

TDM & ETH Hardware for Monitoring & Simulation

- **Feature Highlights**
- **Technical Specifications**

Version 2.3

This folder will provide you with details related to the hardware products used with the STINGA Protocol Analyser & Simulator and STINGA Monitoring Probes.

Introduction

This folder contains feature highlights and technical specifications for the following PIST hardware products:

Board:	Bus:	Interfaces:
<i>(PIST-2-TDM-PCMCIA</i>	PCMCIA	2 x E1/T1/J1)
<i>(PIST-2-TDM-PCMCIA-Plus</i>	PCMCIA	2 x E1/T1/J1)
<i>(PIST-2-TDM-PCMCIA-EX</i>	PCMCIA	2 x E1/T1/J1)
PIST-2-TDM-PCMCIA-CST	PCMCIA	2 x E1/T1/J1
PIST-2-TDM-PCMCIA-PRO	PCMCIA	2 x E1/T1/J1
PIST-2-TDM-ExpressCard	ExpressCard/54	2 x E1/T1/J1
PIST-4-TDM-ExpressCard	ExpressCard/54	4 x E1/T1/J1
<i>(PIST-2-TDM-PCI</i>	PCI	2 x E1/T1/J1)
PIST-2-TDM-PCI-Plus	PCI	2 x E1/T1/J1
PIST-2-TDM-PCIE	PCI Express x1	2 x E1/T1/J1
PIST-4-TDM-PCI-Plus	PCI	4 x E1/T1/J1
<i>(PIST-8-TDM-PCI</i>	PCI	8 x E1/T1/J1)
PIST-8-TDM-PCI-Plus	PCI	8 x E1/T1/J1
PIST-16-TDM-PCI-Basic-32	PCI	16 x E1/T1/J1 (monitoring only)
PIST-16-TDM-PCI-Basic-64	PCI	16 x E1/T1/J1 (monitoring only)
PIST-16-TDM-PCI-Plus	PCI	16 x E1/T1/J1 (monitoring only)
PIST-16-TDM-PCIE	PCI Express x1	16 x E1/T1/J1 (monitoring only)
<i>(PIST-5x4-ASM</i>	ASM daughterboard	DSP board)
<i>(PIST-5x4-ASM-EX</i>	ASM daughterboard	DSP board)
<i>(PIST-5x4-ASM-CST</i>	ASM daughterboard	DSP board)
PIST-5x4-ASM-PRO	ASM daughterboard	DSP board for PIST PCI/PCIE
PIST-55x4-ASM	ASM daughterboard	DSP board for PIST PCI/PCIE
PIST-1-ISDN-BRI-USB	External USB	1 x ISDN BRI S/T (monitoring only)
PIST-4-ISDN-BRI-USB	External USB	4 x ISDN BRI S/T (monitoring only)
PIST-4-ISDN-BRI-USB-Internal	Internal USB card	4 x ISDN BRI S/T (monitoring only)
PIST-1-ATM-PCI	PCI	1 x SDH STM-1/SONET OC3
PIST-1-ATM-PCIE	PCI Express x1	1 x SDH STM-1/SONET OC3
PIST-2-SDH-PCIE	PCI Express x1	2 x SDH STM-1/SONET OC3
Intel PRO/1000 PT Dual Port	PCI Express x4	2 x 1 Gbps Ethernet (electrical)
Intel PRO/1000 PT Quad Port	PCI Express x4	4 x 1 Gbps Ethernet (electrical)
Napatech NT4E-4	PCI Express x8	4 x 1 Gbps Ethernet (optical/electrical)
Napatech NTPORT4E-4	PCI Express x8	4 x 1 Gbps Ethernet, adapter to NT4E-4
PIST T-Attenuator	Monitor Tap	2 x RJ45 (In) + 1 x RJ45 (Out)
PIST Impedance Converter	Imp. Converter	1 x RJ45 – 2 x BNC
PIST Impedance Converter	Imp. Converter	1 x RJ45 – 2 x Type 1.6/5.6
PIST Rack Mounting Panel for PIST T-Attenuators and PIST Impedance Converters		
PIST Rack Mounting Harmonica for PIST PCI/PCIE boards		

Notes:

1. Not all of the features and possibilities available with the PIST boards are utilized in the Utel Systems' STIGNA protocol analyser and simulator products.
2. Boards presented in italic within parenthesis are obsolete.

PIST-2-TDM-PCMCIA versions

Picture



Feature Highlights

- 2 E1/T1/J1 interfaces. Software switchable between all modes
- 1 full duplex span of monitoring
- High-impedance mode for monitor applications
- Software-switchable 20dB/30dB signal amplifier for attenuated monitor conditions
- PCMCIA host bus interface
- Two on-board digital signal processors (DSPs)
 - PIST-2MP: 80 MIPS processing power each
 - PIST-2MP-Plus/PIST-2MP-CST: 120 MIPS processing power each
 - PIST-2MP-EX/PIST-2MP-PRO: 160 MIPS processing power each
- Single bit error simulation mode (PIST-2MP-Plus/PIST-2MP-EX/PIST-2MP-CST/PIST-2MP-PRO)

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • PCMCIA Type II card
Host Bus Interface	<ul style="list-style-type: none"> • PCMCIA Type II card • I/O mapped, SW configurable IRQ
Network Interfaces	<ul style="list-style-type: none"> • 2 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm and 100/120 Ohm or high impedance
DSP	<ul style="list-style-type: none"> • PIST-2MP: 2 x TI TMS320C548 (80 MIPS) • PIST-2MP-Plus: 2 x TI TMS320C549 with (120 MIPS) • PIST-2MP-CST: 2 x TI TMS320C54CST (120 MIPS) • PIST-2MP-EX: 2 x TI TMS320C5410A (160 MIPS) • PIST-2MP-PRO: 2 x TI TMS320VC5416 (160 MIPS)
DSP Programming Interface	<ul style="list-style-type: none"> • Software development kit in ANSI C and C++ • Open interface with standard third-party tools
DSP Applications	<ul style="list-style-type: none"> • DTMF, MF, FSK, and generic tone (e.g., dial-tone and call progress tone) generation and detection • Speech compression, encoding and decoding • HDLC processing
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator • Incoming E1/T1/J1 span
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1mode

