

## Introduction

The Frontgrade™ SpaceVPX Reconfigurable Processing Module™ (RPM-PS) SBC uses an AMD/Xilinx® XQR-Grade VC1902 System-on-Chip (SoC) with dual A72 ARM cores (up to 1.7 GHz) and dual Cortex-R5 cores. Programmable logic may be implemented by the end user to allow high-throughput SpaceWire and Ethernet data switching. Compact 3U design with a customizable mezzanine allows for tailoring I/O to meet program requirements. Development dongle is available to access the I/O on the SBC using JTAG, UART, or ENET for software development.

## Reconfigurable Processing Module: RPM-PS

### Features

#### Processing / Data Rates / Connectivity

- Processor: Versal® VC1902 System-on-Chip (SoC) with dual A72 ARM™ cores (up to 1.7 GHz) and dual Cortex-R5® cores (up to 750 MHz)
- Volatile Memory: 16 GB DDR4 memory
- Non-Volatile Boot Memory: 8 Gbits QSPI memory
- Non-Volatile Storage: 1Tb maximum of raw data storage in SLC mode

#### When configured with the RPM™ mezzanine card:

- Five 100Base-TX/1000Base-T ports
- Four SpaceWire ports of up to 200 Mbps per port
- Redundant RS422 1PPS inputs
- One RS422 UART
- Discrete IOs: 3 LVDS inputs, 1 LVDS pulse output, 1 LVTTTL/LVCMOS input, and 4 LVTTTL/LVCMOS outputs

#### Mass / Volume / Thermal

- Mass: less than 600 grams (estimated), standard 3U 160mm SpaceVPX form factor
- Maximum operating temperature mounted on a regulated thermal interface: 52°C
- Maximum power consumption: 125W (80W maximum for Versal SoC 0.8 Vdc core voltage)

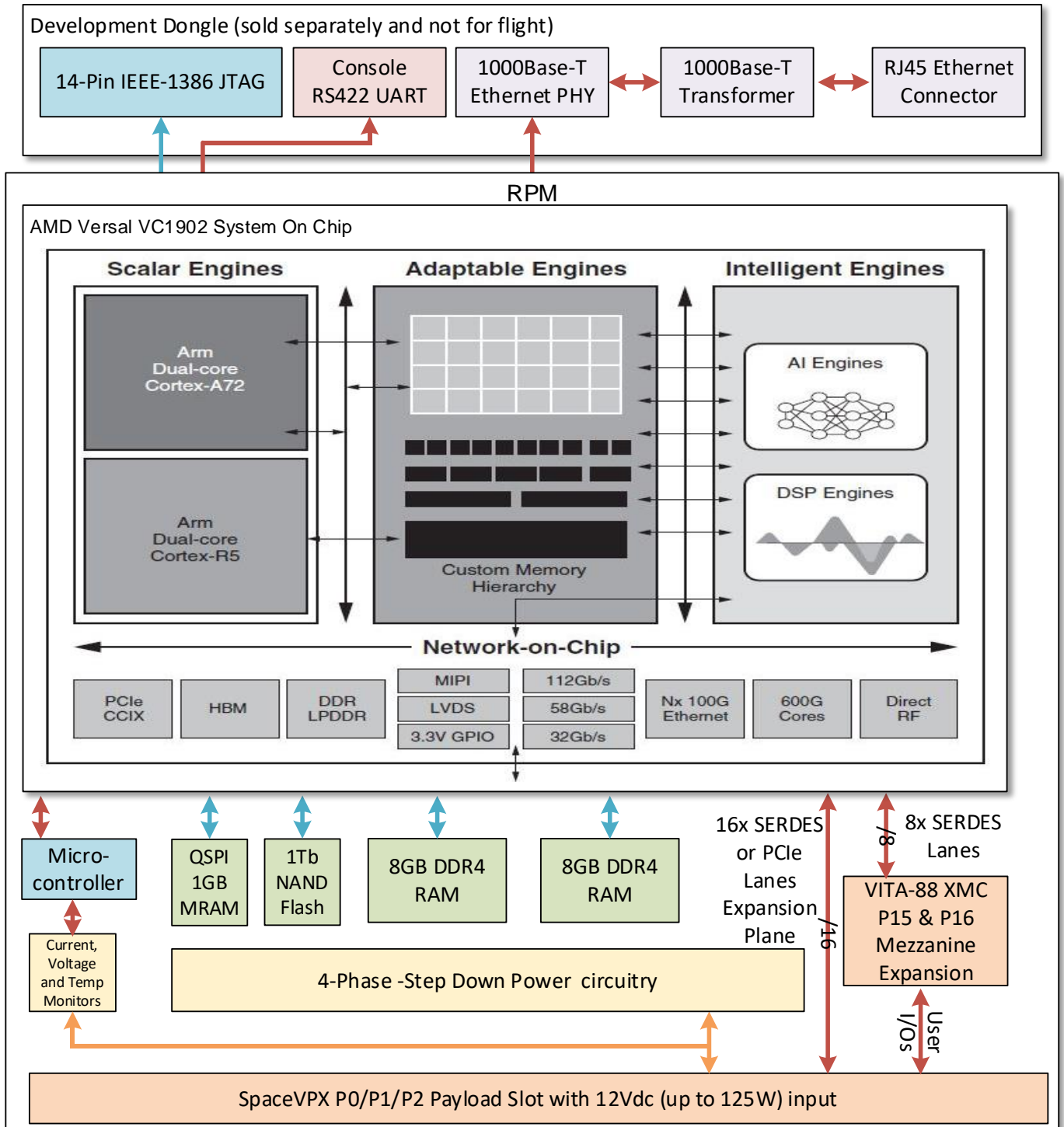
#### OPERATIONAL LIFE / RELIABILITY AND PERFORMANCE

- System reliability over 0.9
- System SEU rate: No more than one per year for typical LEO Missions
- TID of 25 krad (Si) or 100 krad (Si) optional assuming 100 mils of shielding with 6061-T6 Aluminum
- Level-2 parts pedigree available

#### DEVELOPMENT ENVIRONMENT

- Separate development dongle for interface with
- SmartLynq+ System Debugger
- Vivado® 2023.2 development environment
- PetaLinux Linux Support Package (LSP)

Distribution Statement A: Approved for public release. Distribution is unlimited.



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