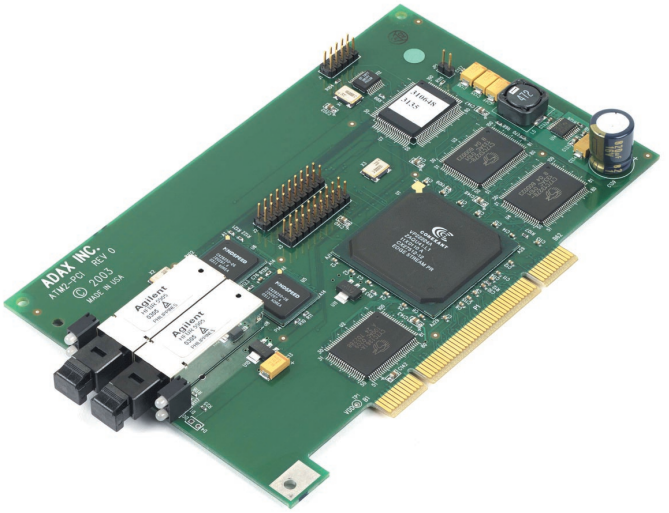
data sheet **hardware**

Foundations for Signaling Networks

ATMII - PCI

Controller for real-time Voice and Video over ATM AAL2; Signaling and IP over AAL5



Overview

The Adax ATMII-PCI card is a high performance communications controller for Wireless, Internet Applications and Next Generation Networks. It allows network equipment providers and operators to build broadband networks capable of utilizing ATM-OC3/STM-1/STS-3c, essential for processing high volume traffic on the new multi-media mobile networks. With support for AAL2 and AAL5, the board has the capability for real-time voice and video, as well as signaling and IP in 3G networks. The ATMII-PCI is a multiple protocol board with support for SSCOP/SSCF, SIGTRAN, Classical IP over ATM and Frame Relay as well as ATM AAL2/AAL5. T1/E1 interfaces are also available for High Speed Signaling (HSSL).

Features

- AAL2 and AAL5 supported concurrently on a single ATM link.
- Support for up to 672 AAL2 voice channels.
- Available with SAAL software modules including SSCOP, SSCF/SSCS and SSSAR/SSTED/SSADT.
- Supports SSCOP/SSCF creating High Speed Links for broadband SS7 in accordance with Telcordia GR-2878-CORE.
- Supports IP over AAL5; passing of AAL2 multiplexed voice traffic; Classical IP over ATM.
- Supports RFC2225 (Classical IPoA) and Frame Relay.
- Support for User-to User (UU) information field.
- Support for SIGTRAN, including SCTP, M2PA, M2UA and M3UA.
- IP Inverse Address Resolution and Discovery for ATM for learning target IP addresses of the remote end.
- 2,048 Virtual Circuits (VCs) for signaling and/or other protocols.
- Two OC3/STM-1/STS-3c interfaces split over total 155Mbps bandwidth for reliability, availability and multi-functionality.
- Four full E1/T1 trunks – software selectable G.703/G.704 compliant.
- Comprehensive alarms and status reporting capabilities for OC3, T1 and E1.
- Utilizes on board AAL2 and AAL5 communications processor.
- Multiple cards per system for highly flexible and completely scalable solutions.
- Easy tracking of future changes to the ATM standards through software downloading onto the board during initialization.
- Support for Solaris SPARC, Linux, Solaris x.86 Operating Systems.

Application Overview

The ATMII-PCI is the ideal solution for wireless networks and is able to accommodate different types of system architecture depending on customer requirements. This flexibility of the ATMII-PCI results in a high performance, cost effective solution, with minimal customer development time and costs, whilst reducing time to market.

The Adax ATMII-PCI can be implemented throughout UMTS/3G network nodes, offering unparalleled flexibility for building SGSNs, MSCs, RNCs and Node-Bs and making it the ideal solution for developers looking to build crucial 3G infrastructure.

