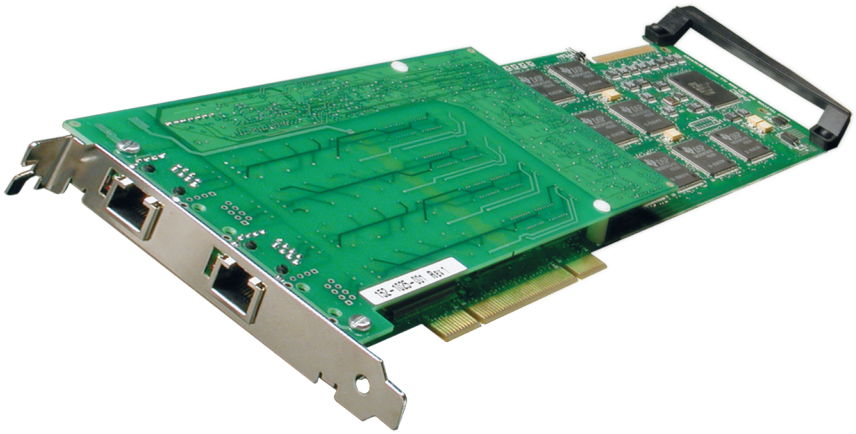
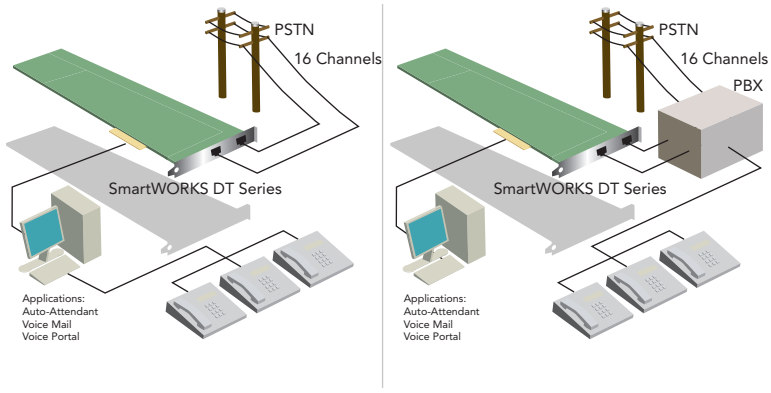
SmartWORKS™ DT Digital Terminate Card



- Software Switchable T1/E1 Interface
- Auto-configures for all ISDN variants
- ANI and DNIS
- On-board DSP to complete voice processing
- CODEC Support



The **SmartWORKS™ DT** provides trunk termination and call control on digital T1/E1 networks. Call Progress Monitoring (CPM), DTMF detection, voice play/record, and barge-in features makes this blade an invaluable resource for interactive telephony applications.

Terminate Environment

The SmartWORKS™ DT connects directly to a Central Office or PBX providing line supervision to answer and generate inbound and outbound calls. Each blade processes up to 60 channels, with a maximum of 512 channels per system. Each channel has programmable volume control, tone generation, echo cancellation, and Call Progress Monitoring. Outbound dialing and call control is managed through the SmartWORKS™ API.

International ISDN Support

The SmartWORKS™ DT supports Channel Associated Signaling (CAS), and any Q.931 based ISDN variant. Trunk coding and framing is selected on a per framer basis. This allows a single blade to control two trunks, each with different settings.

Built in Performance Monitoring

Network conditions and call statistics are available via the SmartWORKS™ API. Event driven alarms are reported for loss of signal conditions or synchronization errors. Framer and call statistics are available through standard API function calls.

Common SmartWORKS™ API features:

- Media Control - CODECS
- Tone Detection / Generation
- CallerID/FSK/DTMF/MF Detection
- Activity / Silence Detectors
- Switching (H.100 and MVIP)
- Automatic Gain Control (AGC)
- Automatic Volume Control (AVC)
- Stereo Recording
- Echo Cancellation
- Call Progress Monitoring (CPM)
- Full-duplex Channels
- Media Streaming
- Live Monitoring
- Start/Stop Call Recording Triggers
- Beep tone generation for passive mode

AudioCodes
BLADE BUSINESS LINE

SmartWORKS™ DT

Specifications

System Requirements

Hardware	Pentium 4 or equivalent · 2 GHz or better · PCI motherboard or passive backplane with 3.3V power supply, PCI 2.2 bus
Operating Systems	Windows 2000 · Windows XP · Windows 2003 32 bit· Linux (Call for variant details)
Technical Specifications	Max boards per system: Any combination up to 512 ports · Max ports per system: Up to 512 Control Microprocessor Motorola Coldfire™ RISC (50 MHz)
DSP	Multiple Texas Instruments TMS320C5409 A · Boards errors: On-board LEDs · Clocking: Master/Slave DRAM: 16 MB per board · SRAM: 128 Kword/DSP
Environmental Conditions	Operating Temperature: 0C to +50C · Storage Temperature: -20C to +85C · Humidity: 8% to 80% non-condensing Storage humidity: 8% to 80% non-condensing
Physical Characteristics	Form Factor: Full-size PCI card

