Dialogic® Diva® BRI Media Boards

The Dialogic® Diva® BRI (ISDN Basic Rate Interface) Media Boards provide one and four ISDN BRI ports and can serve as an excellent communication platform, which scales from 2 to 64 channels (phone lines) per single server.

This datasheet discusses the following products:

- Dialogic® Diva® UM-BRI-2 Media Board (PCI and PCIe version)
- Dialogic® Diva® UM-4BRI-8 Media Board (PCI and PCIe version)
- Dialogic® Diva® BRI-2 Media Board (PCI and PCIe version)
- Dialogic® Diva® 4BRI-8 Media Board (PCI and PCIe version)

The Diva BRI offer voice, speech, conferencing, VoIP, modem and fax features, and can serve as a base for many communication applications. The boards support most standard applications, and are also suitable for new application development. The Diva BRI are available in Low Profile or Half Size form factors. The Diva BRI can be seamlessly combined with other Dialogic® Diva® Media Boards, such as analog, E1/T1, ISDN PRI, and VoIP.

The Diva BRI PCI boards share the same features with their PCI Express (PCIe) versions, so that the migration from PCI Server hardware to PCI Express hardware is easy. Sometimes it will be beneficial to be able to use PCI and PCIe versions in the same server.

The Diva BRI support the same set of programming interfaces as other Diva Media Boards: the three Dialogic® Diva® APIs, CAPI, TAPI, COM port, WAN Miniport, TTY, Asterisk, and SIP/RTP. Because of this consistent interface support, applications written for another Diva Media Board will normally work without modification with Diva BRI.

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Making Innovation Thrive™

Features	Benefits
Onboard CPU with large RAM and powerful FPGA chip for fast data streaming between the host CPU, the DSPs, the phone line, and the other active components onboard	Can remove performance bottlenecks by offloading key real-time tasks that would ordinarily place an excessive burden on the host server, allowing Quality of Service (for example, voice quality and connection speed) to be more consistent
One powerful DSP dedicated to each communications channel	Provides real-time processing of complex operations (such as V.90 data modem, V.34 fax receiver and transmitter, voice compression, or echo cancellation) without reducing overall system performance, which lowers implementation costs
Sophisticated hardware design	Operates with low power consumption
Conforms to plug-and-play standards	Permits easy installation and operation
Implements most supplementary services, many signaling protocols, as well as all multinational ISDN protocols	Allows applications compatibility with major PBXs and can make a system based on Dialogic® Diva® technology ready for worldwide use
Voice packetization into Real-time Transport Protocol (RTP), adaptive jitter buffer, voice compression (G.726, GSM), and Comfort Noise Generation (CNG) available	Permits legacy voice, speech, and conferencing applications to be used with VoIP clients and IP phones
Supports the same programming interfaces as other Dialogic® Diva® Media Boards, including CAPI, TAPI, Dialogic® Diva® APIs and others	Reduces porting efforts and time to market by making Diva Media Boards compatible with most standard telephony and communications applications
Up to eight Diva Media Boards of the same or different types can operate concurrently in a single server	Easy scalability and flexibility to address an organization's communications needs in changing environments, such as VoIP

The Diva UM-BRI-2 and UM-4BRI-8 support fax transmissions on half (50%) of their available channels. The feature-set of the Diva UM series has been designed to meet the needs of typical Unified Messaging applications.

The Diva BRI-2 and 4BRI-8 boards support V.34 fax transmissions on all (100%) available channels. The Diva BRI-2 and 4BRI-8 boards are usually referred to as part of the Universal series.

Dialogic® Diva® BRI Media Boards

Technical Specifications

Quick Reference

Voice resources	2 or 8
Fax resources	2 or 8 (Universal-Series) and 1 or 4 (UM-Series)
Conferencing resources	2 or 8
Maximum boards/system	8 (tested by Dialogic); more than 8 are possible — depends on the application
CSP	Yes
Form factor	Low Profile: 1-port PCI/PCIe; Half Size: 4-port PCI/PCIe
Resource bus	PCI rev 2.2 33 MHz or PCI Express 1.0a x1 lane (3.3/12 V)
Connection	1 or 4 RJ-45 connectors
Network interface	ISDN BRI (Basic Rate Interface) in TE and NT Mode
Signaling	ETSI, NI-1, 4ESS, 5ESS, and all major ISDN protocols; QSIG; and many more
Operating system	Windows® and Linux. Details at http://www.dialogic.com/systemreleases
Volts	PCI: 5; PCI Express: 3.3 and 12
Required accessories	None

