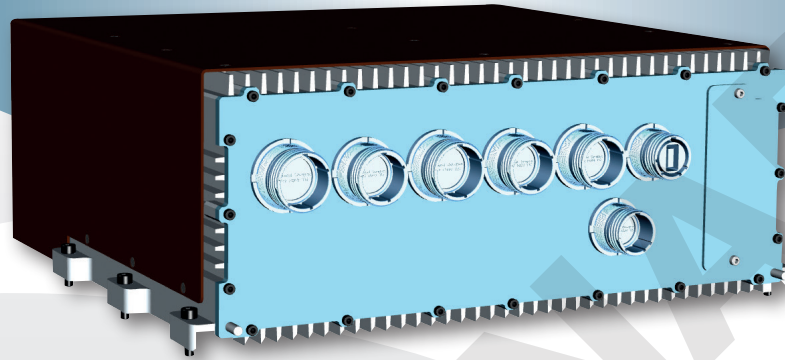


TOPAZE D

3U VPX multi-CPU Data Processing System



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

TOPAZE D is a rugged 3U VPX 7-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-slots fulfilled with multi-Core Xeon D server-class SoC, FPGA and GPGPU heterogeneous system architecture is mandatory. It has been imagined by our R&D with the support of our key customers to satisfy RADAR, SONAR, SIGINT, EW and persistent ISR 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 the TOPAZE D 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.

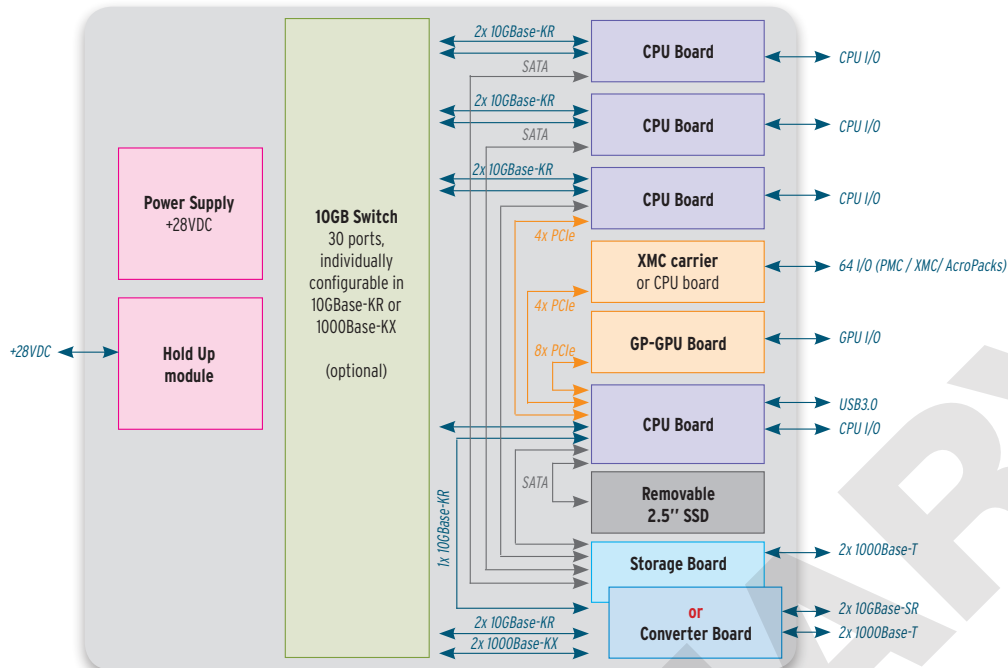
Key features

Its system slot is composed by up to four single board computer featuring an Intel server-class Xeon D 4/8-core System-on-Chip. Two expansion slots can be used for high end FPGA, GPGPU 3U Open VPX-compliant or XMC cards and communicate with its host via 8 lanes PCI Express Gen3. A managed Layer 2/3 10-Gigabit Ethernet switch with up to 22 ports will offer the flexibility for inter-slot communication and 2 Optical 10 GigE outputs.

