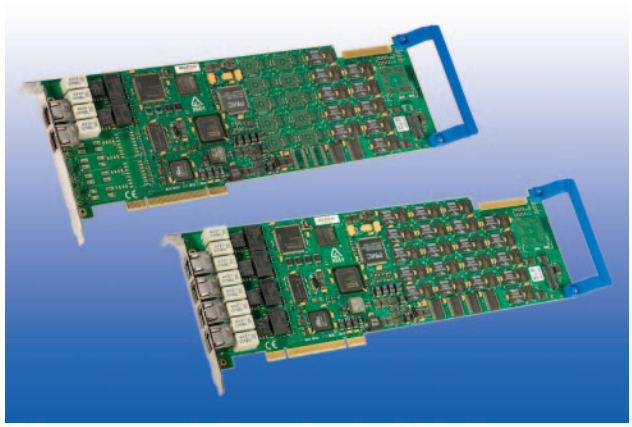
Dialogic® Diva® V-xPRI Media Boards

Datasheet
Diva Media Boards

The Dialogic® Diva® V-xPRI Media Boards provide one/two/four/eight E1, T1, J1 or ISDN PRI ports (trunks) and can serve as an excellent communication platform, which scales from 24 to 960 channels (phone lines) per single server.

This datasheet discusses the following products:

- Dialogic® Diva® V-1PRI/E1/T1-30 HS PCIe Media Board
- Dialogic® Diva® V-2PRI/T1-48 PCI Media Board
- Dialogic® Diva® V-2PRI/E1-60 PCI Media Board
- Dialogic® Diva® V-2PRI/E1/T1-60 HS PCIe Media Board
- Dialogic® Diva® V-4PRI/T1-96 PCI Media Board
- Dialogic® Diva® V-4PRI/E1-120 PCI Media Board
- Dialogic® Diva® V-4PRI/E1/T1-120 HS PCIe Media Board
- Dialogic® Diva® V-4PRI/E1/T1-120 FS PCIe Media Board
- Dialogic® Diva® V-8PRI/E1/T1-240 FS PCIe Media Board



The Diva V-xPRI 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 PCI versions of the Diva V-xPRI are available in Full Size form factor. The PCIe versions of the Diva V-xPRI are available in Half Size and Full Size form factor. The Half Size version has 12 DSPs and comes in versions for 1, 2, and 4 trunks. The Full Size version has 24 DSPs and comes in versions for 4 and 8 trunks. The Diva V-xPRI can be seamlessly combined with other Dialogic® Diva® Media Boards, such as those supporting Analog, ISDN BRI, and VoIP.

PCI and PCIe versions can be used in the same server.

The Diva V-xPRI support the same set of programming interfaces as other Diva Media Boards: the three Dialogic® Diva® APIs, CAPI, COM port, WAN Miniport, TTY, Asterisk, and SIP/RTP. Although Diva Media Boards share the same interfaces, the Diva V-xPRI are the only ones that have the flexibility to allow a customer to upgrade the initial "V-series" voice feature set with four additional software licenses at any time:

- Modem — Offering modem connections up to V.90 speeds
- VoIP — Offering VoIP CODECs (AMR-NB, G.729, RTaudio)
- G.723 — Offering the G.723 CODEC
- Fax — Offering V.34 fax up to 33.6 kbps speeds

Because of consistent interface support, applications written for another Diva Media Board with comparable functionality will normally work without modification with the Diva V-xPRI Media Boards.

The Diva V-xPRI PCI Media Boards are available in 2 and 4 port versions. The Diva V-xPRI PCIe are available in 1, 2, 4, and 8 port versions.

