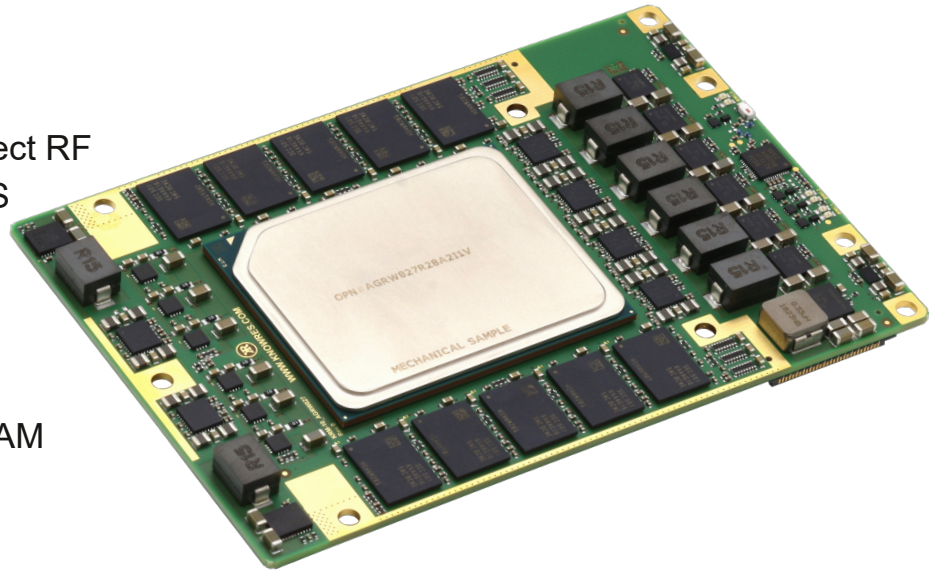


KRM-10A9W027

KEY FEATURES

- Altera Agilex 9 AGRW027 Direct RF
- 8x RF ADC and DAC @ 64GS
- 32 58G PAM-4 transceivers
- 56 LOGIC I/O
- 44 HPS I/O
- 4GB 40-bit DDR4 HPS RAM
- 2 X 8GB 72-bit DDR4 ECC RAM
- Single 12V supply
- 120 x 80 mm



The KRM-10A9W027 is a full-featured Altera Direct RFSOM for use in a multitude of applications with analog signals up to 32GHz.

Unprecedented Bandwidth

With up to 32 GHz of analog bandwidth and eight 64GS/s analog to digital and digital to analog converters, coupled with a capable Agilex 9 FPGA fabric, the KRM-10 Direct RFSOM is ideally suited for a range of high bandwidth signal analysis or generation applications deployed in space-constrained environments.

The extensive FPGA fabric is complemented by two 72-bit DDR4 memory banks, suitable for sample buffering, real-time pattern storage for complex arbitrary signal generation, or extensive coefficient storage for edge AI implementations.

