

Rugged SFF System Dual ADRV9009 RF Transceivers



Overview

PanaTeQ's **FALCON-SDR-A** is a conduction cooled Small Form Factor (SFF) COTS rugged system with dual ADRV9009 RF Wideband Transceivers and Zynq UltraScale+ MPSOC as baseband processor for a broad range of applications such as Software Defined Radio, MILCOM, massive MIMO and Electronic Warfare.

The FALCON-SDR-A provides front-end RF interface using 10 SSMC front panel connectors.

The baseband processor iZynq UltraScale+ MPSOC **ZU11EG** integrates a Quad-core ARM Cortex-A53 based Application Processing Unit (**APU**), a Dual-core ARM Cortex-R5 based Real-Time Processing Unit (**RPU**), an ARM MALI-400 based Graphic Processing Unit (**GPU**), a H.264/H.265 Video Codec Unit (**VCU** only on EV device) and an UltraScale+ Programmable Logic (**PL**) in a single device. It also includes on-chip memory, external memory interfaces, and a rich set of peripheral connectivity interfaces.

Up to 8GB 64-bit DDR4-2400 Processing Memory with 8-bit ECC and up to 4GB 32-bit of DDR4-2400 as the Programmable Logic Memory, allowing data streaming. 64GB of soldered eMMC managed NAND Flash is available for local data storage.

As the System processor, the FALCON-SDR-A uses a COMe Intel Core i7 module running a Linux OS. For other option please contact us.

