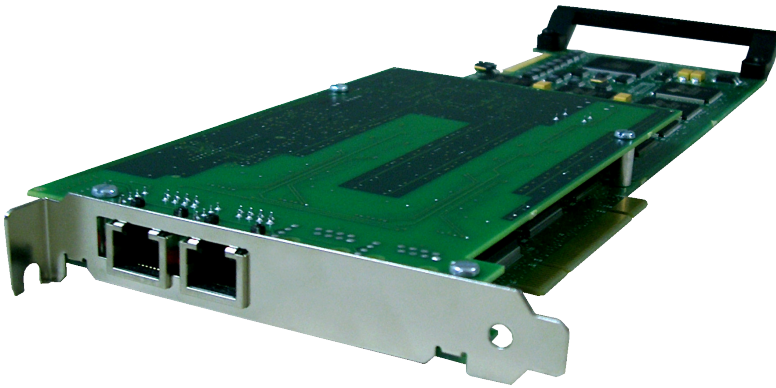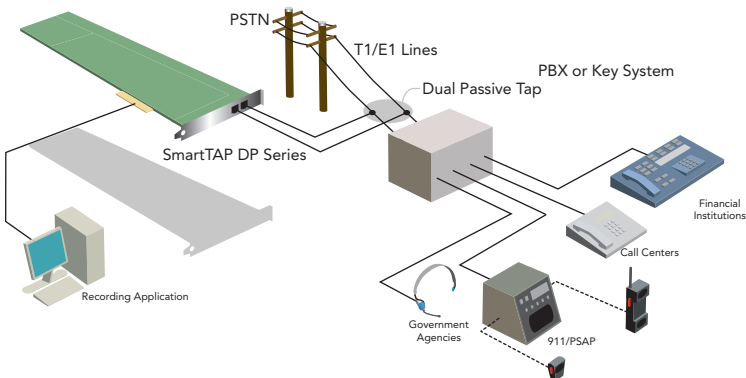# AudioCodes Enabling Technology Products

SmartWORKS™ DP T1/E1 Passive Tap Card

- **Software Switchable T1/E1 Interface**
- **ISDN Call State Monitoring**
- **True Dual Span Capabilities**
- **On-board DSP to Complete Voice Processing**
- **CODEC Support**
- **DPNSS, MFR2 (RAW), ABCD Signaling**

PSTN

T1/E1 Lines

PBX or Key System

Dual Passive Tap

SmartTAP DP Series

Financial Institutions

Call Centers

Recording Application

Government Agencies

911/PSAP

Applied Use: With a proven field record, the SmartWORKS™ DP has been successfully deployed in various international agencies such as banking, law enforcement, trading and customer support centers.

The **SmartWORKS™ DP** sets the standard for passive tapping of T1/E1 trunks in high-density environments. The SmartWORKS™ DP is a reliable tool used globally by many of the world's largest call logging application providers.

HIGH DENSITY PASSIVE TAP CAPABILITIES

Operating between a central office and PBX, the SmartWORKS™ DP's high impedance receivers records both sides of a call without interrupting service. Each blade can process up to 60 channels, with a maximum of 512 channels per host. Service is never interrupted even if the SmartWORKS™ DP-equipped PC is shut down.

INTERNATIONAL PROTOCOL SUPPORT

The SmartWORKS™ DP supports Channel Associated Signaling (CAS), Non-Facility Associated Signaling (NFAS) , DASS2 and any Q.931 based ISDN variant. Trunk coding and framing is selected on a per framer basis. This allows a single blade to monitor two trunks, each with different settings.

BUILT IN PERFORMANCE MONITORING

Network conditions and call statistics are easily accessed 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™ DP

SPECIFICATIONS

System Requirements

Hardware Requirements	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
Technical Specifications	Max boards per system: Any combination up to 512 ports · Max ports per system: Up to 512 (16 Boards max) Resource Sharing Bus: MVIP or H.100
Physical Characteristics	Form Factor: Full-size PCI card · Operating Temperature: 0C to +60C · Boards Status: On-board LEDs · Clocking: Master/Slave Storage Temperature: -20C to +85C · Humidity: 8% to 80% non-condensing · Storage humidity: 8% to 80% non-condensing

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
Trunk type	T1/E1 · Trunk InterfaceDigital High Impedance (Z) · AC Impedance 1k Ohms · Input Impedance 1000 Ohm +/- 5%
Maximum Tap Length	30m (100 feed) of CAT 3 cable · Connectors Two RJ-45 connectors · E1: 16m
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 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 Binary Sequence Detector Per ITU-T 0.151
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 Detectionper ITU-T G.775 Alarm Detection and Integration: LOS, LOSMF, TS16, CRC, DPNSS, MFRZ (Raw)
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 to MVIP/H.100 · Automatic Gain Control (AGC): Programmable from API Automatic Volume Control (AVC): Programmable from API
Activity Detection	Programmable from API · Frequency Response: 300 - 3400 Hz (+/- 3dB)

Software

SDK	AudioCodes Native SmartWORKS™ API · SmartControl (Control Panel) · SmartVIEW (Card functionality test application)
DTMF Tone Detection	DTMF digits: 0 - 9, *, #, A, B, C, D · Dynamic range: -38 dBm to 0 dBm · Minimum tone detection: 40 ms / programmable Interdigit timing: 40 ms min.
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
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

Power Requirements

	+ 3.3 VDC: 2.8 A · +5 VDC: 5 mA · -12 VDC: n/a · +12 VDC: 20 mA

Safety and Certifications

	Telecom: DOC, Emissions: FCC Part 15 class A · EN 55022, Immunity: EN 55024, Safety: EN 60950, Estimated MTBF: 250,000 hours per Bellcore Method I

Models Avaiable

	Single E1/T1: DP3209 Dual E1/T1: DP6409

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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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

What's inside matters™