7-payload slots, 3U VPX rugged forced air cooled solution*, open architecture design, featuring:

- > Up to 4x Xeon-D Processor Nodes
- > 1x GPGPU Node based on NVIDIA Quadro Pascal GP104/107 chip-down up to 76GFLOPS/Watt
- > 1x Carrier board supporting XMC/PMC modules for I/O expansion and FPGA sensor processing
- > 1x 10GB Switch
- > DC/DC VITA 62 Power Supply
- > Removable 2.5" SSD with optional Secure Erase

*Optional advanced airflow design distributes air across external fins in sidewalls



1'' processing and peripheral nodes

3U VPX Processor Node	Xeon-D 1519 @ 1.5GHz 4 core (25W) Xeon-D 1539 @ 1.6GHz 8 core (35W)	16GBytes of DDR4 memory with ECC 16GBytes Internal SSD, SLC 1x FPGA Kintex-7
3U VPX GP-GPU Node	NVIDIA Quadro P5000 GPGPU Engine or GP104/107 chip-down 16 GB GDDR5 memory with NVIDIA GPUdirect™ DMA technology	Up to two 3G-SDI inputs and two 3G-SDI outputs Operating power limited to 65W
3U VPX 10GB Ethernet Switch	Up to 22x 10GBase-KR ports Managed Layer 2 / Layer 3	320 Gbps max bandwidth 240 Mpps forwarding rate
3U VPX I/O expansion board	VPX cards for XMC/PMC or AcroPacks modules P14 I/O	Supports all XMC/PMC modules: FPGA, GP-GPU, avionics... and all AcroPacks for entry range I/O's, A/D, COM...
VITA 62 Power supply - DC	Input voltage : 10 to 36 VDC - 28VDC nominal 500W maximum power 95% typical efficiency Active input EMI filtering Vita 46.11 system management	

Front I/O panel : MIL-STD-38999 I/O connectors and µCom-10Gb+ connectors

From 10GB Ethernet Switch	2x 10GBase-SR or 2x 1000Base-T
From each processor node (CPU Node 0, 1, 2, 3)	1x RS232 (+x 1x RS422 for Node 0, 2 and 3) - 2x USB2.0 - 1x Ethernet 1000BaseT
From CPU Node 0	1x USB3.0
From GP-GPU slot	2x 3G-SDI inputs and 2x 3G-SDI outputs (coax)
From I/O expansion slot	64 I/O directly routed from PMC/XMC slot or FPGA/FMC or AcroPack slots
Miscellaneous	1x removable 2.5'' SSD, power supply input, power Led, power button, reset button (on MIL-DTL-38999 connector)

System specifications

Storage	16GB soldered SLC NAND flash on each Xeon-D processor board 1 or 2 removable 2.5'' SSD 1x mSATA slot on the 10G-Converter board
Thermal	Up to 65 watts per slot. Max power consumption: 400 Watts Semi-rugged IP68 fans or Rontron MIL-80 military fans for forced air-flow option
Dimensions (W x H x L)	350 x 135 x 210 mm (10 liters) in conduction cooled version or... 350 x 135 x 290 mm with forced air cooling
Weight	Less than 10 kg but BOM dependant
Power Input	Power Input Connector: MIL-DTL-38999 Shell size 15-4. Contact size 12: Up to 23A Power Supply Input: 28VDC Nominal (18VDC to 36VDC) Up to 400 Watts

Environmental

Temperature	Operating: -40°C to +55°C (with forced air cooling) Storage: -40°C to +85°C	Altitude	12 000ft (4 000m) operating
Humidity	0% to 95% non-condensing	Shock	40G @ 11ms
Ingress Protection rating	IP 67	Vibration	1.0G2/Hz (RMS 12G)@15-2000Hz
		Agencies	Designed to meet: MIL-STD-810 / 461 / 704 & RTCA / DO-160

Operating System

LSP Linux® 64-bit distributions (SDK, others...), ELiNOS.	For VxWorks® and Windows, please consult us
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