

## SFF Rugged Advanced SDR/EW System Zynq MPSOC Dual or Quad ADRV9009 Wideband RF Transceivers



### Overview

PanaTeQ's **EAGLE-SDR-A** is a Small Form Factor (SFF) COTS Rugged SDR/EW system with **dual** or **quad ADRV9009** RF Wideband Transceivers and dual Zynq UltraScale+ MPSOC as baseband processors for a broad range of applications such as Software Defined Radio, MILCOM, massive 8x8 MIMO and Electronic Warfare.

The EAGLE-SDR provides front-end RF interface using up to 20 SSMC rear panel connectors.

The baseband processor Zynq 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 EAGLE-SDR uses a COMe Intel Core i7 module running a Linux OS. For other option please contact us.

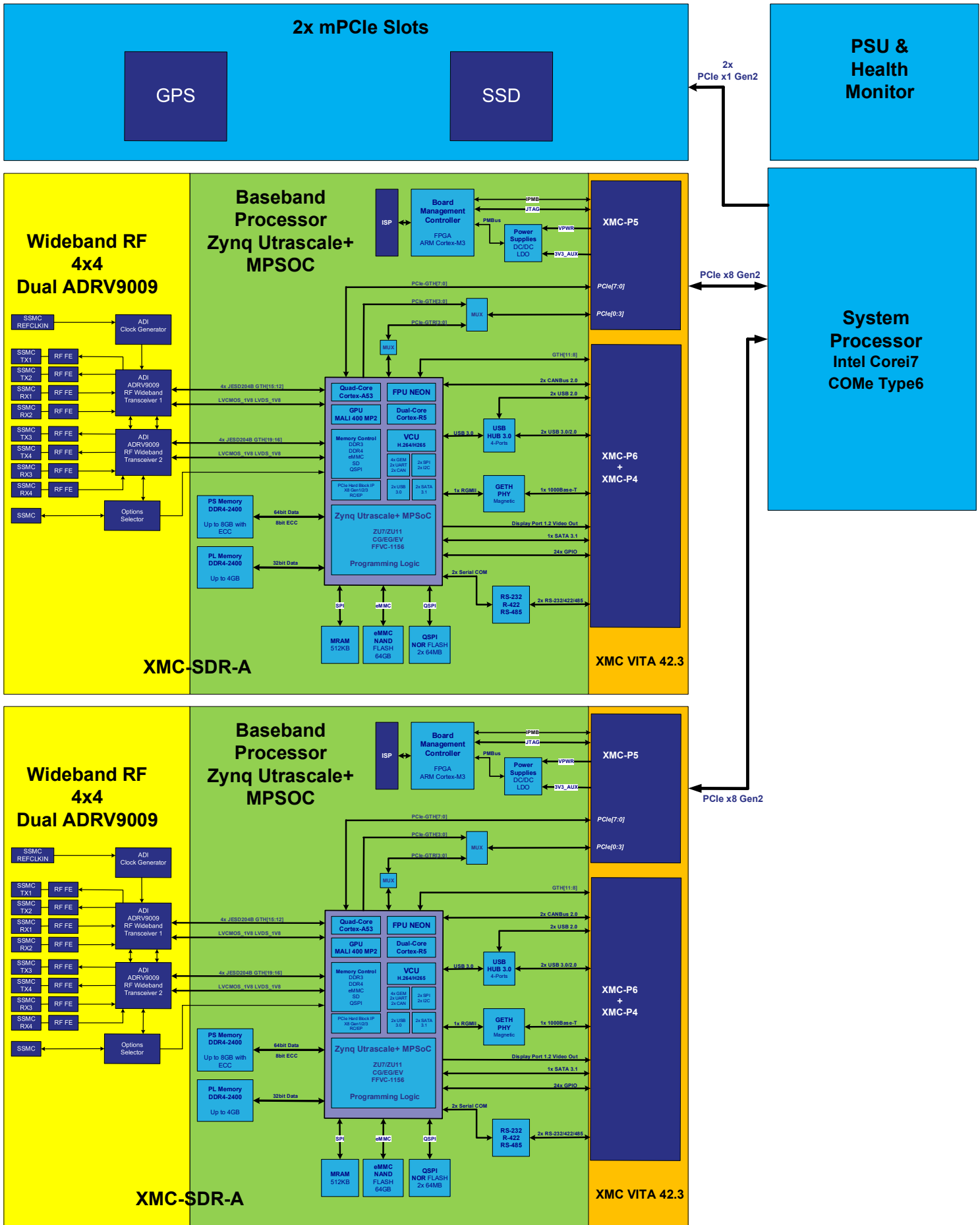
### Typical Ruggedized Applications

- Advanced Software Defined Radio (SDR)
- Military Communication (MILCOM)
- Data Link
- Counter Drones and UAV Systems
- Massive MIMO 8x8
- Electronic Warfare (EW)
- Signal Intelligence (SIG-INT)

### Key Features

- Wideband RF Transceivers
  - Compatibility with ADI ADRV9009-ZU11EG RF SoM
  - Dual or Quad ADRV9009 RF Wideband Transceivers
  - Quad or Octal TX and 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
  - Programmable Filter Banks
  - 10 (Dual ADRV9009) or 20 (Quad ADRV9009) SSMC RF connectors at rear panels
- Single or Dual Baseband Processors
  - 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
  - 1GbE, USB, SATA, DP, RS-232/485/422
- System Processor
  - Intel Corei7
  - 8GB-DDR3L (Optional 16GB)
  - 2x HDMI/DP
  - HD Audio In/Out
  - 2x 1GbE (Optional 2x 10Ge)
- System I/O Extension (Two mPCIe or mSATA Slots)
  - Discrete & Digital I/O
  - SSD
  - Analog I/O
  - Serial I/O (RS-232, RS-422, RS-485)
  - Counters & Timers. GPS
  - MILSTD-1553, ARINC-429, CAN Bus
- Mechanical (Preliminary Data)
  - 215 mm (W) x 85 mm (H) x 205 mm (D)
  - Weight : 4.5 kg Estimated
  - Cooling: Conduction Cooled, no fans
  - Operating Temp : -40C to 70C at Box Thermal Interface
- Power : 10-36VDC (on-board DC/DC Fused)

## Block Diagram



## Product Codification

The EAGLE-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.

# EAGLE-SDR-A-B 1 N - INA

	ADRV9009 RFIC	Transmitter Channels	Receiver Channels
A	Dual	4	4
B	Quad	8	8

	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
INA	Intel Core i7	8GB
INB	Intel Core i7	16GB

## 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	ADRV9009	MPSoC	Speed	MPSoC Memory PS/PL	System Processor
EAGLE-SDR-A-A1N-INA	2 (4x4)	ZU7EV	-1	4GB/2GB	Intel Core i7 8GB DDR3
EAGLE-SDR-A-B1N-INA	2 (4x4)	ZU11EG	-1	4GB/2GB	Intel Core i7 8GB DDR3
EAGLE-SDR-B-A1N-INA	4 (8x8)	ZU7EV	-1	4GB/2GB	Intel Core i7 8GB DDR3
EAGLE-SDR-B-B1N-INA	4 (8x8)	ZU11EG	-1	4GB/2GB	Intel Core i7 8GB DDR3

## 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