Sangoma

D/240JCT-T1 & D/300JCT-E1

For advanced apps requiring digital network interfaces & multimedia resources

Datasheet

The Dialogic® D/240JCT-T1 and D/300JCT-E1 media boards are 24-port and 30-port Digital T1 PCI Express boards. These high-performance, scalable products support voice, fax, and software-based speech recognition processing in a single PCI Express slot.

These JCT Media Boards can be used to provide small- and medium-sized enterprise Computer Telephony (CT) applications that require high-performance voice and fax processing. They have On-board DSP-based voice processing technology and they are well-suited for server-based CT systems under Windows and Linux.

The boards also provide a powerful platform for creating sophisticated IVR applications for the small and medium-sized enterprise market segment. Features such as fax and software-based speech recognition processing enable unified messaging applications. In addition, they provide Automatic Gain Control (AGC), so even a weak telephone signal can be recorded and replayed with clarity.

√ 24 or 30 Independent Voice Channels in a single 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

√ 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

√ Silence-Compressed Recording

- Eliminates silence and preserves hard disk space

√ Available with PCI Express Edge Connector

- PCI Express form factor compatible with x1 slot (x1 or higher compatible)

√ Supports DSP-Based Onboard Fax and Host-Based Speech Recognition

- Fax and Host-Based Speech Recognition are Mutually Exclusive
- Maximizes the number of boards in the system

Technical Specifications

Number of Ports
- 4

Maximum Boards Per System
- 8

CT Bus Loads Per Board
- 1

Maximum CT Bus Loads Per System
- 20

Analog Network Interface
- On-board loop start interface circuits (4)

Resource Sharing Bus
- CT Bus
- H.100

Control Microprocessor
- 80C186 @ 34.8 MHz

Digital Signal Processor
- Freescale DSP56303 @ 100 MHz, with 128Kx24 private SRAM

Supported Operating Systems
- Linux, Windows: Details at https://wiki.sangoma.com/display/DVC/Dialogic+Voice+Cards

CSP
- Yes

FAX
- Yes

Signaling
- Analog loop start

Host Interface

Bus Compatibility
- PCI: Complies with PCI-SIG Bus Specification, Rev. 2.2
- PCIe: Complies with PCI-SIG PCI Express Base Specification, Rev. 1.1; x1 or higher compatible

PCI Bus Mode
- Target mode operation only

PCI Bus Speed
- 33 MHz maximum

Shared Memory
- 32 KB page

Interrupt
- PCI; 1 IRQ (INTA) shared by Dialogic® JCT

Media Boards
- PCIe; Legacy INTA emulation shared by Dialogic® JCT PCIe Media Boards

I/O Port
- None

Physical Dimensions

Standard-Height, Full Length Form Factor
- 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
- 750 mA maximum

+12 VDC
- 200 mA maximum

-12 VDC
- 100 mA maximum

Power Requirements — PCI Express

+12 VDC
- 450 mA maximum

Environmental Requirements

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*

Trunk Type
- Loop start

Impedance
- 600 Ohms nominal

Ring Detection
- 15 Vrms minimum, 13 Hz to 68 Hz, (each configurable by parameter**)

Loop Current Range
- 20 mA to 120 mA

Echo Return Loss
- Configurable by software parameter

Crosstalk Coupling
- Less than –70 dB at 1 kHz channel to channel

Receive Signal/Noise Ratio
- 70 dB referenced to –15 dBm

Frequency Response
- 200 Hz to 3400 Hz ±3 dB (transmit and receive)

Connector
- 4 RJ-11 type

Reliability

Estimated MTBF Per Telcordia Method 1
- PCI: 274,000 hours
- PCI Express: 230,000 hours

Approvals, Compliance and Warranty

Country-specific Safety and Telecom Approvals
- https://portal.sangoma.com/

Warranty Information
- https://www.sangoma.com/warranties

* Average speech mandates +16 dB peaks above average and preserves –13 dB valleys below average.

** Analog levels: 0 dBm0 corresponds to a level of +3 dBm at tip-ring analog point. Values vary depending on country requirements; contact your Dialogic account manager.

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Springware/JCT Technical Specifications

Facsimile

Fax Compatibility
- ITU-T G3 compliant (T.4, T.30)
- ETSI NET/30 compliant

Maximum Data Rate
- 14.4 kbit/s (v.17) send
- 9.6 kbit/s (v.29) receive

Variable Speed Selection
- Automatic step-down to 12,000 bit/s, 9600 bit/s, 7200 bit/s, 4800 bit/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
- Windows fonts supported
- Page headers generated automatically

Error Correction
- Detection, reporting, and correction of faulty scan lines

Image Widths
- 1728 pixels
- 2048 pixels
- 2432 pixels

Image Scaling
- Automatic horizontal and vertical scaling between page sizes

Polling Modes
- Normal
- Turnaround

Image Resolution
- Normal (203 pels/in. × 98 lines/in.; 203 pels/2.54 cm × 98 lines/2.54 cm)
- Fine (203 pels/in. × 196 lines/in.; 203 pels/2.54 cm × 196 lines/2.54 cm)

Fill Minimization
- Automatic fill bit insertion and stripping

Audio Signal

Receive Range
- –40 dBm to –7 dBm nominal, configurable by parameter**

Automatic Gain Control
- Application can enable/disable
- Above –18 dBm results in full-scale recording, configurable by parameter**

Silence Detection
- –40 dBm nominal, software adjustable**

Transmit Level (Weighted Average)
- –9.5 dBm nominal, configurable by parameter**

Transmit Volume Control
- 40 dB adjustment range, with application-definable increments, capped according to country-specific regulations

Frequency Response

24 kbit/s
- 300 Hz to 2600 Hz ±3 dB

32 kbit/s
- 300 Hz to 3400 Hz ±3 dB

48 kbit/s
- 300 Hz to 2600 Hz ±3 dB

64 kbit/s
- 300 Hz to 3400 Hz ±3 dB

Audio Digitizing

13 kbit/s
- GSM @ 8 kHz sampling

24 kbit/s
- OKI ADPCM @ 6 kHz sampling

32 kbit/s
- OKI ADPCM @ 8 kHz sampling
- G.726 @ 8 kHz sampling

48 kbit/s
- A-law G.711 PCM @ 6 kHz sampling
- µ-law G.711 PCM @ 6 kHz sampling

64 kbit/s
- A-law G.711 PCM @ 8 kHz sampling
- 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

DTMF Tone Detection

DTMF Digits
- 0 to 9, *, #, A, B, C, D per Telcordia LSSGR Sec 6

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

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- (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 zero (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

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

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

Call Progress Analysis

- Busy tone detection
- Ring back tone detection
- Positive voice detection
- Positive answering machine detection
- Fax/modem detection
- Intercept detection
- Dial tone detection before dialing

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 maximum, 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

Ordering Information

- Please see the Models tab for this product

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