Odin TeleSystems Inc.

Open Telecom for
Open Minds

Product Catalog
2012

Featured Products

- Thor-8M-USB
- Thor-ExpressCard
- Thor-2-PCIe
- Gimle-16-PCI-Plus
- Gimle-16-PCIe
- Thor-2/4/8-PCI-Plus
- Alvis-CSI
- Vidar-55x4-ASM
- Sleipnir-1-PC104-Plus
- Thor-8-PCI-Plus-2.0
- Godar-2-PCIe
- Thor-8-PCIe

- OTX Software Platform
- OTX-ISDN Library
- OTX T1/E1 Analyzer
- OTX HDLCEX Library
- OTX Tone Library

Odin TeleSystems Inc.

Open Telecom for
Open Minds

OTX-Platform

Award winning OTX (Odin Telecom frameworX) software platform provides a flexible open software platform, which allows rapid software application development and deployment reducing the time to market.

OTX platform consists of interchangeable building blocks comprised of the hardware driver, software development kit, and application program interfaces. OTX-Plus adds support for 32-bit DMA burst which drastically increases data throughput performance.

OTX platform provides an open, flexible and powerful way to develop VoIP, voice, call processing, and DSP applications.

OTX platform is a scalable platform. OTX manages hardware resources allowing multiple applications and/or multiple processes and threads to use multiple adapter boards with minimum blocking.

OTX platform uses system resources efficiently thereby lowering the CPU load and provides for higher channel densities.

The OTX platform allows direct access to all devices on the boards. The OTX platform allows the developer to configure and load each DSP with separate firmware modules to perform simultaneous multiple tasks. The OTX platform also allows customized DSP programs to be development through the OTX DSP software development kit.
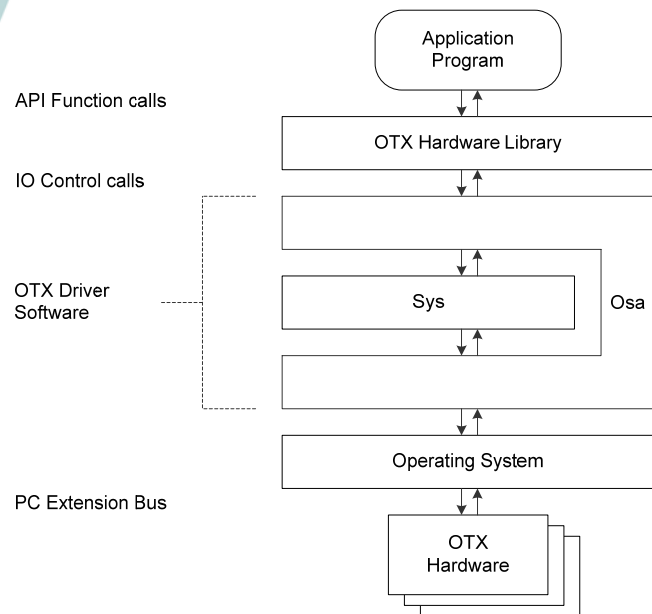
Benefits of OTX:

- OTX supports multiple platforms (Windows/Linux). Allows developer to compile the same application for multiple platforms thus reducing development time.

- A single programming platform across the entire family of Odin's OTX hardware cards.

- Extensive documentation, demonstration programs with sample code reducing the developer's effort.

API Function calls

IO Control calls

OTX Driver Software

PC Extension Bus

Application Program — OTX Hardware Library — Sys — Osa — Operating System — OTX Hardware

OTX Hardware Driver Interfaces

Feature Highlights

- H.100 (CT Bus) switching support.

- VoIP and Digital Media Processing Support.

- Support for super-channels and sub-channels.

- Silence detection, tone detection and generation.

- Support for ring tone and busy tone.

- BER Testing.

- File recording and playback.

- CAS signaling and Robbed Bit signaling.

- DSP SDK available for Texas Instruments C54x, C55x, and C64x DSPs.

- Dynamic link libraries (DLL).

- HDLC generators and receivers.

- Audio Mixing.

- Trunk interface (onhook/offhook).

- ISDN Call Control (Provided as an add-on).

- Supports Windows 2000/2003/XP/Vista/7/2008/2010, Linux 2.4.x and Linux 2.6.x operating systems.

- C# and VB interface examples.

Odin TeleSystems Inc.

Open Telecom for
Open Minds

You do not have to look far to find a USB port on any computer system these days. Therefore Odin TeleSystems presents Thor-8M-USB, a member of the Odin Telecom Frameworks (OTX) family of industry award-winning products. Thor-8M-USB provides multiple T1/E1/J1 interfaces over a single USB 2.0 interface. Thor-8M-USB provides a compact, yet high performance solution for today's netbooks, laptops, and PCs.

With four standard RJ45/RJ48C connectors routed to 8 T1/E1/J1 receivers and status LEDs integrated directly into the elegant metal case of the Thor-8M-USB, USB data transfer of all timeslots of all 8 spans, and built-in front-end circuitry to handle attenuated T1/E1/J1 signal levels and measure power levels, the Thor-8M-USB product is ideal for both portable and stationary monitoring applications like SS7/ISDN analyzers, call tapping, call logging, surveillance, and digital recording and playback..

Thor-8M-USB can also terminate 4 T1/E1/J1 spans (TX and RX), which makes Thor-8-USB equally suitable for low latency terminating applications such as network testing, remote maintenance, and telecom device simulators.

Thor-8M-USB delivers exceptional results for a vast range of modern portable and stationary telephony applications in a completely portable package.

Thor-8M-USB

Thor-8M-USB T1/E1/J1 Adapter
for both Portable and Stationary Applications

Feature Highlights

- 4/8 E1/T1/J1 (4 TX + 8 RX) interfaces.

- Software switchable between E1, T1 and J1 modes.

- High-impedance mode for non-intrusive monitoring applications.

- Signal amplifiers for attenuated T1/E1/J1 monitoring conditions (–20dB or –30dB).

- T1/E1/J1 Power level measurement.

- USB 2.0 interface.

- DMA burst data transfer for efficient data transfer of T1/E1/J1 bit-data.

- Host-based support for HDLC encoding/decoding.

- Host-based support for tone generation and tone detection (e.g. DTMF, MF, and custom tones).

Software Support	
Includes the OTX software driver, as well as a variety of host demo applications.	The Thor-8M-USB driver is available for Windows XP, Windows 2003-2010 Server, Windows Vista, Windows 7, and Linux operating systems.

Technical Specifications	
Physical Size	• Black aluminum case (3.1" width, 1.6" height, 5.25" length)
Host Bus Interface	• USB 2.0
Network Interfaces	• 4/8 T1, E1, or J1 (4 TX + 8 RX) Monitoring of 4 duplex spans or terminating 4 spans
Line Termination	• 75ohm, 100/120 Ohm, high-Z termination, monitor amplifier (-20dB and –30dB modes)
Host Based Libraries	• 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
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) • Common channel
Clocking sources	• Onboard oscillator • Incoming T1/E1/J1 span (any span)
Connectors	• 4 RJ45/RJ48C connectors • 1 USB connector (Type B) • 1 5V DC Power connector (used if the USB host can not provide enough power to Thor-8-USB)
Indicators	• 8 T1/E1/J1 status dual-color (Red/Green) LEDs • 1 Power :LED • 1 General Status LED
Testing Features	• Full access to F, Y, S_i, and S_a 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
Power Requirements/Environmental Data	• Power consumption: TBD • Temperature: <u>operating</u>, 0° C to $+50^o$ 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)

Ordering Information	
Product Name/Product Category	Thor-8M-USB HAA-1093-1 (4 TX/RX or 8 RX/RX) Thor-4M-USB HAA-1093-2 (2 TX/RX or 4 RX/RX) Thor-8-USB HAA-1095-1 (8 TX/RX) Thor-2-USB HAA-1095-3 (2 TX/RX)

Contact Information		
For more information on the Thor-8M-USB product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The Thor-2-ExpressCard and the Thor-4-ExpressCard are prominent members of the Odin Telecom Frameworks (OTX) family of industry award-winning products, which provide T1/E1/J1 connectivity in the ExpressCard/54 form factor. This form factor is the official standard for modular expansion for desktop and mobile systems. The ExpressCard technology provides a compact, yet high performance solution for expansion adapter cards for today's PC laptops.

With two or four T1/E1/J1 links integrated directly into the case of the ExpressCard/54 card, DMA burst data transfer capability, and built-in circuitry to handle attenuated signal levels and measure power levels, the Thor-ExpressCard product family is ideal for mobile monitoring applications like SS7/ISDN analyzers, call tapping, call logging, surveillance, and digital recording and playback.

The cards also packs a total of 400 MIPS of DSP processing power, which make them equally suitable for low latency terminating applications such as network testing, remote maintenance, and telecom device simulators.

Thor-2-ExpressCard and Thor-4-ExpressCard both deliver exceptional results for a vast range of modern mobile telephony applications in a completely mobile package.

