tones Detects DTMF from each party and can clamp those tones so that other members of the conference do not hear them
Active talker notification	Can notify the application of which party is talking so the application can process that information and act accordingly
Number of active talkers	Dynamically selectable
Modes	Duplex Monitor Coach Pupil

Technical Specifications (cont.)

Facsimile

Fax compatibility	T.30, T.4, T.6, V.17, V29, V27ter, V.21
Speed	14.4 kb/s with automatic fallback send and receive concurrently on all channels
TIFF	Single page Multipage
Compression	MH (ITU T.4, 1D) MR (ITU T.4 2D) MMR (ITU T.6) Onboard, on-the-fly
ECM	Supported
ASCII to TIFF	Onboard, on-the-fly
Page headers	Generated on board, on-the-fly
Width	A4
Polling	Normal and turnaround
Resolution	Standard (100 dpi x 200 dpi) Fine (200 dpi x 200 dpi) Superfine (200 dpi x 400 dpi)
JPEG/JBIG	Color fax and gray scale fax pass-through feature

Protocols

T1CAS	E&M (wink start, immediate start), loop start, ground start; feature group A, B, and D
T1 ISDN	NI-2, 4ESS, 5ESS, DMS100, DMS250, INS1500, Q.Sig
E1 CAS	Many country-specific MFC-R2 variants For more details, refer to the latest Dialogic® Global Call Protocols Package release notes
E1 ISDN	NET5, DPNSS, DASS2, Q.Sig

Additional Components

- Multidrop CT Bus cables (CBLCTB3DROPQ, CBLCTB4DROPQ, CBLCTB8DROPQ, CBLCTB12DROPQ, CBLCTB16DROPQ)
- Rear I/O module for CompactPCI boards
  — Unkeyed (works in keyed and unkeyed chassis): RIODMVB4TECW, RIODMVB4TEC75W
  — Keyed (works only in keyed/guided chassis): RIODMVB4TECKW, RIODMVB4TEC75KW
- 120 Ohm to 75 Ohm converter for PCI boards (supplied by a third party)

Ordering Information

Product Code	Order Code	Description
DMV1200BTEPW	881-806	120 port Digital T1/E1, PCI
DMV1200BTEPWCN	881-936	120 port Digital T1/E1, PCI, China
DMV1200BTEPWIN	881-829	120 port Digital T1/E1, PCI, India
DMV1200BTEPWJP	881-711	120 port Digital T1/E1, PCI, Japan
DMV1200BTEPWNLK	881-781	120 port Digital T1/E1, PCI, non-loopback mode
DMV600BTEPW	881-810	60 port Digital T1/E1, PCI
DMV600BTEPWCN	881-774	60 port Digital T1/E1, PCI, China
DMV600BTEPWIN	881-872	60 port Digital T1/E1, PCI, India
DMV600BTEPWJP	881-721	60 port Digital T1/E1, PCI, Japan
DMV600BTEPWNLK	881-789	60 port Digital T1/E1, PCI, non-loopback mode
DMV1200BTECW	881-804	120 port Digital T1/E1, cPCI
DMV1200BTECWCN	881-916	120 port Digital T1/E1, cPCI, China
DMV1200BTECWJP	881-709	120 port Digital T1/E1, cPCI, Japan
DMV600BTECW	881-809	60 port Digital T1/E1, cPCI
DMV600BTECWCN	881-763	60 port Digital T1/E1, cPCI, China
DMV600BTECWIN	881-871	60 port Digital T1/E1, cPCI, India
DMV600BTECWJP	881-720	60 port Digital T1/E1, cPCI, Japan
CBLCTB12DROPQ	883-019	12 drop CT Bus cable
CBLCTB16DROPQ	883-020	16 drop CT Bus cable
CBLCTB3DROPQ	883-027	3 drop CT Bus cable
CBLCTB4DROPQ	883-021	4 drop CT Bus cable
CBLCTB8DROPQ	883-022	8 drop CT Bus cable
RIODMVB4TECW	882-710	Rear I/O DMVB T1/E1-120
RIODMVB4TEC75W	882-715	Rear I/O DMVB T1/E1-75
RIODMVB4TECKW	882-716	Rear I/O DMVB T1/E1-120 keyed
RIODMVB4TEC75KW	882-717	Rear I/O DMVB T1/E1-75 keyed

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

Dialogic Corporation
9800 Cavendish Blvd., 5th floor
Montreal, Quebec
CANADA H4M 2V9

12/07 8848-04