Telephony Interface

Host Interface	Bus Compatibility: Complies with PCISIG · Bus Specifications: Rev. 2.2 · Bus Speed: 33 MHz Bus Mode: 32 bit bus master/target · Shared Memory: 16 MB Global shared RAM
Trunk Type	T1/E1 · Trunk Interface: Digital network interface · Connectors: RJ-45 connectors
T1 Interface	Receive Clock Rate: 1.544 MHz +/-200ppm · Transmit Clock: Recovered RX clock or 50 ppm Input Level: LBO 0dB to -22dB · Framing: SF (D4), ESF · Line Coding: AMI, B8ZS
Signaling Protocol	ISDN, NFAS, CAS, Robbed Bit Signaling, E&M Immediate, E&M wink, FXS, FXO Clock and Data Recovery: Complies with AT&T TR62411 and Bellcore TA-TSY-000170
E1 Interface	Receive Clock Rate: 2.048 +/- 175ppm · Transmit Clock: Recovered RX clock or 50 ppm · Input Level: 3.2V down to 0.45 V Framing: Basic G.704, CRC-4 · Line Coding: AMI, HDB3 · Signaling Protocol: ISDN, DASS2, CAS Loss of Signal Detection: per ITU-T G.775 · Alarm Detection and Integration: LOS, LOSMF, TS16, CRC, and Yellow Binary Sequence Detector: Per ITU-T 0.151
Loss of Signal Detection	ANSI T1.231 · Alarm Detection and Integration: LOS, LOF, Yellow, and AIS per ANSI T1.231 Binary Sequence Detector Per ITU-T 0.151
Audio Signal	Receive range: -68 dBm to + 3 dBm · Input gain control: +24 to -50 dB · Silence Detection: Programmable from API Transmit volume control: +24 to -50 dB · Automatic Gain Control (AGC) Programmable from API Automatic Volume Control (AVC) Programmable from API · Activity Detection Programmable from API Alert Tone Programmable · Frequency Response 300 - 3400 Hz (+/- 3dB)

Softtware

Call Progress Monitoring	Number of programmable tones: 20 · Number of bandpass filters: 10 · Number of filters per tone: 1,2 or 3 Number of cycles: 0 to 255 · SIT tones: Yes, programmable frequencies and duration · Answering Machine Detection: Yes
Audio Digitizing	5.3 Kb/s: G.723.1 · 6.3 Kb/s: G.723.1 · 8 Kb/s: G.729A · 13 Kb/s: GSM 6.10, Microsoft: GSM · 16 Kb/s: G.726 24 Kb/s: G.726, OKI · 32 Kb/s: G.726, OKI · 40 Kb/s: G.726 · 64 Kb/s: µ-law or A-law per G.711 8 bit linear PCM (signed & unsigned) · 96 Kb/s: 6 Khz 16 bit linear PCM(signed) 128 Kb/s: 16 bit linear PCM (signed & unsigned)
Wave file formats	Microsoft GSM, Linear signed 8 & 16-bit PCM · Digitization selection: Programmable per channel, independent for encode and decode
DTMF/MF Tone Detection	DTMF digits: 0 - 9, *, #, A, B, C, D · MF R2 Digits 15 Digits Forward & Reverse per Q.441 Dynamic range: -38 dBm to 0 dBm · Minimum tone detection: 40 ms /programmable · Interdigit timing: 40 ms min. Tone Dialing: Frequency variation less then 1 Hz Rate API Programmable
Acceptable twist	Per LSSGR sec. 6, 8 dB forward, 4 dB reverse · Frequency variation: Accept all +/- 1.5%, reject all +/-2.5% Noise tolerance: Per LSSGR sec. 6 · Talk off: Bellcore TR-TSY 000762
Trigger Conditions	Event Driven Caller ID, Min/Max silence, Min/Max activity
Global Tone Generation	Tone Type Single or dual frequency · Frequency range 300 Hz – 3400 Hz · Frequency resolution 1 Hz Duration 1 ms – 8191 ms programmable in 1 ms steps · Amplitude +3 dBm to –68 dBm · Duration API Programmable
Voice Processing	Echo cancellation G.165 · Caller ID V.23 & Bell 202 · DTMF Detector Primary & Secondary channel · MF Detection R1 & R2
Safety and Certifications	Telecom: DOC · Emissions: FCC Part 15 class A · EN 55022 · Immunity: EN 55024 · Safety: EN 60950 Estimated MTBF: 150,000 hours per Bellcore Method I
Models Available:	DT3209 Single E1/T1 · DT6409 Dual E1/T1
SDK:	AudioCodes Native SmartWORKS™ API · SmartControl (Control Panel) · SmartVIEW (card functionality test application) SmartWF (firmware flash update utility)

Power Requirements

+3.3 VDC: 2.8 Amp · +5 VDC: 5mA · -12 VDC: Not Required · +12 VDC: 20 mA

RoHS 2002/95/EC

RoHS COMPLIANT, LEAD FREE TECHNOLOGY

Lead and other materials banned in the RoHS directive are below ALL applicable substance levels as mandated by the EU

About AudioCodes

AudioCodes Ltd. (NASDAQ: AUDC), Your Gateway to VoIP, provides innovative, reliable and cost-effective Voice over Packet (VOP) technology and Voice Network products to OEMs, Network Equipment Providers, Service Providers and System Integrators worldwide. AudioCodes provides a diverse range of flexible, comprehensive media gateway and media processing technologies (based on VoIPerfect™ – AudioCodes' underlying, best-of-breed, core media gateway architecture) and Session Border Controllers (SBCs). The company is a market leader in product development, focused on VoIP Media Gateway, Media Server and SBC technologies and network products. AudioCodes has deployed tens of millions of media gateway and media server channels globally over the past few years and is a key originator of the ITU G.723.1 standard for the emerging Voice over IP market. The Company is a VoIP technology leader focused on quality, having recently received a number one ranking from ETSI for outstanding voice quality in its media gateways and media servers. AudioCodes voice network products feature media gateway and media server platforms for packet-based applications in the converged, wireline, wireless, broadband access, enhanced voice services and video markets. AudioCodes enabling technology products include VoIP and CTI communication blades, VoIP media gateway processors and modules, and CPE devices. AudioCodes' headquarters and R&D facilities are located in Israel with an R&D extension in the U.S. Other AudioCodes' offices are located in Europe, the Far East, and Latin America.

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