vadatech
THE POWER OF VISION

# AMC FPGA Carrier with Dual FMC, Kintex-7 – AMC502

AMC FPGA Carrier, Kintex-7

## KEY FEATURES

- AMC FPGA carrier for dual FPGA Mezzanine Card (FMC) per VITA-57
- Double module, mid-size ( full-size optional)
- Xilinx Kintex-7 FPGA (XC7K420T) in a FFG900C package
- AMC Ports 4-7 and 8-11 are routed to FPGA per AMC.1, AMC.2 and AMC.4 (protocols such as PCIe, SRIO, XAUI, etc. are FPGA programmable)
- 32 MB of Flash memory
- IPMI version 2
- RoHS compliant

AdvancedMC™

## Benefits of Choosing VadaTech

- Dual FMC carrier with high-performance Xilinx Kintex-7 FPGA
- The LVDS cross-bar switch provides improved clock flexibility
- Electrical, mechanical, software, and system-level expertise in house
- Full ecosystem of front and rear boards, enclosures, specialty modules, and test/dev products from one source
- AS9100 and ISO9001 certified company

The AMC502 is an AMC FPGA Carrier with dual FMC (VITA 57) interface. The AMC502 is compliant to the AMC.1, AMC.2 and/or AMC.4 specification. The unit has an on-board, re-configurable FPGA which interfaces directly to AMC FCLKA, TCLKA-D, FMC DP0-3, and all FMC LA/HA/HB pairs. Port 3 can be routed as LVDS.

The AMC502 has an on-board crystal-referenced clock source to provide at least 125 MHz as GTX reference inputs for PCIe, SRIO and GbE. The iMX6 CPU is a quad core ARM processor at 1 GHz for power-efficient distributed processing.

The AMC502 has dual FMC connectors per VITA-57 allowing the versatility of various FMC modules to be implemented.

VadaTech Incorporated 198 N. Gibson Rd., Henderson, NV 89014 • Tel: (702) 896-3337 • Fax (702) 896-0332
Email: info@vadatech.com • www.vadatech.com

## REFERENCE DESIGN

VadaTech provides a reference design implementation for our FPGAs complete with VHDL source code and configuration binaries. The reference design focuses on the I/O ring of the FPGA to demonstrate low-level operation of the interconnections between the FPGA and other circuits on the board and/or backplane. It is geared to prove out the hardware for engineering/factory diagnostics and customer acceptance of the hardware, but it does not strive to implement a particular end application.

## INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of ATCA and µTCA products including chassis platforms, shelf managers, AMC modules, Switch and Payload Boards, Rear Transition Modules (RTM), Power Modules, and more. The company also offers integration services as well as pre-configured Application-Ready Platforms. Please contact VadaTech Sales for more information.

