AMC521 – 24 Channels ADC, Mixed Sampling Rate, 16-Bit

The AMC521 utilizes eight dual channel ADS42JB69 ADC converters at 250 MSPS with 16-bit resolution for 16 high sampling rate channels. In addition the module has eight 16-bit Successive Approximation Register (SAR) based on TI ADS8568 ADC at a lower sampling rate for measurements up to 650 KSPS. There are also 24 LVDS I/O which can be used for Clock In/Out, Trig In/Out or GPIO.

The AMC521 has an M-LVDS Cross Bar Switch (CBS) for clock distribution which allows clocking from front panel, backplane, or on-board VCXO. The clock outputs to the backplane for distribution to other modules. The AMC521 has a Virtex-7 FPGA with option of 415T or 690T in FFG1158 package.

The AMC ports 4-7 and 8-11 are routed to the FPGA for PCIe, XAUI, SRIO, or other SerDes protocols. AMC ports 0, 1 and 2, 3 are also routed to the FPGA for base channel and storage point-to-point connectivity.

Benefits of Choosing VadaTech

- Low Jitter Clock distribution via an M-LVDS Cross Bar Switch
- Backplane TCLKA, TCLKB, TCLKC, TCLKD, and FCKLA
- On-board VCXO
- Design utilizes proven VadaTech subcomponents and engineering techniques
- 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

KEY FEATURES

- Sixteen channel of TI ADS42JB69 ADC 16-bit @ 250 MSPS
- Eight channel SAR TI ADS8568 ADC 16-bit @ 650 KSPS simultaneous
- Interface to the FPGA via JESD204B
- 24 LVDS for Clock/Trig and/or GPIO
- Virtex-7 FPGA 415T or 690T in FFG1158
- Internal/External clock
- Clock Jitter Cleaner with Dual Loop PLLs
- Trig In/Out
- A/D input via SSMC connectors

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

The clock to the ADC has an Ultra-Low RMS Jitter Cleaner with Dual Loop PLLs, with 88 fs RMS jitter (12 kHz to 20 MHz) and 162.5 dBc/Hz noise floor at 245.76 MHz.

BLOCK DIAGRAM
AMC521 – 24 Channels ADC, Mixed Sampling Rate, 16-Bit

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Dimensions</th>
<th>Double module, Full-size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width 5.85” (148.5 mm)</td>
<td>Depth 7.11” (180.6 mm)</td>
</tr>
<tr>
<td>Type</td>
<td>AMC FPGA</td>
<td>24 ADC (16 fast and 8 slower sampling rate) @ 16-bit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standards</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>µTCA</td>
<td>Type</td>
<td>MTCA.0, MTCA.1</td>
</tr>
<tr>
<td>AMC</td>
<td>Type</td>
<td>AMC.0, AMC.1, AMC.2, AMC.3, AMC.4</td>
</tr>
<tr>
<td>Module Management</td>
<td>IPMI</td>
<td>IPMI Version 2.0</td>
</tr>
<tr>
<td>PCIe</td>
<td>Lanes</td>
<td>Dual x4 or single x8 via FPGA to AMC</td>
</tr>
<tr>
<td>SRIo</td>
<td>Lanes</td>
<td>Dual x4 via FPGA to AMC</td>
</tr>
<tr>
<td>Ethernet</td>
<td>Lanes</td>
<td>Dual 10GbE via FPGA and dual GbE via FPGA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>AMC521</td>
<td>~25 W, application specific (up to 50 W)</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
<td>Operating Temperature: -5° to 55° C (air flow requirements &gt;400 LFM)) Storage Temperature: -40° to +85° C</td>
</tr>
<tr>
<td>Vibration</td>
<td></td>
<td>1G, 5 to 500 Hz on each axis</td>
</tr>
<tr>
<td>Shock</td>
<td></td>
<td>30Gs each axis</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td></td>
<td>5 to 95 percent, non-condensing</td>
</tr>
<tr>
<td>Front Panel</td>
<td>Interface Connectors</td>
<td>FPGA JTAG port</td>
</tr>
<tr>
<td></td>
<td>ADC inputs via SSMC connectors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IPMI RS-232</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LED Management Control</td>
<td></td>
</tr>
<tr>
<td>Front Panel</td>
<td>Interface Connectors</td>
<td>Four user defined LED</td>
</tr>
<tr>
<td></td>
<td>Mechanical</td>
<td>Hot Swap Ejector Handle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software Support</th>
<th>Operating Systems</th>
<th>Independent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>MTBF</td>
<td>MIL Hand book 217-F @ TBD Hrs</td>
</tr>
<tr>
<td>Certifications</td>
<td>Designed to meet FCC, CE and UL certifications where applicable</td>
<td></td>
</tr>
<tr>
<td>Standards</td>
<td>VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards</td>
<td></td>
</tr>
<tr>
<td>Warranty</td>
<td>Two (2) years</td>
<td></td>
</tr>
</tbody>
</table>

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.

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.
AMC521 – 24 Channels ADC, Mixed Sampling Rate, 16-Bit

ORDERING OPTIONS

AMC521 – A0C – DEF – GHJ

A = ADC Channels
0 = 24 Channels
1 = 16 Channels (no SAR)

C = Front Panel
1 = Reserved
2 = Mid-size*
3 = Full-size
4 = Extended-size (8HP)

D = FPGA
1 = XC7V415T
2 = XC7V690T

E = FPGA, Speed
1 = Low
2 = High
3 = Highest

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

G = Front Panel Type
0 = MicroTCA.0
1 = MicroTCA.1

H = Temperature Range
0 = Commercial (-5 to +55° C)
1 = Industrial (–20 to +70° C)

J = Conformal Coating
0 = None
1 = Humiseal 1A33 Polyurethane
2 = Humiseal 1B31 Acrylic

*Only 16 channels are loaded with no SAR

RELATED PRODUCTS

AMC520 250 MSPS
DAC Converter

VT891 U4
Chassis

UTC018 1000W
Power Module

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