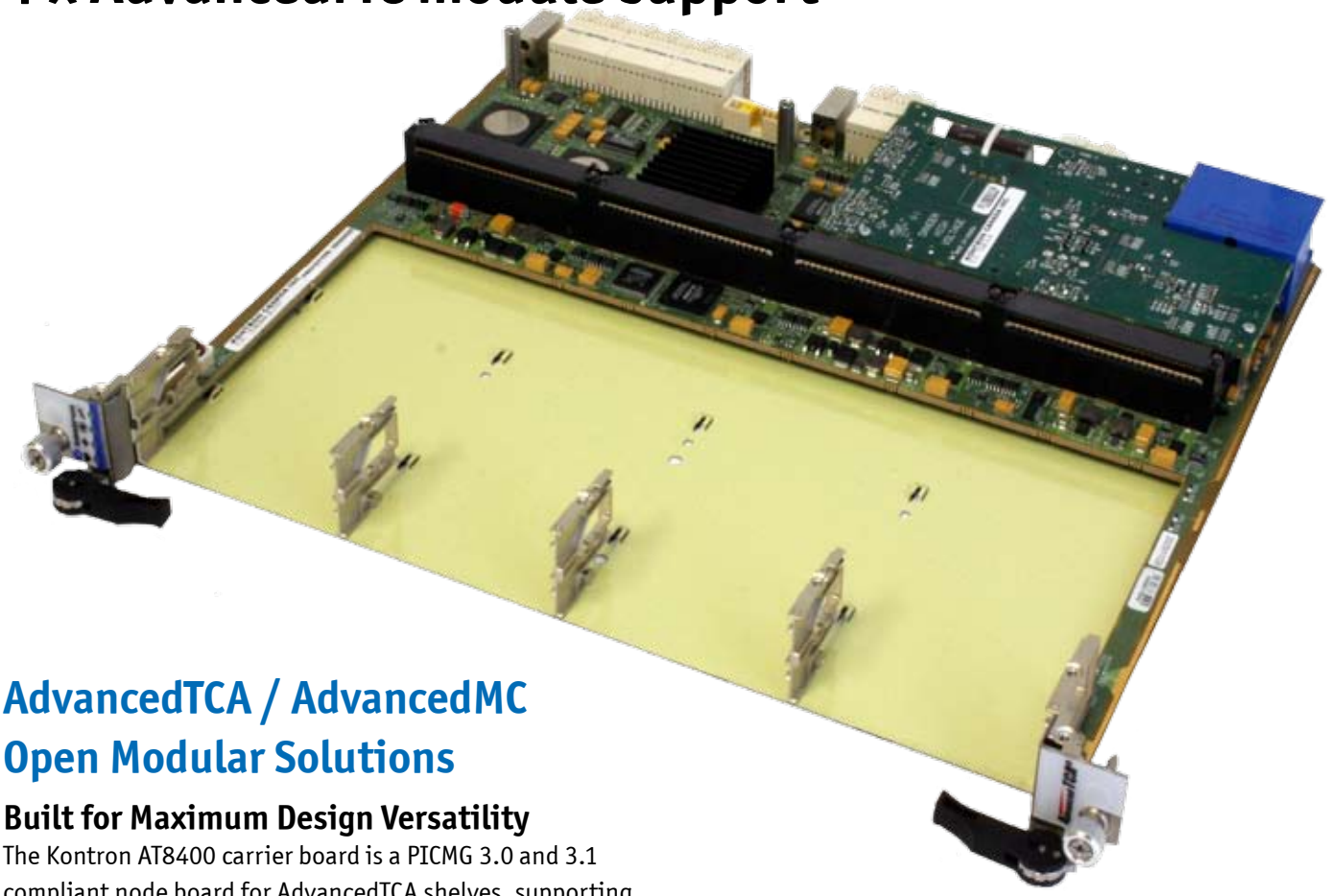
AT8400

AdvancedTCA carrier board with 4 x AdvancedMC module support



AdvancedTCA / AdvancedMC Open Modular Solutions

Built for Maximum Design Versatility

The Kontron AT8400 carrier board is a PICMG 3.0 and 3.1 compliant node board for AdvancedTCA shelves, supporting 4 Full-Size AdvancedMC slots ideal for a multitude of application requirements.

AdvancedMC-Everywhere integration for customization

With support for four AdvancedMC modules, the AT8400 provides equipment manufacturers with exceptional flexibility to customize the design of their network applications. The AT8400 supports a wide assortment of AdvancedMC modules used for processing, storage and I/O applications. A prime example is for the AT8400 to be configured for RAID 5 storage using three (3) SAS AMC modules and one (1) Processor AMC. This enables quick and reliable look up times of wireless customer information integrated into HLR/HSS network elements already built on open modular platforms.

Full Redundancy and High Availability

Suitable for dual-star and full-mesh configurations in 14- and 16-slot systems, the AT8400 is hot swappable, supports full redundancy, and provides PCI-Express and Gigabit Ethernet connectivity. With full IPMI 1.5 support, the AT8400 also fearures a dedicated µController as an additional Firmware Update Manager (FWUM) for field upgrades, rollbacks and watchdog functions.