Hardware

- 32-bit RISC CPU, 100 MHz, 131 MIPS
- 2 or 8 DSPs (32.76 MHz and 65 MIPS)
- Onboard SDRAM Memory: 8MB (1-port, PCI), 16MB (4-port, PCI), 64MB (1-/4-port PCIe)
- Telephony interface:
  — 1 x RJ-45 (1-port), RJ-45/RJ-45 cable supplied
  — 4 x RJ-45 (4-port), RJ-45/RJ-45 cables supplied
- Physical dimensions:
  — 1-port PCI/PCIe: 167.65 mm x 64.41 mm (PCB)
  — 1-port PCI/PCIe: 181.36 mm x 80.06 mm (with Low Profile bracket)
  — 1-port PCI/PCIe: 180.96 mm x 120.88 mm (with standard bracket)
  — 4-port PCI/PCIe: 174.63 mm x 106.86 mm (PCB)
  — 4-port PCI/PCIe: 187.84 mm x 126.37 mm (with bracket)
- High-impedance mode for passive monitoring
- I/O addresses, memory and interrupt allocated automatically
- Plug-and-play interface
- PCI: PCI 2.2, 33 MHz, 32 bit (also supports 64 bit dual address cycle DMA), 5 V supply required, 3.3 V, or 5 V universal signaling, supported in backwards compatible PCI-X slots
- Production quality: ISO 9002

Power Consumption and Environmental

- Power consumption:
  — 1-port PCI: 0.33A @ +5 V (typical)
  — 1-port PCIe: 0.27A @ +3.3 V and 0.17A @ 12 V (typical)
  — 4-port PCI: 0.58A @ +5 V (typical)
  — 4-port PCIe: 0.42A @ +3.3 V and 0.19A @ 12 V (typical)
- Operating temperature: 10°C to 50°C
- Storage temperature: 0°C to 70°C
- Maximum tolerance in voltage fluctuation: According to the respective PCI or PCI Express specification

Technical Specifications *(continued)*

Dialogic® Diva® System Release Software, Dialogic® Diva® SDK Software and Dialogic® Diva® SIPcontrol™ Software
- Supported operating systems: Windows® and Linux. Details at http://www.dialogic.com/systemreleases
- M-adapter feature (patent pending): Combined Virtual Adapter, Internal Call Transfer, Explicit Call Transfer Emulation
- SNMP support:
  — Windows®: v2c
  — Linux: Net-SNMP v1, v2c and v3
- Application interfaces (provided by Dialogic Diva System Release Software and Dialogic Diva SDK):
  — Microsoft®: Diva API, Diva API for .NET, Diva Component API (VB.NET), COM Port, WAN Miniport, TAPI, CAPI 2.0, extended CAPI, VoIP (SIP/RTP)
  —Linux: Diva API, TTY, CAPI 2.0, extended CAPI, VoIP (SIP/RTP)
- Dialogic Diva SIPcontrol Software: VoIP and FoIP (T.38) Gateway Software. For up to 2 channels per system, the licenses are free of charge. If more than 2 channels are required, licenses can be ordered from Dialogic. Diva SIPcontrol Software can be downloaded from http://www.dialogic.com.

Features - Signaling
- DSS1 (Euro-ISDN), NI-1 (North America National ISDN 1), 5ESS (North America), 1TR6 (Germany), INS Net 64 (Japan), VN3 (France), CT1 (Belgium), QSIG
- Call progress analysis:
  — Busy tone detection
  — Ring back tone detection
  — Special Information Tone (SIT) detection
  — Fax/modem detection
  — Dial tone detection
- ISDN supplementary services:
  — Number identification services (CLIP, CLIR, COLP, COLR, KEY, MSN, DDI, SUB)
  — Call offering services (TP, CFU, CFB, CFNR)
  — Call completion services (CW, HOLD, ECT)
  — Charging services (AoC)
  — Three-party conference
  — Large conference

