The Dialogic® D/120JCT-LS Media Board is a 12-port analog PCI or PCI Express board well-suited for developing advanced communications applications that require multimedia resources. This high performance, scalable product supports voice, fax, and software-based speech recognition processing in a single PCI or PCI Express slot, providing 12 analog telephone interface circuits for direct connection to analog loop start lines.

Dialogic® JCT Media Boards – including this model - can be used by developers to provide small- and medium-sized enterprise Computer Telephony (CT) applications that require high-performance voice and fax processing. Among the features and benefits of this model, and other Dialogic® JCT Media Boards, are the following. They use Digital Signal Processor (DSP) voice processing technology, making them well-suited for server-based CT systems under Windows and Linux. They also provide a powerful platform for creating sophisticated Interactive Voice Response (IVR) applications for the small and medium-sized enterprise market segments. Their Caller ID support lets applications, such as IVR, receive calling party information via a telephone trunk line; Caller ID is supported for North America (CLASS protocol), the United Kingdom (CLI protocol), and in Japan (CLIP protocol). Features such as fax and software-based speech recognition processing enable unified messaging applications. They also provide Automatic Gain Control (AGC), so even a weak telephone signal can be recorded and replayed with clarity.

### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports G.726 bit exact and GSM coders</td>
<td>Enables implementation of unified messaging applications that meet VPIM standards</td>
</tr>
<tr>
<td>Supports Continuous Speech Processing (CSP)</td>
<td>Provides a flexible speech processing technology, which, when coupled with efficient drivers, off-loads critical real-time signal processing in speech-enabled applications to on-board DSPs. Reduces system latency, increases recognition accuracy, and improves overall system response time for high-density speech solutions.</td>
</tr>
<tr>
<td>A-law or μ-law voice coding at dynamically selectable data rates, 24 kbit/s to 64 kbit/s, selectable on a channel-by-channel basis</td>
<td>Allows for a beneficial tradeoff between disk storage and voice quality</td>
</tr>
<tr>
<td>Telcordia CLASS, UK CLI, Japanese Caller ID, and other international protocols</td>
<td>Supports an international Caller ID capability via on-hook audio path</td>
</tr>
<tr>
<td>A variety of country-specific approvals</td>
<td>Expands an application’s ability to serve several global market segments at no extra cost</td>
</tr>
<tr>
<td>Separate models available with Universal PCI or PCI Express edge connector</td>
<td>Universal PCI form factor compatible with 3.3 V and 5.0 V bus signals; and PCI Express form factor compatible with x1 lane configuration or higher.</td>
</tr>
<tr>
<td>Supports up to four (4) channels of DSP-based on-board fax</td>
<td>Reduces the number of boards per system</td>
</tr>
</tbody>
</table>
### Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ports</td>
<td>12</td>
</tr>
<tr>
<td>Maximum boards per system</td>
<td>8 (Linux and Windows). Number may be limited by application and system performance</td>
</tr>
<tr>
<td>CT Bus loads per board</td>
<td>1</td>
</tr>
<tr>
<td>Maximum CT Bus loads per system</td>
<td>20</td>
</tr>
<tr>
<td>Analog network interface</td>
<td>On-board loop start interface (12)</td>
</tr>
<tr>
<td>Resource sharing bus</td>
<td>CT Bus</td>
</tr>
<tr>
<td>Control microprocessor</td>
<td>Intel 80486 GXSF running at 32.768 MHz with 2 MB SDRAM</td>
</tr>
<tr>
<td>Digital signal processor</td>
<td>Freescale DSP56303 @ 100 MHz, with 128Kx24 private SRAM</td>
</tr>
<tr>
<td>Supported operating systems</td>
<td>Linux, Windows: Details at <a href="http://www.dialogic.com/systemreleases">http://www.dialogic.com/systemreleases</a></td>
</tr>
<tr>
<td>CSP</td>
<td>Yes</td>
</tr>
<tr>
<td>FAX</td>
<td>Yes</td>
</tr>
<tr>
<td>Signaling</td>
<td>Analog loop start</td>
</tr>
</tbody>
</table>

#### Host Interface — PCI

| Bus compatibility                         | Complies with PCI-SIG Bus Specification, Rev. 2.2; Universal slot (5 V or 3.3 V) |
| Bus speed                                 | 33 MHz maximum                                                               |
| Bus mode                                  | 32-bit                                                                      |
| Shared memory                             | 32 KB to 64 KB page                                                          |
| Interrupt                                 | 1 IRQ (INTA) shared by Dialogic® JCT PCI Media Boards                        |
| I/O ports                                 | None                                                                        |

#### Physical Dimensions — PCI

| Standard-height, full length form factor  | 12.28 in. (31.2 cm) long                                                   |
|                                         | 4.2 in. (10.67 cm) high                                                    |