## BLOCK DIAGRAM

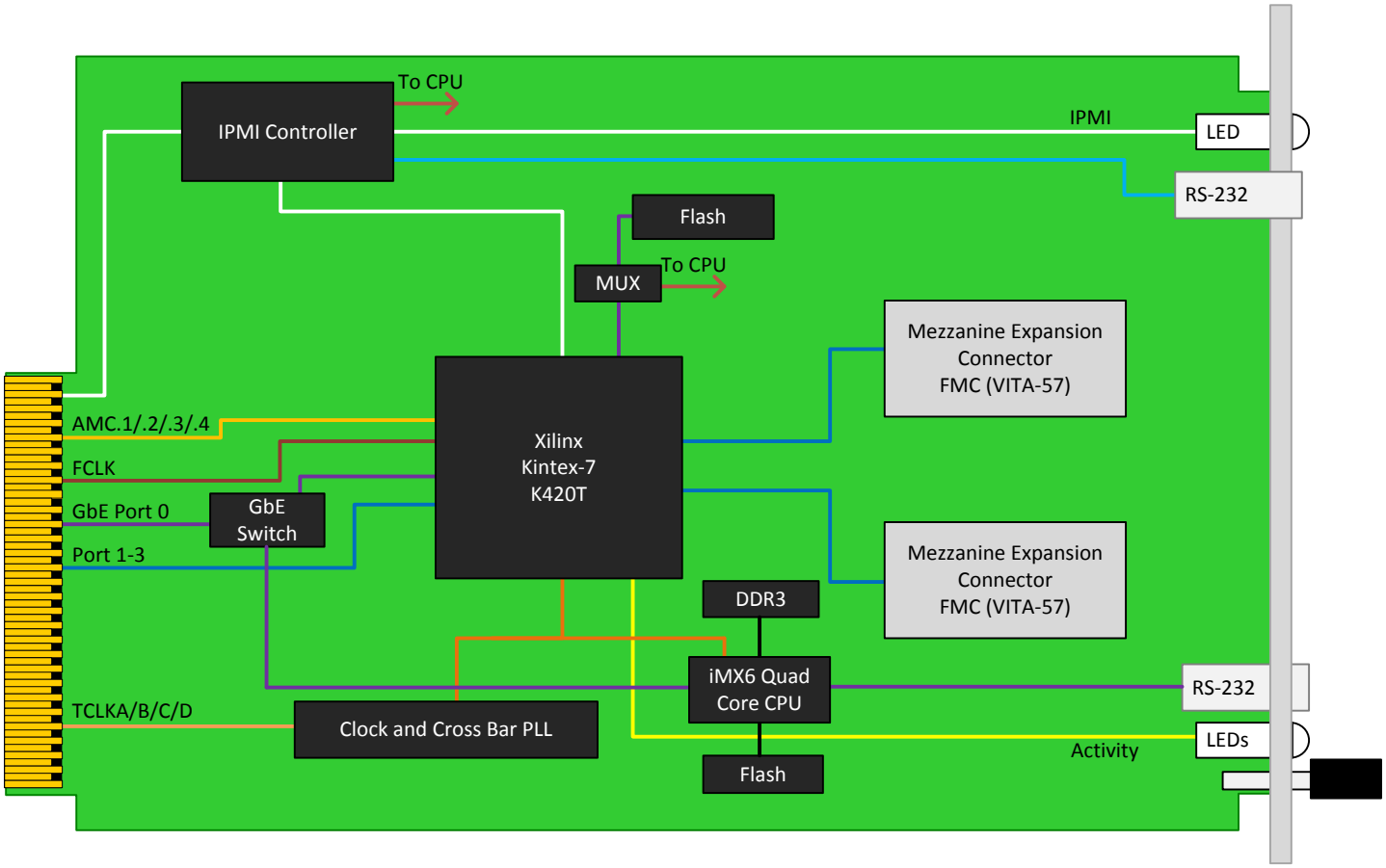



Figure 1: AMC502 Block Diagram

## SPECIFICATIONS

| | | |
|---|---|---|
| **Architecture** | | |
| **Physical** | Dimensions | Double module, mid-size (full-size optional) |
| | | Width 5.85" (148.5 mm) |
| | | Depth 7.11" (180.6 mm) |
| **Type** | AMC FPGA Carrier | Xilinx Kintex-7 Device (XC7K420T) |
| | | Dual FMC slots |
| | | M-LVDS Crossbar Switch |
| | | Quad PLL |
| | | iMX6 Quad CPU |
| **Standards** | | |
| **AMC** | Type | AMC.1, AMC.2, AMC. 3 and AMC.4 (FPGA programmable) |
| **Module Management** | IPMI | IPMI version 2.0 |
| **PCIe** | Lanes | Dual x4 or x8 PCIe Gen 2 via FPGA to AMC |
| **SRIO** | Lanes | Dual x4 via FPGA to AMC |
| **Ethernet** | GbE | Ports 0 and 1 |
| **Configuration** | | |
| **Power** | AMC502 | Carrier is ~20W, application specific |
| **Environmental** | Temperature | Operating Temperature: -5° to 45°C (55°C for limited time, performance restrictions may apply), industrial and military versions also available. (See environmental spec sheet)) |
| | | Storage Temperature: –40° to +85°C |
| | Vibration | Operating 9.8 $m/s^2$ (1.0 G), 5 to 500Hz |
| | Shock | 30Gs on each axis |
| | Relative Humidity | 5 to 95 per cent, non-condensing |
| **Front Panel** | Interface Connectors | Front panel dual FMC, IPMI RS-232, FPGA RS-232 |
| | LEDs | IPMI management control |
| | | 8 user defined LEDs |
| | Mechanical | Hot swap ejector handle |
| **Software Support** | Operating System | Linux, VxWorks and Windows |
| **Conformal Coating** | | Humiseal 1A33 Polyurethane (Optional) |
| | | Humiseal 1B31 Acrylic (Optional) |
| **Other** | | |
| **MTBF** | MIL Hand book 217-F @ TBD Hrs | |
| **Certifications** | Designed to meet FCC, CE and UL certifications where applicable | |
| **Standards** | VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards | |
| **Warranty** | Two (2) years | |
| **Trademarks and Disclaimer** | The VadaTech logo is a registered trademark of VadaTech, Inc. Other registered trademarks are the property of their respective owners. AdvancedTCA™ and the AdvancedMC™ logo are trademarks of the PCI Industrial Computers Manufacturers Group. All rights reserved. Specification subject to change without notice | |

