

ATC136 – ATCA 8 channel ADC, 10-bit @ 2 GSPS, Virtex-7

ATCA 8 Ch ADC, V-7 FPGA



Advanced TCA®

KEY FEATURES

- Xilinx Virtex-7 FPGA
- Four core QorIQ P2040 Power PC
- Eight channel EV10AS150B ADC, 10-bit @ 2 GSPS
- Single AD9129 DAC, 14-bit @ 2.8 GSPS
- Dual sets of ports each for RJ-45, Clock In, and microUSB
- 4 GB DDR3 memory to the PPC
- 4 Gb DDR3 memory to the FPGA
- 16 GB MicroSD card (removable)
- JTAG port
- CLK sync output via SMA
- IPMI v2.0 compliant
- RoHS compliant

Benefits of Choosing VadaTech

- 8 channel high-speed digitizer with powerful V-7 FPGA
- Vast ecosystem of ATCA chassis platforms, switches, processors, RTMs, and specialty boards
- Design utilizes proven VadaTech subcomponents and engineering techniques
- Electrical, mechanical, software, and system-level expertise in house
- Designed and manufactured in the USA
- AS9100 and ISO9001 certified company

The ATC136 is an ATCA A/D converter based on the EV10AS150B ADC, with eight channels at 10-bit resolution up to 2 GSPS. There is also single channel AD9129 DAC at 14-bit up to 2.8 GSPS, two Reference Clock inputs and dual GbE via RJ-45. The carrier has a Xilinx V-7 FPGA with an on-board QorIQ P2040 PowerPC for efficient performance and ease of configuration.

There is 64-bit DDR3 memory on the FPGA (4 GB) and the PPC (4 GB). The analog inputs are routed directly to the ADCs from the front panel.

The ATC136 provides a JTAG header on the front panel and dual microUSB.

REFERENCE DESIGN

VadaTech provides an extensive range of Xilinx based FPGA products. The FPGA products are in two categories; FPGA boards with FMC carriers and FPGA products with high speed ADC and DACs. The FPGA products are designed in various architectures such as ATCA, AMC modules, PCIe cards and Open VPX.

VadaTech provides a reference design implementation for our FPGAs complete with VHDL source code, documentation 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 designed to prove out the hardware for early prototyping, engineering/factory diagnostics and customer acceptance of the hardware, but it does not strive to implement a particular end application. The reference VHDL reduces customer time to develop custom applications, as the code can be easily adapted to meet customer's application requirements.

The reference design allows you to test and validate the following functionality (where supported by the hardware):

- Base and Fabric channels
- Clocks
- Data transfers
- Memory
- User defined LEDs

Xilinx provides Vivado Design Suite for developing applications on Xilinx based FPGAs. VadaTech provides reference VHDL developed using the Vivado Design Suite for testing basic hardware functionality. The reference VHDL is provided royalty free to use and modify on VadaTech products, so can be used within applications at no additional cost. However, customers are restricted from redistributing the reference code and from use of this code for any other purpose (e.g. it should not be used on non-VadaTech hardware).

The reference VHDL is shipped in one or more files based on a number of ordering options. Not all ordering options have an impact on the FPGA and a new FPGA image is created for those options that have direct impact on the FPGA. Use the correct reference image to test your hardware. For more information, refer to the FPGA reference design manual for your device which can be accessed from customer support site along with the reference images.

SUPPORTED SOFTWARE

- Default FPGA image stored in flash memory
- Linux BSP
- Build Scripts
- Device Driver
- Reference application projects for other ordering options

The user may need to develop their own FPGA code or adapt VadaTech reference code to meet their application requirements. The supplied pre-compiled images may make use of hardware evaluation licenses, where necessary, instead of full licenses. This is because VadaTech does not provide licenses for the Vivado tool or Xilinx IP cores, so please contact Xilinx where these are required.

Xilinx also provides System Generator tool for developing Digital Signal Processing (DSP) applications.

[Xilinx Vivado Design Suite](#), [Xilinx System Generator for DSP](#)