Thor-2-ExpressCard
Thor-4-ExpressCard

Thor-2-ExpressCard and Thor-4-ExpressCard T1/E1/J1 Adapter for Laptop Applications

Feature Highlights

- 2 E1/T1/J1 (2 TX + 2 RX) interfaces (Thor-2-ExpressCard) 2/4 E1/T1/J1 (2 TX + 4 RX) interfaces (Thor-4-ExpressCard).

- Software switchable between E1, T1 and J1 modes.

- High-impedance mode for non-intrusive monitoring applications.

- Signal amplifiers for attenuated T1/E1/J1 monitoring conditions (–20dB or –30dB).

- Power level measurement (included with Thor-4-ExpressCard and optional with Thor-2-ExpressCard).

- ExpressCard/54 bus interface.

- Onboard DSP with 400 MIPS processing power.

- 32-bit DMA burst data transfer for efficient data transfer of T1/E1/J1 bit-data.

- DSP-based support for HDLC encoding/decoding

- DSP-based support for tone generation and tone detection (e.g. DTMF, MF, and custom tones)

- Support for custom DSP applications

Thor-2-ExpressCard and Thor-4-ExpressCard Product Brief

Software Support	
Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications.	The Thor-2-ExpressCard/Thor-4-ExpressCard driver is available for Windows NT, Windows 2000, Windows XP, Windows 2003 Server, Windows Vista, Pocket PC 2002, and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications	
Board Specification	• ExpressCard/54 extended module (54mm x 118.5mm x 18mm)
Host Bus Interface	• PCI Express r1.0a, single lane, 2.5 Gbps data rate • 32-bit burst DMA
Network Interfaces	• Thor-2-ExpressCard: 2 T1, E1, or J1 (2 TX + 2 RX) Monitoring of 1 span or terminating 2 spans • Thor-4-ExpressCard: 2/4 T1, E1, or J1 (2 TX + 4 RX) Monitoring of 2 spans or terminating 2 spans
Line Termination	• 75ohm, 100/120 Ohm, high-Z termination, monitor amplifier (-20dB and –30dB modes)
DSP	• 1 x TI TMS320VC5510 (400 MIPS processing power)
DSP Programming Interface	• Software development kit in ANSI C and C++ • Open interface with standard third-party tools
DSP Applications	• 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)
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) • Common channel
Clocking sources	• Onboard oscillator • Incoming T1/E1/J1 span (either span)
Connector	• Two RJ45/RJ48C connectors (in extension of case)
Testing Features	• Full access to F, Y, S_i, and S_a 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
Power Requirements/Environmental Data	• Power consumption: TBD • Temperature: <u>operating</u>, 0° C to $+50^o$ C; <u>non-operating</u>, -40° C to $+60^o$ C • Humidity: <u>operating</u>, 5% to 80% RH (%relative humidity) at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ C non-condensing; <u>non-operating</u>, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ 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)

Ordering Information	
Product Name/Product Category	Thor-2-ExpressCard HAA-1074-1 Thor-2-ExpressCard HAA-1074-2 (with Power Measurement feature) Thor-4-ExpressCard HAA-1076-1 (with Power Measurement feature)

Contact Information		
For more information on the Thor-2-ExpressCard and Thor-4-ExpressCard products, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The Thor-2-PCIe computer telephony adapter is a member of the Odin Telecom Frameworks Plus (OTX-Plus) product family. OTX-Plus is an enhanced version of the industry award-winning OTX platform with products that represents outstanding cost and performance value for today's service providers and telecom equipment manufacturers.

Whether you need reliable VoIP trunking gateway capabilities, testing and measurement capabilities or superior passive monitoring, the Thor-2-PCIe series delivers exceptional results.

When adding DSP resources for VoIP and TDM processing and keeping PCI slots free is critical, Thor-2-PCIe allow for connectivity to various OTX daughter-boards. Thor-2-PCIe also provides software-switchable features that result in highly configurable systems, ones recognized for their convenience and flexibility.

The Thor-2-PCIe boards offer the maximum levels of frequency stability through their optional on-board stratum oscillators – the levels you expect in the most demanding applications and testing environments.

So for the best in VoIP, CTI, and Internet telephony applications, the Thor-2-PCIe series delivers economy, value, and performance.

Thor-2-PCIe

Thor-2-PCIe Adapter for demanding VoIP, Data, and Voice communication applications

Feature Highlights

- 2 T1/E1/J1 interfaces. Software switchable between T1, E1, and J1.

- 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 T1/E1/J1 span.

- Signal amplifiers for attenuated T1/E1/J1 monitor conditions.

- Odin ASM daughterboard socket. Can be used with the following:

  ⇒ Alvis-6x4-ASM: VoIP. 4 x TI TMS320DM6443 DSPs with 4752 MIPS each.

  ⇒ Vidar-5x4-ASM-PRO: 4 x TI TMS320C5416 DSP with 160 MIPS each.

  ⇒ Vidar-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160 MIPS each.

  ⇒ Vidar-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.

Thor-2-PCIe Product Brief

Software Support

Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications	The OTX driver is available for Windows 98, Windows NT 4.0, Windows 2000, Windows XP, Windows 2003 Server, and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications

Board Specification	• Half-size PCI-Express board
Host Bus Interface	• Supports PCI Express r1.0a (single channel) • 32-bit burst DMA
Network Interfaces	• 2 T1/J1 or E1 interfaces (software switchable); • 75 Ohm, 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	• 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)	• Vidar-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • Vidar-5x4-ASM-PRO: 4 x TI TMS320C5416 (160 MIPS) with up to 512KB SRAM each • Alvis-6x4-ASM: VoIP 4 x TI TMS32DM6443 (4752 DSP MIPS and 1200 ARM MIPS)
HDLC Resources	• Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) and Common Channel
Clocking Sources	• On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming T1/E1/J1 • H.100 Clock • External clock
Connector	• 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ48C connectors for E1/T1/J1 and Ethernet (VoIP), and RJ11 connectors for handsets
Testing Features	• Full access to F, Y, S_i, and S_a 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 • T1/E1 span frequency measurement. • T1/E1 signal voltage measurement.
Phone Features	• 4 analog interfaces (Codecs) for speaker, microphone, handset, or modem connections (2 channels if the Alvis-6x4-ASM is populated)
Power Requirements/Environmental Data	• Power consumption: 2.3W • Temperature: operating, 0°C to $+50^{o}$C; non-operating, -40°C to $+60^{o}$ C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to $+30^{o}$C, and 5% to 30% RH above $+30^{o}$ C up to $+50^{o}$C non-condensing; non-operating, 5% to 80% RH at up to $+30^{o}$ C, and 5% to 30% RH above $+30^{o}$C up to $+50^{o}$C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters 50,000 feet)

Ordering Information

Product Name/Product Category	Thor-2-PCIe/HAA-1072-1-1.0-1

Contact Information

For more information on the Thor-2-PCI-Express products, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The Gimle-16-PCI-Plus card allows PCs and other systems with a PCI bus to monitor up to 8 T1/E1 links. Gimle-16-PCI-Plus has 16 T1/E1/J1 receive interfaces which can be used for non-intrusive monitoring of ISDN, Frame Relay, SS7 links and other protocols. The Gimle-16-PCI-Plus provides the highest integration solution where monitoring of multiple links is required.

Where adding DSP resources and keeping PCI slots free is critical, Gimle-16-PCI-Plus allows for connectivity to Odin's ASM daughter boards. Gimle-16 provides software-selectable features that result in highly configurable systems, ones recognized for their convenience and flexibility.

HDLC or voice packets on the T1/E1 interface are transferred to the host PC over the PCI bus using 32-bit DMA burst transfers. The packet size is variable making it suitable for both voice and data applications.

Gimle-16-PCI-Plus offers the highest T1/E1 PCI integration in the industry which allows monitoring of 8 T1/E1 links simultaneously. Various versions are available to suit your needs The Gimle-16-PCI-Plus can transfer up to 512 time slot to and from the host, Gimle-16-Basic-64 can transfer 64 time slots, and the Gimle-16-PCI-Basic can transfer 32 time slots.

Gimle-16-PCI-Plus is supported by the award winning OTX software platform. The OTX platform supports Microsoft Windows98/2000/Me/NT/XP and Linux operating systems.

Gimle-16-PCI-Plus is the best solution for non-intrusive link monitoring.

Gimle-16-PCI-Plus

Gimle-16-PCI-Plus Adapter for T1/E1 monitoring

Feature Highlights

- Software configurable 16 T1 or E1 receive accesses.

- Ideal for non-intrusive monitoring of ISDN, SS7, Frame Relay links.

- Full or fractional T1 or E1.

- Integrated CSU/DSU.

- BNC or RJ-48C rack-mountable connector option.

- PCI 32-bit DMA Burst capable (PCI Master).

- 3.3V and 5.0V PCI slot tolerant.

- On-board DSP option (TMS320VC5510 with 400 MIPS processing power and 16Mbyte external SDRAM).

- Multiple clocking options.

- T1/E1 span voltage meters and frequency counters.

