AT8001

AdvancedTCA processor board with dual AMC support and PMC option

OPEN MODULAR SOLUTIONS



> AdvancedTCA PICMG 3.0/3.1 Processor Board

> Intel® Xeon™ 800 MHz FSB at 2.8 GHz

> Dual AMC.1 module support

> Dual DDR-II DIMM for 8 GB of PC2-3200 registered 400 SDRAM

> Dual Gigabit Ethernet base interface

> Dual Gigabit Ethernet plus dual Fibre Channel on fabric interface

> IPMI v1.5 support

> PMC I/O module option

AdvancedTCA®

AdvancedMC™

PCI INDUSTRIAL COMPUTERS PICMG®

SERVICE AVAILABILITY™ FORUM

Intel® Communications Alliance Premier Member GOLD

If it's Embedded, it's Kontron.

kontron

Kontron AdvancedTCA / AdvancedMC Solutions

Low Power Performance, Incredible Versatility — Hot Swappable, High Availability (5xNines+)

The Kontron AT8001 AdvancedTCA processor board significantly increases the design options for a myriad of wireless and wireline network infrastructure applications with support for two AdvancedMC modules. The AT8001 could be paired with a wide array of AMC modules used for storage, processing, I/O, and synchronization, and which could enhance any number of wireless/wireline or IMS network element applications such as multimedia content storage, transcoding, DRM, and billing.

Powered by a low voltage, high performance Intel® Xeon® processor at 2.8 GHz, the AT8001 provides high interconnect performance and a feature-set that includes dual Gigabit Ethernet and dual Fibre Channel on fabric interface, dual Gigabit Ethernet base interface, and 8 GB of DDR-II 400 SDRAM. Designed with the Intel® E7520 chipset, the AT8001 includes PCI Express serial I/O technology and DDR2, to help increase I/O bandwidth and reduce system latency for data-intensive applications. Its 800 MHz system bus also allows increased platform bus bandwidth and delivers increased system performance.

AT8001 – PMC edition

The Kontron AT8001 is optionally available as a one PMC-slot version to accommodate the spectrum of I/O PMC modules already on the market, including any number of analog, digital, communication, and counter PMC modules. This PMC version also features an onboard 64-bit/66 MHz PCI-X bus and additional storage space with a PATA hard disk.

Either version are ideal building blocks to design and deploy multimedia services in IP Multimedia Subsystem (IMS) networks, including Multimedia Resource Function processor (MRFP), media gateways, application servers and Home Subscriber Server (HSS), and various wireless access network elements. Other network elements ideal for porting onto AdvancedTCA are VoIP-related such as softswitch, media gateway, signaling gateway, trunking, call centers and IVR.

AMC EVERYWHERE STRATEGY

Kontron recognizes that an AMC Everywhere approach – the tight integration of AdvancedTCA and AdvancedMC platforms and modules – is the key to providing TEMs maximum design flexibility as well as increased economies of scale by freeing up valuable AdvancedTCA system slots for other payload blades.

The versatility to include additional AMC high-density processing or I/O line card applications, results in fewer design costs and an unprecedented rapid go-to-market deployment. AMC modules may be also used for mass storage, SETS (Synchronous Equipment Timing Source), and dual 10GbE fabric inter-links, to enable multi-shelf AdvancedTCA systems, on AdvancedTCA processor, hub, or carrier blades.

Available Kontron AdvancedMC modules:

Kontron AM4001 - AdvancedMC processor module, full height, single width
Kontron AM4300 - AdvancedMC Quad GbE module, full height, single width
Kontron AM4500 - AdvancedMC storage SATA mudule, 60 Gb+



Faster-Go-To-Market strategy

Kontron simplifies your application design process by ensuring that each ATCA / AMC building block is fully interoperable and designed to be the right technology and the right architecture in mind to suit your development needs. This ensures the quickest application deployment with fewer costs.

Best of Breed Carrier Grade Software

Pre-integrated and application ready right out-of-the-box, Kontron ATCA/AMC solutions also feature best-in-class carrier-grade software such as hot-standby Solid CarrierGrade data manager from Solid Information Technology. This complements Kontron's existing offering of Intelligent Platform Management Interface (IPMI v1.5) firmware, Hardware Platform Interface (HPI) support, and operating system and applications software.

Control Your Environment

In today's systems, whether they are at the access, edge, core, or transport levels of the wireless/wireline network environments, serviceability is critical and the ability to manage an entire system remotely is often an obligation. The groundwork for such an environment is the Intelligent Platform Management Interface (IPMI).

