

μTOPAZE

VPX Mission Ready SFF System



▶ Sensor-based processing for RADAR, SONAR, AI, EW, C4ISR ...

Pre-integrated to save you time and money, our EQT passed rugged COTS Systems provide an optimum computing platform for RADAR, SONAR, AI, EW, C4ISR applications.

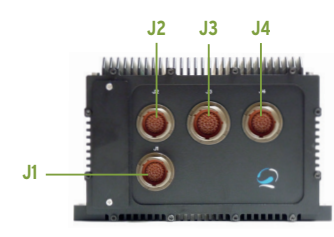
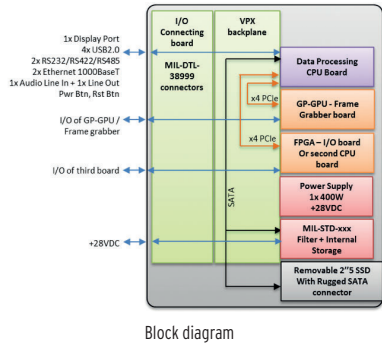
μTOPAZE is a rugged 3U VPX 3-payload slots chassis dedicated to high speed signal processing and computing applications. Its I/O flexibility is capable of meeting a large number of configurations where multi CPU, GPGPU, FPGA heterogeneous system architecture is mandatory. It has been imagined by our Marketing and R&D teams with the support of our key customers to satisfy most of their applications requiring rock-solid reliability and SWaP constraints.

Ready-made solution that is pre-integrated and pre-tested, that requires just a few NRE, is readily available and costs substantially less than assembling the piece parts. ECRIN Systems has integrated and tested μTOPAZE and provides Board Support Packages (BSPs) and drivers that can easily be used to integrate the application and reduce software development lifecycle.

ECRIN Systems offers Modified COTS services, Product Lifecycle Management program of innovative Long-Term Support services to reduce the overall cost of ownership and provide industry-leading safeguards against component obsolescence.

- > 3x VPX-3U Payloads slots
- > INTEL XEON or Core i7 series
- > NVIDIA QUADRO Pascal GPU with 3x DisplayPort 1.4
- > Full function Capture Process Encode Display with up to 8x 3G-SDI I/O Frame Grabber
- > FPGA sensor processing module or Avionics/Industrial XMC/AcroPack carrier
- > 1x 400 watts VITA 62 Power Supply
- > 1x MIL-STD-461/1275E filtering board + M.2 storage
- > 1x 2.5" SSD removable on front panel
- > MIL-DTL-38999 connectors

System specifications	
5-slot VPX Backplane, 1" pitch wide	1x payload slot for COTS VPX-3U INTEL CPU 1x payload slot for COTS GPGPU powered by NVIDIA QUADRO PASCAL 1x payload slot for COTS FPGA+FMC carrier or XMC/AP carrier or 2nd INTEL CPU 1x VITA62 Power Supply: 400 Watts 1x MIL-STD-1275E / MIL-STD-461 filtering + internal SATA SSD storage (M.2) 32GBytes of memory
Processor / Memory	VPX-3U CPU powered by 6 th /7 th Gen Intel® Xeon®: Quad-Core Xeon E3-1505M V5-V6 (47W), Coffee Lake Refresh: 6-Core 9 th Gen Intel® Xeon®, Core™ Processor Xeon E-2276ME 45W (35W cTDP), 6C/GT2 (ECC/non-ECC); available in 2020
Video	1x Display Port single link from CPU board
Ethernet	2x 10/100/1000 Base-T
Audio	1x Line In, 1x Line Out
USB	4x USB2.0
Serial	2x RS-232/422/485 (User configurable)
GPIO	2x GP Inputs (LVTTTL) 2x GP Outputs (LVTTTL)
Storage	M.2 (S80) SATA Slot #1: On SBC board M.2 (S80) SATA slot #2: On filtering board 1x Removable 2.5" SATA SSD, 100.000 Insert/extractions
GPU Only: Graphics and/or Compute	VPX-3U GPGPU board with 3x independent DisplayPort 1.4 outputs, powered by: W-NVIDIA Quadro P5200E (GP104), 55-120W, 8.7 TFLOPs, 2560 CUDA-Core, 16GB GDDR5 @ 243 GB/s; Operating Temp -40°C to +85°C; 40G Peak @ 11ms; 10G peak @ 5-2000Hz NVIDIA Quadro P5000-MXM, 40-100W, 6.2 TFLOPs, 2048 CUDA-Core, 16GB GDDR5 @ 192 GB/s NVIDIA Quadro P3000-MXM, 40-75W, 3.9 TFLOPs, 1280 CUDA-Core, 6GB GDDR5 @ 168GB/s W/A-NVIDIA Quadro P2000E (GP107), 30-50W, 2.3TFLOPs, 768 CUDA-Core, 4GB GDDR5 @ 96GB/s; Operating Temp -40°C to +85°C; 40G Peak @ 11ms; 10G peak @ 5-2000Hz A-NVIDIA Quadro P1000 (GP107), 15-47W, 1.9TFLOPs, 512 CUDA-Core, 4GB GDDR5 @ 96GB/s; Operating Temp -40°C to +75°C; 40G Peak @ 11ms; 10G peak @ 5-2000Hz
GPU +FGX + PCIe Switch	Full function Capture Process Encode Display: Up to four 3G-SDI inputs and four outputs (six I/O max: 4x HD-SDI in and 2x HD-SDI out by default) Up to four analog inputs and/or outputs Up to 16GB GDDR5 memory with NVIDIA GPDirect™ DMA with or w/o GPU P5200E/P2000E/P5000/P3000
Expansion slot	1x VPX-3U FPGA+FMC carrier or XMC/AcroPacks carrier
Discrete I/O	On front panel: LED Power, LED User defined On MIL-DTL-38999 connector: Power button, Reset button
Hardware Monitor	Supply voltages, CPU, carrier board temperature sensors