Gimle-16-PCI-Plus Product Brief

Software Support

Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications	The OTX driver is available for Windows 98, Windows NT 4.0, Windows 2000, Windows XP, Windows 2003 Server, and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications

Board Specification	• Gimle-16-PCI-Plus: Full-size PCI board
Host Bus Interface	• Supports PCI rev 2.1, rev 2.2, rev 2.3 (3volt signaling) and rev 3.0 • 32-bit burst DMA
Network Interfaces	• Gimle-16-PCI-Plus: 16 T1/J1 or E1 receive interfaces (software switchable) • Both: 75 Ohm, 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	• 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)	• Vidar-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • Vidar-5x4-ASM-PRO: 4 x TI TMS320C5416 (160 MIPS) with up to 512KB SRAM each
HDLC Resources	• 3 (Thor-8-PCI-Plus) HDLC channel(s) per access port. • ASM modules offer additional HDLC channels with support for super- and sub-channels
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) and Common Channel
Clocking Sources	• On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming T1/E1/J1 • H.100 Clock • External clock
Connector	• 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ48C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	• Full access to F, Y, S_i, and S_a 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 • Alarm detection • Frequency and Voltage measurement
Power Requirements/Environmental Data	• Power consumption: 4.4W • Temperature: <u>operating</u>, 0° C to $+50^o$ C; <u>non-operating</u>, -40° C to $+60^o$ C • Humidity: <u>operating</u>, 5% to 80% RH (%relative humidity) at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ C non-condensing; <u>non-operating</u>, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ 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)

Ordering Information

Product Name/Product Category	Gimle-16-PCI-Plus, Gimle-16-PCI-Basic-64, or Gimle-16-PCI-Basic-32 HAA-1050-1-1.0

Contact Information

For more information on Gimle-16-PCI product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

*Open Telecom for
Open Minds*

The Gimle-16-PCIe card allows PCs and other systems with a PCIe bus to monitor up to 8 T1/E1 links. Gimle-16-PCIe has 16 T1/E1/J1 receive interfaces which can be used for non-intrusive monitoring of ISDN, Frame Relay, SS7 links and other protocols. The Gimle-16-PCIe provides the highest integration solution where monitoring of multiple links is required.

Where adding DSP resources and keeping PCI slots free is critical, Gimle-16-PCIe allows for connectivity to Odin's ASM daughter boards. Gimle-16 provides software-selectable features that result in highly configurable systems, ones recognized for their convenience and flexibility.

HDLC or voice packets on the T1/E1 interface are transferred to the host PC over the PCIe bus using 32-bit DMA burst transfers. The packet size is variable making it suitable for both voice and data applications.

Gimle-16-PCIe offers the highest T1/E1 PCIe integration in the industry which allows monitoring of 8 T1/E1 links simultaneously. Various versions are available to suit your needs The Gimle-16-PCIe can transfer up to 512 time slot to and from the host.

Gimle-16-PCIe is supported by the award winning OTX software platform. The OTX platform supports Microsoft Windows XP/Server2003/Vista (32-bit and 64-bit) and Linux operating systems.

Gimle-16-PCIe is a great choice for non-intrusive link monitoring.

Gimle-16-PCIe
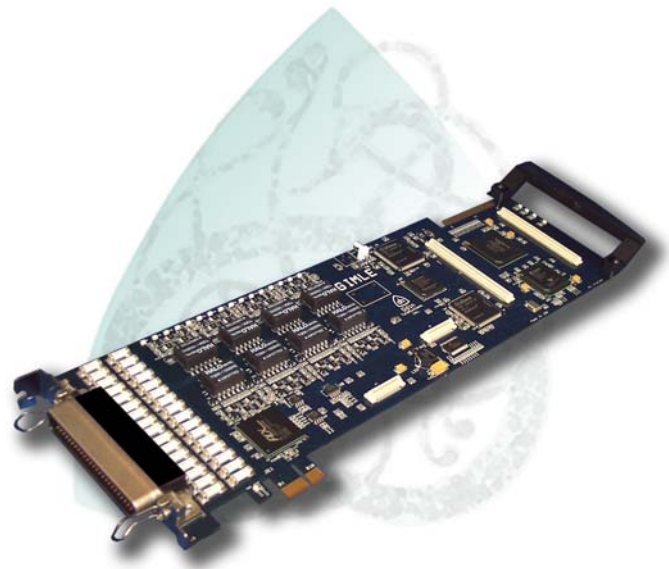
Gimle-16-PCIe Adapter for T1/E1 monitoring

Feature Highlights

- Software configurable 16 T1 or E1 receive accesses.

- Ideal for non-intrusive monitoring of ISDN, SS7, Frame Relay links.

- Full or fractional T1 or E1.

- Integrated CSU/DSU.

- RJ-48C, BNC, or Type-43 rack-mountable connector option.

- 32-bit DMA Burst over the PCIe interface.

- Can be used in a 1-lane, 4-lane, 8-lane, or 16-lane PCIe slot.

- DSP daughter board option (Vidar-55x4-ASM (4 x TMS320VC5510 with 400 MIPS each) or Alvis-ASM (TMS320DM6443 dual core processors with 4752 DSP MIPS and 297 MHZ ARM9 processing power each) .

- Multiple clocking options.

- T1/E1 span voltage meters and frequency counters.

Gimle-16-PCIe Product Brief

Software Support

Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications	The OTX driver is available for , Windows XP, Windows 2003-2010 Server (32-bit and 64-bit), Windows Vista and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications

Board Specification	• Gimle-16-PCIe: Full-size PCIe board (12.25" x 3.88")
Host Bus Interface	• Supports PCI Express r1.0a (single channel) • 32-bit burst DMA
Network Interfaces	• Gimle-16-PCIe: 16 T1/J1 or E1 receive interfaces (software switchable) • Both: 75 Ohm, 100/120 Ohm, 300 ohm, and High-z termination, monitor amplifier
H.100 Interface	• 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)	• Alvis-4-ASM: 4 x TI TMS320DM6443; 19008 DSP MIPS + 4 x 297 MHz ARM9 • Vidar-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each
HDLC Resources	• 1 HDLC channel per access port. • ASM modules offer additional HDLC channels with support for super- and sub-channels
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) and Common Channel
Clocking Sources	• On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming T1/E1/J1 • H.100 Clock • External clock
Connector	• 50-pin Centronix, 3-foot cable to harmonica with eight RJ45/RJ48C connectors for E1/T1/J1
Testing Features	• Full access to F, Y, S_i, and S_a 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 • Alarm detection • Frequency and Voltage measurement
Power Requirements/Environmental Data	• Power consumption: 4.4W • Temperature: operating, 0^oC to $+50^o$C; non-operating, -40^oC to $+60^o$ C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to $+30^o$C, and 5% to 30% RH above $+30^o$ C up to $+50^o$C non-condensing; non-operating, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$C up to $+50^o$C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters 50,000 feet)

Ordering Information

Product Name/Product Category	Gimle-16-PCIe - HAA-1088-1-1.0

Contact Information

For more information on Gimle-16-PCI e product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

*Open Telecom for
Open Minds*

Thor-2-PCI-Plus

Thor-8-PCI-Plus

The Thor-2-PCI-Plus and Thor-8-PCI-Plus computer telephony adapters are members of the Odin Telecom Frameworks Plus (OTX-Plus) product family. OTX-Plus is an enhanced version of the industry award-winning OTX platform with products that represents outstanding cost/performance value for today's service providers and telecom equipment manufacturers.

Whether you need reliable testing and measurement capabilities or superior passive monitoring, the Thor PCI series delivers exceptional results. With its half-size foot-print, the Thor-2 PCI-Plus is the choice where space is at a premium. And the Thor-8-PCI-Plus provides the highest integration solution where high port density of T1/E1/J1 interfaces is required.
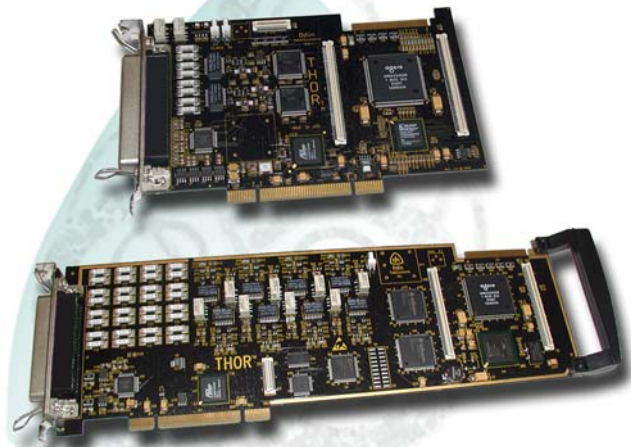
Where adding DSP resources and keeping PCI slots free is critical, Thor-2-PCI-Plus and Thor-8-PCI-Plus allow for connectivity to daughter-boards. And both Thor-2-PCI-Plus and Thor-8-PCI-Plus provide software-switchable features that result in highly configurable systems, ones recognized for their convenience and flexibility.

Both versions of the Thor PCI Plus boards offer the maximum levels of frequency stability through their optional on-board stratum oscillators – the levels you expect in the most demanding applications and testing environments.

So for the best in CTI and Internet telephony applications, the Thor PCI Plus series delivers economy, value, and performance.

Thor-2-PCI-Plus and Thor-8-PCI-Plus Adapters for demanding Data and Voice communication applications

Feature Highlights

- 8 T1/E1/J1 interfaces (Thor-8-PCI-PLUS). Software switchable between T1, E1, and J1.

