

Summary

The **ADM-XRC-KU1** is a high performance reconfigurable XMC (compliant to VITA Standard 42.0 and 42.3) based on the Xilinx Ultrascale range of Platform FPGAs.

Features include PCI Express Gen2 interface, external memory, high density I/O, system monitoring and flash boot facilities.

A comprehensive cross platform API with support for **Microsoft Windows**, **Linux** and **VxWorks** provides access to the full functionality of these hardware features.

Board management is provided by the combination of the Artix FPGA and AVR Microcontroller. This allows the board to be managed via PCI Express or via USB.

The KU1 provides multiple communications modes:

PCI Express Gen2 x4 through the Artix FPGA with an optional Gen3 x4 PCI Express link direct to the target FPGA.

Gen3 x8 PCI Express link direct to the target when the bridge is in USB mode.

An optional Gen3 x8 PCI Express link provided through Pn6 using a compatible XMC carrier.

Xilinx Kintex Ultrascale Outline Specifications

20nm ASIC-class system-level performance with up to 2X Greater System Performance/Watt

Fabric clock FMAX = 725MHz

GTH max line rate = 16.375 Gb/s

LVDS max rate = 1600Mb/s

KU060 (663K FFs, 332K LUTs, 38Mb BRAM, 2,760 DSP)

KU115 (1,327K FFs, 663K LUTs, 75.9Mb BRAM, 5,520 DSP)

Features

Applications

- Radar/Sonar Beamforming
- ELINT
- Image/Video Processing
- Digital Signal Processing
- Data Encryption

Target Device(s):

Xilinx Kintex Ultrascale: KU060, KU115 (A1517)

Memory:

SDRAM - 8GBytes in 4 independent banks of DDR4 SDRAM (2400 MT/S)

FLASH - 2x QSPI serial NOR Flash

FLASH - Configuration Flash providing an initialisation design for automatic loading into the target FPGA.

Front I/O:

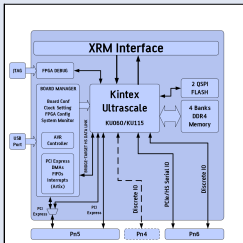
Up to 146 LVCMOS/LVDS I/O (programmable to 1.2, 1.5 or 1.8V)
Up to 8 High-Speed Serial Links

Rear I/O:

Up to 10 High-Speed Serial Links via Pn6 connector, Standard build has 9 TX/RX data capable links and one external clock input. There is a build option available to use the external clock input as a 10th TX/RX data link.

Multiple LVCMOS 3.3V GPIO connections via Pn6 connector (VITA 46.9 X8d+X12d+X38s compatible pinout)

Multiple LVCMOS/LVDS GPIO connections via optional PMC Pn4 connector (1.8V levels with 2.5V compatible inputs)





Specification

Product Name	ADM-XRC-KU1
Target Device(s)	Xilinx Kintex Ultrascale KU060, KU115 (A1517)
Interface	PCI Express Gen2 x1, x2 or x4 link to separate bridge device with a high-speed local link to user FPGA 2 DMA Controllers Interrupt Controller or PCI Express Gen3 x8 direct to target FPGA or PCI Express Gen3 x8 through P6 to Target
Memory	SDRAM - 8GBytes in 4 independent banks of DDR4 SDRAM (2400 MT/S) FLASH - 2x QSPI serial NOR Flash FLASH - Configuration Flash providing an initialisation design for automatic loading into the target FPGA.
Front I/O	Up to 146 LVCMOS/LVDS I/O (programmable to 1.2, 1.5 or 1.8V) Up to 8 High-Speed Serial Links
Rear I/O	Up to 10 High-Speed Serial Links via Pn6 connector, Standard build has 9 TX/RX data capable links and one external clock input. There is a build option available to use the external clock input as a 10th TX/RX data link. Multiple LVCMOS 3.3V GPIO connections via Pn6 connector (VITA 46.9 X8d+X12d+X38s compatible pinout) Multiple LVCMOS/LVDS GPIO connections via optional PMC Pn4 connector (1.8V levels with 2.5V compatible inputs)
Clocks	Low-jitter 250MHz reference clock, suitable for SerDes applications Low-jitter 200MHz reference clock for ICB delay circuits Custom clock inputs available through the XRM interface Two Software-Programmable Clocks
Device Configuration	PCI Express direct to SelectMAP port From Flash direct on power up Via USB External JTAG connector
Software	The KU1 is supplied with the ADM-XRC-KU1 Support & Development kit (SDK) along with ADB3 Driver for Windows / Linux / VxWorks.
Environmental	Temperature: Air cooled option (AC0) Operating Temperature 0° to +55°C Air cooled industrial option (AC1) Operating Temperature -40° to +70°C Conduction cooled industrial option (CC1) Operating Temperature -40° to 70°C Conformal Coating: Acrylic (Humiseal 1B31) Polyurethane (Conathane CE-1155) EMC: FCC 47CFR Part 2 EN55022 Equipment Class B

Ordering Code

ADM-XRC-KU1/z-2(c)(a)/PN4(IO)		
Kintex Ultrascale device	z	KU060,KU115
Cooling	c	blank = air cooled commercial, /AC1 = conduction cooled industrial, /CC1 = conduction cooled industrial
Conformal coating	a	blank = No Coating, A = Acrylic coating (Humiseal 1B31), P = Polyurethane (Conathane CE-1155)
IO Option	IO	blank = One Differential Pair on Pn6 designated as an external Clock Input, /10RX = External Clock input replaced by 10th Data Input
note		Contact Sales for other ordering options

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