	<ul style="list-style-type: none"> • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection
EMC and Safety Testing/Certification	<ul style="list-style-type: none"> • FCC Part 15 (CFR47, Part 15, Subpart B) • CE EMC (EN61326-1 Class B Equipment, AS/NZS 2064 Class B Limits) • Safety EN60950 and UL60950 (dongle only)
Connector	<ul style="list-style-type: none"> • RJ45/RJ48C in dongle (two dongles per board)
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 3.0W for PIST-2MP; 2.8W for PIST-2MP+ • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30o C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30o C, and 5% to 30% RH above +30 C up to +50 C non-condensing
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-2-TDM-ExpressCard

PIST-4-TDM-ExpressCard

Picture



Feature Highlights

- PIST-2MP-EC54 ExpressCard: 2 x E1/T1/J1 (2 TX + 2 RX) interfaces.
- PIST-4MP-EC54 ExpressCard: 2/4 E1/T1/J1 (2 TX + 4 RX) interfaces.
- Software switchable between E1/T1/J1 modes.
- PIST-2MP-EC54: 1 full duplex span of monitoring, simulation on 2 spans.
- PIST-4MP-EC54: 2 full duplex spans of monitoring, simulation on 2 spans.
- High-impedance mode for monitor applications
- Software switchable 20dB/30dB signal amplifier for attenuated monitor conditions.
- ExpressCard/54 bus interface.
- Onboard DSP with 400 MIPS processing power.
- 32-bit DMA burst data transfer for efficient data transfer of E1/T1/J1 bit-data.
- DSP-based support for HDLC encoding/decoding.
- DSP-based support for tone generation/detection (e.g. DTMF, MF, and custom tones).

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • ExpressCard/54 extended module (54mm x 118.5mm x 18mm)
Host Bus Interface	<ul style="list-style-type: none"> • PCI Express r1.0a, single lane, 2.5 Gbps data rate • Hot-pluggable • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • PIST-2MP-EC54: 2 E1/T1/J1 (software switchable) • PIST-4MP-EC54: 2/4 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm and 100/120 Ohm or high impedance • Monitor amplifier (-20dB and -30dB modes)
DSP	<ul style="list-style-type: none"> • 1 x TI TMS320VC5510 (400 MIPS)
DSP Programming Interface	<ul style="list-style-type: none"> • Software development kit in ANSI C and C++ • Open interface with standard third-party tools
DSP Applications	<ul style="list-style-type: none"> • DTMF, MF, and generic tone (e.g., dial-tone and call progress tone) generation and detection • G.711 Speech compression, encoding and decoding • HDLC processing • BERT, G.723.1, G.729 (as part of add-on SDK)
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator

	<ul style="list-style-type: none"> • Incoming E1/T1/J1 span (either span)
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection • Loop codes, channel loopback and PRBS
EMC and Safety Testing/Certification	<ul style="list-style-type: none"> • FCC Part 15 (CFR47, Part 15, Subpart B) • CE EMC (EN61326-1 Class B Equipment, AS/NZS 2064 Class B Limits) • Safety EN60950 and UL60950 (dongle only)
Connector	<ul style="list-style-type: none"> • RJ45/RJ48C connectors (in extension of case)
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: TBD • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30o C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30o C, and 5% to 30% RH above +30 C up to +50 C non-condensing
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-2-TDM-PCI

Picture



Feature Highlights

- 2 E1/T1/J1 interfaces. Software switchable between all modes.
 - 1 full duplex span of monitoring.
 - PCI host bus interface.
 - H.100 Computer Telephony bus interface.
 - PIST ASM daughterboard socket.
- Can be used with the following:
- PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.
 - PIST-5x4-ASM: 4 x TI TMS320C548/549 DSP with 80 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Half-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • PCI Rev. 2.1 electrical interface • Memory mapped interface
Network Interfaces	<ul style="list-style-type: none"> • 2 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm and 100/120 Ohm, or high-impedance
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 simplex channels switchable between adapters • 2024 channels switchable locally • Backwards compatible with MVIP and SC-Bus
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • PIST-5x4-ASM: 4 x TI TMS320C548/549 (80 MIPS) with 512KB SDRAM
HDLC Resources	<ul style="list-style-type: none"> • Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator (high-stability oven-controlled oscillator option available) • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ48C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection • Loop codes, channel loopback and PRBS

Phone Features	<ul style="list-style-type: none">• 4 analog interfaces (codecs) for handset connections
Power Requirements/Environmental Data	<ul style="list-style-type: none">• Power consumption: 4.6W• Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C• Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing• Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none">• Windows 2000• Windows XP• Windows Vista• Windows 7• Windows Server 2003• Windows Server 2008• Linux
API	<ul style="list-style-type: none">• Device Driver SDK• DSP SDK

PIST-2-TDM-PCI-Plus

Picture



Feature Highlights

- 2 E1/T1/J1 interfaces. Software switchable between all modes.
- 1 full duplex span of monitoring.
- PCI host bus interface, master capable
- H.100 Computer Telephony bus interface.
- 32-bit data DMA burst feature significantly reduces host CPU load
- Voltage and Frequency measurements of the E1/T1/J1 span
- Signal amplifiers for attenuated E1/T1/J1 monitor conditions
- PIST ASM daughterboard socket.