Broadband SS7 and SS7 over IP

The Adax ATMII-PCI controller supports SSCOP/SSCF creating high speed links for SS7. The ATMII-PCI supports broadband SS7 over T1/E1 and OC3/STM-1 data rates, providing a highly reliable transmission service to the signaling layer above it. The ATMII-PCI has support for SIGTRAN on the same board via SCTP and M3UA protocols for SS7 over IP applications. In addition, with support for Classical IP over ATM, existing IP user content including voice and video can run alongside the signaling with the Adax ATMII-PCI. For example, Classical IP over ATM can be used for transporting IP datagram traffic generated by GPRS or UMTS wireless networks from GGSN/ATM gateways to IP networks whilst SIGTRAN or SS7 controls the signaling.

With both optical and copper interfaces, ultimately the ATMII-PCI serves as a gateway interface between traditional circuit-switched and new packet-based signaling networks over AAL5 and IP.

Serving GPRS Support Nodes (SGSN) and Mobile Switching Centers (MSC)

The ATMII-PCI has the capability to sit beneath all the signaling protocol stacks in the SGSN and MSC in a UMTS network, with support for a variety of protocols simultaneously on the card. The Radio Access Network Application Part is the Radio Access layer for the Iu Interface and is found in both the SGSN and MSC. Here, integration is at the MTP3b and M3UA level via SSCOP/SSCF and SCTP respectively. SSCOP/SSCF runs over AAL5 on the Adax ATM card. The Gateway Tunneling Protocol (GTP) in the SGSN runs over IP over Ethernet, and over AAL5 over ATM using Frame Relay. GTP is supported by the Ga, Gn and Gp interfaces, which interconnect the SGSN to the GGSN and charging gateways.

Radio Network Controllers (RNC)

The Adax ATMII-PCI supports both the Iu-PS and Iu-CS interfaces for which RANAP is the Radio Network Layer signaling protocol. As described above Adax can fully support the RANAP stack using AAL5. In addition to this, the Iu-CS requires AAL2 transport, and the ATMII-PCI can support the passing of AAL2 multiplexed traffic. This further completes the ability for the ATMII-PCI to offer a solution for every node in a UMTS network. With the option of either OC3/STM-1/STS-3c single/multi mode interfaces or T1/E1 interfaces, it provides the ideal solution for any customer requiring 3G signaling.

SMS Off-load

SMS voting for television programmes can cause network congestion problems affecting the quality of service of the network. To cope with such peaks in demand, an economical solution is to re-route SMS traffic from the Core Network over ATM using the Adax ATMII-PCI enabling the traffic to be off-loaded over copper or fiber interfaces.

Future-Proof Adax Product Family Combination

Through superior design, ease of use and modular product components, Adax provides extremely fast, flexible and portable solutions. The commonality of APIs between Adax products cuts time to market and provides a future-proof strategy by preserving a customers investment in the higher layer software and applications. This Adax software compatibility enables quick, no risk upgrades to next generation capabilities with easy field upgrades to expand the functionality of installed systems.

Technical Specifications

Protocol Support

- ATM AAL2, ITU-T I.363.2
- ATM AAL5, ITU-T I.363.5
- SSCOP, Q.2110
- SSCF NNI, Q.2140
- SSCF at UNI per Q.2130
- SSCS Layer Management, Q.2144
- SSSAR/SSTED/SSADT, ITU-T I.366.1
- HSL over AAL5, Telcordia GR-2878-Core
- SCTP, RFC 2960, RFC 3309
- Classical IP over ATM, RFC 2225
- Frame Relay over ATM AAL5, FRF.5
- IP over ATM AAL5, RFC 1577
- SCTP over IP over AAL5
- B-ISDN ATM Layer Specification, I.361
- ATM cell mapping into PDH, G.804

Interface

- 4 x T1/E1 (software selectable) or 2 x OC3/STM-1/STS-3c
- 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
- Support for single mode fiber and multi-mode fiber (ITU G.957).

Power Requirements

- Universal card for 3.3 and 5 volts systems
- 1.14 Amps at 5 volts dc
- 5.7 Watts typical power consumption
- 0 Amps at ± 12 volts dc
- Conforms to EN55022 for EMC
- Conforms to EN60950 for safety
- Compliant with Low Voltage directive

Standards

- PCI Specification Revision 2.2

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

-5ºC to +50ºC

Board Dimensions

PCI – 10.67 cm x 17.46 cm x 0.16 cm

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