

## SBC-2A72 VNX+ Single Board Computer



### Small Form Factor Dual Arm<sup>®</sup> Cortex<sup>®</sup>-A72 SBC

The SBC-2A72 VNX+ from Frontgrade Technologies sets a new benchmark for space-qualified, high-performance embedded computing. Engineered for edge processing and graphics applications in space-constrained environments, this powerful Single Board Computer (SBC) delivers advanced capabilities in an ultra-compact, SWaP-optimized form factor.

Powered by the radiation-tolerant VA7230 processor, the SBC-2A72 features dual ARM<sup>®</sup> Cortex<sup>®</sup>-A72 cores and an integrated GPU, enabling robust performance across mission-critical workloads, from high-throughput networking and advanced graphics to command, control, and telemetry.

Designed for seamless system integration, the SBC-2A72 routes all operational I/O through the backplane, eliminating the need for front-panel interfaces in flight. A built-in radiation-hardened microcontroller unit (MCU) further enhances reliability with advanced system monitoring, power management, and expanded interface support including UARTs, SpaceWire, and GPIO.

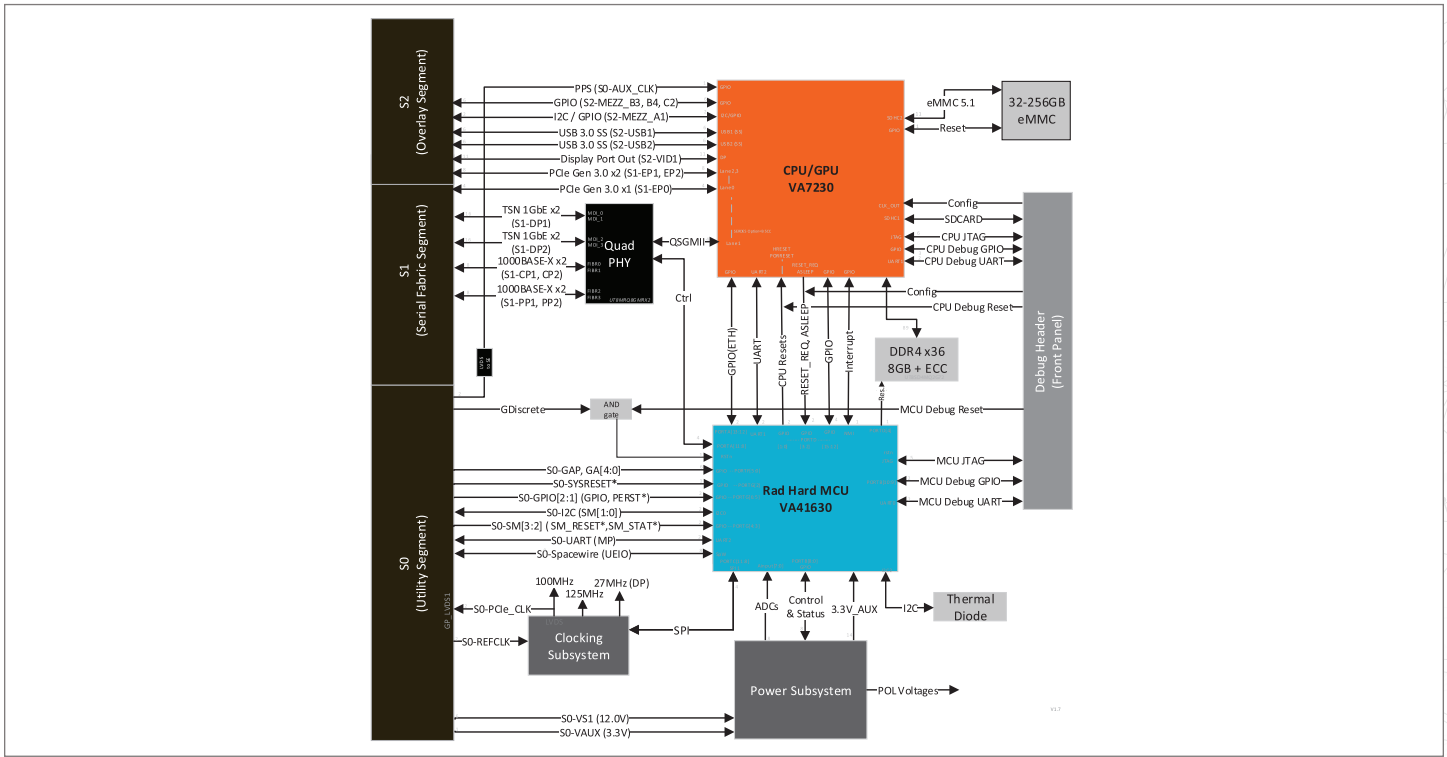
In alignment with VNX+ integration goals, all operational I/O are routed through the backplane, with front-panel connectors reserved solely for debug and left unused in flight. An onboard radiation-hardened MCU enhances system management, offering local monitoring, power control, and additional backplane interfaces including UARTs, SpaceWire, and GPIO.

#### Features

- 15,000 DMIPS performance at 1.5 GHz operation
- 10.4 GFLOPS 32-bit High Precision FP
- 8GB + ECC DDR4 1600 MT/s
- 32GB e.MMC 5.1 storage
- Secure Boot & Arm TrustZone™
- <15W typical power consumption
- Clock throttling to reduce power consumption
- VITA 90.1 Profile: VNX.PL-1-19.400-7.2.1.1-SBC
- 19mm pitch form factor

#### Applications

- Spaceborne Edge processing node
- Deterministic Edge Controller for TSN-Enabled Tactical Networks
- UAV mission processor
- Ruggedized GVA/IVN subsystem controller for ground vehicles
- Space robotics controller or robotic ARM node
- AI/ML Inference co-processor in SWaP-constrained ISR payloads



## Specifications

### Processing Performance

Based on Vorago VA7230 Processor with GPU

### Acceleration

- Two 32/64-bit ARM® Cortex®-A72 cores with:
  - ~15K DMIPS performance @ 1.5 GHz operation
  - Single-threaded cores with 48KB L1 instruction cache and 32KB L1 data cache
  - Single cluster of two cores sharing 1MB L2 cache
- Graphics processing unit
  - Supports Geometry rate 100 Mtri/sec
  - Pixel rate 650 Mpixel/sec
  - 10.4 GFLOPS (32-bit high precision)
  - Supports OpenGL ES 3.0, 2.0, 1.1
  - Supports OpenCL 1.1, 1.2

### Application Memory

- 8GB + ECC DDR4 (x36 bus width)
  - 1600 MT/s

### Boot and Storage

- 32GB e.MMC 5.1
  - Supports enhanced secure digital host controller (eSHDC)

### Mass & Thermal

- Mass: <0.35 TBD kg
- 19mm VNX+ form factor
- 25°C to +65°C operational case temperature
- Power consumption: <15W Typical 30W Max
- TID: 30-50krad (Si)
- SEL Immune <= 37MeV

### Backplane Interfaces

- VITA 90.1 Profile: VNX.PL-1-19.400-7.2.1.1-SBC
  - 4x GbE ports
    - 2x TSN 1GbE
    - 2x 1000Base-X
  - 3x PCIe 3.0 Lanes (x2 port and x1 port)
  - 2x USB 3.0 Interfaces
  - 1x DisplayPort Out
    - DisplayPort 1.3 and eDP 1.4
  - 6x GPIO + 2x GPIO/I2C
  - 1x PPS Input

### Security Features

- Security Engine
- Secure boot
- Arm TrustZone™

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