Can be used with the following:

- PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.
- PIST-5x4-ASM: 4 x TI TMS320C548/549 DSP with 80 MIPS each.
- PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP with 120 MIPS each.
- PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160 MIPS each.
- PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP with 160 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Half-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • PCI Rev. 2.1 electrical interface • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 2 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 simplex channels switchable between adapters • 2024 channels switchable locally • Backwards compatible with MVIP and SC-Bus
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • PIST-5x4-ASM: 4 x T1 TMS320C548 (80 MIPS) 512KB SDRAM • PIST-5x4-ASM: 4 x TI TMS320C549 (120 MIPS) 512KB SDRAM • PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP (120 MIPS) with 512 KB SDRAM • PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP (160 MIPS) with 512KB SDRAM • PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP (160 MIPS).
HDLC Resources	<ul style="list-style-type: none"> • Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS

E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator (high-stability oven-controlled oscillator option available) • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection • Loop codes, channel loopback and PRBS
Phone Features	<ul style="list-style-type: none"> • 4 analog interfaces (codecs) for speaker, microphone, handsets or modem connections
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 2.2W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-2-TDM-PCle

Picture



Feature Highlights

- 2 E1/T1/J1 interfaces. Software switchable between all modes.
- 1 full duplex span of monitoring.
- PCI Express host bus interface, master capable.
- H.100 Computer Telephony bus interface.
- 32-bit data DMA burst feature significantly reduces host CPU load.
- Voltage and Frequency measurements of the E1/T1/J1 span.
- Signal amplifiers for attenuated E1/T1/J1 monitor conditions.
- PIST ASM daughterboard socket.

Can be used with the following:

- PIST-6x4-ASM: 4 x TI TMS320DM6443 dual core processors with 4752 DSP MIPS and 297 MHz ARM9 processing power each
- PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.
- PIST-5x4-ASM: 4 x TI TMS320C548/549 DSP with 80 MIPS each.
- PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP with 120 MIPS each.
- PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160 MIPS each.
- PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP with 160 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Half-size PCI Express board
Host Bus Interface	<ul style="list-style-type: none"> • Supports PCI Express r1.0a (single channel) • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 2 E1/T1/J1 interfaces (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 duplex channels switchable between adapters • 1024 channels switchable locally
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-6x4-ASM: 4 x TI TMS32DM6443 (4752 DSP MIPS and 1200 ARM MIPS) • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • PIST-5x4-ASM: 4 x T1 TMS320C548 (80 MIPS) 512KB SDRAM • PIST-5x4-ASM: 4 x TI TMS320C549 (120 MIPS) 512KB SDRAM • PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP (120 MIPS) with 512 KB SDRAM • PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP (160 MIPS) with 512KB SDRAM • PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP (160 MIPS).
HDLC Resources	<ul style="list-style-type: none"> • Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode)

	<ul style="list-style-type: none"> • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • On-board oscillator , and high-stability (0.5ppm) oscillator available as an option • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1 and Ethernet, and RJ11 connectors for handsets
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection, loop codes, channel loopback and PRBS • E1/T1 span frequency measurement • E1/T1 signal voltage measurement
Phone Features	<ul style="list-style-type: none"> • 4 analog interfaces (codecs) for speaker, microphone, handsets or modem connections (2 channels if the PIST-6x4-ASM is populated)
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 2.3 W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-4-TDM-PCI

Picture



Feature Highlights

- 4 E1/T1/J1 interfaces. Software switchable between all modes.
- 2 full duplex spans of monitoring.
- PCI host bus interface, master capable.
- H.100 Computer Telephony bus interface.
- 32-bit data DMA burst feature significantly reduces host CPU load.
- Voltage and Frequency measurements of the E1/T1/J1 span.
- Signal amplifiers for attenuated E1/T1/J1 monitor conditions.
- PIST ASM daughterboard socket.
 - Can be used with the following:
 - PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.
 - PIST-5x4-ASM: 4 x TI TMS320C548/549 DSP with 80 MIPS each.
 - PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP with 120 MIPS each.
 - PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160 MIPS each.
 - PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP with 160 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Full-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • Supports PCI rev. 2.1, rev 2.2, rev 2.3 (3.3 volt signalling) and rev 3.0 • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 4 E1/T1/J1 interfaces (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 duplex channels switchable between adapters • 1024 channels switchable locally
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • PIST-5x4-ASM: 4 x T1 TMS320C548 (80 MIPS) 512KB SDRAM • PIST-5x4-ASM: 4 x TI TMS320C549 (120 MIPS) 512KB SDRAM • PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP (120 MIPS) with 512 KB SDRAM • PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP (160 MIPS) with 512KB SDRAM • PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP (160 MIPS).
HDLC Resources	<ul style="list-style-type: none"> • Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode)

	<ul style="list-style-type: none"> • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection • Loop codes, channel loopback and PRBS • E1/T1 span frequency measurement
Phone Features	<ul style="list-style-type: none"> • 4 analog interfaces (codecs) for speaker, microphone, handsets or modem connections
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 4.1 W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-8-TDM-PCI

Picture



Feature Highlights

- 8 E1/T1/J1 interfaces. Software switchable between all modes.
- 4 full duplex spans of monitoring.
- PCI host bus interface.
- H.100 Computer Telephony bus interface.
- PIST ASM daughterboard socket.
 - Can be used with the following:
 - PIST-5x4-ASM: 4 x TI TMS320C548/549 DSP with 80 MIPS each.
 - PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Full-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • PCI Rev. 2.1 electrical interface • Memory mapped interface
Network Interfaces	<ul style="list-style-type: none"> • 8 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm and 100/120 Ohm
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 duplex channels switchable between adapters • 1024 channels switchable locally • Backwards compatible with MVIP and SC-Bus
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • PIST-5x4-ASM: 4 x TI TMS320C548/549 (80 MIPS) with 512KB SDRAM
HDLC Resources	<ul style="list-style-type: none"> • Support for 3 HDLC channels per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator (high-stability oven-controlled oscillator option available) • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold

	<ul style="list-style-type: none"> • Alarm insertion and detection • Loop codes, channel loopback and PRBS
Phone Features	<ul style="list-style-type: none"> • 4 analog interfaces (codecs) for handset connections
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 7.4W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-8-TDM-PCI-Plus

PIST-8-TDM-PCI-Plus-2.0

Picture



Feature Highlights

- 8 E1/T1/J1 interfaces. Software switchable between all modes.
 - 4 full duplex spans of monitoring.
 - PCI host bus interface, master capable.
 - H.100 Computer Telephony bus interface.
 - 32-bit data DMA burst feature significantly reduces host CPU load.
 - Voltage and Frequency measurements of the E1/T1/J1 span.
 - Signal amplifiers for attenuated E1/T1/J1 monitor conditions.
 - PIST ASM daughterboard socket.
- Can be used with the following:
- PIST-6x4-ASM: 4 x TI TMS320DM6443 dual core processors with 4752 DSP MIPS and 297 MHz ARM9 processing power each (PIST-8MI-Plus-2.0).
 - PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.
 - PIST-5x4-ASM: 4 x TI TMS320C548/549 DSP with 80 MIPS each.
 - PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP with 120 MIPS each.
 - PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160 MIPS each.
 - PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP with 160 MIPS each.