Capable FPGA

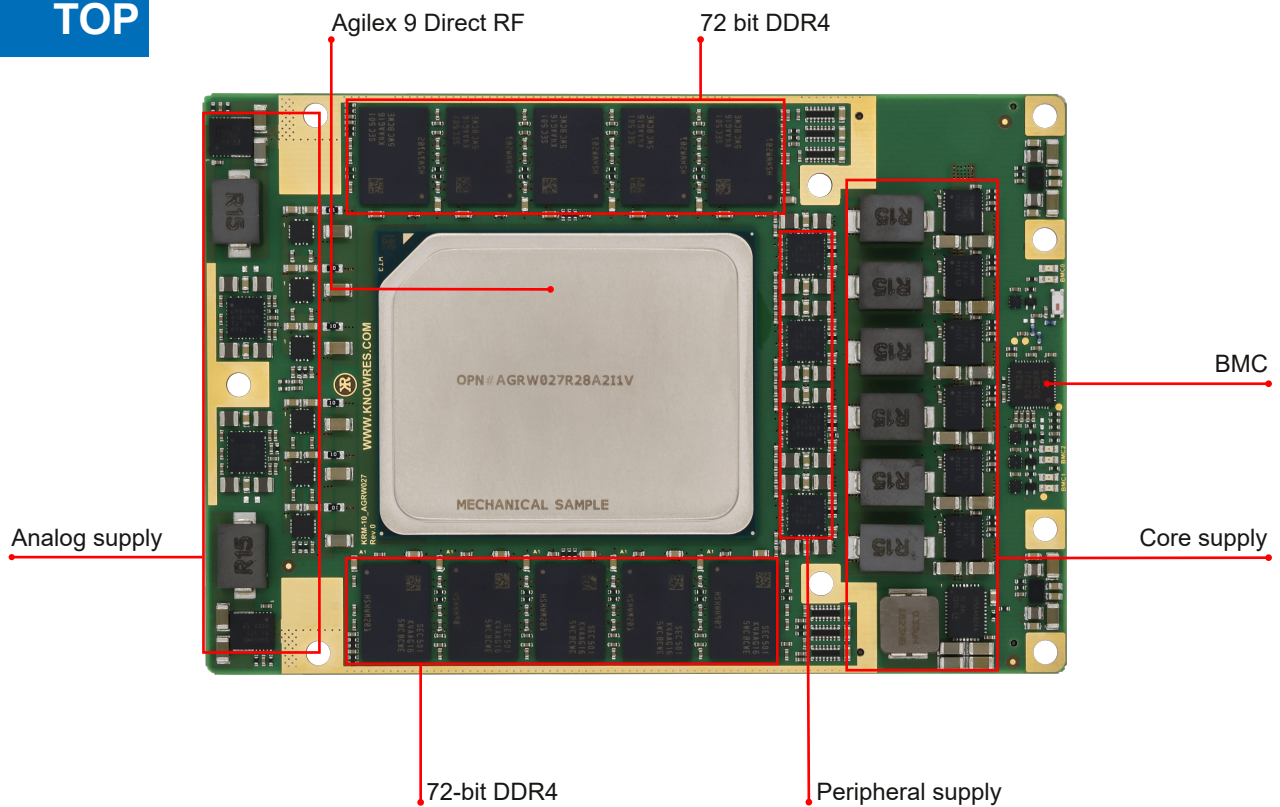
The Agilex 9 FPGA fabric features 17056 multipliers and 287 Mbit of embedded memory, enabling the implementation of powerful DSP algorithms to match the massive converter bandwidth. High data rate transfer to and from the FPGA is facilitated with 58 Gbit PAM-4 and 32 Gbit NRZ transceivers, allowing the SoM to be deployed as a PCIe peripheral or network attached device.

The quad core ARM A53 HPS subsystem with its own dedicated DDR4 memory is suitable for on-SoM control plane and data visualization applications.

