



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

<i>Includes the OTX software driver, the OTX and DSP software development kits (SDKs), as well as a variety of host and DSP demo applications.</i>	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

<i>Board Specification</i>	<ul style="list-style-type: none"> ExpressCard/54 extended module (54mm x 118.5mm x 18mm)
<i>Host Bus Interface</i>	<ul style="list-style-type: none"> PCI Express r1.0a, single lane, 2.5 Gbps data rate 32-bit burst DMA
<i>Network Interfaces</i>	<ul style="list-style-type: none"> 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
<i>Line Termination</i>	<ul style="list-style-type: none"> 75ohm, 100/120 Ohm, high-Z termination, monitor amplifier (-20dB and -30dB modes)
<i>DSP</i>	<ul style="list-style-type: none"> 1 x TI TMS320VC5510 (400 MIPS processing power)
<i>DSP Programming Interface</i>	<ul style="list-style-type: none"> Software development kit in ANSI C and C++ Open interface with standard third-party tools
<i>DSP Applications</i>	<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)
<i>T1/E1/J1 Frame Formats</i>	<ul style="list-style-type: none"> Doubleframe, CRC Multiframe (E1 mode) F4, SF (or D4), ESF (or F24), SLC96 (T1/J1 mode)
<i>T1/E1/J1 Line Codes</i>	<ul style="list-style-type: none"> HDB3, B8ZS, AMI, AMI with ZCS
<i>T1/E1/J1 Signaling Types</i>	<ul style="list-style-type: none"> Channel associated (robbed bit) Common channel
<i>Clocking sources</i>	<ul style="list-style-type: none"> Onboard oscillator Incoming T1/E1/J1 span (either span)
<i>Connector</i>	<ul style="list-style-type: none"> Two RJ45/RJ48C connectors (in extension of case)
<i>Testing Features</i>	<ul style="list-style-type: none"> 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
<i>Power Requirements/Environmental Data</i>	<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)

Ordering Information

<i>Product Name/Product Category</i>	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

<i>For more information on the Thor-2-ExpressCard and Thor-4-ExpressCard products, please contact:</i>	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, Thor-2-ExpressCard and Thor-4-ExpressCard are trademarks of Odin TeleSystems Inc. Windows NT, Windows 2000, and Windows XP, Windows Vista are trademarks of Microsoft Corporation. ExpressCard/54 is a trademark of the Personal Computer Memory Card International Association. Other trademarks are the property of their respective companies. Information and specifications are subject to change without notice.