- J1: +28VDC P/S; 4-pins
- J2: GPU I/O (3x DP or 6-coax for 4x 3G-SDI in and 2x 3G-SDI out); 55-pin or 6-coax
- J3: CPU #0 I/O (DP, Audio, 2 GbE, 4 USB 2.0, 2 RS232/422, 4 GPIO, PWR, RST); 79-pin
- J4: 3rd slot equipped FPGA or XMC/AP carrier: User dependent; 66-pin

Power supply	
Power Input	+28VDC (+16VDC up to +36VDC) EMI filtering board according MIL-STD-1275 / MIL-STD-461 / MIL-STD-704 / DO-160
Power supply	VITA62 Power Supply: 400W
Power consumption	Up to 200 Watts; 90 Watts max per slot

SWaP-C constraints	
Size (WxDxH)	With MIL-DTL-38999 connectors: Width 216mm x Depth 226mm x High 140mm
Weight	#6kg (13.2 lbs) in standard version (BOM dependent)
Cooling types	Conduction cooled system: Convection & radiation by fins, conduction by cold plate, or forced air flow (double envelop with IP68 fans in option)
Connectors	Military circular IP67 locking connectors (MIL-DTL-38999) Front panel customizable for specific application (38999/Coax, SMA/FO/RF...)

Environmental Qualification Tests			
Operating temperature	-40°C / +55°C (depend on configuration and cooling system)	Salt fog	50% salt spray @ 96h; DO-160G section 14 Cat T
Storage temperature	-40°C / +85°C	Sand & Dust	Wind and fine dust particles; DO-160
Ingress protection rating	IP67	Shock & vibration	40g@11ms & Method 514.6/cat20 GM; MIL-STD-810G
Altitude	From 752mbar (8000ft) to 116mbar (5000ft); DO-160	EMI / RFI	MIL-STD-461F / DO-160
Humidity	0%-95% @ 65°C and 0-85°C @ 38°C RH; DO-160	CE certification	EMC : 2014/30/UE ; EN 61000-6-2, EN55032, EN 55024 SAFETY: 2014/35/UE; EN60950-1: 2006 2 nd edition A11: 2009 + A1: 2010 + A12: 2011 + A2: 2014

Security & dependability	
Trusted platform module	TPM 2.0
Software corner	
Operating system	Windows 10 32/64-bit, Linux 32/64-bit, ElinOS. For other requirements, contact ECRIN Systems
Export control classification	
CECC	ITAR Free - No export control (ECCN 4A003)
Other specifications	
MTBF	TBC following MIL-HDBK-217F
Regulatory compliance	European CE Mark, REACH, RoHS, WEEE, CoC
Warranty	1-year return to factory (extended warranty available with services contract)

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