Dialogic® Diva® PRI Media Boards

The Dialogic® Diva® PRI Media Boards provide a single E1, T1, or ISDN PRI port and can serve as an excellent communication platform, which scales from 24 to 240 channels (phone lines) per server.

This datasheet discusses the following products:
- Dialogic® Diva® PRI/E1/T1-CTI Media Board (PCI and PCIe versions)
- Dialogic® Diva® PRI/E1/T1-8 Media Board (PCI only)
- Dialogic® Diva® V-PRI/T1-24 Media Board (PCI and PCIe versions)
- Dialogic® Diva® V-PR/E1-30 Media Board (PCI and PCIe versions)
- Dialogic® Diva® UM-PRI/T1-24 Media Board (PCI and PCIe versions)
- Dialogic® Diva® UM-PRI/E1-30 Media Board (PCI and PCIe versions)
- Dialogic® Diva® PRI/E1-30 Media Board (PCI and PCIe versions)

Diva PRI Media Boards offer voice, speech, conferencing, VoIP, modem, and fax features, and can serve as a base for many communication applications. The boards support most conventional applications, and are also suitable for new application development. Diva PRI Boards are available in Low Profile, Half Size, or Full Size form factors and most models are available in both PCI and PCI Express (PCIe) versions. The Diva PRI Boards can be seamlessly combined with other Dialogic® Diva® Media Boards, such as those supporting analog, ISDN BRI, and VoIP.

Because both PCI and PCIe versions of the Diva PRI Boards share the same feature sets, migration from a PCI server to a PCIe server is easy. PCI and PCIe versions can also be used in the same server.

The Diva PRI 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. Although Diva Media Boards share the same interfaces, there are four different types/series of the boards that are available (listed from lowest to highest functionality): CTI series, V-series, UM series, and Universal series.

Because of consistent interface support, applications written for one Diva Media Board with comparable functionality will normally work without modification with Diva PRI Boards.
### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
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</thead>
<tbody>
<tr>
<td>Onboard CPU with large RAM and powerful FPGA chip for fast data</td>
<td>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</td>
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<td>streaming between the host CPU, the DSPs, the phone line, and the</td>
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<td>other active components onboard</td>
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<td>One powerful DSP dedicated to each communications channel on the V-series,</td>
<td>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</td>
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<td>UM series, and PRI/E1-30 (applies to 8 channels on PRI/E1/T1-8)</td>
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<td>Sophisticated hardware design</td>
<td>Operates with low power consumption</td>
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<td>Conforms to plug-and-play protocol</td>
<td>Permits easy installation and operation</td>
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<td>Implements most supplementary services, many signaling protocols, as well</td>
<td>Allows application compatibility with major PBXs and can make a system based on Dialogic® Diva® technology ready for worldwide use</td>
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<td>as all multinational ISDN protocols</td>
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<tr>
<td>Voice packetization into Real-time Transport Protocol (RTP),</td>
<td>Permits legacy voice, speech, and conferencing applications to be used with VoIP clients and IP phones</td>
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<td>adaptive jitter buffer, voice compression (G.726, GSM), and Comfort</td>
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<tr>
<td>Noise Generation (CNG) on the V-series, UM series, and PRI/E1-30 (applies</td>
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<td>to 8 channels on PRI/E1/T1-8)</td>
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<tr>
<td>Supports the same programming interfaces as other Dialogic® Diva® Media</td>
<td>Reduces porting efforts and time to market by making Diva Media Boards compatible with most conventional telephony and communications applications</td>
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<td>Boards, including CAPI, TAPI, Dialogic® Diva® APIs, and others</td>
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<tr>
<td>Up to eight Diva Media Boards of the same or different types can</td>
<td>Easy scalability and flexibility to address an organization’s communications needs in changing environments, such as VoIP</td>
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<tr>
<td>operate concurrently in a single server</td>
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Because the Diva PRI-CTI Boards do not have DSPs, they are unable to analyze or modify media such as voice. They have feature sets to address the needs of basic voice applications (entry level IVR, call counting, call recording, telephone-voting, small conferencing, etc.).

The Diva V-PRI/E1-30 and Diva V-PRI/T1-24 do not support fax transmission, but offer voice features. They have a common feature set to address the needs of high-end voice applications (IVR, contact center, large high-quality conferencing, predictive dialing, etc).

The Diva UM-PRI/E1-30 and Diva UM-PRI/T1-24 support fax transmissions on half (50%) of their available channels, offer voice features, and modem connections up to V.90 speeds. They have a common feature set to address the needs of high-end Unified Messaging applications and, in turn, the communication needs of an enterprise.

The Diva PRI/E1-30 supports V.34 fax transmission on all available channels and offers voice features and modem connections up to V.90 speeds. The Diva PRI/E1-30 provides the most sophisticated communications platform of all the Diva PRI Boards.

The Diva PRI/E1/T1-8 (PCI only) combines the functionality of Diva PRI/E1/T1-CTI and Diva PRI/E1-30. On eight channels it offers the feature set of a Diva PRI/E1-30, and on its remaining channels offers the feature set of a PRI/E1/T1-CTI. The Diva PRI/E1/T1-8 has features that address the needs of applications which require high performance on eight channels.
Technical Specifications

Quick Reference

Voice resources
0 (-CTI), 8 (-8), 24 (V-, UM-PRU/T1-24), 30 (V-, UM-, PRI/E1-30)

Fax resources
0 (-CTI), 8 (-8), 12/15 (UM-PRU/T1-24 / E1-30), 30 (PRI/E1-30)

Conferencing resources
0 (-CTI), 8 (-8), 24 (V-, UM-PRU/T1-24), 30 (V-, UM-, PRI/E1-30)

