LCR EMBEDDED SYSTEMS, INC.®

LCR Featherweight VPX System, powered by ADLINK

The Perfect Rugged, Powerful, Customizable UAV Solution Offers Superior SWaP-C

Designed in collaboration with industry leader ADLINK, and featuring ADLINK processors and Graphics Processing Units (GPUs) **LCR Embedded Systems' fully integrated, conduction-cooled, featherweight 3-Slot VPX System** (shown below) breaks new ground in addressing the concerns of UAV application developers and allows for the massive expansion of payload performance and processing power for autonomous vehicles.

The 3-Slot VPX System features ADLINK's VPX3010 processor based on the Intel® Xeon® D, and the second payload slot can hold either a Gigabit Ethernet switch or an ADLINK VPX3G10 Graphics Processing Unit.

- Ideal for small UAVs, ground mobile
- 3-Slot VITA 48.2 VPX featuring superior cooling and processing
- Super-efficient chassis design
- Available in multiple configurations for demanding sensor management applications
- Features ADLINK VPX3010 processor blade with the Intel® Xeon® D processor
- Supports high-speed signaling
- Optional MIL-STD-1553 XMC card for communication with avionics bus
- Slot for removable SSD hard drive
- Input power compliant to MIL-STD-704/MIL-STD-1275 (voltage spikes, cranking level 18V min.)

VPX3010 Processor Blade

The ADLINK VPX3010 Series is a 3U VPX processor blade featuring the Intel® Xeon® Processor D-1500 SoC with 4, 8 or 12 cores. The VPX3010 provides up to 16GB DDR4-2133 dual channel ECC memory soldered onboard, one PCI Express x8 Gen3 XMC expansion slot, and onboard soldered 32GB SLC SATA solid state drive. I/O includes 2x 10GBASE-KX4, 2x 1000BASE-T (or one 1000BASE-T and two 1000BASE-BX by BOM option), 2x SATA 6 Gb/s, 1x USB 2.0, 2x USB 3.0, 6x GPIO, VGA, 1x RS-232, 1x RS-232/422, and up to PCIe x16 Gen3 supporting non-transparent bridge for peer-to-peer communication (dependent on BOM option).

VPX3G10 Graphics Processing Unit

The ADLINK VPX3G10 is a 3U VPX general-purpose computing on graphics processing unit (GPGPU) blade featuring the 384 core NVIDIA GeForce GT 745M GPU with high resolution and high performance graphics capabilities for defense and aerospace applications. The VPX3G10 features 2GB of GDDR5 memory, providing high-bandwidth access to data. High-level code may utilize OpenCL, OpenCV or CUDA® to implement "massively parallel" GPGPU algorithm processing.

LCR Embedded Systems • www.lcrembeddedsystems.com
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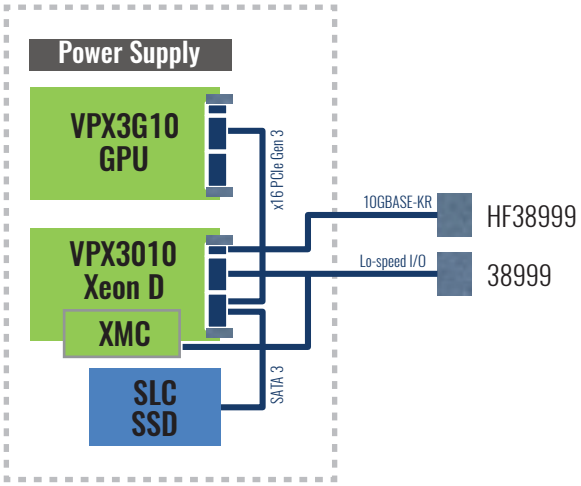
High-Performance Mission Management and Video/Imaging

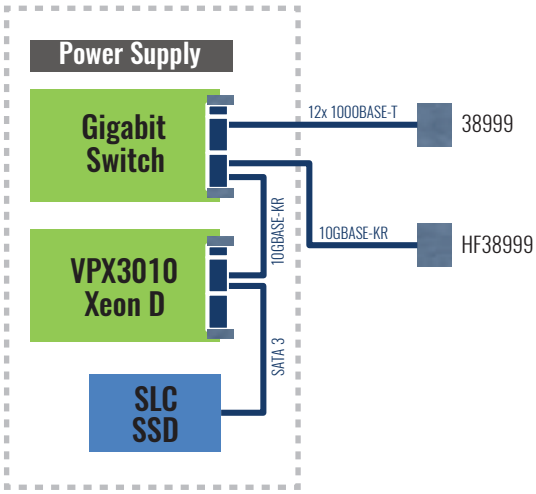
Custom configurations are available, and features include data encryption, easily accessible/removable data storage, IP sealing, and composite chassis design for weight savings. The system is designed for mission management and sensor processing. Please contact us for more information about design possibilities.

Video/Imaging Line Replaceable Unit



- Network video recorder can include multiple flash drives
- Can network multiple sensors and cameras, and other payload LRUs
- Video analysis processor can include GPU-accelerated OpenCV/OpenCL or NVIDIA VisionWorks™/cuDNN
- Radar Processor could include massively parallel processing

Gigabit Switch Line Replaceable Unit



- Virtualized application processor can include Multi-core Xeon D, Hypervisor
- Network gateway processor can carry out firewall or IP security and encryption functions with PrismTech™ Vortex DDS software
- VPX3010 processor card can include XMCs for video ingest, A/D and D/A or comms
- Perfect for demanding, data-intensive mission management

Electrical

Input Power:
Nominal Input Voltage: +28 VDC
Input Transients: MIL-STD-704F
Max Power Consumption: 175W

Output Power:
Backplane: 12/5/3.3 V, ±12/3.3Vaux
Regulation: ANSI/VITA 62

Slots:
2 3U VPX, 1 3U VITA 62 power supply

Backplane:
ANSI/VITA 46.0, ANSI/VTA 65-2010

Physical

Dimensions:
3.70" (H) x 6.75" (W) x 8.84" (D)

Weight:
12lb fully populated including SSD

Mounting:
Provided to secure chassis to a flat metal surface

Cooling

Method:
Conduction cooling through baseplate and natural convection

Dissipation:
Thermal loads up to 175W

Environmental

Operating/Storage Temperature:
-40 to 70 C/-50 to 100 C, MIL-STD-810G Method 501.5, Procedure II

Thermal Shock:
MIL-STD-810G, Method 503.5, Procedure I

Humidity/Altitude:
0 to 95% noncondensing/60,000'

Shock/Vibration:
Designed to meet to MIL-STD-810G

Sealing:
IP67

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