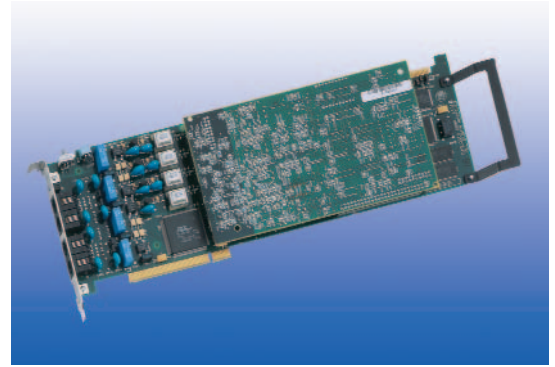# Dialogic® VFX/41JCT-LS Media Board

The Dialogic® VFX/41JCT-LS Media Board is a four-port analog converged communications board that can be used by developers to provide global enterprise applications, such as unified messaging, Interactive Voice Response (IVR), and contact centers. The VFX/41JCT-LS supports voice, fax, and software-based speech recognition processing in a single PCI or PCI Express slot, providing four analog telephone interface circuits for direct connection to analog loop start lines.

| Features | Benefits |
|---|---|
| Supports up to four channels of enhanced onboard fax | Reduces the number of boards per system |
| Supports Continuous Speech Processing (CSP) | Provides a flexible speech processing technology, which when coupled with efficient drivers, offloads critical real-time signal processing in speech-enabled applications to onboard DSPs. Reduces system latency, increases recognition accuracy, and improves overall system response time for high-density speech solutions. |
| Separate models available with Universal PCI or PCI Express edge connector | Universal PCI form factor compatible with 3.3 V and 5.0 V bus signals, enabling deployment in a wide variety of PCI chassis from popular manufacturers; PCI Express form factor compatible with 1x slots (x1 or higher compatible) also available |
| A-law or μ-law voice coding at dynamically selectable data rates, 24 kb/s to 64 kb/s, selectable on a channel-by-channel basis | Allows for optimal tradeoff between disk storage and voice quality |
| Telcordia CLASS, UK CLI, Japanese Caller ID, and other international protocols | Supports an international Caller ID capability via on-hook audio path |
| Advanced outbound call progress analysis | Monitors outgoing call status quickly and accurately |

## 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 | 4 onboard loop start interface circuits |
| Resource sharing bus | CT Bus<br>H.100 |
| Control processor | 80C186 @ 34.8 MHz |
| Digital signal processor | Freescale DSP56303 @ 100 MHz, with 128Kx24 private SRAM |
| Supported operating systems | Linux: SR6.1 SU 232 or higher; Windows®: SR 6.0 SU 131 or higher. Details at<br>http://www.dialogic.com/systemreleases |
| CSP | Yes |
| Signaling | Analog loop start |

**Host Interface — PCI and PCI Express**

| | |
|---|---|
| Bus compatibility | PCI and PCI Express |
| PCI Bus speed | 33 MHz maximum |
| PCI Bus mode | Target mode operation only |
| Shared memory | 32 KB page |
| I/O ports | None |

**Platform — PCI and PCI Express**

| | |
|---|---|
| Form factor | PCI Universal or PCI Express<br>12.3 in. (31.24 cm) long without edge retainer or 13.3 in. (33.78 cm) long with edge retainer<br>0.79 in. (2 cm) wide (total envelope)<br>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 — 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 |
| Loop current range | 20 mA to 120 mA |
| Impedance | 600 Ohms nominal |
| Ring detection | 15 Vrms minimum, 13 Hz to 68 Hz, (configurable by parameter**) |
| 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) |
| Connectors | 4 RJ-11 type |

## Technical Specifications (cont.)

**Approvals and Compliance**

| | |
|---|---|
| Hazardous substances | RoHS Compliance Information at http://www.dialogic.com/rohs |