- 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 T1/E1/J1 span.

- Signal amplifiers for attenuated T1/E1/J1 monitor conditions.

- Odin ASM daughterboard socket. Can be used with the following:

  ⇒ Vidar-5x4-ASM-PRO: 4 x TI TMS320C5416 DSP with 160 MIPS each.

  ⇒ Vidar-5x4-ASM-CST: 4 x TI TMS320C54CST DSP with 120 MIPS each.

  ⇒ Vidar-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160 MIPS each.

  ⇒ Vidar-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.

Thor-2-PCI-Plus and Thor-8-PCI-Plus Product Brief

Software Support

Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications	The OTX driver is available for 2000, Windows XP, Windows 2003 Server, and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications

Board Specification	• Thor-2-PCI-Plus: Half-size PCI board • Thor-8-PCI-Plus: Full-size PCI board
Host Bus Interface	• Supports PCI rev 2.1, rev 2.2, rev 2.3 (3.3volt signaling) and rev 3.0 • 32-bit burst DMA
Network Interfaces	• Thor-2-PCI-Plus: 2 T1/J1 or E1 interfaces (software switchable); • Thor-8-PCI-Plus: 8 T1/J1 or E1 interfaces (software switchable) • Both: 75 Ohm, 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	• 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)	• Vidar-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each • Vidar-5x4-ASM-PRO: 4 x TI TMS320C5416 (160 MIPS) with up to 512KB SRAM each
HDLC Resources	• Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) and Common Channel
Clocking Sources	• On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming T1/E1/J1 • H.100 Clock • External clock
Connector	• 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ48C connectors for E1/T1/J1, and RJ11 connectors for handsets
Testing Features	• Full access to F, Y, S_i, and S_a 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 • T1/E1 span frequency measurement. T1/E1 signal voltage measurement (Thor-2-PCI-Plus).
Phone Features	• 4 analog interfaces (Codecs) for speaker, microphone, handset, or modem connections
Power Requirements/Environmental Data	• Power consumption: 4.1W (Thor-8-PCI-Plus) 2.2W (Thor-2-PCI-Plus) • Temperature: operating, 0^oC to $+50^o$C; non-operating, -40^oC to $+60^o$ C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to $+30^o$C, and 5% to 30% RH above $+30^o$ C up to $+50^o$C non-condensing; non-operating, 5% to 80% RH at up to $+30^o$C, and 5% to 30% RH above $+30^o$C up to $+50^o$C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters 50,000 feet)

Ordering Information

Product Name/Product Category	Thor-2-PCI-Plus/HAA-1048-1-1.0-1 Thor-8-PCI-Plus/HAA-1094-1-1.0-1

Contact Information

For more information on the Thor-2-PCI-Plus and Thor-8-PCI-Plus products, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

Alvis-CSI

Odin TeleSystems introduced the Alvis product family to provide the ultimate industry solution for voice (VoIP) and video streaming applications (TVoIP) essential for soft-switch systems, media gateways and transcoding applications.

The Alvis-CSI is a complete stand-alone processing system in a compact desktop or wall-mountable unit. The product is available with or without E1/T1 interfaces. The Ethernet-only version can be used for router, soft-switch, and transcoding applications. The Dual, Quad, or Octal E1/T1 version can be used for media gateway applications (PRI VoIP), T1/E1 link extensions (TDMoP/E) and T1/E1 recording systems.

The Alvis-CSI (Complete Solution Integration) is based on Texas Instruments' dual core DaVinci TMS320DM6443 Digital Media processor. This processor provides an astonishing amount of processing power which facilitates encoding and decoding of numerous simultaneous channels.

The dual core processor on the Alvis-CSI consists of one ARM9 core and one DSP C64x+ core. For optimum performance, the work load is split between the two cores. The ARM core runs the MontaVista Linux operating system and handles higher layer stacks like Session Initiation Protocol (SIP) and TCP/IP. The DSP core runs DSP/BIOS (xDM codecs) and handles all real-time encoding/decoding operations.

The open architecture and the small footprint of the Alvis-CSI provides system designers with the horsepower needed to build a very powerful soft-switch or media gateway application, yet providing full flexibility for customization.

Feature Highlights

- One Texas Instruments TMS320DM6443 dual core processor with 4752 DSP MIPS and 297 MHz ARM9 processing power
- 256 MB DDR2 memory
- 128 MB NAND shared flash memory
- 2 GB SD-card memory
- Zero, Two, Four or Eight T1/E1 interfaces
- Includes support for most popular VoIP and Video algorithms like G.723, G.726, G.729, AMR-NB, GSM-FR, DTMF, etc. Other encoders and decoders like AMR WB, H.264, H.263, G.728, G.726, Echo cancellation /VAD, etc can be supported through third-party vendors
- MontaVista Linux on ARM-core
- DSP/BIOS & Codec Engine Framework on DSP-core
- 10/100 Ethernet port for data transfer and remote access
- Serial ports for debugging and application development
- Web interface for simple configuration and status verification
- USB 2.0 port
- Straightforward software updates using apt-get rpm packages
- Supports standard OTX DSP API for customized DSP applications
- Compatibility with TI xDM (XDAIS) specification
- OTX CodecEngine Servers for common SPM
- SNMP Management

Alvis-CSI Product Brief

Applications	
Provides applications capabilities for the following, plus others:	• VoIP and TVoIP Media Gateway • Transcoders • Soft-switch

Technical Specifications	
Board Connectors	• One RJ-45 10/100 Ethernet connector • Zero, 2, 4, or 8 E1/T1 RJ-45 connectors • Serial port connector • USB connector
Data Interfaces	• 10/100 Ethernet interface • USB 2.0 interface • 2, 4 or 8 T1/J1 or E1 interfaces with software switchable line termination (High-Z, 75 Ohm and 100/120 Ohm) (except for *HAA-1082-1*)
T1/E1 Frame Formats (HAA-1082-2 only)	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes (HAA-1082-2 only)	• HDB3, B8ZS, AMI, AMI with ZCS
DSP core and ARM9 Resources	• DSP Core: 4752 MIPS (C64x+) • ARM9 Core: 297 MHz
Memory	• 256 MB SDRAM (shared by DSP and ARM9 cores) • 128 MB Flash memory and 2GB SD-card
Programming Interface	• OTX DSP API (for custom DSP core software) • OTX HW API (for controlling software) • MontaVista Linux tools
Debugging Interface	• Serial port connection allows full access to ARM9 core
Physical Dimensions	• 5" x 7" (1.75" height). Key-hole mount or desktop option (bumper pads) on the back side • 19" x 8" (1.75" height). Rack-mount version is also available. The metal case and can fit 1 or 2 Alvis-CSI units.
Power Requirements/Environmental Data	• Power (5V) is supplied via external power supply (110 - 230 VAC) • Power consumption: 3.3W with no USB devices connected • 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)

Ordering Information	
Product Name/Product Category	Alvis-0-CSI: HAA-1082-1 (1 Ethernet ports + 1 USB) Alvis-2-CSI: HAA-1082-6 (2 E1/T1s (both transmit and receive) + 1 Ethernet + 1 USB) Alvis-4-CSI: HAA-1082-4 (4 E1/T1s (both transmit and receive) + 1 Ethernet + 1 USB) Alvis-4M-CSI: HAA-1082-5 (4 E1/T1 receivers + 1 Ethernet + 1 USB) Alvis-8-CSI: HAA-1082-2 (8 E1/T1s (both transmit and receive) + 1 Ethernet + 1 USB) Alvis-8M-CSI: HAA-1082-3 (8 E1/T1 receivers + 1 Ethernet + 1 USB)

| **Contact Information**		
For more information on the Alvis-CSI products, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The Odin Telecom frameworX (OTX) family of industry award-winning products represents outstanding cost/performance value for today's service providers and telecom equipment manufacturers. Leading this product line for a variety of voice and data applications is the Vidar-55x4-ASM daughter board.

The Vidar product can be attached to network interface cards within the OTX adapter family, providing powerful DSP resources. Whether you need reliable tone generation and detection, or voice/data encoding and decoding, or dependable HDLC signaling, the Vidar-ASM daughter boards deliver exceptional results.

And for the more powerful processing required for VoIP applications and data programming and storage, the Vidar-55x4-ASM commands a full 1600 MIPS performance factor through its Texas Instruments DSPs.

So for the best in DSP resourcing and Internet telephony application capability, Vidar-55x4-ASM deliver true value and top performance.

Vidar-55x4-ASM
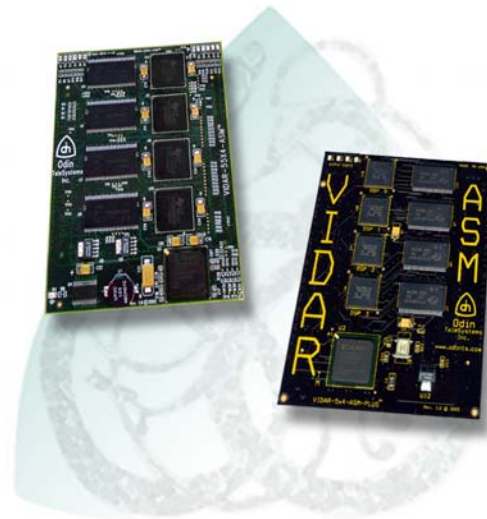
Vidar-55x4-ASM Daughterboard for OTX Adapters

Feature Highlights

- 4 Texas Instruments TMS320VC5510 DSPs with 400 MIPS processing power each

- 16 MB (8 MWords) external SDRAM memory per DSP

- Support for HDLC decoding and encoding.