Features – Media Processing
- Voice and speech:
  — G.711 coding (A-law, μ-law selectable)
  — DTMF detection, generation, clamping and filtering
  — Generic tone detection and generation
  — Pulse tone detection
  — Full-duplex voice, barge-in
  — Voice Activity Detection (VAD)
  — Silence detection
  — Human talker detection
  — Recording Automatic Gain Control (AGC)
  — Pitch control
  — Audio tap
  — G.168 echo cancellation, up to 128 ms tail length

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Technical Specifications *(continued)*

- Voice over IP (VoIP):
    - — G.711 voice coder (64 kbps, μ-law, A-law)
    - — G.726 voice coder (32 kbps)
    - — G.729 voice coder (VoIP licenses required)
    - — GSM voice coder (13 kbps)
    - — Adaptive jitter buffer
    - — Voice Activity Detection (VAD)
    - — Comfort Noise Generation (CNG)
    - — Real-time Transport Protocol (RTP) framing
    - — G.168 echo cancellation, up to 128 ms tail length
- Switching and conferencing:
    - — Onboard and cross-board switching and (large) conferencing via line interconnect (call tromboning)
    - — Automatic Gain Control (AGC)
- Support for Fax Class 1 and 2
- Support for Fax Group 3, T.30:
    - — V.17, V.29, V.27ter, V.21, V.34 modulation
    - — Fax polling/ fax on demand
    - — Up to 33.6 kbps with each channel (send and receive)
    - — Page formats: ISO A4, B4, A3
    - — Fax compression MH, MR, MMR
    - — Error Correction Mode (ECM)
    - — Standard, fine, super-fine and ultra-fine resolution
    - — Color fax (JPEG-format)
- Support for FoIP, T.38 (when using Diva SIPcontrol Software):
    - — Up to 33.6 kbps with each channel (send and receive)
- Data modem (Remote Access, POS and other Low Bit Rate (LBR) applications):
    - — V.21, V.22, V.22bis, Bell 103, Bell 212A, V.32, V.32bis, V.34, V.42, V.42bis, V.90, MNP4, MNP5, V.110, V.120
    - — Modem with extension: V.18, V.21, Bell 103, V.23, EDT, Baudot45/47/50 incl. DTMF, V.42, V.42bis
    - — B-channel protocols: Transparent HDLC, Transparent Voice, Synchronous PPP and MLPPP, X.75 (LAPB), X.75/V.42bis, LAPD, T.90NL, T.70NL, X.25, X.31, Rate adaption (56 kbps), PIAFS 1.0 / 2.0, SDLC

Safety and EMC
Canada: ICES-003 Class B, CSA 60950-1
Europe: EN60950-1, EN55022, EN55024
United States: FCC Part 15 Class B, UL60950-1

Telecommunications
United States: TIA-968
Canada: CS03

Approvals, Compliance, and Warranty
Hazardous substances: RoHS compliance information at http://www.dialogic.com/rohs
Country-specific approvals: Global product approvals at http://www.dialogic.com/declarations
Warranty: Warranty information at http://www.dialogic.com/warranties

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Ordering Information

Dialogic® Diva® Product	Order Code
BRI-2 PCI (with additional LP bracket)	306-162 (formerly 306-216)
BRI-2 PCIe (with additional LP bracket)	306-342
BRI-2 Australia PCI (with additional LP bracket)	306-192
UM-BRI-2 PCI (with additional LP bracket)	306-381
UM-BRI-2 PCIe (with additional LP bracket)	306-382
BRI-2MRV30QD** PCI	306-323
4BRI-8 PCI	305-486
4BRI-8 Australia PCI	306-193
4BRI-8 Japan PCI	306-141
4BRI-8 PCIe	306-341
UM-4BRI-8 PCI	306-379
UM-4BRI-8 PCIe	306-380
4BRI-8MRV30Q** PCI	306-322
Diva G.729 2 CH SW License*	G01-029
Diva G.729 8 CH SW License*	G03-029

* To be used when VoIP applications like Diva SIPcontrol Software need to support the G.729 coder.

** This product is a bundle of a Diva Media Board with Dialogic® HMP Software. More information on Dialogic HMP Software can be found at: http://www.dialogic.com/products/ip_enabled/docs/10424-01_SIPHMPDivaBrd_tb.pdf

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