

# AMC-MKX1

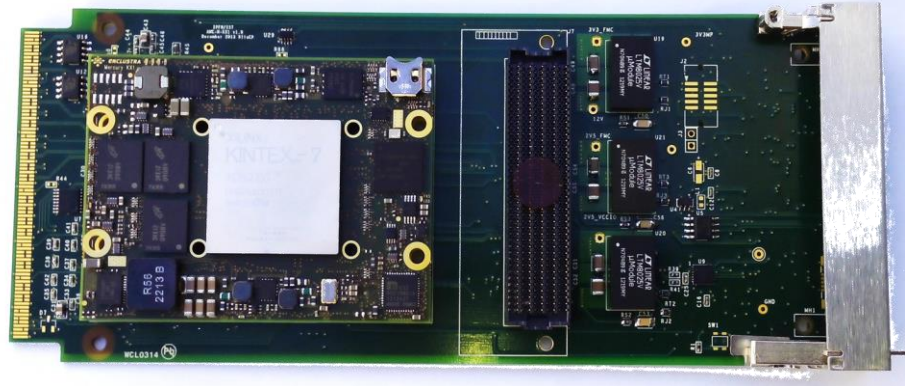
## Product Brief

### Preliminary



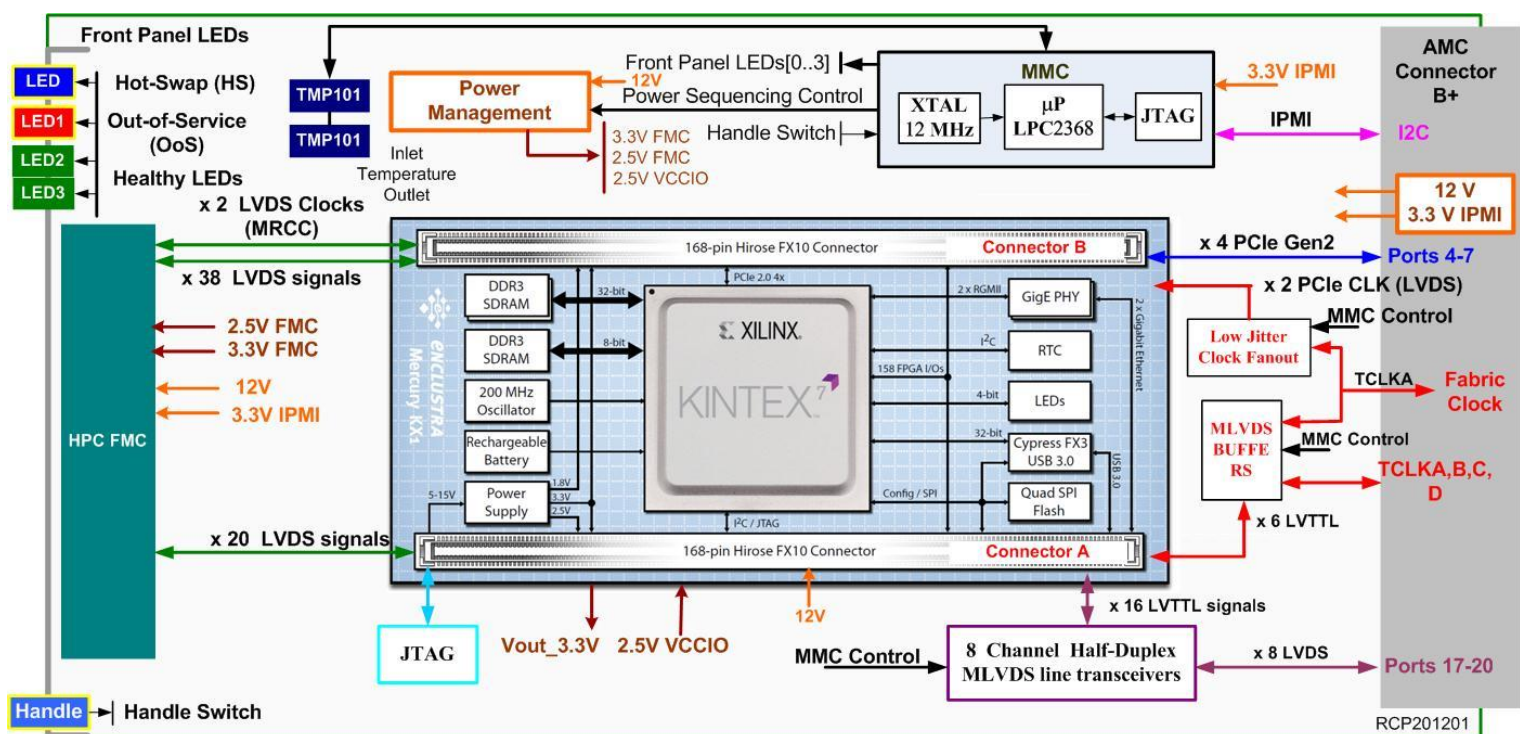
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- ❖ Full size, single width AMC for  $\mu$ TCA and AdvancedTCA
- ❖ Xilinx® Kintex™-7 FPGA family (XC7K325T-2FFG676I)
- ❖ 2048 + 512 Mbytes DDR3 SDRAM
- ❖ Supports AMC.1 PCI Express
- ❖ High-pin-count VITA 57.1 FMC expansion for I/Os