- Support for DTMF detection and generation.

- Support for MF tone detection and generation.

- Odin ASM (application specific module) interface:

  ⇒ Data: 4 PCM highways

  ⇒ Control: 16-bit processor bus

Vidar-5x4-ASM(EX, CST, PRO) and Vidar-55x4-ASM Product Brief

Applications	
Provides applications capabilities for the following, plus others:	• Tone generation/detection • Voice/data encoding/decoding • HDLC signaling • VoIP

Technical Specifications	
Board Connector	• Odin ASM interface • Two 2x70 board stack connectors
Data Interface	• 4 x 2/4/8 Mbit/s PCM highways switchable in the time-space switch of the host board
Control Interface	• Odin ASM 16-bit processor bus. Memory mapped to the host
DSP Resources	• Vidar-55x4-ASM: 4 x TI TMS320VC5510; 400 MIPS processing power each
DSP Memory	• Vidar-55x4-ASM: 160 Kword internal RAM per DSP and 16MB external SDRAM per DSP
DSP Programming Interface	• Texas Instruments C and C++ Compiler, Assembler, Linker • Texas Instruments Code Composer Studio debugger
Debugging Interface	• JTAG connection on host card, which allows connectivity to standard third-party emulator cards
Power Requirements/Environmental Data	• Power consumption: 2.2W • Temperature: <u>operating</u>, 0° C to $+50^o$ C; <u>non-operating</u>, -40° C to $+60^o$ C • Humidity: <u>operating</u>, 5% to 80% RH (%relative humidity) at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ C non-condensing; <u>non-operating</u>, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ 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)

Ordering Information	
Product Name/Product Category	Vidar-55x4-ASM/HAA-1045-1-1.0

Contact Information		
For more information on the Vidar-5x4-ASM and Vidar-55x4-ASM products, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for Open Minds

The Odin Telecom frameworX (OTX) family of industry award-winning products represents outstanding cost/performance value for today's service providers and telecom equipment manufacturers. A powerful member of this product family is the Sleipnir-1-PC104-Plus board.

Sleipnir-1-PC104-Plus is a single-span T1/E1 adapter for the PC104-Plus bus. Delivered with a C-language API, and an optional DSP, makes it an ideal solution for standard or customized single span T1/E1 connectivity in a PC104 system.

HDLC or voice packets on the T1/E1 interface are transferred to the host CPU over the PC104 bus using 32-bit DMA burst transfers. The packet size is variable making it suitable for both voice and data applications.

Whether your requirements calls for T1 or E1 connectivity for servers, routers and broadband testing equipment, or an implementation of a customized voice or data application using a single E1 or T1 interface, the Sleipnir-1-PC104-Plus board is the product of choice.

So for the best in single access T1/E1 communication adapters, the Sleipnir-1-PC104-Plus delivers performance, value and flexibility.

Sleipnir-1 PC104-Plus

Sleipnir-1-PC104-Plus Adapter for T1/E1 access in the PC104 form factor

Feature Highlights

- Software configurable T1 or E1 access.

- Full or fractional T1 or E1.

- Integrated CSU/DSU.

- PCI 32-bit DMA Burst capable (PCI Master).

- On-board DSP option (TMS320VC5510 with 400 MIPS processing power and 16Mbyte external SDRAM).

- Multiple clocking options.

- Link status LEDs.

Sleipnir-1-PC104-Plus Product Brief

Software Support	
Includes the OTX driver with a C-language API to build customized data, telephony, or telecom applications.	The Sleipnir-1-PC104-Plus driver is available for Windows NT 4.0, Windows 2000, Windows XP, Windows 2003 Server, and Linux operating systems. For the DSP option of the card customized DSP voice and data applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications	
Board Specification	• Standard size PC104-Plus board
Host Bus Interface	• Supports PC104 Plus • 32-bit PCI DMA burst transfers
Network Interface	• Single T1 or E1 interface (100/120 Ohm termination) • Short haul or long haul compatible • Integrated CSU/DSU functionality
DSP Resources (optional)	• On-board TI TMS320VC5510 DSP (400 MIPS) with 16MB SDRAM
HDLC Resources	• Support for full or fractional T1 or E1
T1/E1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1 mode)
T1/E1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS (Zero Code Suppression)
T1/E1 Signaling Types	• Channel associated (robbed bit) • Common channel
Clocking Sources	• Incoming T1/E1 span • On-board oscillator • External clock
Connectors	• 2 BNC (transmit and receive) or RJ45/RJ48C connectors for E1/T1 • Pin header for recovered clock output and external clock input
Testing Features	• Full access to F, Y, S_i, and S_a bits in E1 mode • Full access to FS/DL-bits in T1 and programmable line build-out in T1 mode • Transparent mode and programmable transmit pulse shape and input threshold • Alarm insertion and detection, Loop codes, channel loopback and BERT patterns
EMC and Safety Testing/Certification (planned)	• FCC Part 15 (CFR47, Part 15, Subpart B) • CE EMC (EN61326-1, AS/NZS 2064) • Safety EN60950 and UL6095
Power Requirements/Environmental Data	• Power consumption: TBD • Temperature: operating, 0^oC to $+50^o$C; non-operating, -40^oC to $+60^o$ C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to $+30^o$C, and 5% to 30% RH above $+30^o$ C up to $+50^o$C non-condensing; non-operating, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ C non-condensing • Altitude: operating, up to 4,600 meters; non-operating, up to 12,192 meters

Ordering Information	
Product Name/Product Category	Sleipnir-1-PC104-Plus/HAA-1070-1 (With DSP) Sleipnir-1-PC104-Plus/HAA-1070-2 (Without DSP)

Contact Information		
For more information on the Sleipnir-1-PC104-Plus product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

2020-1-HCA-1019-1-1.0-1.0

Odin TeleSystems Inc.

Open Telecom for
Open Minds

OTX-ISDN

The OTX ISDN call control API provides a rapid and easy way to develop ISDN applications targeted for Odin TeleSystems' powerful OTX hardware. It allows developers to develop innovative applications which include voice messaging systems, automatic call distribution systems, telephony switching, signaling engines, call simulators, etc.

The OTX ISDN call control API is designed using the well-known ISDN stack provided by Netbricks (formerly Omnitel).

The API uses standard OTX methods for event notification. Simple API functions are provided to place and answer calls.

OTX-ISDN is supported on multiple popular operating systems and uses the same API across the entire span of Odin's OTX Thor family of ISDN PRI network cards. These two features combined, provide an easy migration path from one network interface card to another, and application platform independence.
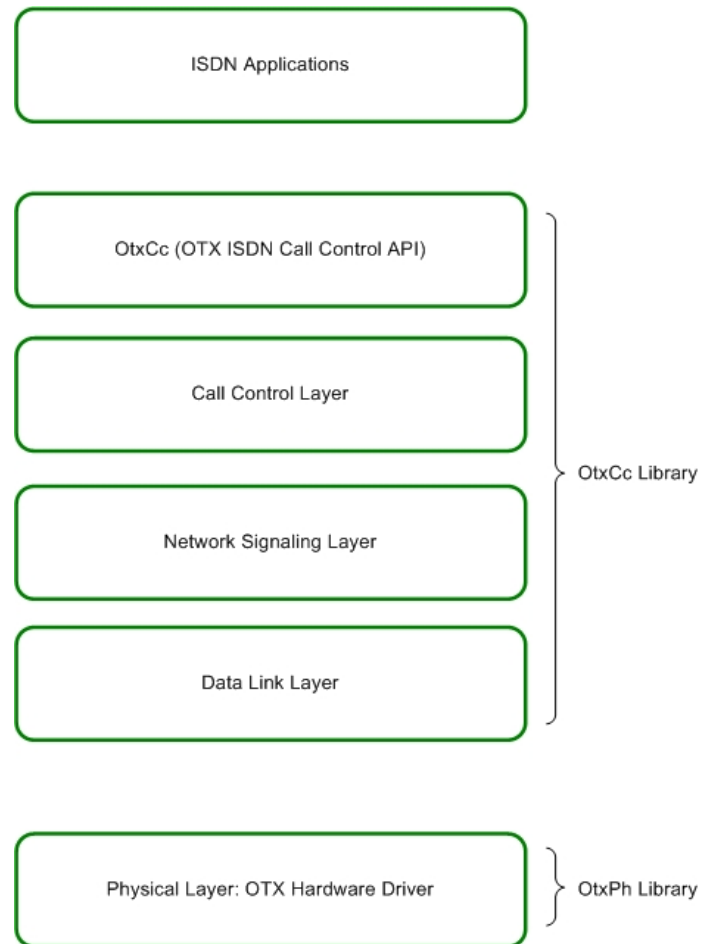
OTX-ISDN Architecture

Feature Highlights

- OTX-ISDN facilitates easy application development and hence reduces time to market.