## ORDERING OPTIONS

## COMMON CONFIGURATIONS

### AMC502 – A0C – DEF – G0J

**A = I/O Clock Signal Routing**
0 = Standard routing
1 = CMS routing

**C = Front Panel**
1 = Reserved
2 = Mid-size
3 = Full-size
4 = Reserved
5 = Mid-size, MTCA.1 (captive screw)
6 = Full-size, MTCA.1 (captive screw)

**D = FPGA**
0 = Reserved
1 = Reserved
2 = XC7K420T

**E = FPGA Speed**
1 = Low (min buy required**)
2 = High
3 = Highest (min buy required**)

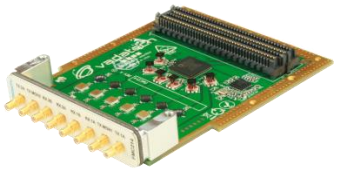
**F = PCIe Option**
0 = None
1 = PCIe on Ports 4-7
2 = PCIe on Ports 8-11
3 = PCIe on Ports 4-11

**G = Clock Holdover Stability**
0 = Standard (XO)
1 = Stratum-3 (TCXO)

**J = Temperature Range and Coating**
0 = Commercial (–5° to +45° C), No coating
1 = Commercial (–5° to +45° C), Humiseal 1A33 Polyurethane
2 = Commercial (–5° to +45° C),Humiseal 1B31 Acrylic
3 = Industrial (–20° to +70° C), No coating
4 = Industrial (–20° to +70° C), Humiseal 1A33 Polyurethane
5 = Industrial (–20° to +70° C), Humiseal 1B31 Acrylic
6 = Military (–40° to +85° C), Humiseal 1A33 Polyurethane*
7 = Military (–40° to +85° C), Humiseal 1B31 Acrylic*

*Edge of module for conduction-cooled boards
** Contact Sales for details

## RELATED PRODUCTS



**FMC214 Wideband Transceiver FMC**

**FMC223 2.5 GSPS DAC FMC**

**FMC210 2.5 GSPS ADC FMC**

## CONTACT US


**VadaTech Corporate Office**

198 N. Gibson Rd.
Henderson, NV 89014
Email: info@vadatech.com
Telephone: +1 702 896-3337
Fax: +1 702 896-0332

**Asia Pacific Sales Office**

7 Floor, No. 2, Wenhu Street, Neihu District,
Taipei 114,Taiwan
Email: info@vadatech.com
Telephone: +886-2-2627-7655
Fax: +886-2-2627-7792

**VadaTech European Sales Office**

Ocean Village Innovation Centre, Ocean Way,
Ocean Village, Southampton, SO14 3JZ
Email: info@vadatech.com
Telephone: +44 2380 381982
Fax: +44 2380 381983