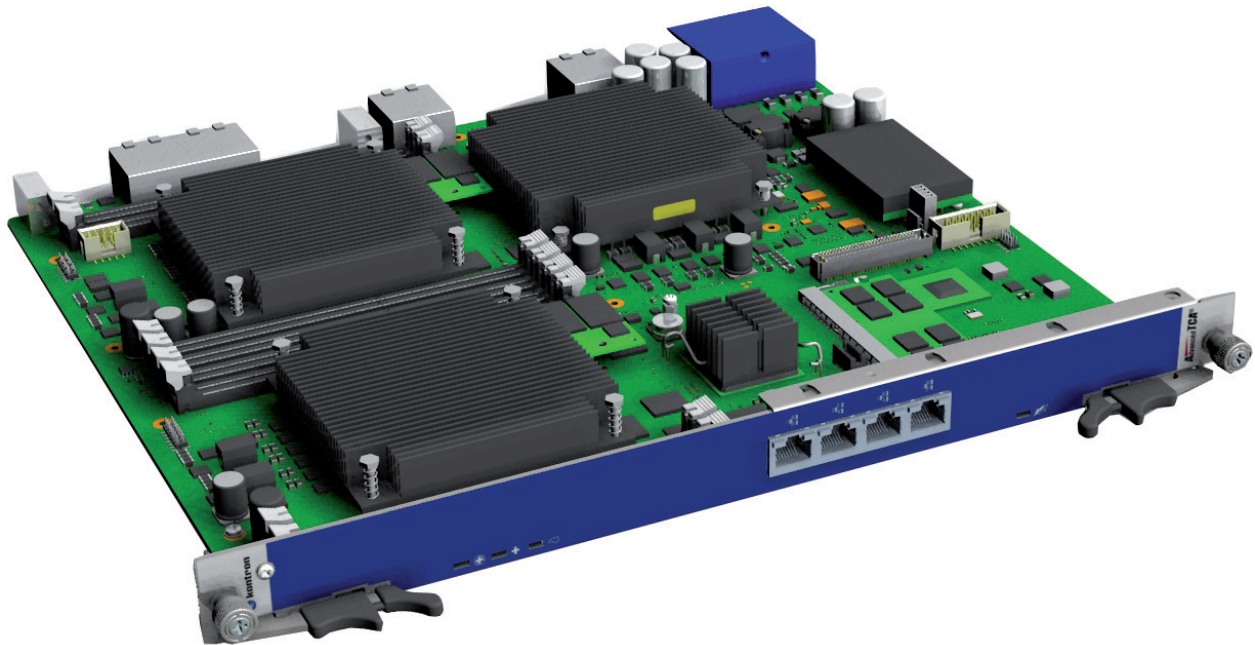# » AT8242 «

ATCA 40GbE 64-Core Packet Processor Blade:

Dual Cavium Networks OCTEON® II CN6880 cnMIPS64® v2 32-core processors

» Offers high compute performance and service features for demanding 4G/LTE Evolved Packet Core Gateways, DPI, IPTV and content delivery platforms, Video Optimization, and GPON and EPON elements

» Market leading application acceleration of packet processing, Deep Packet Inspection (RegEx), Compression/decompression, De-duplication, RAID, and Multi-core scaling

» 64-bit compute with unmatched L2-L7 data acceleration to deliver 40Gbps of throughput while reducing power consumption

» Supported by Cavium Network's 3rd generation multi-core OCTEON II software development kit (SDK)

» Validated with Kontron 14-slot, OM9141-40G and OM9141-10G ATCA platforms

If it's embedded, it's Kontron.

AT8242

Market-leading packet processor performance per Watt

The AT8242 is Kontron's third generation packet processor product and is perfectly targeted for system designs dedicated to the L2 to L7 network processing of LTE EPC infrastructure elements, as well as Deep Packet Inspection (DPI), IPTV, and QoS applications.

Based on the OCTEON II MIPS64 32-core packet processor from Cavium Networks, the Kontron AT8242 offers a superior performance per Watt, power optimization, embedded virtualization, and a multitude of hardware acceleration features, including DPI acceleration with integrated HFA (RegEx Engine), TCP and ROHC, packet processing,

compression, RAID 5/5 and de-dup, and multi-core scaling. OCTEON II processor also combines over 85 L3-L7 application acceleration engines, virtualization features, 100Gbps of connectivity, and a new Real Time Power Optimizer™ that dynamically adjusts power depending upon the application-level processing requirement.

Clients may consider using the AT8242 40G packet processor blade in combination with the new Kontron OM9141-40G and OM9141-10G ATCA 14-slot platforms, featuring market-leading switch management software and up to four times the I/O switching bandwidth than the previous platform generation.

