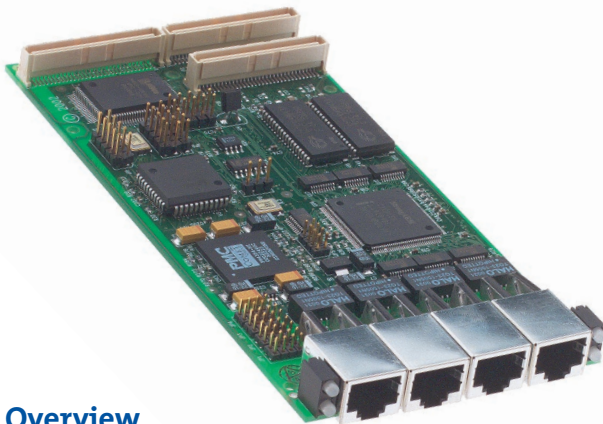


## HDCII-PMC

### High density narrowband channelized controller for all signaling protocols



#### Overview

The Adax HDCII-PMC card is the first of a new generation of SS7 controller cards designed to handle the increased demands of IP convergence. It is the first card that allows operators and service providers to achieve the promise of SIGTRAN cost savings immediately. Specifically designed for wireless, wireline and converging PSTN/IP network platforms, the Adax HDCII-PMC also supports traditional SS7 and SIGTRAN protocols. At the same time, it provides a high performance signaling solution for narrowband and SS7 over IP applications. One or two HDCII-PMCs, integrated with an SBC, can be configured as a signaling blade, housing complete SS7 stacks or SS7/IP gateways, providing one of the highest density, single slot solutions available on the market today. Alternatively, up to two PMC modules can be mounted with a CompactPCI carrier card for an HDCII-cPCI controller. The HDCII-PMC is suitable for demanding telecommunications systems that have high capacity and high throughput requirements. The on-board processors perform many thousands of transactions per second, with minimal load on the host, maximizing the performance of the application for customers, without compromising reliability.

The HDCII-PMC is dynamically configurable and is capable of delivering up to 128 channels of multiple protocols including SS7 MTP2, SCTP, 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-PMC is ideal for Signaling Gateways, Media Gateway Controllers, and 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
- Support for up to 128 channels of one or a combination of protocols on one card, including Frame Relay, HDLC, X.25, LAPB/D/F/V5, SCTP, M3UA, M2UA and M2PA.

- The ability to pass PCM voice traffic.
- Dynamically configurable per port and per channel protocol assignment.
- Transparent field upgrades, without host rebooting, saving downtime.
- 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.
- Multi-trunk HDLC silicon.
- 4 software selectable trunks of full E1 or T1, compliant to G.703/G.704 per card.
- T1/E1 connections are available through front panel or rear panel via PTMC P4.
- Bandwidth allocation of multiple 64 Kbps channels to create fractional T1/E1 links.
- User configurable support for Drop and Insert for the separation of content and 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.
- 32-bit PMC board (64-bit compatible).
- Compatible with PMC on CompactPCI® Specification PICMG 2.3 R1.0 Table 4, August 7, 1998 (T1/E1 only).
- Compatible with PTMC PICMG 2.15 Revision 10, April 11, 2001.
- One or Two HDCII-PMC modules can be equipped on any standard CompactPCI carrier card or Single Board Computer (SBC) with PMC carrier Connectors.
- Up to four HDCII-PMC modules can be equipped on any standard AdvancedTCA (ATCA) SBC.
- Completely compatible with existing Adax APIs for all PCI, PMC and cPCI form factors, so applications run unchanged.
- Support for Solaris X.86, Solaris SPARC, Linux, HP-UX, VxWorks and IBM AIX Operating Systems.

#### Application Overview

The HDCII-PMC enables development flexibility in Next Generation infrastructure, and can be configured in many ways, depending on customer specification and their preferred system architecture. This enables integrators to satisfy a wide range of requirements with a single



common core architecture, saving development time and increasing the capability of customers to integrate their solutions ahead of competition.

Two HDCII-PMC modules can be mounted on a carrier card with communication across the bus interface to the CPU or other PMC cards. Alternatively, they can be attached onto an SBC to create a self-contained environment, independent of the application. If the SBC is PICMG2.16 compliant, the solution is also bus independent, minimizing points of failure in the system. The ultimate capability of two HDCII-PMC modules on an SBC, or four on an ATCA board is to host a complete SS7 or SIGTRAN stack for the most cost-effective solution for infrastructure developers in converged and Next Generation Network environments.

## Next Generation Network applications

The incredible density of the HDCII-PMC and its ability to run high volumes of network traffic makes 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-PMC 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.

## Signaling Blade

One or two HDCII-PMC modules can be mounted onto a SBC and configured as a cPCI signaling blade, resulting in a powerful, high-density single slot solution for SS7, SIGTRAN or SS7/IP signaling. With the ability to run a signaling stack or gateway on one card, the signaling blade enables an extremely cost-effective solution. This signaling blade can support a complete SS7 stack over T1/E1 interfaces and/or SIGTRAN protocols over Ethernet ports, which provide the SS7 transport over IP. This enables the simple and straightforward integration of existing SS7 Intelligent Nodes and databases with IP based Media Gateways, Signaling Gateways and Softswitches.

## Future proof Adax product family combination

The Adax HDCII-PMC is an entirely future proof solution due to the commonality of API between Adax software products and customer applications. SS7-only solutions can be quickly and easily IP-enabled and can be easily migrated to be a broadband SS7 or SS7/IP solution with minimal changes to the higher layers. All of which protects the customer's investment in their 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
- M3UA: RFC 3332
- M2PA: IETF Draft 6-13
- SCTP: RFC 2960, RFC 3309
- 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.
- 4 x T1/E1 interfaces (software selectable) per HDC card.
- High impedance ports in accordance with G.772

### Power Requirements

- 5.5 to 6.0 Watts typical power consumption
- Conforms to EN55022 for EMC
- Conforms to EN60950 for safety
- Compliant with Low Voltage directive

### Standards

- PCI Mezzanine Card (PMC) IEE P1386.1
- PCI Specification Revision 2.2
- PMC on CompactPCI® Specification PICMG 2.3 R1.0
- CompactPCI PCI Telecom Mezzanine card specification PICMG2.15

### Quality

Adax manufacturing Quality Assurance is approved in accordance with the provisions of the EC Council Directive 91/263/EEC. Adax Europe is an ISO 9001:2000 registered company.

### Temperature Range

-5°C to + 50°C

### Board Dimensions

PMC – 14.9 cm x 7.4 cm

#### adax inc

614 Bancroft Way, Berkeley, CA 94710

Tel: (510) 548 7047

Fax: (510) 548 5526

Email: sales@adax.com

Web: www.adax.com

#### adax europe ltd

Reada Court, Vachel Road, Reading, Berkshire, RG1 1NY, UK

Tel: +44 (0) 118 952 2800

Fax: +44 (0) 118 957 1530

Email: sales@adax.co.uk

Web: www.adax.com

#### adax china

Suite 85, 6F Cross Region Plaza, 899 Lingling Rd  
Shanghai 200030, China

Tel: (86 21) 5150 6628

Fax: (86 21) 6468 6999

Email: sales@adax.com

Web: www.adax.com