- C/C++ language support

- Integrated with Odin's award winning telecom OTX software platform.

- Demonstration programs with source code.

- Support for multiple operating systems.

- Compliance with most North American ISDN PRI (23B+D) standards.

Technical Specifications

Standards	OTX ISDN is in conformance with the following ISDN variants: • AT&T 4ESS (PRI only) AT&T TR41459, August 1995 • AT&T 5ESS5 Custom AT&T 801-802-100, June 1998 • AT&T 5ESS9 Custom AT&T 235-900-341 Feb 94 and 235-900-342 Dec94 • Bellcore National 1 sr-nwt-001953 issue 1, June 91 • Bellcore National 2 SR-3887 and SR-3888 Nov96 • Northern Telecom DMS 100 NIS S208-6 (BCS 34) issue 1.1 1992 and NIS A211-1 v6 (BCS 36) Mar 1994
OTX-ISDN Call Control Functions	• OtxCcInit() : Function call to initialize OTX hardware • OtxCcConnect(), OtxCcOpenService(), OtxCcInitService() are function calls to open and initialize ISDN call control service. • OtxCcPlaceCall() : Function to place a call with calling number and called number. • OtxCcDisconnectCall() : Function to release call. • OtxCcAnswerCall() : Function call used to answer a call when an incoming call is detected.
TDM Highway Support	The CT bus API in the OTX platform allows developers to easily interconnect multiple boards over the H.100 computer telephony bus. TDM switching on Odin hardware is provided by Lucent's Ambassador integrated circuit. The API's provided by the OTX platform gives complete control over the TDM integrated circuit. OTX ISDN supports H.100 Computer Telephony bus. H.100 bus is backward compatible with SC bus and MVIP.
Operating Systems Supported	• Windows XP • Red Hat Linux 2.2.x • Red Hat Linux 2.4.x
Hardware Supported	Thor-2-PCI-Plus/HAA-1048-1-1.0 Thor-8-PCI-Plus/HAA-1094-1-1.0
Software Package Supplied	• OTX ISDN Call Control API Library • OTX software development platform
Other Features	Support for tone detection/generation and various voice functions.
Documents providing additional information	• OTX ISDN Programmers Guide (Doc No. 1412-1-SCA-1003-1) • OTX Programmers Guide (Doc No. 1412-1-SAA-1006-1) • OTX-Platform Product Brief (Doc No. 2020-1-SCA-1001-1)

Ordering Information

Product Name/Product Category	OTX-ISDN Call Control

Contact Information

For more information on the OTX-ISDN product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

*Open Telecom for
Open Minds*

The OTX T1E1 Analyzer is a software package for analysis of E1 and T1 spans designed to integrate with the industry award-winning Odin Telecom frameworX (OTX) family of hardware products.

The OTX T1E1 Analyzer provides a feature-rich and complete set of tools for low level T1 and E1 analysis. It contains modules such as Record and Playback of individual timeslots, Bit Error Rate Testing (BERT), and HDLC transmission and reception.

Recorded data can be viewed in a hexademical spreadsheet form, or as a waveform in an oscilloscope display. The playback module supports playback of multiple formats, such as raw binary, or WAV format.

The BERT module features transmission and reception of a variety of common bit patterns, and the auto-detection feature of a test pattern makes BERT testing a simple and easy-to-use operation.

The graphical interface is designed to provide a comprehensive view of the status of multiple T1 and E1 spans; possibly hosted by multiple OTX boards.

So whether you are looking for the best in T1/E1 BER testing or T1/E1 Record/Playback testing, the OTX T1E1 Analyzer software application deliver results in a complete and value-based package.

OTX T1E1 Analyzer
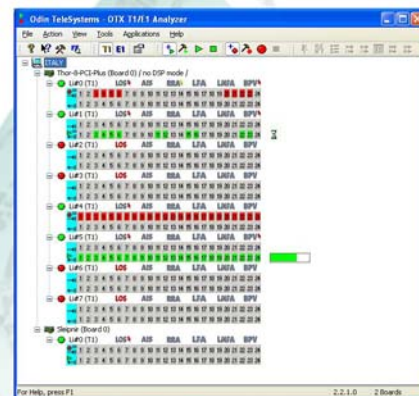
Feature Highlights

- Recording of individual or multiple timeslots over multiple T1/E1spans.

- Playback of individual or multiple timeslots over multiple T1/E1 spans.

- Bit Error Rate Test module with support for a variety of standard test patterns as well as customized patterns.

- Recorded data can be saved in a variety of formats making it easy to export the recorded data into other tools.

- The Playback module can play file of various formats imported from other tools.

- HDLC module providing encoding/decoding over multiple timeslots and multiple spans.

- Listen to selected timeslots via the soundcard in the PC.

- Support for multiple OTX boards in the same system.

- Supported by multiple types of Odin's OTX Telecom Adapter Boards.

OTX T1E1 Analyzer Product Brief

Hardware and Software Specifications	
The software is supported by the following operating systems:	• Windows 2000, Windows XP, and Windows 2003 Server
The software can be configured to run with the following Odin TeleSystems' board combinations:	• Thor-2-ExpressCard, which provides analysis capability (recording/playback/BERT/HDLC) for 2 full T1 or E1 spans. • Thor-4-ExpressCard, which provides analysis capability (recording/playback/BERT/HDLC) for 2 full T1 or E1 spans, or recording, BERT reception, and HDLC reception capability for 2 bidirectional T1 or E1 spans. • Thor-2-PCI-Plus and Thor-2-PCI-Express, which provides analysis capability (recording/playback/BERT/HDLC) for 2 full T1 or E1 spans. • Thor-8-PCI-Plus and Thor-8-PCIe, which provides analysis capability (recording/playback/BERT/HDLC) for 8 full T1 or E1 spans. • Gimle-16-PCI-Plus, which provides recording, BERT reception, and HDLC reception capability for 8 bidirectional T1 or E1 spans.

Function Modules	
Record/Playback:	• Flexible timeslot selection dialog for recorded data. • Recording setup can be saved for consistent regression tests. • Optional Time or Byte count recording limit. • Multiple data format for recorded data (Binary, SingleFolder, MultiFolder). • Flexible timeslot selection dialog for playback of data. • Playback compilation with support for multiple format (Binary, WAV, SingleFolder, MultiFolder) of playback files. • Optional continuous looping option for played data. • Timeslot compilation can be saved for consistent regression tests.
HDLC:	• Transmit a specified byte pattern in HDLC frames in one or more timeslots • Receive (byte decoding) of HDLC frames from one or more timeslots • Support for sub-channels (8, 16, 32 kbps) and super-channels (N*64kbps)
BERT:	• QRSS, 2^6-1, 2^9-1, 2^{10}-1, 2^{11}-1, 2^{15}-1, 2^{20}-1, 2^{23}-1, All Ones, All Zeros, 1:1, 1:3, 3:1, 1:7, 7:1, 3-in-24 and 2-in-8 bit patterns. • Timeslot selection for bit patterns. • Ability to insert single BPV or CRC error. • Auto-detection mode for automatic detection of bit patterns. • Ability to construct and transmit custom bit pattern.

Other features	
	• Framed or unframed mode. • Synchronous start of recording and playback between separate E1 and T1 spans. • Hex Viewer for recorded data. • T1E1 Line Status and History information. • Oscilloscope viewer for recorded voice data. • Snapshot viewer of all timeslots on a T1 or E1 span.

Ordering Information	
Product Name / Product Category	• OTX T1E1 Analyzer Base Application / SAA-1011-1 • Record/Playback Module / SMA-1026-1 • HDLC Encoding/Decoding Module / SMA-1014-1 • BERT Module / SMA-1015-1

Contact Information		
For more information about the OTX T1E1 Analyzer, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin, the Odin logo, OTX, OTX T1E1 Analyzer, Thor-2/4-ExpressCard, Thor-2-PCI-Plus, Thor-2-PCI-Express, Thor-8-PCI-Plus, Thor-8-PCIe, and Gimle-16-PCI-Plus are trademarks of Odin TeleSystems Inc. Other trademarks are the property of their respective companies. Information and specifications subject to change without notice.

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The OtxHdlcEx library is an HDLC decoding and encoding software library designed to integrate with the Hardware API for the industry award-winning Odin Telecom frameworX (OTX) .

The OtxHdlcEx library provides highly optimized code for HDLC encoding and decoding with support for low-level SS7 (MTP-L2) functionality such as FISU filtering and FISU generation.

Integration with the burst functionality of Odin's OTX-Plus PCI cards allow the OtxHdlcEx library to operate on a vast number of HDLC channels simultaneously at the cost of relatively few host CPU processing cycles. The OtxHdlcEx library can easily operate on 31 timeslots per span without overloading the host CPU. With the proper host CPU, the OtxHdlcEx library can support applications up to 744 HDLC channels in one system.

So if you are looking for a powerful HDLC decoding or encoding library, the OtxHdlcEx library deliver results in a complete and value-based package.

