

Proton600K™ Multi-Core Computer

OVERVIEW

Proton600K™ is an advanced, radiation-hardened 3U Open VPX Single Board Computer with eight ARM Cortex cores.



APPLICATIONS

- High-Performance Computing
- Image Processing
- Multiple Operating Systems
- Command & Data Handling
- Signal Processing

KEY FEATURES

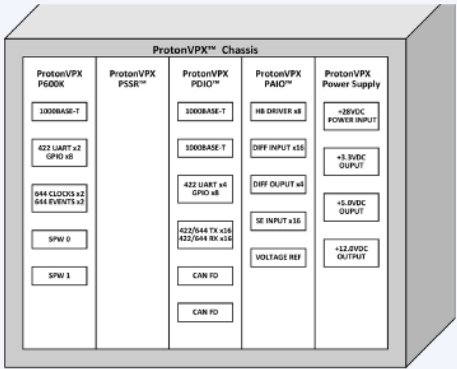
- 3U Open VPX-Compatible High Performance Computing Payload Module
- 3U Open VPX System Controller Module Capable
- Front Panel Micro-D Connectors for External Input Output

SPECIFICATIONS

Main CPU Multi-Core Edge Computing Platform	Dual Arm Cortex-A72 application cores @ 1.6 GHz Quad Arm Cortex-A53 application cores @ 1.26 GHz Dual Arm Cortex-M4F real-time cores @ 266 MHz Dual ARM Cortex-M4 System Controller Unit Dedicated ARM Cortex-M0+ Security Processor Dual 32-bit Graphics Processing Units and Video Processing Unit 2GB on-chip ECC or 8 GB 64-bit LPDDR4 @ 1.6 GHz 128 MB Dual Quad-SPI Serial NOR FLASH with on-chip ECC 64 GB eMMC 5.1 (for EM/SDU only)
Operating System	Linux, VxWorks, Integrity, Green Hills and others
Module Controller Field Programmable Gate Array	System FPGA 481 K Logic Elements, 33 Mbits RAM, and 1480 Math Blocks 24 SERDES Transceivers and 584 User I/O ARM Cortex-M3 System Controller and Security Unit 2 GB 32-bit LPDDR3 @ 800 MHz 64 MB Dual Quad-SPI Serial NOR FLASH with on-chip ECC 64 GB TMR NAND FLASH 1 GB SPACE-GRADE MRAM

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TYPICAL C&DH APPLICATION



SPECIFICATIONS

Module Interfaces	ANSI/VITA 78.00-2015 3U Electrical Power and Mechanical Interfaces Backplane Triple Serial RapidIO Fat Pipe (X4) Interfaces Backplane Dual SpaceWire Thin Pipe (X2) Interfaces Backplane Sixteen LVDS Transmitters and Sixteen Receivers Backplane Eight Single-ended General Purpose Input Output Front Panel 10/100/1000Base-T Ethernet Port Front Panel Dual RS422 UART Ports Front Panel Eight Single-ended General Purpose Input Output
Optional Multi-Core System	Include SBC in a 2- or 3-Card Multi-Core System With Optional I/O PCBA and Chassis Enclosure: 2-Card: SBC + Backplane, I/O 3-Card: SBC + Backplane, I/O, Power Supply
Environment - Operating Temperature - Random Vibration - Parts Level Options - Radiation	-40°C to +100°C Up to 10 gRMS, 3-Axis Commercial Space, NASA Levels 1, 2, 3 Built on Radiation Tolerant Process Technologies (i.e. FD-SOI, SONOS) Destructive Single Event Latch-Up Immune Patented H-Core™ SEU and SEFI Mitigation
SWAP - Dimensions - Mass - Power Consumption - Input Voltage	3U Open VPX 350 g (per PCBA, estimated) 12 W Peak Power (Executing Coremark Benchmark) VITA 78 Standard +5 +3.3 V +/- 28 V Isolated (with optional Power Supply PCBA)