Dialogic® Diva® V-xPRI Media Boards

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
Depending on the version of the Diva V-xPRI Media Board, 3, 5, 6 or 12 powerful DSPs are available per trunk (E1/T1/J1/ ISDN PRI)	Provides real-time processing of complex operations (such as V.90 data modem, V.34 fax receiver and transmitter, voice compression, or 256 ms 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 application 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 (AMR-NB, G.726, RTaudio, 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 Dialogic® Diva® APIs, CAPI, TTY, COM port, 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 or more Diva Media Boards of the same or different types can operate concurrently in a single server, depending on the application and performance of the server hardware	Easy scalability and flexibility to address an organization's communications needs in changing environments, such as VoIP
Upgrades available via additional licenses	Can be upgraded to support modem, fax, and VoIP coders

Technical Specifications

Quick Reference

Voice resources	All channels
Fax resources (Fax)	All channels via Fax licenses (V.34 speeds are only possible on part of the channels when using the Diva V-4PRI/E1/T1-120 HS or the Diva V-8PRI/E1/T1-240 FS, because these boards have only 3 DSPs per trunk.)
Conferencing resources	All channels
Max. boards/system	4 (QA tested by Dialogic); more than 4 are possible — depends on the application and the performance of the server hardware
CSP	Yes
Form factor	PCI: Full Size; PCIe: Half Size (1, 2, 4 trunks)/Full Size (4, 8 trunks)
Resource bus	PCI: Rev 2.2 up to 66 MHz; PCIe Half Size 1.0a x1 lane (3.3/12 V); PCIe Full Size 1.0a x4 lane (3.3/12 V)
Connection	PCI: 2 or 4 RJ-45 connectors; PCIe: 4 RJ-45 connectors
Network interface	E1/T1/J1 and ISDN PRI (Primary 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 www.dialogic.com/systemreleases
Volts	3.3 and 5
Required accessories	1, 2, 4, or 8 shielded RJ-45/RJ-45 cables; V-8PRI requires 4 RJ45 Y-Cables

Hardware

- 64-bit RISC CPU, 466 MHz, 1070 MIPS with 64 MB SDRAM
- 16/32-bit DSPs, 600 MHz, 1200 MIPS with 32 MB SDRAM per installed DSP
- PCI: 10 DSPs (Diva V-2PRI) or 20 DSPs (Diva V-4PRI)
- PCIe (Half Size): 12 DSPs (Diva V-1PRI, Diva V-2PRI, Diva V-4PRI)
- PCIe (Full Size): 24 DSPs (Diva V-4PRI, Diva V-8PRI)
- 384, 448, 704, or 896 MB onboard SDRAM
- Physical dimensions:
  - PCI: 312.00 mm x 106.68 mm (PCB)
  - PCI: 352.17 mm x 126.37 mm (including bracket and retainer)
  - PCIe: 167.65 mm x 111.15 mm (PCB)
  - PCIe: 180.96 mm x 126.31 mm (including bracket and retainer)
  - PCIe: 352.17 mm x 126.31 mm (including bracket and retainer)
- High-impedance mode for passive monitoring ("line tapping via HiZ mode")
- I/O addresses, memory, and interrupt allocated automatically
- Plug-and-play interface
- PCI 2.2, up to 66 MHz, 32 bit (also supports 64 bit dual address cycle DMA), 3.3 V and 5 V supply required, 3.3 V, or 5 V universal signaling, supported in backwards compatible PCI-X slots
- Production quality: ISO 9002

Technical Specifications *(continued)*

Power Consumption and Environmental

- Power consumption:
  - PCI: V-2PRI/T1-48, E1-60: 3.0 A @ 3.3 V (typical), 4.9 A @ 3.3 V (maximum), 0.08 A @ 5 V
  - PCI: V-4PRI/T1-96, E1-120: 5.5 A @ 3.3 V (typical), 6.5 A @ 3.3 V (maximum), 0.16 A @ 5 V
  - PCIe Half Size: V-1PRI, V-2PRI, V-4PRI: 0.91 A @ 3.3 V (maximum), 1.00 A @ 12 V (maximum)
  - PCIe Full Size: V-4PRI, V-8PRI: 1.38 A @ 3.3 V (maximum), 1.57 A @ 12 V (maximum)
- 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

Dialogic® Diva® System Release Software, Dialogic® Diva® SDK Software, and Dialogic® Diva® SIPcontrol™ Software