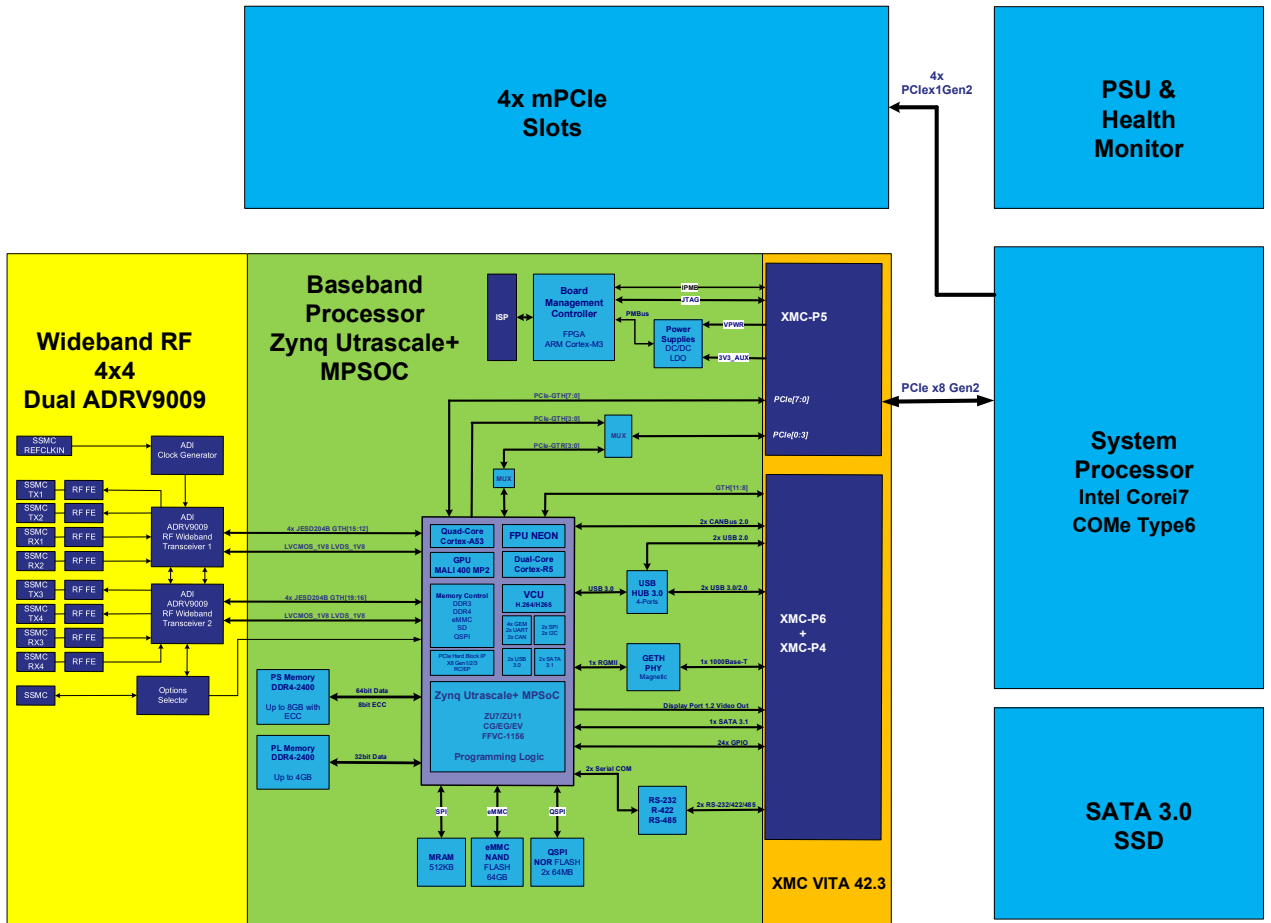
Typical Ruggedized Applications

- Software Defined Radio (SDR)
- Military Communication (MILCOM)
- Data Link
- Counter Drones and UAV Systems
- Massive MIMO
- Electronic Warfare (EW)
- Signal Intelligence (SIG-INT)

Key Features

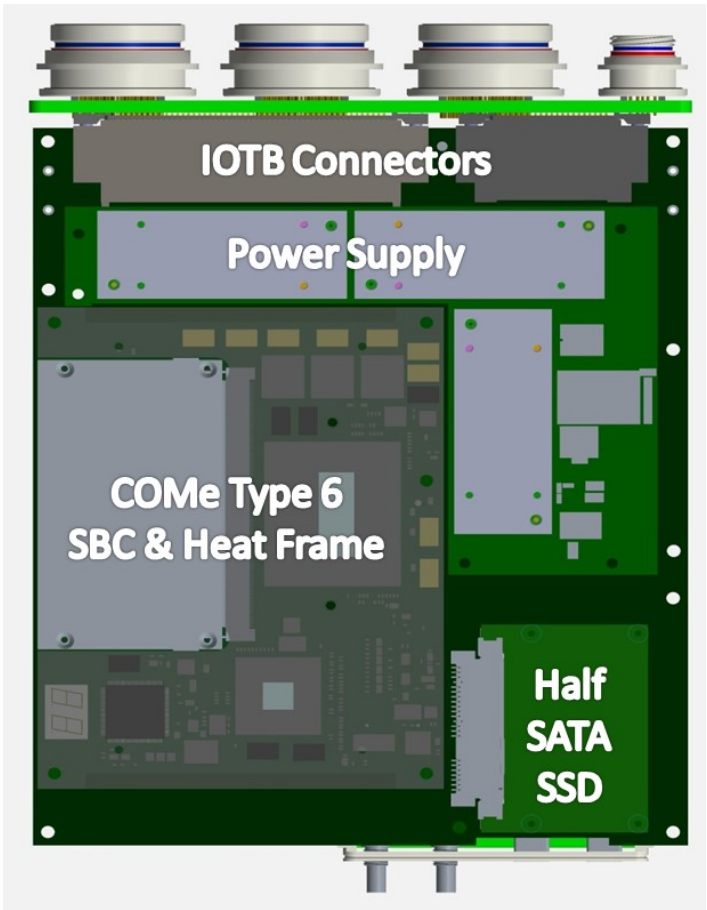
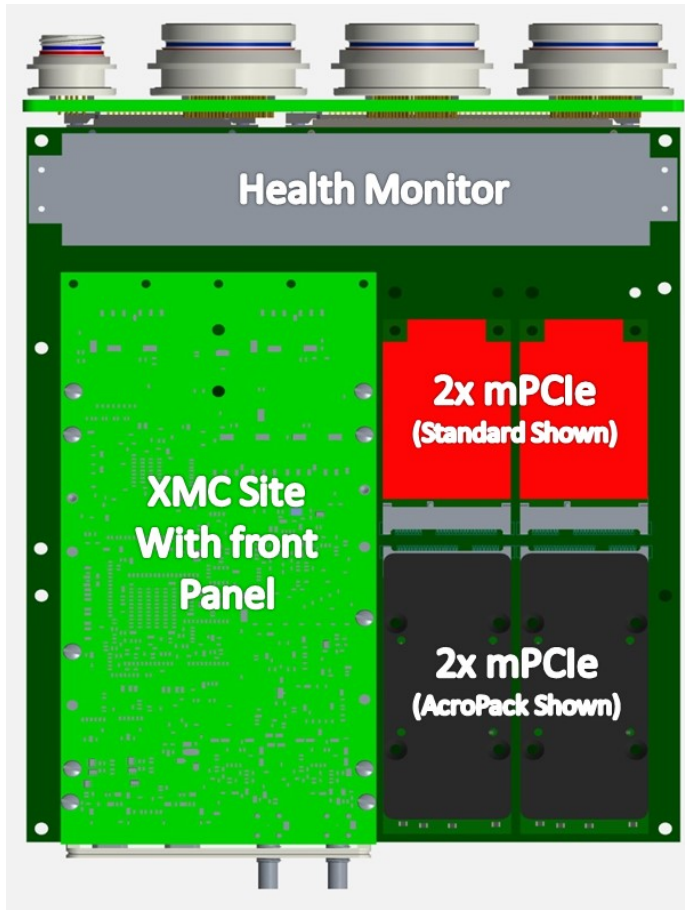
- RF Transceivers
 - Compatibility with ADI ADRV9009-ZU11EG RF SoM
 - Dual ADRV9009 RF Wideband Transceivers
- Four TX and Four RX coherent synchronized channels
 - Wide tuning range 75MHz to 6GHz
 - Max receiver BW 200MHz. Up to 800MHz (4 Rx)
 - Max transmitter synthesis BW 450MHz
 - Integrated LO and Phase sync between all channels
 - 10 SSMC RF connectors (four TX, four RX, RFLO, REFCLK)
- Baseband Processor
 - Xilinx Zynq UltraScale+ MPSOC
 - ZU7EV or ZU11EG FFVC-1156 package
 - Up to 8GB DDR4-2400 64-bit PS memory with 8-bit ECC
 - Up to 4GB DDR4-2400 32-bit PL memory
 - eMMC 64GB (V4.51), MRAM 512KB
 - 1GE, USB, SATA, DP, RS-232/485/422
- System Processor
 - Intel Corei7 (Optional NXP)
 - 16GB-DDR4 (Optional 32GB)
 - 2x HDMI/DP
 - HD Audio In/Out
 - 2x 1Ge (Optional 2x 10Ge)
- System I/O Extension (Four Standard type mPCIe slots or Acropak)
 - Up to 40x Discrete & Digital I/O
 - Up to 40x Analog I/O
 - Up to 8x Serial I/O (RS-232, RS-422, RS-485)
 - Up to 10x Counters & Timers
 - Up to 2x MILSTD-1553, 8x ARINC-429, 2x CAN Bus
- Mechanical
 - 179mm (W) x 105mm (H) x 226.5mm (D) x Without Feet
 - 209mm (W) x 105mm (H) x 226.5mm (D) x With Feet
 - Optional Base with 2x Removable Storages Drive
 - Weight : 3.5 kg Estimated
 - Cooling: Conduction Cooled, no fans