Technical Specifications

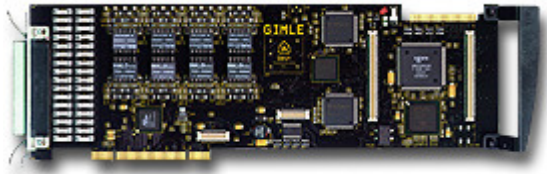
Board Specification	<ul style="list-style-type: none"> • Full-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • Supports PCI rev. 2.1, rev 2.2, rev 2.3 (3.3 volt signalling) and rev 3.0 • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 8 E1/T1/J1 interfaces (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 duplex channels switchable between adapters • 1024 channels switchable locally
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-6x4-ASM: 4 x TI TMS320DM6443; 19008 DSP MIPS + 4 x 297 MHz ARM) (PIST-8MI-Plus-2.0) • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • PIST-5x4-ASM: 4 x T1 TMS320C548 (80 MIPS) 512KB SDRAM • PIST-5x4-ASM: 4 x TI TMS320C549 (120 MIPS) 512KB SDRAM • PIST-5x4-ASM-CST: 4 x TI TMS320C54CST DSP (120 MIPS) with 512 KB SDRAM • PIST-5x4-ASM-EX: 4 x TI TMS320C5410A DSP (160

	<p>MIPS) with 512KB SDRAM</p> <ul style="list-style-type: none"> • PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 DSP (160 MIPS).
HDLC Resources	<ul style="list-style-type: none"> • Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection • Loop codes, channel loopback and PRBS • E1/T1 span frequency measurement
Phone Features	<ul style="list-style-type: none"> • 4 analog interfaces (codecs) for speaker, microphone, handsets or modem connections
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 4.1 W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-16-TDM-PCI-Basic-32

PIST-16-TDM-PCI-Basic-64

Picture



Feature Highlights

- 16 E1/T1/J1 interfaces (receive interfaces only – 16 Rx ports). Software switchable between all modes.
- 8 full duplex spans of monitoring.
- PCI host bus interface.
- H.100 Computer Telephony bus interface.
- PIST-16MI-Basic-32 PCI limited to 16 bi-directional timeslots simultaneously
- PIST-16MI-Basic-64 PCI limited to 32 bi-directional timeslots simultaneously

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Full-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • PCI Rev. 2.1 electrical interface • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 16 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 simplex channels switchable between adapters • 1024 channels switchable locally • Backwards compatible with MVIP and SC-Bus
HDLC Resources	<ul style="list-style-type: none"> • Support for 3 HDLC channels per access port
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator (high-stability oven-controlled oscillator option available) • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm detection • Loop codes, channel loopback and PRBS
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C

	<ul style="list-style-type: none">• Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing• Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none">• Windows 2000• Windows XP• Windows Vista• Windows 7• Windows Server 2003• Windows Server 2008• Linux
API	<ul style="list-style-type: none">• Device Driver SDK• DSP SDK

PIST-16-TDM-PCI-Plus

Picture



Feature Highlights

- 16 E1/T1/J1 interfaces (receive interfaces only – 16 Rx ports). Software switchable between all modes.
- 8 full duplex spans of monitoring.
- PCI host bus interface.
- H.100 Computer Telephony bus interface.
- PIST ASM daughterboard socket.
 - Can be used with the following:
 - PIST-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Full-size PCI board
Host Bus Interface	<ul style="list-style-type: none"> • PCI Rev. 2.1 electrical interface • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 16 E1/T1/J1 (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 simplex channels switchable between adapters • 1024 channels switchable locally • Backwards compatible with MVIP and SC-Bus
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each
HDLC Resources	<ul style="list-style-type: none"> • Support for 3 HDLC channels per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • Onboard oscillator (high-stability oven-controlled oscillator option available) • Incoming E1/T1/J1 span • H.100 clock • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ45C connectors for E1/T1/J1
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm detection • Loop codes, channel loopback and PRBS

Power Requirements/Environmental Data	<ul style="list-style-type: none">• Power consumption:• Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C• Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing• Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none">• Windows 2000• Windows XP• Windows Vista• Windows 7• Windows Server 2003• Windows Server 2008• Linux
API	<ul style="list-style-type: none">• Device Driver SDK• DSP SDK

PIST-16-TDM-PCle

Picture



Feature Highlights

- 16 E1/T1/J1 interfaces (receive interfaces only – 16 Rx ports). Software switchable between all modes.
- 8 full duplex spans of monitoring.
- Full or fractional E1 or T1.
- Integrated CSU/DSU.
- PCI Express host bus interface.
- Can be used in a 1-lane, 4-lane, 8-lane, or 16-lane PCIe slot.
- 32-bit DMA burst over the PCIe interface.
- RJ45 (RJ48C), BNC or Type-43 rack-mountable connector option.
- H.100 Computer Telephony bus interface.
- Multiple clocking options.
- E1/T1 span voltage meters and frequency counters.
- PIST ASM daughterboard socket.