BLOCK DIAGRAM

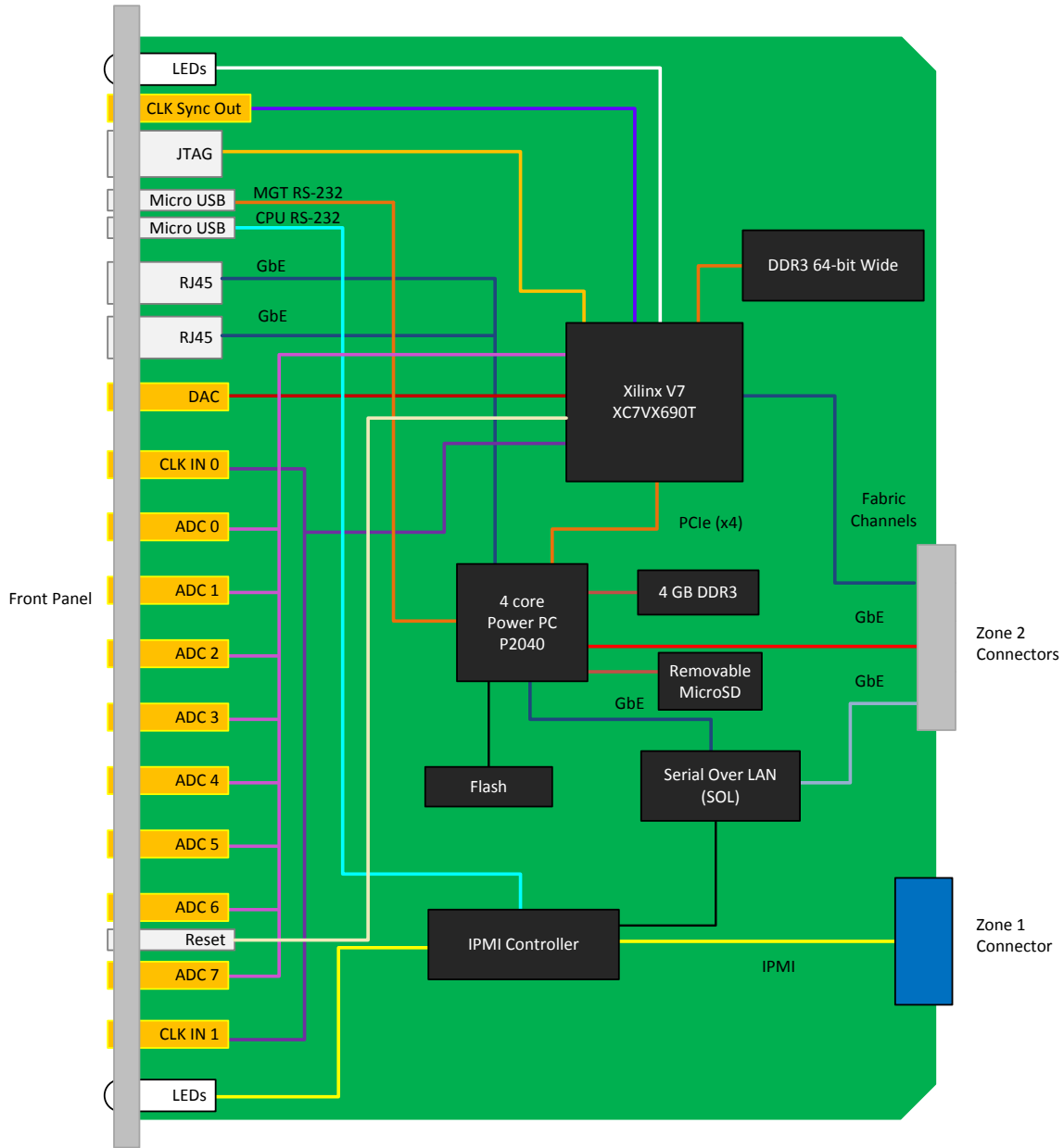


Figure 1: Block Diagram

FRONT PANEL



SPECIFICATIONS

Architecture		
Physical	Dimensions	Width: 12.687" (322.25 mm)
		Depth: 11.024" (280 mm)
Type	ATCA Carrier FPGA	8 ADCs, 10-bit @ 2 GSPS and 1 DAC, 14-bit @ 2.8 GSPS Xilinx FPGA XC7VX690T
Standards		
Module Management	IPMI	IPMI version 2.0 and PICMG 3.0
PICMG	ATCA	PICMG 3.0 R2.0
Configuration		
Power	ATC136	~TBD
Environmental	Temperature	Operating Temperature: 0° to 65°C (Air flow requirements is to be greater than 200 LFM) Available in industrial temperature range
		Storage Temperature: -40° to +90°C
		Vibration
	Shock	30 Gs on each axis
	Relative Humidity	5 to 95 per cent, non-condensing
Software Support	Operating System	Linux
Conformal Coating		Humiseal 1A33 Polyurethane (Optional) Humiseal 1B31 Acrylic (Optional)
Other		
MTBF	MIL Handbook 217-F @ TBD Hrs	
Certifications	Designed to meet FCC, CE and UL certifications where applicable	
Compliance	PICMG 3.0 Rev 3.0, RoHS 2.	
Standards	VadaTech is certified to both the ISO9001:2000 and AS9100B:2004 standards	
Warranty	Two (2) years	

INTEGRATION SERVICES AND APPLICATION-READY PLATFORMS

VadaTech has a full ecosystem of ATCA and μ TCA 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

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ORDERING OPTIONS

ATC136 – 000 – DE0 – 0HJ

COMMON CONFIGURATIONS

ATC136-000-010-000

D = FPGA

0 = XC7VX690T

1 = Reserved

E = FPGA Speed

0 = Reserved

1 = High

2 = Highest (MOQ required)

H = Temperature Range

0 = Commercial

1 = Industrial

J = Conformal Coating

0 = None

1 = Humiseal 1A33 Polyurethane

2 = Humiseal 1B31 Acrylic

RELATED PRODUCTS



VT830 6U ATCA
SlotSaver Chassis



ATC806 40G/10G
ATCA Switch



ART132
ATCA RTM

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