data sheet **hardware**

Foundations for Signaling Networks

HDCII-LPe: Low-Profile PCI Express

High density narrowband channelized controller for all signaling protocols

Overview

The Low-Profile PCIe version of the highly successful Adax HDCII SS7 controller is the first signaling card to enable service providers, equipment manufacturers and application developers to take advantage of the new low cost, high performance servers for the industry standard PCI-Express Low-Profile technology. The HDCII-LPe delivers up to 124 MTP2 links or 4 HSLs per card. Specifically designed for wireless, wireline and converging networks, the HDCII excels at traditional SS7, providing a high performance signaling solution for narrowband and SS7 applications. The HDCII provides one of the highest densities available on the market today, making it ideal for demanding telecommunications systems with high capacity and throughput requirements. On-board processors perform many thousands of transactions per second, with minimal load on the host, maximizing the performance of the applications for customers without compromising reliability.

The HDCII-LPe is dynamically configurable and is capable of delivering up to 128 channels of multiple protocols, including SS7 MTP2, LAPB/D/V5, Frame Relay, X.25 and HDLC per card. With the ability to install multiple cards in a system, it provides a totally scalable, flexible and cost-effective solution. The HDCII is ideal for SGSN, GGSN, MSC, HLR/VLR and BSS nodes in Next Generation Networks.

Features

- Up to 124 MTP2 links per card with high line utilization
- Up to 4 HSL MTP2 links per card
- Available in Low-Profile PCI Express format
- Support for up to 128 channels of one or a combination of protocols on one card, including Frame Relay, HDLC, X.25, and LAPB/D/F/V5
- The ability to pass PCM voice traffic
- Dynamically configurable per port and per channel protocol assignment
- Transparent field upgrades, without host rebooting, saving downtime
- Multiple cards per system providing for highly flexible and completely scalable solutions
- On-board RISC processor and Streams environment for local MTP2 and LAPB/D protocol execution reduces CPU overhead and maximizes performance
- Channelized HDLC processor, providing time domain multiplexing, buffer re-queuing and management, further reducing host CPU overhead and maximizing capacity to perform application functions
- Two T1/E1 interfaces as standard, or four T1/E1 interfaces via external Y cable option, all compliant to G.703/G.704
- Bandwidth allocation of multiple 64 Kbps channels to create fractional T1/E1 links
- User configurable support for Drop and Insert to separate content from signaling
- High Impedance Monitoring Ports option
- User configurable support for Frame Time-Stamping
- User configurable support for FISU Filtering for SS7 traffic
- Red, Yellow and AIS alarm detection and externally visible trunk status LEDs
- Support for MTP2 PCR and BEC error correction
- Provides diagnostic, line loopbacks and per DSO loopbacks
- Single HDCII driver supports PCI/PCI-X, PCI Express, Low-Profile PCI Express, PMC and AMC form factors, so applications run unchanged across all architectures
- Support for Solaris X.86, Solaris SPARC and Linux as standard, other Operating Systems on request including HP-UX, VxWorks and IBM AIX

Application overview

The comprehensive design and powerful features of the HDCII make it ideal for demanding, high-end signaling server solutions for GSM, GPRS, and UMTS/3G networks.

Next Generation Network applications

The HDCII provides a high performance and cost-effective single slot solution for SGSN and GGSNs, MSC, HLR/VLR and BSS nodes in GPRS networks. For the Gb interface, the HDCII can support simultaneous Frame Relay alongside SS7 for the Gc/Gd/Gf/Gr and Gs interfaces. The HDCII provides 128 DSO connections over 4 T1/E1 links per slot, and multiple cards can support up to 2048 Frame Relay channels and thousands of DLCIs per system. This provides a completely scalable Gb interface solution and enables large numbers of BSSs to be connected to a single SGSN. For the SGSN, GGSN and MSC, where SS7 is also required the HDCII provides up to 128 64 Kbps SS7 links or 4 HSL MTP2 links per card.

The incredible density of the HDCII and its ability to run high volumes of network traffic make it perfect for narrowband signaling between 3G SGSNs and HLR/VLR and MSCs in the Core Network. The very high density (124 MTP2 links) of the HDCII card, coupled with its superb performance for large numbers of small transactions (as is common in Telecom transaction operations,) means that it is particularly appropriate for HLRs that need to support an increasing number of subscribers.

Future proof Adax product family combination

The Adax HDCII is an entirely future proof solution due to the commonality of the APIs between Adax software products and customer applications. SS7-only solutions can be quickly and easily IP-enabled, and can be easily migrated to become a broadband SS7 or SS7/IP solutions with minimal changes to the higher layers. This commonality protects the customer's investment in signaling infrastructure and delivers a future proof solution.

Technical Specifications

Protocol Support

- SS7 MTP2: ITU-T Q.703, ETSI 300 008, 300 008-1, ANSI T1.111, TTC JT-Q.703, ITU Q.703 Annex A 1996, China SS7 YD/T 1125 – 2001
- SS7 MTP3: ITU-T Q.704, Q.707, ETSI 300 008, 300 008-1, ANSI T1.111, Bellcore GR246, GR606, GR82
- SS7 MTP signaling performance ITU-T Q.706
- LAPB/D: Q.921, TR 41449, TR 62411
- LAPF: Q.922
- LAPV5
- HDLC
- Passing of PCM voice traffic according to G.711
- X.25: CCITT 1980, 1984 and 1988
- Frame Relay/PPP: T1.606, T1.617, T1.618, Q.922, Q.933, RFC1293, RFC2427
- Up to 128 channels of one of the above or a combination of multiple protocols per board.

Interface

- T1: ANSI T1.102, T1.403, AT&T TR62-411 Bellcore TR-TSY-000170
- E1: ITU G.703, G.704 and G.705 including CRC4, ETSI TBR 12 and 13.
- J1: JT-I431 and JTI-431b, JT-G704, JT-G706 and JT-G733.

Power Requirements

- One-lane PCIe card, 9 Watts max at 3.3V (estimated)
- Conforms to EN55022 for EMC
- Conforms to EN60950 for safety
- Compliant with Low Voltage directive

Standards

- PCI Express Electromechanical Specification Revision 1.1
- RoHS Directive 2002/95/EC and WEEE Directive 2002/96/EC

Quality

Adax Europe is an ISO 9001:2000 registered company.

Temperature Range

- -5°C to +55°C

Board Dimensions

- Low Profile PCI Express - 68.9 mm x 167.65 mm

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