Complete, application-ready systems

Combine the AT8001 with any of Konton's AMC modules and AdvancedTCA hub boards, configured to populate the Kontron ATCA-compliant 12U chassis, the XL8000, with up to 14 board slots available on a dual star backplane, or the 5U chassis, XL8500, featuring a five-slot, full mesh backplane. Whatever the application, design and deploy with fully integrated, open standard modular solutions that are application-ready, right off the shelf. That means reduced development costs and tremendous "swap in - swap out" service flexibility for carrier customers.

Technical Information

Processor
- Single Intel® LV Xeon™ 800 MHz FSB Processor at 2.8 GHz
- Passive heatsink

Cache Memory
- 1 M L2 on-die cache

Chipset
- Intel E7520 MCH, Intel 6300 ESB ICH, and Intel 6700 PXH

Bus Interface
- CPU Front side bus at 800 MHz, 64-bit data, 32-bit address
- Memory bus at 400 MHz, 144-bit data (2 channel)
- Three onboard PCI-Express
- Two onboard 64-bit/133 MHz PCI-X busses
- One onboard 32-bit/33MHz bus for VGA and LAN management port
- One onboard 64-bit/66 MHz PCI-X bus for the PMC option

Expansion Slots
- AMC Slot B1: PCI-Express, Ethernet*, SATA, Fibre Channel*
- AMC Slot B2: PCI-Express, Ethernet*, SATA, Fibre Channel*
- PMC I/O module support (optional)

System Memory
- Up to 8GB** on 2x240-pin latching DDR-II 400 SDRAM (PC2-3200)
- ECC support, support S4EC/D4ED when using x4 SDRAM
- Two DDR chanels 72-bit/200 MHz for Interleave operation

Flash Memory
- Two Redundant 1MB BIOS (Field software upgradeable)
- Roll back functionality controlled by IPMC

Storage
- Hard Disk SATA interface available through each AMC mezzanine card or through Rear I/O depending on board option.
- PATA interface available onboard depending on board option (PMC).
- SCSI Hard drive can be provided through a PMC module; no rear access
- Fibre Channel hard drive access via front access SFP modules or using proper fabric interface switches.

Connectors
Front Panel: CRT (1x micro-VGA), ethernet (1x RJ-45 with link/activity indicators), COM1 (1x RJ45), USB (1x USB), Fibre Channel (2x Optical SFP), Optional ethernet (2x RJ45)

Reliability
- MTBF: > 123 000 hours @ 30°C / 77°F (Telcordia SR-332, Issue 1)
- Whole board protected by active breaker
- USB voltage protected by an active breaker

Safety / EMC
Meet or exceed:
- Safety: UL 60950 3rd Ed.; CSA C22.2 No 60950-00; EN 60950:2000; IEC60950-1
- EMI/EMC: FCC 47 CFR Part 15, Class B; CE Mark to EN55022/EN55024

Board Specifications

Description	Front Plate	Rear I/O	AMC	Total
Video	1	1	-	1
USB	1	1	-	2
Serial	1	1	-	1
PS/2 Mouse	-	1	-	1
PS/2 Keyboard	-	1	-	1
Ethernet Management	1	1		1
Ethernet Base	-	2 (back-plane)	-	2
Ethernet Fabric	2*	2* (back plane)	2*	2
Reset Button	1	1	-	2
FC (Optional)	2*	2*	2*	2

Warranty
Two year limited warranty

* Various combinations through cross point switches
** Available on request

BIOS
- AMI BIOS
- Save CMOS in Flash option
- Boot from gigabit Ethernet (Base and Fabric Interface)
- Boot from Fibre Channel
- Boot from USB 2.0 (Floppy, CD-ROM, Hard Disk)
- Auto configuration, extended setup and VGA disable by jumper
- Diskless, Keyboard less, and video less operation extensions
- System, video and LAN BIOS shadowing
- Programmable memory wait states
- HDD S.M.A.R.T. support
- Advanced Configuration and Power Interface (ACPI 1.0) (advanced thermal management such as resume, overheat alarm and auto slow down)
- Setup console redirection to serial port(VT100) with CMOS setup access
- Field updateable BIOS
- Event (SERR, PERR, Memory SBE, POST errors) log support to IPMC