Maximum boards/system
8 (tested by Dialogic); more than 8 are possible — depends on the application

CSP
Yes

Form factor
Low Profile: -CTI PCIe; Half Size: -CTI, -8 PCI; Full Size: V-, UM-PRU/T1-24 / V-, UM-, PRI/E1-30 PCI/PCIe

Resource bus
PCI rev 2.2 up to 66 MHz or PCI Express 1.0a x1 lane (3.3/12 V)

Connection
1 RJ-45 connector

Network interface
E1/T1 and ISDN PRI (Primary Rate Interface) in TE and NT Mode

Signaling
ETSI, NI-1, 4ESS, 5ESS, and all major ISDN protocols; QSI; and more

Operating system
Windows and Linux. Details at http://www.dialogic.com/systemreleases

Volts
PCI: 5; PCI Express: 3.3 and 12

Required accessories
1 shielded RJ-45/RJ-45 cable

Hardware

• 32-bit RISC CPU, 300 MHz
• 2 (0)*, 10 (8)*, 24 (23/24)* or 31 (30/31)* DSPs (32.76 MHz and 65 MIPS)
  (* The number in brackets indicates the number of available channels with DSP processing per board
• Onboard SDRAM Memory: 64 MB
• Telephony interface:
  — 1 x RJ-45, no RJ-45/RJ-45 cable supplied
• Physical dimensions:
  — PRI/E1/T1-CTI PCIe: 167.65 mm x 68.90 mm (PCB)
  — PRI/E1/T1-CTI PCIe: 181.38 mm x 80.06 mm (with low profile bracket)
  — PRI/E1/T1-CTI PCIe: 180.96 mm x 120.88 mm (with standard bracket)
  — PRI/E1/T1-CTI PCIe, PRI/E1/T1-8 PCIe: 174.63 mm x 106.68 mm (PCB)
  — PRI/E1/T1-CTI PCIe, PRI/E1/T1-8: 187.84 mm x 126.37 mm (with bracket)
  — V-, UM-, PRI/E1-30 / T1-24 PCIe: 312.00 mm x 106.68 mm (PCB)
  — V-, UM-, PRI/E1-30 / T1-24 PCIe: 312.00 mm x 111.15 mm (PCB)
  — V-, UM-, PRI/E1-30 / T1-24 PCIe/PCIe: 325.31 mm x 126.31 mm (with bracket)
  — V-, UM-, PRI/E1-30 / T1-24 PCIe/PCIe: 352.17 mm x 126.31 mm (with bracket and retainer)
• High-impedance mode for passive monitoring
• I/O addresses, memory, and interrupt allocated automatically
• Plug-and-play interface
• PCI: PCI 2.2, up to 66 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:**
  - PRI/E1/T1-CTI PCI: 0.58A @ 5 V (typical)
  - PRI/E1/T1-CTI PCIe: 0.96A @ 3.3 V and 0.04A @ 12 V (typical)
  - PRI/E1/T1-8 PCI: 0.65A @ 5 V (typical)
  - V-, UM-, PRI/E1-30 / T1-24 PCI: 0.97A @ 5 V (typical)
  - V-, UM-, PRI/E1-30 / T1-24 PCIe: 2.3A @ 3.3 V and 0.03A @ 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 applicable PCI or PCI Express specification

**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](http://www.dialogic.com/systemreleases)
- **M-adapter feature (Dialogic patented technology):** 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 Diva System Release Software and 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)
- **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](http://www.dialogic.com).

**Features – Signaling**

- **DSS1 (Euro-ISDN), NI-1 (North America National ISDN 1), 5ESS (North America), ITR6 (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 (AoS)
  - Three-party conference
  - Large conference
Features – Media Processing

**NOTE:** Not for Dialogic® Diva® PRI/E1/T1-CTI Media Board, only on 8 channels for the Dialogic® Diva® PRI/E1/T1-8 Media Board

- **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

- **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 (UM- and Universal-Series only):**
- **Support for Fax Group 3, T.30 (UM- and Universal-Series only):**
  - 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 (UM- and Universal-Series only):
  — Up to 33.6 kbps with each channel (send and receive)

• Data modem (Remote Access, POS and other Low Bit Rate (LBR) applications) (UM- and Universal-Series only):
  — V.21, V.22, V.22bis, Bell 103, Bell 212A, V.32, V.32bis, V.34, V.42, V.42bis, V.90, MNP4, MNP5
  — 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
Warranty: Warranty information at http://www.dialogic.com/warranties
## Ordering Information

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<th>Dialogic® Diva® PRI Media Boards and Related Products/Items</th>
<th>Order Code</th>
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<tr>
<td>PRI/E1/T1-CTI PCI</td>
<td>306-211</td>
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<tr>
<td>PRI/E1/T1-CTI PCI North America</td>
<td>306-212</td>
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<tr>
<td>PRI/E1/T1-CTI PCI China</td>
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<td>PRI/E1/T1-CTI PCI Australia</td>
<td>306-228</td>
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<tr>
<td>PRI/E1/T1-CTI PCI Japan</td>
<td>306-278</td>
</tr>
<tr>
<td>PRI/E1/T1-CTI PCIe (with additional LP bracket)</td>
<td>306-320</td>
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<tr>
<td>PRI/E1/T1-8 PCI</td>
<td>306-206</td>
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<td>PRI/E1/T1-8 PCI Australia</td>
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<td>V-PRI/T1-24 PCI North America</td>
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<td>V-PRI/T1-24 PCIe North America</td>
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<tr>
<td>Diva G.729 30 CH SW license*</td>
<td>G05-029</td>
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* To be used when VoIP applications like Diva SIPcontrol Software need to support the G.729 coder.