#### Power Requirements — PCI

<table>
<thead>
<tr>
<th>VDC</th>
<th>1.2 A typical; 1.4 A maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>+12 VDC</td>
<td>235 mA typical; 285 mA maximum</td>
</tr>
<tr>
<td>−12 VDC</td>
<td>80 mA typical; 100 mA maximum</td>
</tr>
</tbody>
</table>

#### Host Interface — PCI Express

| Bus compatibility          | Complies with PCI-SIG PCI Express Base Specification, Rev. 1.1; x1 or higher compatible |
| Bus speed                  | 2.5 GHz maximum per direction                                             |
| Shared memory              | 32 KB to 64 KB page                                                        |
| Interrupt                  | Legacy INTA emulation shared by Dialogic® JCT PCIe Media Boards            |
| I/O ports                  | None                                                                       |

#### Physical Dimensions — PCI Express

| Standard-height, full length form factor | 12.28 in. (31.2 cm) long |
|                                         | 4.2 in. (10.67 cm) high  |
Power Requirements — PCI Express

+3.3 VDC  
1.12 A typical, 1.4 A maximum
+12 VDC  
800 mA typical, 900 mA maximum

Environmental Requirements — PCI and PCI Express

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
Ground start for inbound applications with AC ringing
Impedance  
600 Ohms nominal
Ring detection  
40 Vrms to 130 Vrms, 15.3 Hz to 68.0 Hz (each configurable by parameter*)
Loop current range  
20 mA to 60 mA, (Euro) 20 mA to 120 mA, polarity insensitive
Echo return loss  
17 dB minimum (at country impedance)
Crosstalk coupling  
>–75 dB
Speech digitization  
64 kbit/s, µ-law PCM
Frequency response  
300 Hz to 3400 Hz ±3 dB (transmit and receive)
Connector  
RJ14; 6 jacks (each jack supports 2 channels)

Reliability

Estimated MTBF

Per Telcordia Method
PCI: 154,000 hours
PCI Express: 154,000 hours

Approvals, Compliance and Warranty

Environmental Information  
Country-specific safety and telecom approvals  
Warranty information  
http://www.dialogic.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

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 (x17) send
9.6 kbit/s (x29) 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)
Dialogic® D/120JCT-LS Media Board

Datasheet
JCT Media Boards

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. x 98 lines/in.; 203 pels/2.54 cm × 98 lines/2.54 cm)
Fine (203 pels/in. x 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 −22 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 6.10 @ 8 kHz sampling

24 kbit/s
4-bit OKI ADPCM @ 6 kHz sampling

32 kbit/s
4-bit OKI ADPCM @ 8 kHz sampling

32 kbit/s
G.726 @ 8 kHz sampling

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

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

Digitization selection
Selectable by application on function call-by-call basis

Playback speed control
Pitch controlled
Available for 24 kbit/s and 32 kbit/s data rates
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**: –38 dBm0 to –3 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
- **Twist and frequency variation**: Meets Telcordia LSSGR Sec 6 and EIA 464 requirements
- **Noise tolerance**: Meets Telcordia LSSGR Sec 6 and EIA 464 requirements for Gaussian, impulse, and power line noise tolerance
- **Cut-through**: Local echo cancellation permits 100% detection with a >4.5 dB return loss line
- **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)

**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**: Programmable, default set at –6 dBm0 to –3 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**: Programmable within –43 dBm to –3 dBm per tone

**MF Signaling**

- **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 freq. 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 −4.0 dBm per tone, nominal, configurable by parameter**

Pulse Dialing

10 digits 0 to 9
Pulsing rate 10 pulses/s, nominal
Break ratio 60% nominal, configurable by parameter**

Analog Caller Identification

Applicable standards Telcordia TR-NWT-000030
Telcordia TR-NWT-000031
Telcordia TR-NWT-001188
TAS T5 PSTN1 ACLIP: 1994 (Singapore)
Modem standard Bell 202 or V.23, serial 1200 bits/sec (simplex FSK signaling)
Receive sensitivity −48 dBm (−50 dBv) to −1 dBm
Noise tolerance Minimum 18 dB SNR over 0 to −48 dBm dynamic range
Data formats Single Data Message (SDM) and Multiple Data Message (MDM) formats via API calls and commands
Line impedance AC coupled 600 Ohm (@ 1.8 kHz) termination during Caller ID on-hook detection interval
Message formats ASCII or binary SDM, MDM message content

Analog Display Services Interface (ADSI)

FSK generation per Telcordia TR-NWT-000030
CAS tone generation and DTMF detection per Telcordia TR-NWT-001273

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

Ordering Information

Please see the Ordering Information tab for this product.