OS Compatibility
- Red Hat Enterprise Linux v.4

IPMI Features
- Management Controller compliant to PICMG 3.0, AMC.0 and IPMI v1.5 rev 1.1.
- Management Controller is run time field reprogrammable without payload impact.
- Robust fail safe reprogrammation implementation (which includes two firmware images) that could perform automatic or manual rollback if a problem occurs during critical reprogramation phase.
- Remote upgrade capability from all IPMI interfaces (CPU Host Interface/ IPMB-0/LAN).
- Management Controller self test which can detect failure under its code integrity and trig an automatic rollback.
- Can initiate a Host CPU reboot on a redundant BIOS image base on a BIOS-IPMC handshake result.
- Fast interrupt driven SMS host interface compliant to IPMI-KCS v1.5 rev 1.1
- Serial Over LAN (SOL) redirection of the Host CPU serial controller traffic to enable asynchronous serial-based OS and pre-OS communication via standard RMCP LAN application through the Management Controller.
- Standard Management Controller message bridging to AMC via IPMB-L
- Management Controller support standard PCI Hot Plug for PCI-Express AMC.
- Management Controller can initiate standard graceful OS shutdown via ACPI support.
- Hardware config that allows activation of the blade or AMC without Shelf Manager intervention.

Supervisory
- Support a system management interface via an IPMI V1.5 compliant controller
- Watchdog for BIOS execution and OS loading (through IPMI watchdog)
- Hardware system monitor (voltages, temperature), CPU temperature monitor / alarm; board temperature sensor, power failure, current monitoring through IPMC

Power Requirements
125W* -38V @ -72V

* The power consuption will vary depending on you product configuration

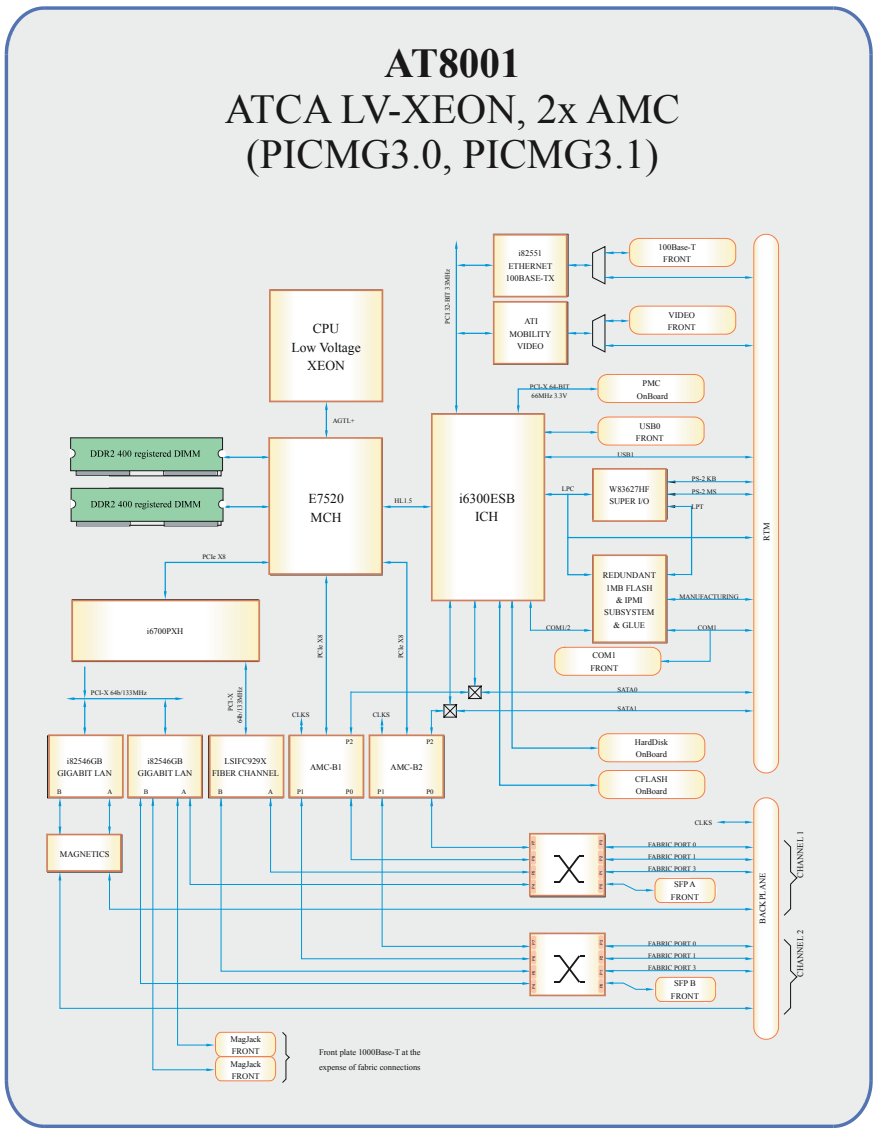
Environmental

	Operating	Storage and Transit
Temperature*:	0 to 55°C / 32 to 131°F*	-40 to +70°C / -10 to 158°F*
Humidity*:	5% to 90% @ 40°C /104°F non-condensing	5% to 95% @ 40°C /104°F non-condensing
Altitude*:	4,000m / 13,123 ft	15,000m / 49,212 ft
Shock*:	5G each axis*	Belcore GR-63-CORE Section 4.3
Vibration*:	5-500Hz, 1G, each axis	5-50Hz, 2G; 50-500Hz, 3G each axis
Airflow:	TBD	

