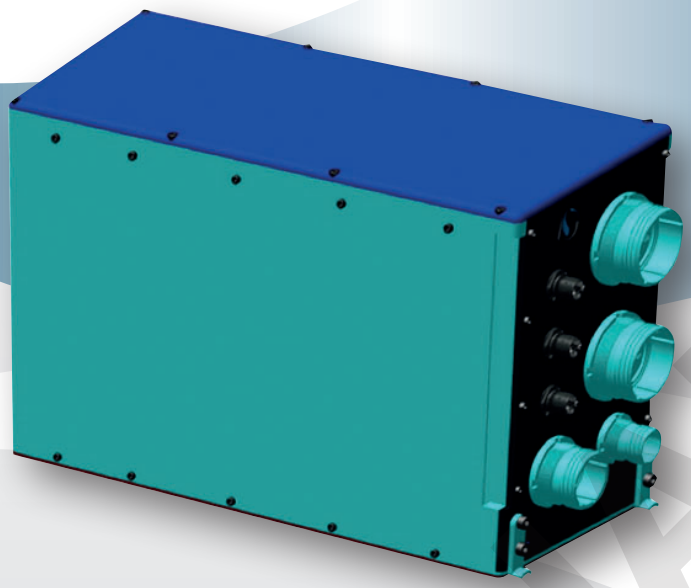
TOPAZE D-ATR

Aerospace 6-Slot OpenVPX system



Sensor based processing for RADAR, SIGINT, EW, ISR ...

TOPAZE D-ATR is a rugged 1/2 ATR 3U VPX 6-payload slots system 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 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, SIGINT, EW and persistent ISR applications requiring absolute 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-ATR 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 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 three 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 Optics or Copper external 10 GigE.

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

- Up to 3x Xeon-D Processor Nodes
- 1x GPGPU Node based on P5000 NVIDIA
- 1x Carrier board supporting XMC/PMC modules for I/O expansion and FPGA sensor processing
- 1x 10GB Switch
- 1x AC/DC or DC/DC VITA 62 Power Supply

*Advanced airflow design distributes air accross external fins in sidewalls

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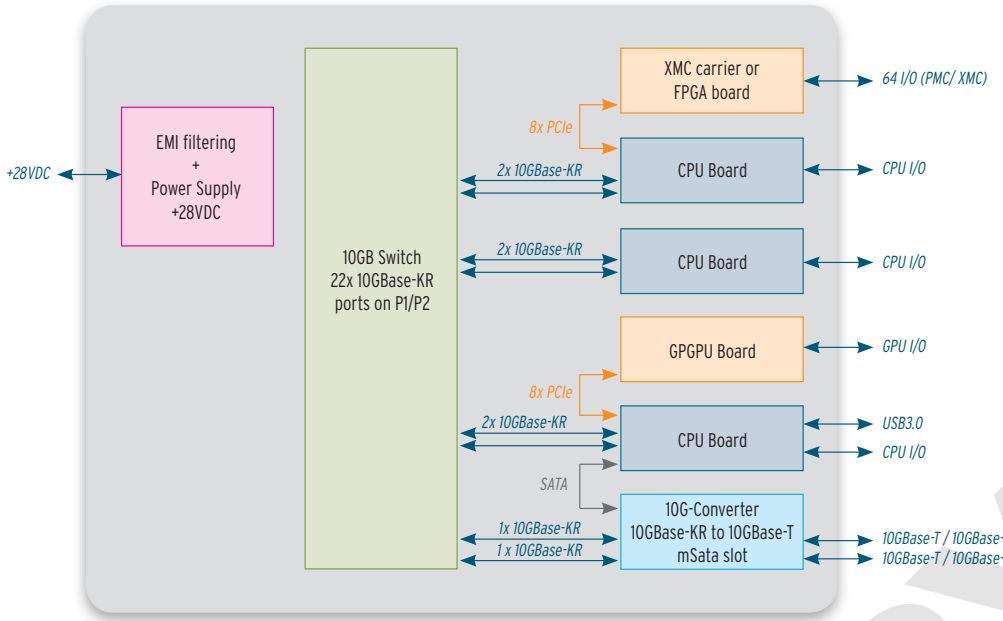
TOPAZE D-ATR



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) Xeon-D 1548 @ 2.0 GHz 8 core (45W)	16GBytes of DDR4 memory with ECC 16GBytes Internal SSD, SLC 1x FPGA Kintex-7
3U VPX GP-GPU Node	NVIDIA P5000 GPGPU Engine 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 bandwith 240 Mpps forwarding rate
3U VPX I/O expansion board	VPX carrier cards for XMC or PMC modules P14 I/O	Supports all XMC/PMC modules: FPGA, GP-GPU, avionics I/O, COM...
VITA 62 Power supply	**DC**	**AC**
	Input voltage : 10 to 36 VDC - 28VDC nominal 500W maximum power 95% typical efficiency Active input EMI filtering Vita 46.11 system management	85-264VAC continuous input voltage 500W maximum power 92% 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-T (↔Com-10Gb+ connector)
From each processor node (CPU Node 0, 1, 2)	CPU Node 0: 1x RS232, 1x RS422, 2x USB2.0, 1x Ethernet 1000BaseT CPU Node 1, 2: 1x RS232, 1x 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
Miscellaneous	Power supply input, power Led, power button, reset button (on MIL-STD-38999 connector)

System specifications	
Storage	16GB soldered SLC NAND flash on each Xeon-D processor board 1x mSATA slot on the 10G-Converter board
Thermal	Up to 65 watts per slot. Max power consumption: 350 Watts Semi-rugged IP68 fans or Rontron MIL-80 military fans
Dimensions (W x H x L)	1/2 ATR short frame size with two hooks per ARINC 404. Sealed with forced air flow 124 x 186 x 320 mm (7.4 liters)
Accessory	1/2 ATR short tray ARINC 404 available on demand
Weight	Depends on configuration
Power Input	Power Input Connector: MIL-STD-38999 Shell size 15-4. Contact size 12: Up to 23A Power Supply Input: 28VDC Nominal (18VDC to 36VDC) or 85-264VAC Up to 350 Watts

Environmental			
Temperature	Operating: -40°C to +55°C Storage: -40°C to +85°C	Altitude Shock	30,000ft (9.144m) operating 40G @ 11ms
Humidity	0% to 95% non-condensing	Vibration	1.0G2/Hz (RMS 12G)@15-2000Hz
Ingress Protection rating	IP 67	Agencies	Designed to meet: MIL-STD-461, MIL-STD-704, DO-160

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

138/0917 BCC bcconsultants.fr

sales@ecrin.com
www.ecrin.com

Headquarters
143, rue Louis Neel
Parc Technologique du Pré Roux
38920 Crolles - France
Tel: +33 (0)4 76 92 20 01

Marketing & sales
2 - 12, rue du Chemin des Femmes
Immeuble l'Odyssée
91300 Massy - France
Tel: +33 (0)1 69 07 83 22

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