The Raptor is a rugged, small form factor, Commercial Off the Shelf (COTS), pre-qualified computer based on VNX (VITA-74) standard. Derived directly from VPX (VITA 46) & OpenVPX (VITA 65), VNX is the continued evolution of the VPX standard specifically designed for significantly smaller deployments. The Raptor may be 25% to 33% the size of a typical 3U VPX ½ ATR platform, making it the only true industry standard for MIL-spec, rugged small form factor computing. Alligator Designs has provided VNX systems the world over, and is a member of the ANSI/VITA-74 Technical Committee and VNX Marketing Alliance.

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 the most current SWaP optimized, System on a Chip (SoC) compute options, high density connectors and advanced cooling design, the Raptor is suitable for many military and avionic C4ISR applications such as:

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

FEATURES

- **CPU**: Multicore Intel ATOM, ARM®, NXP QorIQ® T-Series, and AMD G-Series SoC
- **GPU:** Video/Graphics Processing
- **Avionic I/O:** MIL-STD-1553B, ARINC-429
- **Standard I/O:** GigE, USB 2 / 3, Serial. Audio, GPIO.
- **FPGA Processing**
- **Storage:** Fixed, Removable or Remote Options
- **Connectors:** Circular MIL
- **Power**: 28 VDC @ 10 to 60 Watts (Options Vary)
- **Operating Temp:** -40°C to +71°C
- **Storage Temp:** -50°C to +105°C
- **Environmental**: Per MIL-STD-810F
- **EMI:** Per MIL-STD-461F
- **Power:** Per MIL-STD-704F / 1275D with Optional Hold-Up to 50 mSec
- **OS:** Linux, Windows, VxWorks, Integrity

Housed in a rugged, conduction cooled, fan-less enclosure, Raptor complies with all typical military environmental standards. Since the Raptor is based on the VNX standard this allows customers to choose from a multitude of vendors for specialized functionality. The Raptor can support MIL-STD-1553B, ARINC-429, AS-5643 MIL Firewire, Video Graphics, RS-232/422/485, Fibre Channel, GigE and 10GigE, Analog and Discrete I/O, FPGA / GPGPU processors, Inertial Measurement and Navigation, GPS, Wi-Fi and Cellular Modem signals.

Designed in Accordance With the VNX Standard

The Raptor is designed to utilize a combination of 19mm Compute modules, 12.5mm I/O modules, and 19mm Power Supply Modules. The Raptor can be specified with any combination of module sizes. Current standard product offerings include the VNX 1+2 (1x 19mm Compute Module with 2x 12.5mm I/O modules), as well as VNX 3+2 (3x 19mm Compute Modules with 2x 12.5mm I/O modules).

Small and Extra-Small

A great advantage of the VNX standard is that there are no limitations on how it can be deployed. VNX can be inserted into a variety of chassis enclosures, or directly into other equipment. Some customers are using VNX modules in "ATR-Style" systems, as well as rugged displays. The VITA-74 standard's emphasis on the modules, rather than the larger system, permits a higher level of deployment flexibility as compared to other embedded "blade" standards such as VPX, Compact PCI and others. Alligator listened to their customers' requirements and initially developed two optimal COTS enclosure sizes, the VNX 1+2 and VNX 3+2. Alligator has designed the platform to maximize flexibility and can accommodate any realistic number and mix of standard modules, without major mechanical and electronic redesign.
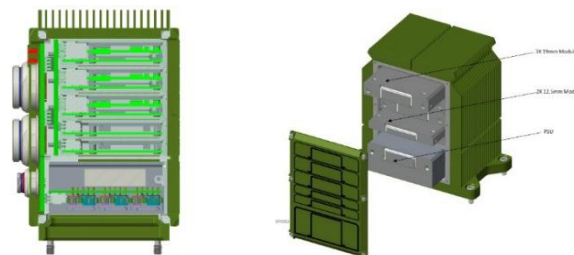
The System Front Panel is designed to bring out all available I/O in its standard configuration. It can be easily modified for specific I/O requirements. A LED status panel displays health and status of the system during operation.
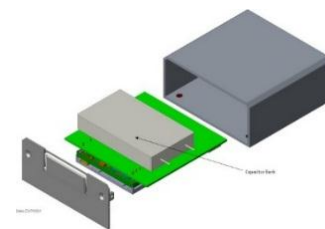
Raptor

Raptor 3+2

Raptor 1+2

Power Supply Unit

The Power Supply Unit (PSU) provides the requisite voltage buses required by the VNX standard. The PSU is housed in a 19mm VNX module, with optional hold-up capacitors in an adjacent standard module.

Technical Specification

Operating Temperature	-40C to +71C Continuous	Shock	30g Peak @ 11mSec
Storage Temperature	-50C to +105C	EMI	Per MIL-STD-461F
Altitude (Operating)	60K ft (18.3 km) Continuous	Humidity (Non-Condensing)	Up to 95% @ 40C per MIL-STD-810F, Method 507.4
Vibration	5Hz to 2000Hz, 6g Sine, 1Hr/Axis, per MIL-STD-810F Method 514.6		

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