Technical Information

Dual Multicore Packet Processor Units	Dual Cavium Networks OCTEON II CN6880 MIPS64 v2 processors, each with up to 32-cores at up to 1.5 GHz depending on maximum power configuration; Interlaken lanes x 4 between the two OCTEON II processors
Memory	Eight (4 per processor) DDR3 DIMM sockets each supporting 32GB address range for up to 256GB for both processors once 32GB VLP DIMMs are available and power configuration
	Up to 1333 MHz ECC SO-DIMM
	USB Flash drive (16GB) per OCTEON II processor
Ethernet Multilayer Switch	Broadcom BCM56842 switch is connected to the Fabric Interface with configurable 40/10 GbE links [2x (4x Gb / XAUI / 4x 10G-KR / 40G-KR4)], and the Base Interface with two 1GbE links; supports up to 72 serdes ports; and each processor accesses the switch with up to 60Gbps bandwidth using two RXAUI (2x 10Gbps) and two DXAUI (2x 20Gbps) links
	Supports bandwidth of 320Gbps; pin compatible upgrades available up to 480Gbps without changes to PCB layout
	Supports L2 switching including QoS and static routing via Broadcom FASTPATH "Light version "; additional protocols are available upon request including L3 routing for IPv4 and IPv6 protocols
	Each group of 4 serdes is configurable to support the following options: - One 40G-KR4; - Four 10G-KR1, XFI, XFI - One 10G-XAUI - Four 1000Base-X, SGMII
	Supports 12x serdes lanes for up to 120 Gbps bandwidth to Rear Transition Module (RTM); standard RTM supports 84 Gbps using 8x SFP+ and 4x SFP cages
I/O Interfaces	Front: 2x RS232 - RJ45 ports, one to each OCTEON II processor
	Front: 1x RS232 - RJ45 port to the switch management processor
	Front: 1x 10/100/1000Base-T via RJ45 port to switch management processor
Switch Management Processor	Single core Freescale P2010 1200MHz processor
	Manages the Broadcom Ethernet switch through a PCIe x1 Gen1 (2.5 Gbps) lane
	One serdes lane is routed between SM processor and Broadcom switch
	SM processor connected to: 1Gb DDR3 SODIMM (supports up to 2 GB); two 128 Mbyte NOR flash with dual image support; and 1GB NAND flash
Telco Clock	Telco clock support provided
Rear Transition Module (RTM)	Two RTM options:
	RTM8242: 84 Gbps total available bandwidth; supports 8 SFP+ (FI) connectors, 4x GbE SFP (BI) connectors; RTM8940: featuring up to 2x 40G QSFP (FI), 2x 1G SFP (BI), 4x 10G SFP+ (FI) with LRM support, and optional Telco PLL (incl. optional SyncE support).
Server Management	Designed with IPMC, Dual IPMB, IPMI v2.0
	Extensive sensors monitoring and event generation on thresholds
	Two redundant Boot Block Flash BIOS and IPMI firmware with rollover
	Serial over LAN (IPMI v2.0)
Standards Compliance	This blade is compatible to the following standards:
	PICMG 3.0 R3.0 specification; PICMG 3.1 R1.0 specification
	IPMI v2.0, and RoHS compliant

Technical Information

Mechanical Characteristics	Single slot ATCA blade
Operation Power	Management	TBD Wmax., TBD W typ.
	Payload:	TBD W max.,TBD W typ.

Temperature	Meets test profile based on GR-63, EN 300 019-2-3 Class 3.1E, EN 300 019-2-2 Class 2.3
	Air Flow: TBD
	Operating short term:	0°C to +60 °C
	Operating long term:	0°C to +45 °C
	Non-operating:	-40 °C to +85 °C

Humidity	The product meets test profile based on GR-63, EN 300 019-2-3 Class 3.1E, EN 300 019-2-2 Class 2.3 and EN 300 019-2-1 Class 1.2
	Operating:	5%-93% (non-condensing) at 40°C
	Non-Operating:	5%-93% (non-condensing) at 40°C

Altitude	Designed to meet the following requirements according to Belcore GR-63, section 4.1.3:
	Operating:	-300 m to 4,000 m (13123 ft) (GR63 4.1.3) at aisle-ambient temperature of 40 deg C; may require additional cooling above 1800m (5905ft)
	Non-Operating:	-300 m to 14,000 m (45931.2 ft)

Shock and Vibration and Bump	Test profile based on EN 300 019-2-3, class 3.2
	Shock profile: 11 ms half sine, 3 g, 3 shocks in each direction.
	Meets Operational Swept Sine Vibration: test profile based on GR-63, clause 5.4.2, and ETSI EN 300 019-2-3, class 3.2. (5 to 200 Hz at 0.2 g)
	Meets Operational Random Vibration: test profile based on ETSI EN 300 019-2-3, class 3.2
	• 5 Hz to 10 Hz @ +12 dB/oct (slope up)
	• 10 Hz to 50 Hz @ 0.02 m2/s3 (0.0002 g2/ Hz) (flat)
	• 50 Hz to 100 Hz @ -12 dB/oct (slope down)
	• 30 minutes per each 3 axes
	Free Fall: designed to meet Bellcore GR-63, Section 5.3.
	• Packaged -1000 mm, six surfaces, three edges and four corners
	• Unpackaged - 100 mm, two sides and two bottom corners

Compliance / Regulatory	Designed to meet the following environmental, safety and EMC requirements:
	EN 300 019; Telcordia GR-63; Telcordia SR-3580 level 3; Telcordia GR-1089; Designed to meet Class B emissions limits, for a system-level goal of Class A with 6 dB margin

Electromagnetic Compatibility (EMC) and Interference (EMI)	Meets all emission and immunity requirements of FCC Part 15, GR-1089, EN 300 386, EN 55022 and EN 55024
	Meets GR-1089 (3.1.2) radiated emissions requirements from 10 kHz to 10 GHz, class A
	Meets GR-1089 conducted emissions requirements from 10 kHz to 30 MHz, class A
	Meets all requirements of UL/CSA/EN/IEC 60950-1

Safety	Compliant with the Low Voltage Directive, EC Council Directive 2006/95/EC
	Meets electric strength requirements (5.2): Primary to Chassis 1 kV, Primary to secondary 1kV. (May be higher if maximum working voltage of converter is greater than 72 Vdc)
	Meets the Telcordia GR-63 material flammability requirement UL 94V-0, or V-1 with oxygen index of 28 % or greater

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