Can be used with the following:

- PIST-6x4-ASM: 4 x TI TMS320DM6443 dual core processors with 4752 DSP MIPS and 297 MHz ARM9 processing power each.
- PIST-55x4-ASM: 4 x TI TMS320VC5510 DSPs with 400 MIPS each.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Full-size PCIe board (12.25" x 3.88")
Host Bus Interface	<ul style="list-style-type: none"> • Supports PCI Express r1.0a (single channel) • 32-bit burst DMA
Network Interfaces	<ul style="list-style-type: none"> • 16 E1/T1/J1 receive interfaces (software switchable)
Line Termination	<ul style="list-style-type: none"> • 75 Ohm , 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	<ul style="list-style-type: none"> • 32 x 2, 4, or 8 Mbit/s board-to-board highways • 256 duplex channels switchable between adapters • 1024 channels switchable locally
DSP Resources (with optional ASM daughterboard)	<ul style="list-style-type: none"> • PIST-6x4-ASM: 4 x TI TMS320DM6443; 19008 DSP MIPS + 4 x 297 MHz ARM • PIST-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each
HDLC Resources	<ul style="list-style-type: none"> • 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
E1/T1/J1 Frame Formats	<ul style="list-style-type: none"> • Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
E1/T1/J1 Line Codes	<ul style="list-style-type: none"> • HDB3, B8ZS, AMI, AMI with ZCS
E1/T1/J1 Signalling Types	<ul style="list-style-type: none"> • Channel associated (robbed bit) • Common channel
Clocking sources	<ul style="list-style-type: none"> • On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming E1/T1/J1 • H.100 clock

	<ul style="list-style-type: none"> • External clock
Connector	<ul style="list-style-type: none"> • 50-pin Centronix, 3-foot cable to harmonica with eight RJ45/RJ45C connectors for E1/T1/J1
Testing Features	<ul style="list-style-type: none"> • Full access to F, Y, Si, and Sa bits in E1 mode • Full access to FS/DL-bits in T1 mode (including support for the DL-channel protocol according to T1.403-1989 ANSI or to AT&T TR54016 specification), and programmable line build-out in T1/J1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm detection • Frequency and voltage measurement
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 4.4 W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008 • Linux
API	<ul style="list-style-type: none"> • Device Driver SDK • DSP SDK

PIST-5x4-ASM versions

Picture



Feature Highlights

- 4 Texas Instruments DSPs with 80 to 160 MIPS processing power each.
- 128KB external SDRAM per DSP.
- PIST ASM (application specific module) interface:
 - Data: 4 PCM highways
 - Control: 16-bit processor bus
- Can be attached to PIST adapters with PIST ASM connector, providing powerful DSP resources.
- Applications:
 - Tone generation/detection and voice/data encoding/decoding
 - HDLC signaling

Technical Specifications

Board Connector	<ul style="list-style-type: none"> • PIST ASM interface
Data Interface	<ul style="list-style-type: none"> • 4 x 2/4 Mbit/s PCM highways switchable in the time-space switch of the host adapter
Control Interfaces	<ul style="list-style-type: none"> • PIST ASM 16-bit processor bus. Memory mapped to the host
DSP Resources	<ul style="list-style-type: none"> • PIST-5x4-ASM: 4 x TI TMS320C548/549 (80/120 MIPS) • PIST-5x4-ASM-CST: 4 x TI TMS320C54CST (120 MIPS) • PIST-5x4-ASM-EX: 4 x TI TMS320VC5410A (120 MIPS) • PIST-5x4-ASM-PRO: 4 x TI TMS320VC5416 (160 MIPS)
DSP Memory	<ul style="list-style-type: none"> • PIST-5x4-ASM: 32 KWords internal RAM per DSP 128KB external SDRAM per DSP • PIST-5x4-ASM-CST: 16 KWords internal RAM per DSP 128KB external SDRAM per DSP • PIST-5x5-ASM-EX: 64 KWords internal RAM per DSP 128KB external SDRAM per DSP • PIST-5x4-ASM-PRO 128 KWords internal RAM per DSP
DSP Software Algorithms in ROM	<ul style="list-style-type: none"> • PIST-5x4-ASM-CST (Client Side Telephony): Data Modem: - V.32bis/V.32 - V.22bis/V.22 - V.42 - V.42bis Voice Processing: - ADPCM G.726 - G.711 - G.165 Line Echo Canceller - Voice Activity Detection (VAD) - Comfort Noise Generator (CNG) - Automatic Gain Control (AGC) - Telephony Signals Processing

	<ul style="list-style-type: none"> - DTMF Detection/Generation - CPTD Detection/Generation - CID Type I - CID Type II
DSP Programming Interface	<ul style="list-style-type: none"> • Texas Instruments C and C++ Compiler, Assembler, Linker • Texas Instruments Code Composer Studio debugger
Debugging Interface	<ul style="list-style-type: none"> • JTAG connection on the host adapter, which allows connectivity to standard third party emulator cards
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 2.2W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)

PIST-55x4-ASM

Picture



Feature Highlights

- 4 Texas Instruments TMS320VC5510 DSPs with 400 MIPS processing power each.
- 16MB (8 MWords) external SDRAM per DSP.
- PIST ASM (application specific module) interface:
 - Data: 4 PCM highways
 - Control: 16-bit processor bus
- Can be attached to PIST adapters with PIST ASM connector, providing powerful DSP resources.
- Applications:
 - Tone generation/detection
 - Voice/data encoding/decoding
 - HDLC signaling
 - VoIP

Technical Specifications

Board Connector	<ul style="list-style-type: none"> • PIST ASM interface
Data Interface	<ul style="list-style-type: none"> • 4 x 2/4 Mbit/s PCM highways switchable in the time-space switch of the host adapter
Control Interfaces	<ul style="list-style-type: none"> • PIST ASM 16-bit processor bus. Memory mapped to the host
DSP Resources	<ul style="list-style-type: none"> • 4 x TI TMS320VC5510; 400 MIPS processing power each
DSP Memory	<ul style="list-style-type: none"> • 160 KWords internal RAM per DSP • 8 MWords (16MB) external SDRAM per DSP
DSP Programming Interface	<ul style="list-style-type: none"> • Texas Instruments C and C++ Compiler, Assembler, Linker • Texas Instruments Code Composer Studio debugger
Debugging Interface	<ul style="list-style-type: none"> • JTAG connection on the host adapter, which allows connectivity to standard third party emulator cards
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Power consumption: 2.2W • Temperature: operating, 0 C to +50 C; non-operating, -40 C to +60 C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing; non-operating, 5% to 80% RH at up to +30 C, and 5% to 30% RH above +30 C up to +50 C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters (50,000 feet)