- Supported operating systems: Windows® and Linux. Details at 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 Diva System Release Software and Diva SDK Software):
  - Microsoft®: Diva API, Diva API for .NET, Diva Component API (VB.NET), COM Port, WAN Miniport, CAPI 2.0, extended CAPI, VoIP (SIP/RTP)
  - Linux: Diva API, TTY, CAPI 2.0, extended CAPI, VoIP (SIP/RTP)
- Diva SIPcontrol: 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. The Diva SIPcontrol software can be downloaded for free from 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

Technical Specifications *(continued)*

Features – Media Processing

NOTE: The activation of some features requires the installation of chargeable software licenses. Depending on the selection of features and on the selected Diva Media Board, it may be possible that not all features are available at the same time on all channels. Please consult more detailed information available as a Technical Brief on this topic, or contact your Dialogic sales representative.

- 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 256 ms tail length
- Voice over IP (VoIP):
  - AMR-NB voice coder (VoIP licenses required). Customer will need to contact VoiceAge Corporation.*

  (* This Agreement does not grant you the right to practice the AMR-NB Standard. To seek a patent license agreement to practice the standard, please contact VoiceAge Corporation at licensing@voiceage.com.)
  - G.729 voice coder (VoIP licenses required)
  - G.723 voice coder (G.723 licenses required)
  - RTaudio voice coder (VoIP licenses required)
  - iLBC voice coder (free)
  - G.711 voice coder (64 kbps, µ-law, A-law)
  - G.726 voice coder (32 kbps)
  - 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 256 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 (fax licenses required)

Technical Specifications *(continued)*

- Support for Fax Group 3, T.30 (fax licenses required):
  - — 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), (fax licenses required):
  - — Up to 33.6 kbps with each channel (send and receive)
- Data modem (RAS, POS and other Low Bit Rate (LBR) applications) (modem licenses required):
  - — 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 www.dialogic.com/rohs
Country-specific approvals: Global product approvals at www.dialogic.com/declarations
The half size PCIe Diva Media Boards V-1PRI, V-2PRI and V-4PRI may be approved as VPRIHS.
The full size PCIe Diva Media Boards V-4PRI and V-8PRI may be approved as VPRIFS.
Warranty: Warranty information at www.dialogic.com/warranties

Ordering Information

Dialogic® Diva® Product	Order Code
V-1PRI/E1/T1-30 PCIe HS (Half Size)	306-398
V-2PRI/T1-48 PCI (Full Size) North America	306-250
V-2PRI/T1-48 PCI (Full Size) Japan	306-308
V-2PRI/E1-60 PCI (Full Size)	306-249
V-2PRI/E1-60 PCI (Full Size) Australia	306-293
V-2PRI/E1/T1-60 PCIe HS (Half Size)	306-397
V-4PRI/T1-96 PCI (Full Size) North America	306-252
V-4PRI/T1-96 PCI (Full Size) Japan	306-307
V-4PRI/E1-120 PCI (Full Size)	306-251
V-4PRI/E1-120 PCI (Full Size) Australia	306-292
V-4PRI/E1/T1-120 PCIe HS (Half Size)	306-396
V-4PRI/E1/T1-120 PCIe FS (Full Size)	306-403
V-8PRI/E1/T1-240 PCIe FS (Full Size)	306-404
Diva VoIP Codec 24 CH SW License*	G01-030
Diva G.723 1 CH SW License*	G01-031
Diva V.34 Fax 1 CH SW License*	G01-032
Diva Data Modem 1 CH SW License*	G01-033

* *The single channel licenses replace the former license bundles (Gxx-030, Gxx-031, Gxx-032, Gxx-033). This provides greater flexibility for the customer. Please order your required amount of licenses per Diva V-xPRI Media Board.*

When used on the Diva V-4PRI PCIe HS (Half Size) or the Diva V-8PRI PCIe FS (Full Size), not all channels are able to provide high speed modem or high speed fax, because only 3 DSPs are available per trunk. An application that needs modem or fax on all channels should either limit the speed or use the Diva V-xPRI versions that have 6 DSPs per trunk. In the case that all channels need to transmit V.34 fax, there is no 8 span version available, and two 4-span boards will need to be used.

Dialogic®
Making Innovation Thrive™

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