



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

For advanced apps requiring digital network interfaces & multimedia resources

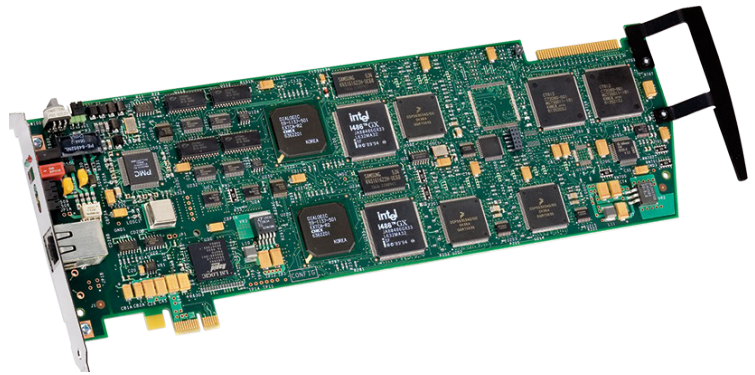
[Datasheet](#)



The Sangoma 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 Sangoma 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

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 Sangoma JCT

Media Boards

- ⦿ PCIe; Legacy INTA emulation shared by Sangoma 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 Sangoma account manager.

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
- ⦿ (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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