- **> PICMG 3.0/3.1-compliant base and fabric carrier board**
- **> Four (4) cutaway AMC slots**
- **> PCI-Express and Gigabit Ethernet switching**
- **> Redundant Base Interface, and dual redundant Fabric Interface**
- **> Telco Clock for all AMC slots**
- **> Full Hot-Swap capabilities**
- **> Management via SNMP, TELNET, CLI, eitheer In-band or Out of band via 10/100Base-T Ethernet or RS232**
- **> IPMI version 1.5 support**

Technical Information

Standards Compliance

This board is compatible to the following standards:

- PICMG 3.0 Advanced Telecommunications Computing Architecture (ATCA)
- PICMG 3.1 Ethernet/Fibre Channel for AdvancedTCA Systems
- AMC.0 Advanced Mezzanine Card Base Specification
- AMC.1 PCI Express and Advance Switching
- D0.96 of AMC.2 Revision 1.0 Gigabit Ethernet
- D0.9d of AMC.3 Revision 1.0 Storage
- IPMI v1.5
- PCI-Express 1.0a

Building Blocks

- Ethernet Switch
- PCI-Express Infrastructure
- SAS/SATA Infrastructure
- Ethernet Switch Controller + Memory
- Synchronous Clock Distribution
- AMC sites
- RTM sites (Zone 3)
- IPMI
- Power Supply Mezzanine incl. Holdup Circuit

Ethernet Switch

- Broadcom Strataswitch/StrataGX Gigabit Layer-2 Switch
- PCI 32b/66MHz Management IF
- Line rate switching for all packet sizes and conditions
- Supports 2 Base Channels 10/100/1000Base-T via external Copper PHY
- Supports 2 Fabric Channels each with 4 1000Base-BX via internal SERDES
- Supports 2 AMC GbE interfaces per AMC slot
- Supports 2 SGMII interfaces to the RTM
- PHY for Base Interface Connections

PCI-Express Infrastructure

- 32-Lane PCI-Express Switch
- Serial EEPROM for Configuration Data
- Supports 8 PCI-Express Lanes to AMC B2 and B4
- Supports 4 PCI-Express Lanes to AMC B1 and B3
- Supports 4 PCI-Express Lanes to SAS Controller

SAS/SATA Infrastructure

- 3.0 Gbit/s Serial Attached SCSI Controller
- 3.0 Gbit/s Serial Attached SCSI Expander
- SAS controller connected to PCI Express switch via 4 PCI Express Lanes
- SAS Expander connected to SAS Controller via 4 SAS Lanes
- SAS Expander connects to each AMC slot via 1 SAS Lane 2 SAS lanes can be used via RTM
- AMC B1 and B2 as well as B3 and B4 are directly interconnected via SATA SAS connection
- Onboard SAS/SATA MUX for initiator selection

Ethernet Switch Controller and System Memory

- Socketless PowerPC IBM PPC405GP 133 MHz; footprint also usable for PPC405GPr
- Used for switch provisioning and diagnostics

Synchronous Clock and PCI Express Clock Distribution

- Multi-service Line Card PLL
- MLVDS Buffer
- CPLD for clock distribution and control
- PCI Express compliant clock source with optional Spread Spectrum Clock
- Switchable PCI Express clock source to all AMCs and to adjacent board via Update Channel 4

IPMI

- Dedicated µController
- PICMG 3.0 / IPMI 1.5 compliant
- Dedicated µController as additional Firmware Update Manager (FWUM) for field upgrades, rollbacks and watchdog functions

AMC Sites

- 4 Slot carrier with partial PCB cutaway in the AMC area
- B+ connectors (will be updated to press fit connectors as soon as available)
- AMC.1 Type 4E2S1 on AMC B1 and B3
- AMC.1 Type 8E2S2 support on AMC B2 and B4
- Telecom clocks and/or PCI Express clock support

RTM Sites

- 3 TYCO/ERNI ZD-F-4-10-2-B-22 Connectors.
- Support for 8 RTM lanes from each AMC
- FE and RS232 (RJ45) management ports
- 4x SAS / SATA connections
- 12V and 3V3sus Supply Voltage connections
- I²C support
- JTAG and production I/O support

Power Supply Mezzanine

- Isolated 48V to 12V Standard Quarterbrick intermediate bus converter
- Hot swap support
- 'Holdup' Circuit using high voltage Capacitor and charge pump
- 48V power Supply 'ORing' circuit
- Point of load regulators for secondary supply voltages (derived from 12V intermediate rail) on base board

Software & Firmware

The system shall support IPMI version 1.5 for board level management (PICMG 3.0).

- Reliable field upgrades for all software components
- Dual boot images with roll-back capability
- Management via SNMP and Command Line Interface
- System access via TELNET, SSH and serial line
- Hot-Swap support
- Hot-Plug support for AMC modules
- Redundancy support for base and extension fabric switches

Environmental

	Operating	**Storage and Transit**
Temperature*:	0 °C to 55 °C	-40 to +70°C / -10 to 158°F*
Humidity*:	15%-90% (non-condensing) at 55°C (131°F)	15%-90% (non-condensing) at 55°C (131°F)
Altitude*:	4000 m (13,123 ft)	15,000m / 49,212 ft
Shock*:	30G/11 ms half sine	50G, 170 inches/second trapezoidal
Vibration*:	5 to 100Hz: 1G @ 0.25 Octave/minute	5 to 50Hz: 0.5G @ 0.1 Octave/minute

*Meet or exceed

Targeted MTBF is 150,000h @ 30°C, calculations based on Bellcore/ Telcordia SR-332 Issue 1

Mechanical

(8U x 280 mm x 30.48 mm)

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