PIST-4-ISDN-BRI-USB

Picture



Feature Highlights

- External USB device
- 4 x ISDN BRI S/T interface (TE/NT)
- Monitoring
- Voice capturing to WAV files

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • USB
Network Interfaces	<ul style="list-style-type: none"> • 4 x ISDN BRI TE/NT
Connector	<ul style="list-style-type: none"> • RJ45 for ISDN BRI
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008
API	<ul style="list-style-type: none"> • SDK

PIST-4-ISDN-BRI-USB-Internal

Picture



Feature Highlights

- Internal USB card
- 4 x ISDN BRI S/T interface (TE/NT)
- Monitoring
- Voice capturing to WAV files

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • USB
Network Interfaces	<ul style="list-style-type: none"> • 4 x ISDN BRI TE/NT
Connector	<ul style="list-style-type: none"> • RJ45 for ISDN BRI
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Windows Server 2003 • Windows Server 2008
API	<ul style="list-style-type: none"> • SDK

PIST-1-ATM-PCI

PIST-1-ATM-PCIe

Picture



Feature Highlights

- 155 Mbps full duplex ATM fiber optic network adapter.
- SDH/SONET, STM-1/OC3 interface.
- PCI or PCI Express host bus interface.
- 32-bit data DMA feature significantly reduces host CPU load
- Supporting AAL5 and AAL0 (SAR).
- Supporting multimode and single mode fiber (MMF and SMF).
- 512-2048 KB onboard memory permits 16384 open connections simultaneously.

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Half-length PCI board • Half-length PCI Express board
Host Bus Interface	<ul style="list-style-type: none"> • PCI 3.3/5V • PCI Express 1.x • DMA
Network Interfaces	<ul style="list-style-type: none"> • 1 SDH/SONET, STM-1/OC3
Theoretical Network Data Transfer Rate	<ul style="list-style-type: none"> • 155.52 Mbps full duplex
Practical Data Transfer Rate	<ul style="list-style-type: none"> • 145 Mbps
Standard Compliance	<ul style="list-style-type: none"> • AAL5, AAL0 • CBR, VBR, UBR (SAR) • UNI 3.0, UNI 3.1 (ILMI included) • LAN Emulation (LANE) v1.0 • Classical IP (CIP – RFC 1577) • SONET/SDH, STS/STM-1/OC3
Simultaneous connections	<ul style="list-style-type: none"> • 16384
VPI/CIP	<ul style="list-style-type: none"> • 14-bit encoding
Clocking Sources	<ul style="list-style-type: none"> • Local • On receive clock
Transport Mode	<ul style="list-style-type: none"> • SDH • SONET
Memory	<ul style="list-style-type: none"> • 512 or 2048 KB on board memory
Indicators	<ul style="list-style-type: none"> • Network Activity • Driver is running
Cable	<ul style="list-style-type: none"> • Multimode fiber, max 2 km • Single mode fiber, max 15 km
Connectors	<ul style="list-style-type: none"> • SC
Wavelength	<ul style="list-style-type: none"> • Multimode fiber: 850 nm • Single mode fiber: 1310 nm
Sensitivity	<ul style="list-style-type: none"> • Multimode fiber (MMF): -29 dBm • Single mode fiber (SMF): -38 dBm

Output Power	<ul style="list-style-type: none"> • Multimode fiber: -20 to -11 dBm • Single mode fiber: -15 to -8 dBm
Max Input Power	<ul style="list-style-type: none"> • Multimode fiber: -9 dBm • Single mode fiber: -6dBm
Laser	<ul style="list-style-type: none"> • Class 1 laser product. Complies with IEC 60825-1 and Telcordia GR-468-CORE
Power Requirements/Environmental Data	<ul style="list-style-type: none"> • Operating voltage and current: 5V, 1 A max • Operating Temperature: 0 C to 50 C (32 F to 131 F) • Operating Humidity: 10% to 90%, non condensing
Compliance	<ul style="list-style-type: none"> • FCC Part-15 Class B
CE Marking	<ul style="list-style-type: none"> • Safety: EN50082-1 • Emissions: EN 55022 Class A
RoHS	<ul style="list-style-type: none"> • 5/6
Device Drivers	<ul style="list-style-type: none"> • Windows 2000 • Windows XP • Windows Vista • Windows 7 • Linux • FreeBSD
API	<ul style="list-style-type: none"> • WinSock2

PIST-2-SDH-PCIe

Picture



Feature Highlights

- 2 OC-3/STM-1 SONET/SDH framers (working and protection)
- Complete SONET/SDH front end with T1/E1, DS3/E3 framers/mappers/multiplexers
- 168 T1/126 E1 framers.
- Tributary path processor for 168 VT1.5/TU-11s or 126 VT2/TU-12s
- 6 M13 multiplexers, including support for G.747 multiplexing.
- High order path processor for a SONET STS-3 or an SDH STM-1
- Supports advanced test features including programmable pattern generation and detection for up to 64 byte sequences
- Byte synchronous and bit asynchronous mapper for 168 VT1.5/TU-11s or 126 VT2/TU-12s

