



TRICOM TECHNOLOGIES
An ISO 9001:2000 Company



TRT-8PCI - A

8-Port Voice Processing card for
Computer Telephony Applications

INTRODUCTION

TRICOM TECHNOLOGIES, an ISO 9000 Certified company brings the TRT series of VOICE Processing boards built on DSP technology for Computer Telephony Applications that require high performance at affordable cost. These high performance cards are designed to support high quality voice and FAX* with Automatic / Programmable Gain Control. The on board Powerful DSP with very high MIPS rating (>160 MIPS) make these cards ideal choice for building highly sophisticated CTI applications. A powerful set of Industry standard TAPI & WAVE APIs along with some native APIs facilitate developers to quickly build efficient and powerful IVRS and messaging applications under Microsoft WINDOWS Operating Systems. These cards support Indian and European CLI protocols, support Pulse and DTMF dialing, receive DTMF and Pulse dialed digits.

These cards are ideally suited for building IVR Systems, Automatic Messaging Systems, Digital Call loggers, Auto attendance systems for EPABX, Voice mail Systems, Call Conference Systems and Hybrid EPABX systems using TRICOM make Multi Station Interface Cards TSI 16 or TSI 32 on PC platform under windows OS. These Analog hardware's are scalable in the form of 4ports and 8ports. Maximum of 32 ports can be accommodated in one PC for analog interface

FEATURES AND BENIFITS

- ❖ Eight independent voice channels in a single Unit to connect PSTN lines.
- ❖ Build a larger analog CT systems
- ❖ TRICOM downloadable signal and call processing firmware, VOICEMAS- 2000™, provides easy feature enhancement and field-proven performance.
- ❖ Reliable detection of DTMF (touch tone) during voice playback — lets callers "type-ahead" through menus.
- ❖ Uses DSP, clocked at 160 MHz; with private high-speed SRAM, permits execution of high-performance VOICEMAS 2000 signal processing algorithms.
- ❖ CYPRESS made USB Controller with built in micro controller core off-load the call processing tasks from the host PC, giving more power to the application.
- ❖ Real Plug & Play cards.
- ❖ Up to Four numbers of 8 Port cards can be plugged on to one PC using PCI Bus.
- ❖ Built in PTC detection supports pulse dialing by the remote callers in IVRS applications Built in FAX support

Applications

- Interactive Voice response system - IVR
- Voice logger over Telephone
- Voice mail
- Automatic Telephone Call Attendant.
- Message Broadcasting - Audio Text
- Call Conference
- Auto Answering
- Telemarketing/call center
- Auto dialers
- Notification systems
- Online data entry/query



**TECHNICAL SPECIFICATIONS for PCI Based CTI Hardware used
for Call Logger Application**

Number of ports/board:	4/8
Max .Boards/System:	8
Analog network Interface:	Loop start Voice play /
Record Resources:	All 8 Ports (simultaneous playback & recording)
Call monitoring resources:	All 8 Ports
Conference Resources:	4
Resource sharing bus:	PCI and Optional CT bus (H.100 compliant)
Digital signal processors:	TMS320c54xDSP @160Mhz
Form factor:	PCI half card

HOST INTERFACE:

Bus compatibility:	Universal PCI Complies with PCI
Bus specification:	2.2
Bus Speed:	33 MHz max
Bus mode:	32-bit 16 bit conversion in target mode
Shared memory:	128 kb page
Operating system:	Win NT/ 2000/ XP

DTMF TONE DETECTION:

DTMF digits:	0 to 9, *, #, A, B, C, D as per CCITT Q.23
Dynamic range:	-39 dBm0 to +0 dBm0 per tone
Minimum tone duration:	40 ms, can be increased with software configuration
Inter-digit timing:	Detects like digits with >40 ms inter-digit delay.
Acceptable twist and frequency variation:	1.Meets CCITT Q.23 specifications, 2. Passes Bellcore LSSGR Sec 6 and EIA RS464A requirements.
Noise Tolerance:	Meets Bellcore LSSGR Sec 6 requirements for Gaussian, impulse, and power line noise tolerance
Cut through:	Enable / Disable option through application
Talk off:	Detects less than 20 digits while monitoring Bellcore TR-TSY-000763 standard speech tapes (LSSGR requirements specify detecting no more than 470 total digits).



AUDIO SIGNAL:

Receive range:	On 600 Ohm PSTN lines – 38 to + 2.5 dBm0 nominal.
Automatic gain control:	Above –18 dBm0 in full scale recording. Application can enable / disable this option
Silence detection:	–38 dBm nominal, software adjustable
Transmit level (weighted average):	9 dBm0 nominal, configurable by applications
Transmit volume control:	20 dB adjustable range with application definable increments and legal limit cap.
FREQUENCY RESPONSE:	300 Hz to 3400 Hz
AUDIO DIGITIZING:	32 Kb/s OKI ADPCM @ 8 kHz sampling 64 Kb/s A-law PCM @ 8 kHz sampling
Digitization selection:	Selectable by application

TONE DETECTION:

Tone type:	Programmable for single tone frequency
Max. number of tones:	25 Different Tones.
Frequency range:	Programmable within 300 to 3400 Hz
Max. frequency deviation:	Programmable in 10 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 –39 dBm0 to +0 dBm0 per tone

TONE GENERATION:

Tone type:	Generate single or dual tones
Frequency range:	Programmable within 200 to 3400 Hz
Frequency resolution:	1 Hz
Duration:	10 msec increments
Amplitude:	40 dBm0 to 0 dBm0 per tone nominal, programmable



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 CCITT Rec E., Suppl #2. Default utilizes both frequency and cadence detection. 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 CCITT Rec E., Suppl #2. Utilizes both frequency and cadence detection.
Fax/modem detection:	Using user tones.
Dial tone detection before dialing:	Application enable/disable; supports user definable dial tones; programmable dial tone drop out de bouncing.

TONE DIALING:

DTMF digits:	0 to 9, *, #, A, B, C, D; 16 digits per Bellcore LSSGR Sec 6
Frequency variation:	Less than ± 1 Hz
Rate:	10 dig/Sec, programmable
Level:	-7.5 dBm O per tone, nominal

PULSE DIALING:

Digits:	10 digits 0 to 9
Pulsing rate:	10 pul/Sec, nominal
Break ratio:	60% nominal, programmable