

Adax Communications Appliance

adax
Legacy to LTE

Integrated Solution for Security, Packet Processing, Control and Data Plane Services



Introduction

The integrated solution of the Adax APR2i server blade and Pkt2 AMC modules in a complete 1U or 2U system combines the power of an Intel processor with support for multiple Cavium processor-based AMC boards delivering the perfect Communications Appliance. The on-board switch provides 16 x 1GbE or 4 x 10GbE interfaces to the network and 2 x 10GbE or 2 x 40GbE interfaces to the core without the need for an extra switch blade or module. Remote monitoring and management is included using a simplified shelf manager for temperature and fan control. Running standard Linux makes for ease of portability between applications and platforms.

The Adax Communications Appliance provides robust, high-speed, security functions, packet processing and control and data plane services for any network node or telecom application server. The result is excellent system performance and unparalleled ease of integration in a cost-effective 1U or 2U platform that delivers all the advantages of ATCA at a significantly lower price point. Multiple Communications Appliances can be interconnected for greater scalability.

The Adax Advantage

Utilizing the embedded services of both the industry-leading Intel Xeon E3-1268-Lv3 processor and Cavium Octeon II family of multi-core processors, the Adax Communications Appliance is specifically designed for networking, security, packet filtering and Deep Packet Inspection (DPI) and provide a high performance solution for those demanding telecom applications. The Intel processor hosts the application and the Cavium OCTEON II processors provide front-end processing of Layer 2 protocols and hardware acceleration of SCTP, M2PA, DPI, and IPsec with efficient separation and processing of both control and data plane flows.

The Adax Communications Appliance makes the most of chip-based intelligence by including an on-board Marvell switch for 10GbE data plane transfer between the Pkt2-AMCs and efficient 1, 10 and 40GbE external connections.

Scalability and Flexibility are what make Adax unique. The depth and breadth of the Adax product range provides the flexibility to configure options that meet individual customer requirements by adding and removing cards as required, for example being able to add the Cavium based Adax Pkt2-AMC modules to the APR2i blade for extra processing power rather than having to add a complete processor blade provides a highly-scalable and cost-effective solution in the minimum footprint.

Applications and Nodes

- Policy Control/Enforcement
- Charging & Billing
- Traffic Shaping and Data Optimization
- Traffic Redirection and Control
- Content Filtering, Parental Control and Network Intelligence
- DPI Probe and Network Analytics
- Mobile Data Offload
- Control & User Plane Interworking
- Backhaul & Aggregation
- QoS and Traffic Management
- IP Tunneling, Switching, Routing & Backhaul
- Monitoring, Test, Measurement
- LTE-EPC: MME, SGW, PGW, HSS
- PCRF/PCEF
- Small Cell Access Gateway
- Security Gateway
- Diameter Router
- OCS and OfCS - Online and Offline Charging Systems

Integrated Solution

Mobile data traffic is exploding exponentially and will continue to grow into the foreseeable future with smart phones and tablets fuelling this increase. New data-centric applications and the seemingly insatiable demand for mobile video applications are putting incredible stress on mobile networks.

In the LTE world the MME, HSS, SGW, and PGW make up the core elements. Policy Servers for setting Quality of Service, Service Level Agreements, and usage restrictions are key to new billing paradigms in emerging fee-for-service models. Service and Billing applications will rely on information provided by these network elements as well as an enhanced HSS learning user id and preferences. Mobile data traffic is now significantly greater by volume than voice traffic across the network. ARPU for voice and SMS has exceeded that for data for a long time but differentiated pricing for mobile broadband data services is a big growth area for mobile operators. Ways to monetize the data pipe must be found.

To accomplish this the dumb data pipe must become intelligent and that is why Adax have created the intelligent **Communications Appliance**.

New packet-based functions are required in each and every one of these new and enhanced network elements. First and foremost will be security as both control and data plane services need to be secure in a mobile network that relies on access to the public internet. Deep Packet Inspection (DPI) is required to make sense out of the blizzard of packets flowing through the network as without DPI there is no way to know what protocols, services and applications are to be allowed, disallowed, billed for and prioritized. Traffic management and priorities are enforced as DPI allows comprehensive and dynamic policy definitions for better management and monetization of the packet data pipe. This enables charging solutions with real-time differential charging based on various attributes and parameters such as, service type, URL, time, location, etc. The performance of the Intel and Cavium processors ensures that the Communications Appliance delivers the most flexible and scalable solution on the market today for LTE Core Network nodes including MME, SGW, PGW, HSS, PCRF and PCEF; Network Intelligence, Charging and Billing services, Security Gateways and Small Cell Access Gateways.

Features

- Intelligent, High Performance, 4 or 8 Bay Communication Appliance combining the power of an Intel processor and multiple Cavium processor-based AMC boards
- Intel Xeon E3-1268-Lv3, 4 cores, 8 threads, 2.5GHz normal, 3.3GHz turbo
- Combine with Adax Cavium OCTEON II 6645 based Pkt2-AMCs for a massive 5 or 10 processor solution
- 40GbE Marvell 98CX8124 Ethernet switch
- Option of Marvell 98CX8129 for 2 x 10GbE to each AMC
- Dual 10GbE or 40GbE ports to Fabric Domain
- 4, 8, 16 and 32GB DDR3 RAM options
- Rear Transition Module (RTM) with 1, 10 and 40GbE port options and mSATA SSD options up to 1024GB
- Interconnect multiple Communications Appliances for even greater scalability

Technical Specifications

Standards

- PICMG ATCA 3.0 and 3.1, Region 3 Option 9
- IPMI v1.5
- IEEE 802.3
- Designed to meet Belcore GR-63-CORE

Processor

- Intel Xeon E3-1268-Lv3 4 cores, 8 threads, 2.5GHz and 3.3GHz turbo
- OCTEON II 6645 Processor with 10 cores at 1.1 GHz

Ethernet Switch

- Marvell 98CX8124/8129. Full wirespeed switching for up to 4x40GbE, 5x 10GbE, 12x 1GbE (additional 4x 10GbE with Marvell 98CX129)

Memory

- 4, 8, 16 or 32 GigaBytes of DDR3 Memory (4GB standard)
- 32MB of Flash Memory
- mSATA SSD options up to 1024GB

Dimensions

- 1U or 2U

Interfaces

- 4 AMC bays, each with 6 x 1GbE, or 1 x 10GbE & 2 x 1GbE, & 1 x PCIe
- 2 front panel micro-USB ports
- 1 micro-USB to the RTM
- 2 x 40/10GbE to Fabric
- 2 x 40/10GbE to RTM

Power and Safety

- Typical power: 210W (1U including 4 x AMCs)
- Maximum power: 480W

Electrical and Safety

Certified: US/16222/UL IEC 60950-1 (2005) Second Edition; FCC Part 15B Class A; VCCI; EN55022:2006 +A1;EN55024:1998 +A1:2001, +A2:2003 Designed to Meet: EN61000-4-2,3,4,6

Environmental Conditions

- Operating Temperatures -5C to 55C
- Storage Temperatures -40C to 65C
- Relative Humidity 10% to 90% (non-condensing)
- Vibration: Operating: 5-100Hz:0.25G
RMS Passive: 100-500Hz:1G RMS

ACA 0316/03
All specifications are subject to change without notice

Adax is an industry leader in high performance packet processing, security and network infrastructure for Legacy to LTE networks. Modular, scalable and flexible, the Adax LTE-EPC solutions, SIGTRAN and SS7 Signaling platforms, as well as the DPI, IPsec Security, and GTP acceleration products enable customers to build the solutions they need, creating a smarter network infrastructure for all.



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