The AMC-MKX1 module is a full-size AMC card suitable for use in  $\mu$ ATCA and AdvancedTCA platforms, designed to meet the processing needs of high-performance applications in demanding nuclear fusion data acquisition applications and compliant to the ATCA-PTSW-AMC4 AMC carrier. The AMC-MKX1 is based on the Mercury KX1 FPGA module (M-KX1) which provides large processing power on the inboard Xilinx® Kintex™-7 FPGA (XC7K325T). The M-KX1 module is accommodated in the AMC module through two 168-pin Hirose FX10 connectors. AMC-KX1 is intended for high-performance, high-bandwidth, and low-latency processing applications.

### AMC-MKX1 Functional Block Diagram



## Specifications

<b>FPGA</b>	<ul style="list-style-type: none"> <li>Xilinx® Kintex™-7 FPGA- XC7K325T-2FFG676I</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>Default 2 GB, 32-bit DDR3 SDRAM</li> <li>256 MB, 8-bit DDR3 SDRAM – for Microblaze FPGA applications</li> <li>Up to 64 MBytes Quad SPI Flash</li> </ul>
<b>AMC Connectivity</b>	<ul style="list-style-type: none"> <li>TCLK A/B/C/D clock support for AMC R2.0 through onboard clock switch</li> <li>Fabric clock — RX or TX (100 MHz PCIe, default)</li> <li>AMC.1 PCI Express: One ×4 PCIe Gen2 link on ports 4-7;</li> <li>User LVDS I/Os (ports 17–20)</li> </ul>
<b>Front Panel</b>	<ul style="list-style-type: none"> <li>Board Mounted LEDs</li> <li>FMC slot</li> </ul>
<b>I/O expansion capabilities</b>	<ul style="list-style-type: none"> <li>High-pin-count VITA 57. FMC sit <ul style="list-style-type: none"> <li>➤ 78 differential user defined pairs: 34 LA pair; 24 HA pair; HB pairs</li> <li>➤ 2 differential clocks</li> </ul> </li> </ul>
<b>Mechanical</b>	<ul style="list-style-type: none"> <li>Full-size, Single width AMC</li> <li>AMC B+ edge connector</li> </ul>
<b>IPMI Controller</b>	<ul style="list-style-type: none"> <li>Voltage monitor</li> <li>Geographical address monitor</li> <li>Temperatures monitors</li> <li>Power/Reset controller</li> <li>UART</li> </ul>
<b>Standards Compliance</b>	<ul style="list-style-type: none"> <li>AdvancedTCA base 3.0 (PICMG 3.0/3.4)</li> <li>AdvancedMC R2.0 (PICMG AMC.0/AMC.1)</li> <li>Support for AdvancedMC R1.0 also available</li> <li>μTCA R1.0</li> <li>VITA 57.1 FMC HPC</li> <li>Hot-plug</li> <li>IPMI</li> </ul>
<b>Electrical</b>	<ul style="list-style-type: none"> <li>AMC 12 V mains source</li> <li>3.3V IPMI</li> </ul>
<b>Testing and development interfaces</b>	<ul style="list-style-type: none"> <li>FPGA JTAG</li> <li>IPMI JTAG, mini-B USB serial port</li> <li>Test points</li> <li>Jumpers</li> <li>LEDs</li> </ul>
<b>FMC Module Option</b> IST Solution	<p><b>FMC-AD-1Gx</b></p> <ul style="list-style-type: none"> <li>2 channels @ 1.6 GHz 12-bit; or 1 channel @ 3.2 GHz 12-bit</li> <li>AC/DC coupling and Single-Ended/Differential Input</li> </ul>



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