*Safety and EMC*

| | |
|---|---|
| Canada | ICES-003 Class A<br>ULc CSA 60950-1 File E96804 |
| Europe | EN60950<br>EN55022<br>EN55024 |
| Japan | VCCI Class A |
| United States | FCC Part 15 Class A<br>UL 60950-1 File E96804 |
| International | IEC60950-1<br>CISPR 22<br>CISPR 24 |

*Telecom Approvals*

| | |
|---|---|
| Canada | IC:885 5542 A |
| European Union | DoC |
| Japan | A00-0796JP |
| United States | US:EBZUSA-75385-VM-T |
| Country-specific approvals or contact your | See the Product Declarations & Global Approvals list at http://www.dialogic.com/declarations/<br>Authorized Distributor |

**Reliability/Warranty**

| | |
|---|---|
| Estimated MTBF | Per Telcordia Method 1<br>PCI: 274,000 hours<br>PCI Express: 230,000 hours |
| Warranty | Warranty Information at http://www.dialogic.com/warranties |

## Springware/JCT Technical Specifications

### Facsimile

| | |
|---|---|
| Fax compatibility | ITU-T T.4 (Group III), T.30<br>ETSI NET/30 compliant |
| Data rate | Transmission: 14,400 b/s (v.17) (maximum) |
| Variable speed selection | Automatic step-down to 12,000 b/s, 9600 b/s, and lower<br>Reception: 9,600 b/s |
| Transmit data modes | API-selectable Modified Huffman (MH)<br>Modified Read (MR)<br>Modified Modified Read (MMR) with Error Correction Mode (ECM) |
| Receive data modes | API-selectable MH, MR, and MMR with ECM |
| File data formats | Tagged Image File Format-Fax (TIFF-F) for transmit/receive MH, MMR, and ASCII text transmit |
| ASCII-to-fax conversion | Performed on the host CPU rather than in the Dialogic firmware. Supports multiple fonts and language character sets, including all Windows® fonts |
| Error correction | Detection, reporting, and correction of faulty scan lines |
| Image widths | 1728 pixels<br>2048 pixels<br>2432 pixels |
| Image scaling | Automatic horizontal and vertical scaling among any of the three supported widths |
| Polling modes | Normal<br>Turnaround |
| Image resolution | Normal (203 pels/in. × 98 lines/in.; 203 pels/2.5 cm × 98 lines/2.5 cm)<br>Fine (203 pels/in. × 196 lines/in.; 203 pels/2.5 cm × 196 lines/2.5 cm) |
| Fill minimization | Automatic fill bit insertion and stripping |

### Audio Signal

| | |
|---|---|
| Receive range | –40 dBm to +2.5 dBm0 nominal, configurable by parameter** |
| Automatic gain control | Application can enable/disable<br>Above –18 dBm0 results in full-scale recording, configurable by parameter** |
| Silence detection | –40 dBm nominal, software adjustable** |
| Transmit level (weighted average) | –9.5 dBm0 nominal, configurable by parameter** |
| Transmit volume control | 40 dB adjustment range, with application-definable increments and legal limit cap |

### Frequency Response

| | |
|---|---|
| 24 kb/s | 300 Hz to 2600 Hz ±3 dB |
| 32 kb/s | 300 Hz to 3400 Hz ±3 dB |
| 48 kb/s | 300 Hz to 2600 Hz ±3 dB |
| 64 kb/s | 300 Hz to 3400 Hz ±3 dB |

### Audio Digitizing

| | |
|---|---|
| 13 kb/s | GSM @ 8 kHz sampling |
| 24 kb/s | OKI ADPCM @ 6 kHz sampling |
| 32 kb/s | OKI ADPCM @ 8 kHz sampling |
| 32 kb/s | G.726 @ 8 kHz sampling |
| 48 kb/s | μ-law PCM @ 6 kHz sampling |
| 64 kb/s | μ-law PCM @ 8 kHz sampling |
| Digitization selection | Selectable by application on function call-by-call basis |
| Playback speed control | Pitch controlled<br>Available for 24 kb/s and 32 kb/s data rates<br>Adjustment range: ±50%<br>Adjustable through application or programmable DTMF control |