Technical Specifications

Board Specification	<ul style="list-style-type: none"> • Half-length PCI Express board
Host Bus Interface	<ul style="list-style-type: none"> • PCI Express 1.x
Network Interfaces	<ul style="list-style-type: none"> • OC-3/STM-1 SONET/SDH interfaces
Theoretical Network Data Transfer Rate	<ul style="list-style-type: none"> • 155.52 Mbps full duplex
Supported SDH Frame Structures	
Supported SONET Frame Structures	
Mapper Features	<ul style="list-style-type: none"> • Byte Synchronous
Connector	<ul style="list-style-type: none"> • 2 Small Form-Factor Pluggable (SFP) receptacles
Line Events	<ul style="list-style-type: none"> • Accumulates the following events: Line code violation (LCV), parity error (PERR), path parity error (CPERR), remote error indication (REI, previously referred to as FEBE), excess zeros (EXZS), and framing bit error (FERR).
Pseudo-Random Sequence Generator/Detector	<ul style="list-style-type: none"> • Generates any pseudo-random pattern up to 232-1 bits in

	length or any user programmable bit pattern from 1 to 32 bits in length.
Power Requirements/Environmental Data	<ul style="list-style-type: none">• Power consumption: TBD• Temperature: <u>operating</u>, 0° C to +50° C; <u>non-operating</u>, -40° C to +60° C• Humidity: <u>operating</u>, 5% to 80% RH (%relative humidity) at up to +30° C, and 5% to 30% RH above +30° C up to +50° C non-condensing; <u>non-operating</u>, 5% to 80% RH at up to +30° C, and 5% to 30% RH above +30° C up to +50° C non-condensing• Altitude: <u>operating</u>, up to 4,600 meters (15,333 feet); <u>non-operating</u>, up to 12,192 meters 50,000 feet)
Device Drivers	<ul style="list-style-type: none">• Windows XP• Windows Vista• Windows 7• Windows Server 2003• Windows Server 2008• Linux

Intel PRO/1000 PT Dual Port

Picture



Information is coming.

Intel PRO 1000/PT Quad Port

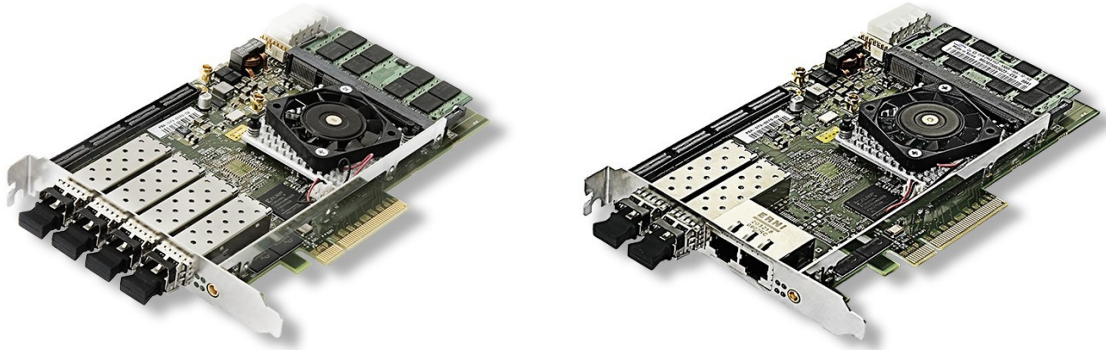
Picture



Information is coming.

Napatech NT4E-4 PCIe

Picture



Feature Highlights

- High performance adapter for advanced data capture and processing
- 4 x 1 Gbps Ethernet interfaces
- SFP RJ45 electrical interfaces
- SFP SR/LR optical interfaces
- PCIe host bus interface (8-lane at 2.5 GHz)
- Half-length PCIe board
- 4 Gbps throughput for all frame sizes
- Zero packet loss
- <1% CPU load
- 1-4 GB on-board memory
- 10 ns time stamp
- Frame classification
- Deduplication
- 64 programmable hardware filters
- 32 CPU core support
- Zero-copy to host
- LibPcap and WinPcap
- Supporting Windows and Linux

General Features

- Full-line-rate processing for all frames from 64 bytes to 10.000 bytes
- IEEE standard: IEEE 802.3 10 Mbit/s / 100 Mbit/s / 1 Gbit/s Ethernet
- Physical interfaces: SFP ports
- Supported SFP modules:
 - Multimode SR (850 nm)
 - Single-mode LR (1310 nm)
 - 1000BASE-T or 10/100/1000BASE-T
- Data rate: 4 x 1 Gbit/s or 8 x 1 Gbit/s
- PCIe performance: 12.5 Gbit/s
- CPU utilization:

- < 1% of the CPU is used for any data transfer
- 0% of the CPU is used for any onboard processing
- Time formats: PCAP-ns/- μ s, native, NDIS 10 ns/100 ns, UNIX 10 ns

Software

- Linux kernel 2.6: 32-bit/64-bit
- FreeBSD 6.x and 7.x: 32-bit/64-bit
- Windows Server 2003/2008, XP and Windows 7: 32-bit/64-bit
- API supporting user level applications
- LibPCAP and WinPCAP support
- SDK tools included in source code for debugging and prototyping and as examples of how the adapters are used

Host Interface

- Bus type: 8-lane 2.5 GHz PCIe Gen1
- Data transfer modes:
 - Bus master DMA
 - Memory write or memory read transactions
- Support for 32-bit/64-bit addressing and host DMA addressing

Statistics

- RMON1 counters plus Jumbo frame counters per port
- Frame and byte counters per filter and per host buffer
- Counter sets always delivered as a consistent time-stamped snapshot

Adapter Hardware

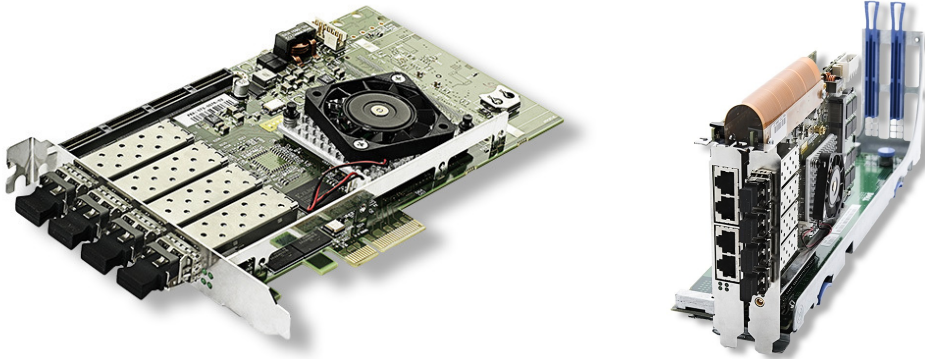
- Flash: Supports two boot images
- Memory options: Standard SO-DIMM 200-pin 1 GB, 2 GB or 4 GB DDR2 RAM modules
- Physical dimensions: 1/2-length full-height PCIe