Block Diagram



XMC-SDR-A

Internal Architecture



Product Codification

The FALCON-SDR-A can be assembled with different versions of the Zynq Ultrascale+ MPSOC devices and various amounts of memory storage. The following table shows the product coding for all these options.

FALCON-SDR-A-B 1 N - IN

	Device	ARM A53 Cores	GPU	VCU	System Logic Cells	DSP Slices	Memory
A	ZU7EV	4	Yes	Yes	504K	1728	38.0 Mb
B	ZU11EG	4	Yes	No	653K	2928	46.3 Mb

	Device Speed Grade
1	Slowest
2	Mid
3	Fastest

	PS / PL Memory Size
N	4GB/2GB
M	8GB/4GB

	Application Processor	Memory
IN	Intel Core i7	16GB
NX	NXP	TBD

Ordering Information

The following product references are offered by PanaTeQ as standard products. Other combinations of devices, speed grade, memory and cooling can be specially ordered. Please contact us for details

Reference	Device	Speed	Zynq Memory PS/PL	System Processor
FALCON-SDR-A-A1N-IN	ZU7EV	-1	4GB/2GB	Intel Core i7 16GB DDR4
FALCON-SDR-A-B1N-IN	ZU11EG	-1	4GB/2GB	Intel Core i7 16GB DDR4

Related Products

Reference	Description
XMC-SDR-A	XMC-SDR-A Dual ADRV9009 RF Wideband Transceivers
XMC-SDR-A-PDSK	XMC-SDR-A Development System Kit
IO-XMC-SDR-A	IO Carrier board for XMC-SDR-A
VPX3-XMC-SDR-A	3U VPX Carrier board for XMC-SDR-A
PCIe-XMC-SDR-A	PCIe Carrier board for XMC-SDR-A