

Zynq RFSoC PCIe Data Acquisition Card

Seamlessly cross between analog and digital at up to gigahertz rates

The BittWare RFX-8441 features the third generation Xilinx Zynq[®] UltraScale+[™] RFSoC. This innovative PCIe data acquisition card is capable of addressing a wide frequency spectrum – a critical need for applications such as 5G, LTE wireless, phased array RADAR and satellite communications.

The Xilinx Zynq[®] UltraScale+[™] RFSoC integrates RF-class A/D and D/A converters into the Zynq[®] FPGA fabric and multi-core ARM processor subsystem, creating a multi-channel data conversion and processing solution on a single chip.

With the product development, manufacturing, quality and lifecycle management capabilities of the Molex group behind it, the RFX-8441 is an enterprise-class product ideal for rapid prototyping as well as volume deployment in end user systems.







Analog Front End Options

The default configuration for the analog front end targets L-band (1GHz to 2GHz). We also offer other configurations that remove several stages to provide a direct connection with baluns supporting up to 4 GHz. Contact us for other options.

Option 1: L-Band

This option includes several signal conditioning components including variable gain.



Option 2: Direct 3 GHz Balun

This option eliminates amplifier distortion and the L-band signal conditioning.



Option 3: Direct 4 GHz Balun

Similar to Option 2, but with an extended input range to 4 GHz.





L-Band Frequency Response



3GHz Frequency Response

Board Specifications

 XCZU43 in an E1156 package Core speed grade -2 Detact BittWare for other FPGA options L-Band 1GHz - 2GHz: Includes several signal conditioning components including variable gain Direct 3 GHz Balun: Eliminates amplifier distortion and the L-band signal conditioning Direct 4 GHz Balun: Similar to 3GHz option, but with an extended input range to 4 GHz Contact BittWare for additional options
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x 5 GSPS 14-bit ADCs: -40 to 0 dBm (default, L-band only)
x 10 GSPS 14-bit DACs: -40 to 0 dBm (default)
ogrammable clocks
ternal reference and triggers
MC style connectors
ash memory for booting FPGA
ash memory for ARM bootloader and OS image
GB DDR4 processing system (ARM) memory with ECC
GB DDR4 programmable logic memory with ECC
ocessing system
RJ45 Ethernet
USB UART
USB 3.0
Mini DisplayPort
ogrammable logic:
5

Cooling	Standard: double-width passive heatsinkContact BittWare for other cooling options
Electrical	 On-board power derived from 6-pin AUX connector or option- ally from 12V PCIe slot connection Power dissipation is application dependent Typical max power consumption 50W
Environmental	Operating temperature: 5°C to 35°C
Quality	 Manufactured to IPC-A-610 Class 2 RoHS compliant CE, FCC & ICES approvals
Form factor	 ¾-length, standard-height PCle dual-slot card (x16 mechanical, x8 electrical) Supports standalone operation RFX-8441 can be ordered as a TeraBox[™] integrated server platform
Development Tools	

FPGA development development bittWare provides a basic data capture and replay example utilizing the major interfaces of the product. Xilinx Vivado development tools are fully supported for development of custom designs.

Deliverables

- RFX-8441 Analog Data Acquisition Card
- Data capture and relay example Full source code
- 1-year hardware warranty



To learn more, visit www.BittWare.com

Rev 2021.10.19 | October 2021

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