OTXHdlcEx Library

Feature Highlights

- Support for multiple HDLC chan-nels—can operate on all timeslots of multiple T1 and E1 spans .

- Highly optimized implementation which results in low CPU MIPS con-sumption .

- Support for FISU filtering/generation.

- Support for LSSU filtering/generation.

- Support for multiple OTX boards in the same system.

- Supported by multiple types of Odin's OTX-Plus PCI Adapter Boards.

OtxHdlcEx Library Product Brief

Hardware and Software Specifications

The library is supported by the following operating systems:	• Windows XP, 7, 2003 and 2008 Server • Linux
The library can be configured to run with the following Odin TeleSystems' board combinations:	• Thor-2-ExpressCard, which provides HDLC capability (decoding/encoding) for 2 full T1 or E1 spans. • Thor-4-ExpressCard, which provides HDLC capability (decoding/encoding) for 4 unidirectional T1 or E1 spans. • Thor-2-PCI-Plus and Thor-2-PCIe, which provides HDLC capability (decoding/encoding) for 2 full T1 or E1 spans. • Thor-2-PCI-Express, which provides HDLC capability (decoding/encoding) for 2 full T1 or E1 spans. • Thor-8-PCI-Plus and Thor-8-PCIe, which provides HDLC capability (decoding/encoding) for 8 full T1 or E1 spans. • Gimle-16-PCI-Plus, which provides HDLC decoding capability for 16 unidirectional E1 spans. • Sleipnir-1-PC104-Plus, which provides HDLC capability (decoding/encoding) for 1 full T1 or E1 spans.

Features

Decoding:	• Payload of decoded HDLC frames delivered via API function. • Optional FISU and LSSU filtering (SS7 MTP-L2). • Accepts both Flags and All Ones as Timefill character. • CRC check. • Accurate timestamp of decoded frames based on the E1 and T1 frame counter.
Encoding::	• Multiple HDLC frames queued up for transmission. • Optional FISU and LSSU generation (SS7 MTP-L2) following MSUs. • Selectable Timefill character (Flags and All Ones) . • Automatic CRC generation, or optional manual CRC generation.

Other features

	• Support for multiple channels (all timeslots of a T1 and E1 span) • Low CPU load consumption

Ordering Information

Product Name / Product Category	• OtxHdlcEx Library / SMA-1014-1

Contact Information

For more information on the OtxHdlcEx library, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The Thor-8-PCI-Plus-2.0 computer telephony adapters are members of the Odin Telecom Frameworks Plus (OTX-Plus) product family. OTX-Plus is an enhanced version of the industry award-winning OTX platform with products that represents outstanding cost/performance value for today's service providers and telecom equipment manufacturers.

Whether you need reliable testing and measurement capabilities or superior passive monitoring, the Thor PCI series delivers exceptional results. The Thor-8-PCI-Plus-2.0 provides the highest integration solution where high port density of T1/E1/J1 interfaces is required.

Where adding DSP resources and keeping PCI slots free is critical, the Thor-8-PCI-Plus-2.0 allow for connectivity to daughter-boards and software-switchable features that result in highly configurable systems, ones recognized for their convenience and flexibility.

The Thor-8-PCI-Plus-2.0 boards offer the maximum levels of frequency stability through their optional on-board stratum oscillators – the levels you expect in the most demanding applications and testing environments.

So for the best in CTI and Internet telephony applications, the Thor PCI Plus series delivers economy, value, and performance.

Thor-8-PCI-Plus-2.0

Feature Highlights

- 8 T1/E1/J1 interfaces (Thor-8-PCI-PLUS). Software switchable between T1, E1, and J1.

- 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 T1/E1/J1 span.

- Signal amplifiers for attenuated T1/E1/J1 monitor conditions.

Odin ASM daughterboard socket. Can be used with the following:

⇒ Alvis-ASM: Up to 4 x TI TMS320DM6443 dual core processors with 4752 MIPS DSP and 400 MIPS ARM. 10/100/1000 Ethernet connection.

⇒ Vidar-5x4-ASM-PRO: 4 x TI TMS320C5416 DSP with 160 MIPS each.

⇒ Vidar-5x4-ASM-CST: 4 x TI TMS320C54CST DSP with 120 MIPS each.

⇒ Vidar-5x4-ASM-EX: 4 x TI TMS320C5410A DSP with 160

Thor-8-PCI-Plus-2.0 Product Brief

Software Support

Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications	The OTX driver is available for Windows XP, 7, Windows 2003 and 2008 Server, and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications

Board Specification	• Thor-8-PCI-Plus-2.0: Full-size PCI board
Host Bus Interface	• Supports PCI rev 2.1, rev 2.2, rev 2.3 (3.3volt signaling) and rev 3.0 • 32-bit burst DMA
Network Interfaces	• Thor-8-PCI-Plus-2.0: 8 T1/J1 or E1 interfaces (software switchable) 75 Ohm, 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	• 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)	• Vidar-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each
HDLC Resources	• Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) and Common Channel
Clocking Sources	• On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming T1/E1/J1 • H.100 Clock • External clock
Connector	• 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ48C connectors for E1/T1/J1, and RJ11 connectors for handsets or ethernet
Testing Features	• Full access to F, Y, S_i, and S_a 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 • T1/E1 span frequency measurement.
Phone Features	• 4 analog interfaces (Codecs) for speaker, microphone, handset, or modem connections
Power Requirements/Environmental Data	• Power consumption: 4.1W (Thor-8-PCI-Plus-2.0) • Temperature: <u>operating</u>, 0^oC to $+50^o$C; <u>non-operating</u>, -40°C to $+60^o$ C • Humidity: <u>operating</u>, 5% to 80% RH (%relative humidity) at up to $+30^o$C, and 5% to 30% RH above $+30^o$ C up to $+50^o$C non-condensing; <u>non-operating</u>, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$C up to $+50^o$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)

Ordering Information

Product Name/Product Category	Thor-8-PCI-Plus-2.0/HAA-1049-2

Contact Information

For more information on the Thor-8-PCI-Plus-2.0 product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

Open Telecom for
Open Minds

The Thor-8-PCIe computer telephony adapter is a member of the Odin Telecom Frameworks product family. OTX is an industry award-winning OTX platform with products that represents outstanding cost/performance value for today's service providers and telecom equipment manufacturers.

Whether you need reliable testing and measurement capabilities or superior passive monitoring, Thor-8-PCIe board delivers exceptional results. The Thor-8-PCIe provides the highest integration solution where high port density of T1/E1/J1 interfaces is required.

Where adding DSP resources and keeping PCIe slots free is critical, the Thor-8-PCIe allow for connectivity to daughter-boards and software-switchable features that result in highly configurable systems, ones recognized for their convenience and flexibility.

The Thor-8-PCIe board offers the maximum levels of frequency stability through its optional on-board stratum oscillator – the level you expect in the most demanding applications and testing environments.

So for the best in CTI and Internet telephony applications, the Thor PCI Plus series delivers economy, value, and performance.

Thor-8-PCIe

Feature Highlights

- 8 T1/E1/J1 interfaces. Software switchable between T1, E1, and J1.

- PCIe host bus interface.

- H.100 Computer Telephony bus interface.

- 32-bit data DMA burst feature significantly reduces host CPU load.

- Voltage and Frequency measurements of the T1/E1/J1 span.

- Signal amplifiers for attenuated T1/E1/J1 monitor conditions.

- Odin ASM daughterboard socket. Can be used with the following:

  ⇒ Vidar-55x4-ASM: 4 x TI TMS320VC5510 DSP with 400 MIPS each.

Thor-8-PCI-Plus-2.0 Product Brief

Software Support

Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications	The OTX driver is available for Windows XP, 7, Windows 2003 and 2008 Server, and Linux operating systems. Customized DSP applications can be developed using ANSI C and C++ language and standard third-party development tools.

Technical Specifications

Board Specification	• Thor-8-PCIe: Full-size PCIe board
Host Bus Interface	• PCI Express r1.0a Single lane. Can also be plugged into multiple-lane PCIe slots. • 32-bit burst DMA
Network Interfaces	• 8 T1/J1 or E1 interfaces (software switchable) 75 Ohm, 100/120 Ohm, high-z termination, monitor amplifier
H.100 Interface	• 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)	• Vidar-55x4-ASM: 4 x TI TMS320VC5510 (400 MIPS) with 16MB SDRAM each
HDLC Resources	• Support for 1 HDLC channel per access port • ASM modules offer additional HDLC channels with support for super- and sub-channels
T1/E1/J1 Frame Formats	• Doubleframe, CRC Multiframe (E1 mode) • F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
T1/E1/J1 Line Codes	• HDB3, B8ZS, AMI, AMI with ZCS
T1/E1/J1 Signaling Types	• Channel associated (robbed bit) and Common Channel
Clocking Sources	• On-board oscillator (50ppm), and high-stability (0.5ppm) oscillator available as an option • Incoming T1/E1/J1 • H.100 Clock • External clock
Connector	• 50-pin Centronix, 3-foot cable to harmonica with RJ45/RJ48C connectors for E1/T1/J1, and RJ11 connectors for handsets or ethernet
Testing Features	• Full access to F, Y, S_i, and S_a 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 • T1/E1 span frequency measurement.
Phone Features	• 4 analog interfaces (Codecs) for speaker, microphone, handset, or modem connections
Power Requirements/Environmental Data	• Power consumption: 4.1W • Temperature: <u>operating</u>, 0^oC to $+50^o$C; <u>non-operating</u>, -40^oC to $+60^o$ C • Humidity: <u>operating</u>, 5% to 80% RH (%relative humidity) at up to $+30^o$C, and 5% to 30% RH above $+30^o$ C up to $+50^o$C non-condensing; <u>non-operating</u>, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$C up to $+50^o$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)

Ordering Information

Product Name/Product Category	Thor-8-PCIe/HAA-1097-1

Contact Information

For more information on the Thor-8-PCIe product, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

*Open Telecom for
Open Minds*

OtxTone Library

The OtxTone library is a software library that implements tone-generation and tone-detection functionality for the industry award-winning Odin Telecom frameworX (OTX) hardware. The library facilitates creation of a variety of tone logical devices which handle DTMF, MF, CPT, and generic single and dual frequency tones.

