The Raptor is a rugged, small form factor, Commercial Off the Shelf (COTS) computer based on the VNX+ standard, the Small Form Factor standard selected by the Open Group™- SOSA Consortium, the standards body responsible for establishing guidelines for selection and acquisition of C5ISR components and systems. Derived directly from VNX(VITA 74) OpenVPX (VITA 65), VNX+ is part of the continued evolution of the VNX standard and is specifically designed for small form factor deployments. The Raptor is typically 1/3 the volume of a similarly equipped 3U VPX platform, making it the only true industry standard for MIL-spec, Modular Open Systems Architecture (MOSA) rugged small form factor computing. Trident has provided VNX and VNX+ systems to integrators and end-users the world over and is a contributor to the ANSI/VITA-90 VNX+ Technical Committee and the VNX Marketing Alliance.

FEATURES

CPU:	Multicore Intel Architecture (i7, Atom).
OS:	Linux, Windows
Other Processors:	NVIDIA Xavier/Orin GPU/GPGPU, FPGA, MPSoC + ARM® (Consult Factory for Specific Details).
Architecture:	Control Plane, Data Plane, Expansion Plane, and Utility Plane per VITA 90.
Avionics I/O:	MIL-STD-1553B, ARINC-429, CAN bus.
Standard I/O:	GigE, USB 2/3, RS-232/422/485, Audio, GPIO, DisplayPort, HDMI, SATA.
Other I/O:	Wi-Fi, Bluetooth, Cellular Modem, 10GbE and other high-speed networking. GPS, IMU/INU, ARINC-818, FibreChannel.
Management:	System Management per VITA 46.11 and VITA 90.
Storage:	Fixed, Removable, Remote Options Available.
Power:	28 VDC @ Up to 130 Watts, 50 mSec Hold-Up, Load Share, N+1 (Options Vary). 115 VAC @ 400 Hz and 270 VDC Input Voltage Available Upon Request.
Connectors:	Circular MIL for Copper, Optical MT, and RF/Video Coaxial Contacts.
Cooling:	Modules are Conduction Cooled. Oscillating Heat Pipes Available in 4Q23. Standard Chassis Cooled by Natural Convection. Optional Forced Air Sidewalls / Liquid Cooling
Qualification:	MIL-STD-810F, MIL-STD-461F, MIL-STD-704F, MIL-STD-1275D.

Though Raptor is small in Size, Weight, and Power (SWaP), there is no need to compromise CPU processing, I/O, video/graphics, and storage support. Utilizing SWaP optimized compute options, high-density connectors, and advanced cooling design, the Raptor is suitable for military and avionic C4ISR applications such as:

Mission Computer	Image Processor	Display Processor	Data Recorder
Signal Data Concentrator	EW Processor	Data Link Processor	Comm Controller

Housed in a rugged, conduction-cooled, no-fan enclosure, Raptor is qualifiable to all applicable military environmental standards. Since the Raptor is designed to meet the VITA 74 VNX or VITA 90 VNX+ standards, customers may utilize COTS or custom MOSA modules from multiple vendors for specialized functionality.

Designed in Accordance with VITA 90 VNX+ Standard

The Raptor is designed to utilize a combination of 19mm Compute Modules, 12.5mm and 19mm I/O Payload Modules, and 19mm Power Supply Modules. The Raptor can be specified with any combination of module sizes and the slot pitch options will be adjusted as additional module sizes are defined by VITA and SOSA functionality.

Small and Extra-Small

A great advantage of the VNX+ standard is that there are no limitations on how it may be deployed. VNX+ modules may be deployed to fit in available space or directly into other equipment. Deployments range from a traditional ATR chassis to a single processor module in a Smart Display.

VNX+ Modules that are available or in work from Trident and its partners include Power Supply Modules with Load Sharing, Single Board Computers, GPU/GPGPU Graphics Processors, Ultrascale+ MPSoC , L2/L3 Ethernet Switch, Control Plane/Data Plane Switch, Chassis Manager, MIL-STD-1553/ARINC-429 and other Data Bus Interface, mPCIe / AcroPack® / mSATA Carrier for Discrete & Analog I/O and SSD Storage, GPS, INU/IMU, Wi-Fi/Bluetooth Wireless Network, Cellular Modem, MT Optical Data Bus Transceivers and other application-specific functionality.

The System Front Panel with the I/O Transition Board (IOTB) is designed to bring out any available I/O in its standard configuration. The IOTB may be easily outfitted with customer-specified connectors and pin assignments. An LED status panel displays the status and health of the system during operation.

Raptor

Power Supply Unit

The Power Supply Unit (PSU) is a 19mm module which provides all voltages required by the VNX+ standard Multiple Trident PSUs are able to load-share to increase the available power within a system. The PSU can be connected to an available Energy Storage Unit (ESU) with hold-up capacitors, and an optional MIL-STD-461 input filter module.

Technical Specification

Operating Temperature	-40°C to +71°C (Configuration Dependent)	Shock	30g Peak @ 11mSec
Storage Temperature	-40°C to +85°C	EMI	Per MIL-STD-461F
Vibration	5Hz to 2000Hz, 6g Sine, per MIL-STD-810F Method 514.6	Humidity (Non-Condensing)	Up to 95% @ 40C per MIL-STD-810F, Method 507.4