## Springware/JCT Technical Specifications (cont.)

**DTMF Tone Detection**

| | |
|---|---|
| DTMF digits | 0 to 9, *, #, A, B, C, D per Telcordia LSSGR Sec 6 |
| Dynamic range | –38 dBm to +3 dBm 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<br>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)<br>Detects 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 | 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 | –43 dBm0 to –3 dBm0 per tone, programmable |

**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 | Default setting designed to detect 74 out of 76 unique busy/congestion tones used in 97 countries as specified by ITU-T Rec. E., Suppl. #2<br>Default uses both frequency and cadence detection<br>Application can select frequency only for faster detection in specific environments |
| Ring back detection | Default setting designed to detect 83 out of 87 unique ring back tones used in 96 countries as specified by ITU-T Rec. E., Suppl. #2<br>Uses both frequency and cadence detection |
| Positive voice detection accuracy | >99% based on tests on a database of real world calls in North America<br>Performance in other markets may vary |
| Positive voice detection speed | Detects voice in as little as 1/10th of a second |
| Positive answering machine detection accuracy | >85% based on application and environment |
| Fax/modem detection | Preprogrammed |

## Springware/JCT Technical Specifications (cont.)

**Call Progress Analysis (cont.)**

| | |
|---|---|
| Intercept detection | Detects entire sequence of the North American tri-tone<br>Other intercept tones sequences can be programmed |
| Dial tone detection before dialing | Application enable/disable<br>Supports up to three different user-definable dial tones<br>Programmable dial tone drop out debouncing |

**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 dBm0 per tone, nominal, configurable by parameter** |

**Pulse Dialing**

| | |
|---|---|
| 10 digits | 0 to 9 |
| Pulsing rate | 10 pulses/s, nominal<br>20 pulses/s for Japan, configurable by parameter** |
| Break ratio | 60% nominal, configurable by parameter** |

**Analog Caller Identification**

| | |
|---|---|
| Applicable standards | Telcordia TR-TSY-000030<br>Telcordia TR-TSY-000031<br>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 for error-free performance |
| 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<br>CAS tone generation and DTMF detection per Telcordia TR-NWT-001273 |

## Hardware System Requirements

- Intel386, Intel486, or Pentium microprocessor PCI or PCI Express computer

- Operating system hardware requirements vary according to the number of channels being used

## Additional Components

- Multidrop CT Bus cables (CBLCTB68C3DROP, CBLCTB68C4DROP, CBLCTB68C8DROP, CBLCTB68C12DROP, CBLCTB68C16DROP)

- CT Bus/SCbus adapter (CTBUSTOSCBUSADP)

- SCbus terminator kits (1SCBUS1TERMKIT, 2SCBUS1TERMKIT, 3SCBUS1TERMKIT)

## Ordering Information

| Product Code | Order Code | Description |
| --- | --- | --- |
| VFX41JCTLSW | 881-793 | 4-port Analog, Loop-Start, PCI |
| VFX41JCTLSWEU | 881-794 | 4-port Analog, Loop-Start, PCI, Europe |
| VFX41JCTLSEW | 887-492 | 4-port Analog, Loop-Start, PCIe, Europe |
| VFX41JCTLSEWEU | 887-493 | 4-port Analog, Loop-Start, PCIe |

# Dialogic

To learn more, visit our site on the World Wide Web at **http://www.dialogic.com**

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**Positive Answering Machine Detection/Positive Voice Detection**
These performance results were measured using specific computer systems and/or components within specific lab environments and under specific system configurations. Any difference in system hardware, software design, or configuration may affect actual performance. The results are furnished for informational use only and should not be construed as a commitment by Dialogic. Dialogic assumes no responsibility or liability for any errors or inaccuracies.

**Outbound Dialing/Telemarketing**
Outbound dialing systems may be subject to certain laws or regulations. Dialogic makes no representation that Dialogic products will satisfy the requirements of any such laws or regulations (including, without limitation, any regulations dealing with telemarketing).

** 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.

†Average speech mandates +16 dB peaks above average and preserves −13 dB valleys below average.

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