The OTX platform has provided support for DSP-based tone devices for many years. For applications where a longer latency can be tolerated, the OtxTone library now provides the option to develop host-side (i386) applications with tone support without the need for a DSP resource. The API functions that this library provides control tone devices in the same fashion as if they were created on an OTX DSP resource board, thus making application migration a breeze.

OtxTone is highly optimized for the Intel architecture and it allows the user to create a large number tone devices.

The OtxTone library can be used in applications such as: Interactive Voice Response (IVR) systems, voice auto answering systems, telephone answering devices, R1/1.5/2 signaling, and Monitoring Systems.

Feature Highlights

- Uses the standard OTX HW API.

- Highly optimized library.

- Ability to create large numbers of logical devices in one system.

- Runs on the host (i386) instead of on a DSP resource card.

- A-law and u-law compounding are supported.

- Uses burst DMA mode of Odin's OTX card.

- OTX DSP Tone logical devices are supported.

- Satisfies the requirements of ITU-T Recommendation Q.23, Q.24 and Q320.

OtxTone Library Product Brief

Hardware and Software Specifications

The library is supported by the following operating systems platforms:	• Win32, Win64 (Windows 2000/ XP/ 2003-2010 Server)
The library can be configured to run with the following Odin TeleSystems' board combinations:	• Thor-2-ExpressCard for 2 full T1 or E1 spans. • Thor-4-ExpressCard for 4 unidirectional T1 or E1 spans. • Thor-2-PCI-Plus for 2 full T1 or E1 spans. • Thor-8-PCI-Plus-2.0 for 8 full T1 or E1 spans. • Thor-8-PCIe for 8 full T1 or E1 spans. • Thor-2-PCI-Express for 2 full T1 or E1 spans. • Gimle-16-PCI-Plus for 16 unidirectional E1 spans. • Gimle-16-PCI-Express for 16 unidirectional E1 spans. • Thor-8M-USB for 8 full T1 or E1 spans. • Thor-8-USB for 8 full T1 or E1 spans. • Thor-4M-USB for 4 full T1 or E1 spans. • Thor-2-USB for 2 full T1 or E1 spans. • Sleipnir-1-PC104-Plus for 1 full T1 or E1 spans.

Features

	• Supporting Logical Device Detectors: DTMF _DETECTOR, MF_DETECTOR, SINGLE_DETECTOR, DUAL_DETECTOR. • Supporting Logical Device Generators: DTMF_GENERATOR, MF_GENERATOR, DTMF_DIAL, MF_DIAL, SINEWAVE_GENERATOR. • Flexible configuration of OTX. • OTX standard events are supported. • OtxTone API is built on top of the OTX HW API with similar function calls. • This library satisfy the requirements of ITU-T Recommendation Q.23, Q.24 and Q.320. • Decodes received signals of standard T1 and E1 networks. • Determines submitted signal (DTMF or MF signal.)

Other features

	• Support for multiple channels (selectable timeslots of the T1/E1 span). • Low CPU load consumption per channel.

Ordering Information

Product Name / Product Category	• OtxTone library / SMA-1031-1

Contact Information

For more information on the OtxTone library, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com

Odin TeleSystems Inc.

*Open Telecom for
Open Minds*

Godar-2-PCIe

The Godar-2-PCIe is a dual OC-3/STM-1 SONET/SDH network interface highly suitable for analysis applications as well as emulation applications in a PCIe PC host system.

Godar-2-PCIe is equipped with two OC-3/STM-1 SONET/SDH network interfaces (working/protect).

The Mapper Subsystem of Godar-2-PCIe is used to map and demap T1 and E1 signals to/from SONET/SDH tributaries. The board supports bit-asynchronous and byte-synchronous mapping/demapping of an STS-6/2xSTM-1 worth of T1 or E1 tributaries. This translates to 168 T1s or 126 E1s. The selection of T1 or E1 can be controlled on a per STS-1/STM-0 basis and the selection of bit-asynchronous or byte-synchronous can be controlled on a per-tributary basis.

Godar-2-PCIe seamlessly transfers the mapped E1 or T1 signals to and from the host PC over the PCIe interface using a zero-copy DMA method.

This board is a member of the Odin Telecom Frameworks (OTX) product family. OTX is an industry award-winning platform for various telephony adapter boards.
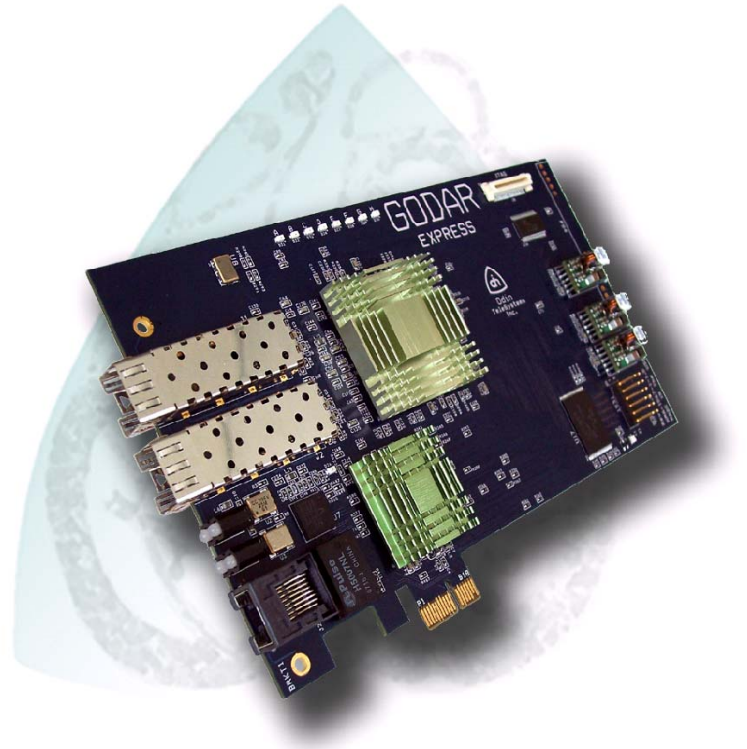
Godar-2-PCIe Adapter for demanding OC-3/STM-1 communication applications

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.

Godar-2-PCIe Product Brief

Software Support

Includes the OTX software driver, the OTX software development kits (SDKs), as well as a variety of host demo applications	The OTX driver is available for Windows XP, Windows 2003 Server, Windows 2008 Server, Windows 7, and Linux operating systems.

Technical Specifications

Board Specification	• Half-size PCI-Express board
Host Bus Interface	• Supports PCI Express v1.1 (single lane) • Zero-copy DMA
Network Interfaces	• 2 OC-3/STM-1 SONET/SDH interfaces
Ethernet (future)	• 1 Gb Ethernet interface
Supported SDH Frame Structures	
Supported SONET Frame Structures	
Mapper Features	• Byte Synchronous
Connector	• 2 Small Form-Factor Pluggable (SFP) receptacles
Line Events	• 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	• 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. • Can insert single bit errors or a bit error rate between 10-1 to 10-7
Power Requirements/Environmental Data	• Power consumption: TBD • Temperature: operating, 0° C to $+50^o$ C; non-operating, -40° C to +60° C • Humidity: operating, 5% to 80% RH (%relative humidity) at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ C non-condensing; non-operating, 5% to 80% RH at up to $+30^o$ C, and 5% to 30% RH above $+30^o$ C up to $+50^o$ C non-condensing • Altitude: operating, up to 4,600 meters (15,333 feet); non-operating, up to 12,192 meters 50,000 feet)

Ordering Information

Product Name/Product Category	Godar-2-PCIe/HAA-1092-1 Two optical interfaces Godar-1-PCIe/HAA-1091-1 One optical interface

Contact Information

For more information on the Godar-2-PCI-Express products, please contact:	Odin TeleSystems Inc. 800 E. Campbell Road, Suite 334 Richardson, TX 75081-1873 USA	Tel: +1-972-664-0100 Tel: 1-888-ODINTSM Fax: +1-972-664-0855 Email: info@odinTS.com Web: www.odinTS.com