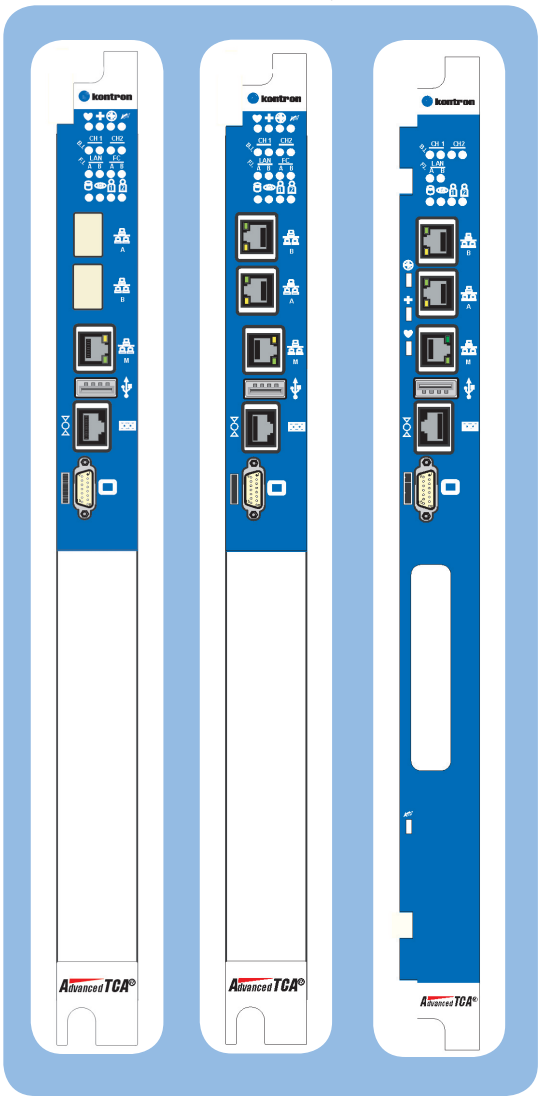
* Designed to meet or exceed.

AT8001 - Doc V 2.0 - 2005
All data is for information purposes only and not guaranteed for legal purposes. Subject to change without notice. Information in this datasheet has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccurancies. All brand or product names are trademarks or registered trademarks of their respective owners. ISO 9001:2000 Quality System Registered.

AT8001 Block Diagram



AT8001 Faceplates



AMC FC AMC COPPER PMC RJ45

Ordering Information

Product	Description	Order No
Kontron AT8001	AdvancedMCx2, Xeon 2.8 GHz, 1 GB, FC, SFP Module, 512 MB CF	T5002AEAAA_1-60E00
Kontron AT8001	AdvancedMCx2, Xeon 2.8 GHz, 2 GB, Copper, 512 MB CF	T5002AFAA#_1-62E00
Kontron AT8001	PMCx1, Xeon 2.8 GHz, 2 GB, Copper, 512 MB CF	T5002ACBC#_1-62E00

Corporate Offices

Europe, Middle East & Africa
Oskar-von-Miller-Straße 1
85386 Eching/Munich - Germany

Tel.: +49 (0)8165 77 0
Fax: +49 (0)8165 77 279

sales@kontron.com

US/ Canada
14118 Stowe Dr
Poway, CA 92064-7147

Tel.: (858) 677-0877
Fax: (858) 677-0898

sales@us.kontron.com

EMEA
Kontron Modular Computers GmbH
Sudetenstr. 7, D-87600 Kaufbeuren

Tel.: +49 (0) 8341 803 0
Fax: +49 (0) 8341 803 339

sales@kontron.com

Asia Pacific
Far East Science Park, 2nd Floor No.2, Lane50,
Nan Kang Road Section 3 Nan Kang District Taipei, Taiwan

Tel: +886 2 2782 0201
Fax: +886 2 2782 7486

sales@kontron.com.tw

kontron