

Q8 SDR Dock Daughterboard Product

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Q8 Processor

High Performance Q-Card

- Latest addition and highest performance member of the Xiphos Q-Card family, featuring a Multi-Processor System-on-Chip (MPSoC)
- Hybrid environment, including multi-core CPUs supported by massive programmable logic resources and a wide array of hardware interfaces at extremely low power
- Ideally suited for onboard synthetic aperture radar (SAR) processing, hyper/multispectral compression, stereo and monocular visual odometry, image registration and alignment, convolutional neural networks, advanced software defined radios (SDR)

CHARACTERISTICS

- Xilinx Zynq UltraScale+ XCZU7EG MPSoC
- Quad-core ARM Cortex-A53 @ 1.2 GHz
- Dual-core ARM Cortex-R5 @ 500 MHz
- ARM Mali-400 GPU @ 600 MHz
- 504k system logic cells, 461k flip-flops (FF), 274k look-up tables (LUT) and 1,728 DSP slices
- 4 GB LPDDR4 DRAM (with EDAC)
- 2x 256 MB QSPI Flash (NOR)
- 2x 128 GB eMMC storage
- 6-16 V input; 3.5-25 W, scalable
- 80 mm x 80 mm x 11.2 mm, 56 g
- Multiple interfaces
- Radiation effects mitigation and 30krad TID lifetime



Q8 SDR Dock Daughterboard

AD9361-Based SDR Overview

- Daughterboard to leverage high-performance processing and massive FPGA resources of Q8 to provide advanced SDR capabilities
- Allows integration of GOMSPACE NanoCom TR-600 or Xiphos equivalent SDR module
- Based on Analog Devices' popular AD9361 wideband transceiver RF System on a Chip (RFSoc)

CHARACTERISTICS

Features:

- Analog Devices AD9361 RF agile transceiver (in SDR module)

Interfaces include:

- Connector for GOMSPACE NanoCom TR-600 SDR module (or Xiphos equivalent)
- RF interface (via SDR module):
 - 2x Tx Out, 2x Rx In
- RS422
- CAN Bus
- USB 2.0
- PPS In, UART (3.3V)
- 2x LVDS Out + 2x LVDS In (1.8V)
 - SpaceWire interface available using Xiphos IP core

Mechanical/Electrical:

- Physical dimensions: 80 x 80 x 34.7 mm (with SDR module)
- Mass: 116 g
- Power Input: +5V, +12V
- Power consumption: 4W idle, 7.5W typical (SDR active)



Q8 SDR Dock Daughterboard

External Connectors

CHARACTERISTICS

External Connectors:

- J1 – (30 pins)
 - 2x LVDS Out (1.8V)
 - 2x LVDS In (1.8V)
 - CAN Bus
 - PPS In (3.3V)
 - UART (3.3V)
 - RS422
- J2 – (6 pins)
 - 12V In
 - 5V In
- J3 – (100 pins)
 - To SDR Module
- J4 – (100 pins)
 - To SDR Module
- J5 – (4 pins)
 - USB 2.0
- SDR Module – (4 coax)
 - 2x RF Transmit
 - 2x RF Receive





- **For more information, please contact:**
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