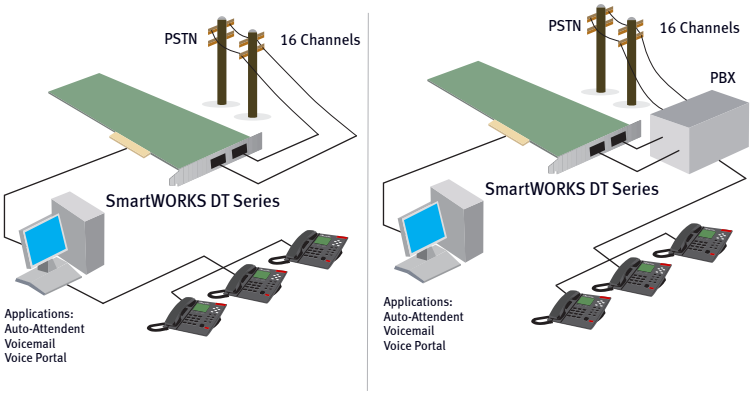
SmartWORKS™ DT Digital Terminate Card

- 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 cancelation, and Call Progress Monitoring. Outbound dialing and call control is managed through the SmartWORKS™ API.

International Protocol Support

The SmartWORKS™ DT supports Common Associated Signaling (CCS) with any Q.931 based ISDN variant and IRBS. 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 Cancelation
- Call Progress Monitoring (CPM)
- Full-duplex Channels
- Media Streaming
- Live Monitoring
- Start/Stop Call Recording Triggers

AudioCodes

AudioCodes Enabling Technology Products

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 XP, 2003 and 2008 32 bit, Windows 64 bit (planned), Linux (Call for variant details)
Technical Specifications	Max blades per system: 16 – Max ports per system: Up to 512
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 and PCI express card
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 (PCI express available-1x connector)
Telephony Interface	
Trunk Type	T1/E1 · Trunk Interface: Digital network interface · Connectors: RJ-45 connectors
Signaling Protocol	ISDN, Robbed Bit Signaling, E&M Immediate, E&M wink, FXS, FXO
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 Clock and Data Recovery: Complies with AT&T TR62411 and Bellcore TA-TSY-000170 Loss of Signal Detection: ANSI T1.231 · Alarm Detection and Integration: LOS, LOF, Yellow, and AIS per ANSI T1.231
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 Loss of Signal Detection: per ITU-T G.775 · Alarm Detection and Integration: LOS, LOSMF, TS16, CRC, and Yellow
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	
SDK	AudioCodes Native SmartWORKS™ API
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
Encoding & Decoding	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 cancelation G.165 · Caller ID V.23 & Bell 202 · DTMF Detector Primary & Secondary channel MF Detection R1 & R2 PCI 2.2: +3.3 VDC: 2.8 A · +5 VDC: 5mA · -12 VDC: Not Required · +12 VDC: 20 mA · PCI express: +3.3 VDC: 3.2 A
Power Requirements	
DT3209TE	+3.3 VDC 2.0A, +5 VDC 5mA, -12 VDC n/a, +12 VDC 20mA, Watts(MAX): 7W
DT6409TE	+3.3 VDC 2.6A, +5 VDC 5mA, -12 VDC n/a, +12 VDC 20mA, Watts(MAX): 9W
DT3209-EH	+3.3 VDC 2.4A, +5 VDC 5mA, -12 VDC n/a, +12 VDC 20mA, Watts(MAX): 8.5W
DT6409-EH	+3.3 VDC 3.0A, +5 VDC 5mA, -12 VDC n/a, +12 VDC 20mA, Watts(MAX): 10.5W
Certifications	
Safety	EN60950 IEC60950 (third edition) UL60950 · CAN · CSA-C22.2 No 60950-00 (third edition)
Emissions	EN55022 47 CFR FCC part 15 EN55024
Order Information	
DT3209TE	910.0325.002
DT6409TE	910.0323.002
DT3209TE-EH	910.0704.001
DT6409TE-EH	910.0704.002

About AudioCodes

AudioCodes Ltd. (NasdaqGS: AUDC) designs, develops and sells advanced Voice over IP (VoIP) and converged VoIP and Data networking products and applications to Service Providers and Enterprises. AudioCodes is a VoIP technology leader focused on VoIP communications, applications and networking elements, and its products are deployed globally in Broadband, Mobile, Cable, and Enterprise networks. The company provides a range of innovative, cost-effective products including Media Gateways, Multi-Service Business Gateways, Residential Gateways, IP Phones, Media Servers, Session Border Controllers (SBC), Security Gateways and Value Added Applications. AudioCodes underlying technology, VoIPerfectHD™, relies primarily on AudioCodes leadership in DSP, voice coding and voice processing technologies. AudioCodes High Definition (HD) VoIP technologies and products provide enhanced intelligibility, and a better end user communication experience in emerging Voice networks.

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