Environment

- Power consumption: 25 Watts including SFP SR or RJ45 modules
- Operating temperature: 0 – 45 °C, 32 – 113 °F
- Operating humidity: 20 – 80%
- Hardware compliance: RoHS, UL, CE, FCC, CSA, VCCI, C-TICK
- MTBF: 266329 hours according to RIAC-HDBK-217Plu

Napatech NTPORT4E-4 PCIe

Picture



Feature Highlights

- Expansion adapter for use with Napatech NT4E-4
- 8 x 1 Gbps Ethernet interfaces (together with Napatech NT4E-4)
- SFP RJ45 electrical interfaces
- SFP SR/LR optical interfaces
- PCIe host bus interface (4-lane at 2.5 GHz)
- Half-length PCIe board
- 8 Gbps throughput for all frame sizes (together with Napatech NT4E-4)
- Zero packet loss
- <1% CPU load
- 10 ns time stamp
- Frame classification
- Deduplication
- 64 programmable hardware filters
- 32 CPU core support
- Zero-copy to host
- LibPcap and WinPcap
- Supporting Windows and Linux

General Features

- Full-line-rate processing for all frames from 64 bytes to 10.000 bytes
- IEEE standard: IEEE 802.3 10 Mbit/s / 100 Mbit/s / 1 Gbit/s Ethernet
- Physical interfaces: 4 SFP ports
- Supported SFP modules:
 - Multimode SR (850 nm)
 - Single-mode LR (1310 nm)
 - 1000BASE-T or 10/100/1000BASE-T
- Data rate: 4 x 1 Gbit/s full line rate (8-port solution: 8 x 1 Gbit/s)
- CPU utilization:
 - < 1% of the CPU is used for any data transfer
 - 0% of the CPU is used for any onboard processing
- High-precision HW time-stamping

Host Interface

- Bus type: 4-lane 2.5 GHz PCIe Gen1 for configuration and power purposes only
- Support for 32-bit/64-bit addressing and host DMA addressing

Adapter Hardware

- Flash: Supports two boot images
- Physical dimensions: ½-length full-height PCIe

Environment

- Power consumption: 15 Watts including SFP SR or RJ45 modules
- Operating temperature: 0 – 45 °C, 32 – 113 °F
- Operating humidity: 20 – 80%
- Hardware compliance: RoHS, UL, CE, FCC, CSA, VCCI, C-TICK

Software

- Linux kernel 2.6: 32-bit/64-bit
- FreeBSD 6.x and 7.x: 32-bit/64-bit
- Windows Server 2003/2008, XP and Windows 7: 32-bit/64-bit

Accessories

PIST T-Attenuator

Passive balun for non-intrusive monitoring of twisted pair E1/T1 line interfaces – one balun per E1/T1 line interface to monitor.



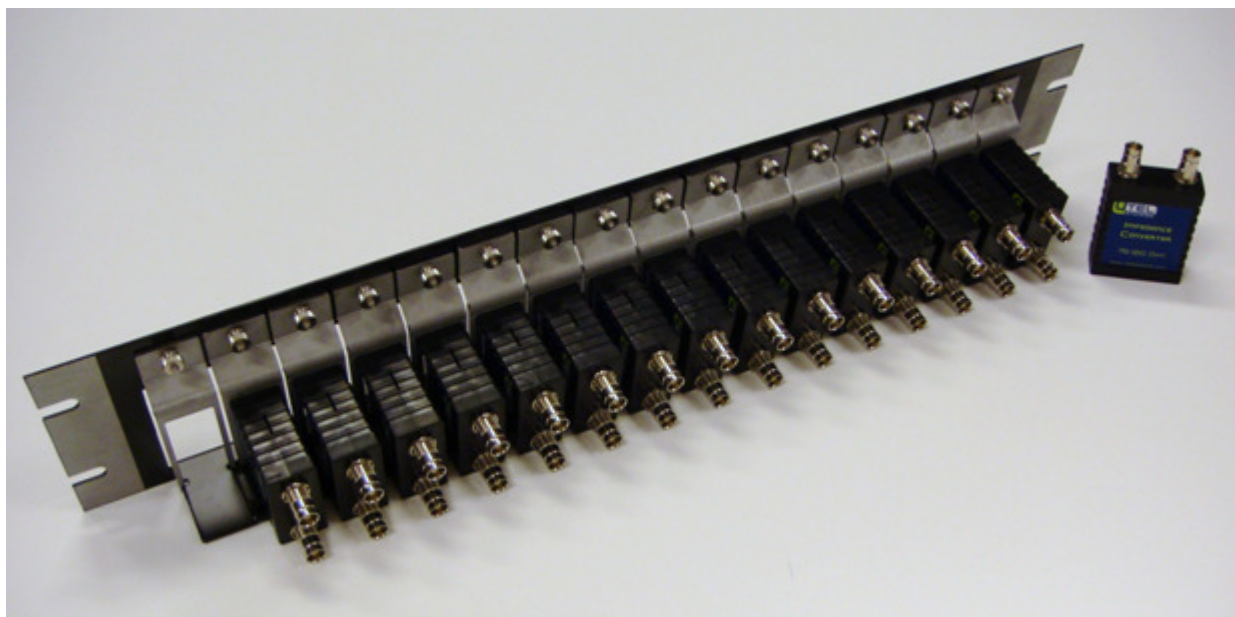
PIST Impedance Converter

Impedance converter: 75-120 Ohm.
Available with BNC and Type 1.6/5.6 coax connectors.



PIST Rackmount Panel for PIST T-Attenuator & PIST Impedance Converter

Rack mountable panel hosting up to 16 PIST T-Attenuators and/or PIST Impedance Converters.





PIST Rackmount Harmonica for PIST PCI/PCIe boards



Support

If you need any assistance or support, please refer to the web-site www.utelsystems.com for assistance before contacting your local distributor or Utel Systems (support@utelsystems.com).