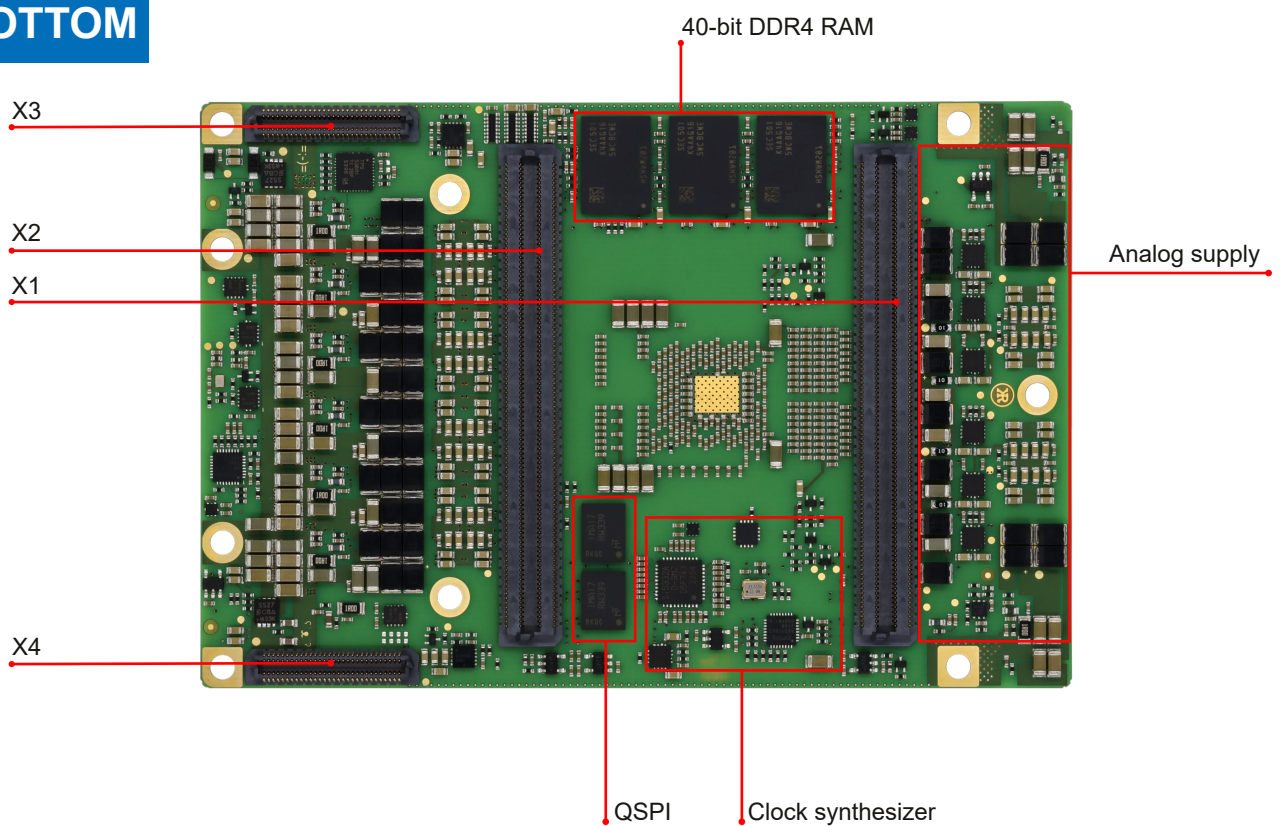
System Integration

All advanced Knowledge Resources FPGA SoMs feature a housekeeping bus that ensures the SoM can be the master or slave of deterministic, system-wide power sequencing and peripheral initialization for glitch-free, stable interaction within a larger system of analog and digital peripherals and peers. The analog front-end personalization is implemented on the carrier level for maximum flexibility, and multi-module converter synchronization is explicitly supported by the SoM's clocking architecture.

TOP



BOTTOM



FEATURES

Core Component

- Altera Agilex9 AGRW027

Direct RF-Subsystem

- 8x 10-bit ADC up to 64GS/s
- 8x 10-bit DAC up to 64GS/s

Processing System

- Quad Core ARM Cortex™-A53

FPGA Fabric

- 2693 kLEs
- 17056 18x19 multipliers
- 287 Mb embedded RAM

Memory Configuration

- 4 GB, 40-bit DDR4 ECC [HPS](#) RAM
- 2 instances of 8 GB, 72-bit DDR4 [Logic Fabric](#) RAM
- Dual QSPI to 512 MB on SDM

Digital I/O

- 22 & 22 HPS_A & B I/O to 1V8
- 48 Logic I/O to 1V8
- 32 58 Gb PAM-4 transceivers
- BMC UART / HPS UART
- BMC status signals
- JTAG

BMC

- Board Management Controller for
 - On-module clock configuration
 - Power sequencing & telemetry
 - Boot mode selection
 - Housekeeping for multi-module systems

Power

- 12V input (11.0-12.8V)

Digital Clocking

- 3:8 clock tree
 - External clock or on-board master
 - DDR4 clocks
 - FPGA fabric clocks
 - HPS clocks
- 8 direct clock inputs on connectors for PAM-4 transceiver tiles

RF Clocking

- Dedicated SYNC, SYSREF, CKREF and CEXT inputs on X1 RF connector for each A-tile
- Supports CKREF and CKEXT clock modes
 - SW controlled configuration
- Switched 12V supply-out and housekeeping/control signals to power and configure the clocking system
- Dedicated PL-SYSREF and PL-SYCLOCK inputs
- SYSREF request out

RF I/O

- Differential DC-coupled low-loss paths from BGA to SoM connector

Dimensions

- 120 x 80 mm
- 17 mm max. height with heat spreader

Environmental

- Industrial temperature range

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