

HDCII-AMC

High density narrowband channelized controller for all signaling protocols



Overview

The Adax HDCII-AMC card is a new generation of Adax SS7 controller cards designed to handle the increased demands of IP convergence. The HDCII-AMC 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-AMC also supports traditional SS7, Annex A HSL, and SCTP acceleration protocols. At the same time, it provides a high performance signaling solution for narrowband and SS7 over IP applications. One or two HDCII-AMCs, integrated with an AMC/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 four AMC modules can be mounted with an AdvancedTCA carrier card for a high density ATCA signaling blade. The HDCII-AMC is suitable for demanding telecommunications systems requiring high capacity and throughput. The on-board processors perform many thousands of transactions per second, with minimal load on the host, thus maximizing the performance of the application for customers without compromising reliability.

The HDCII-AMC is dynamically configurable and can deliver up to 124 channels of multiple protocols including SS7 MTP2, SCTP acceleration, 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-AMC is ideal for Signaling Gateways, Media Gateway Controllers, and SGSN, GGSN, MSC, HLR/VLR and BSS nodes in Next Generation Networks.

Features

- Four software selectable trunks of full E1 or T1 (64 kbps), compliant to G.703/G.704 per card

- Up to 124 MTP2 links per card with high line utilization
- Up to 4 HSL MTP2 links per card (Annex A)
- Support for up to 124 channels of one or a combination of protocols on one card, including Frame Relay, HDLC, X.25, LAPB/D/F/V5, MTP2 and MTP3
- Ability to pass PCM voice traffic
- Dynamically configurable protocol assignment per port and per channel
- Transparent field upgrades, without host rebooting, saving downtime
- Multiple cards per system providing 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
- Bandwidth allocation of multiple 64 Kbps channels to create fractional T1/E1 links
- IPMI subsystem provides ATCA/AMC.0 hot swap and board management services
- Optional High Impedance Monitoring Configuration
- User-configurable support for Frame/MSU Time-Stamping
- User-configurable support for FISU Filtering for SS7 traffic
- Support for MTP2 PCR and BEC error correction
- Provides diagnostic line loopbacks
- Support for Linux, Solaris X.86, Solaris SPARC. Other Operating Systems on request include HP-UX, VxWorks and IBM AIX

Application Overview

The HDCII-AMC enables development flexibility in Next Generation infrastructure. The HDCII-AMC can be configured in many ways, depending on customer specification and preferred system architecture. This flexibility enables integrators to satisfy a wide range of requirements with a single common core architecture, saving development time and allowing customers to integrate their solutions ahead of the competition.

Up to four HDCII-AMC modules can be mounted on a carrier card with communication across the bus interface to the CPU or other AMC cards. Alternatively, they can be combined with an AMC/SBC to create a self-contained signaling blade in service of the main application. The ultimate capability of four HDCII-AMC modules 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 density of the HDCII-AMC 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 high density (124 MTP2 links) of the HDCII-AMC card, coupled with its superb performance for large numbers of small transactions (as is common in Telecom transaction operations), makes it particularly appropriate for HLRs that need to support an increasing number of subscribers.

Signaling Blade

One or two HDCII-AMC modules can be mounted onto an SBC and configured as an ATCA 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 support 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-AMC is an entirely future-proof solution due to the commonality of APIs between Adax software products and customer applications. With minimal changes to the higher layers, SS7-only solutions can be quickly and easily IP-enabled and migrated to become a broadband SS7 or SS7/IP solution. The Adax HDCII-AMC 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
- X.25: CCITT 1980, 1984 and 1988
- Frame Relay/PPP: T1.606, T1.617, T1.618, Q.922, Q.933, RFC1293, RFC2427

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AMC System Interconnect

PCI Express: One x4 PCI Express Interface.
AMC fat pipes region port 4-7 (root complex)

Gigabit Ethernet: Two Gigabit Ethernet 1000Base-BX (SerDes) ports
AMC common options region port 0-1.

Front Panel Interfaces

LEDs: Standard AMC
LED 0 (blue) Hot Swap
LED 1 (amber)
Four trunk status LEDs
One board status LED

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

Power Requirements

- Nominally 1.5 Amps at 12V dc
- Maximum 2.1 Amps at 12V dc

Compliance

- PICMG AMC.0: Advanced Mezzanine Card Specification R1.0
- PICMG AMC.1: PCI Express and Advanced Switching R1.0
- PICMG AMC.2: Gigabit Ethernet R1.x
- PICMG AMC.3: Storage Interfaces R1.x
- IPMI: Intelligent Platform Management Interface Specifications, V1.5
- Designed to meet:
 - EMC Directive 89/336/EEC, EN 55022, EN55024 (Europe)
 - EN 300 386
 - FCC 47 CFR Part 15, Subpart B (USA)
 - CISPR22
 - VCCI (Voluntary Japan Electromagnetic Compatibility requirement)
 - UL 60950, 3rd edition (US and Canada)
 - LVD 73/23EEC (Europe)
 - Denen Law (Japan Safety)

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 + 55°C

Board Dimensions

- Full height 181.5 mm x 73.5 mm