The 6U OpenVPX CUDA Starter Kit from GE Intelligent Platforms greatly reduces risk and time to solution for applications that can leverage the performance of multiple GPGPU clusters.

Now defense system integrators can move their high performance computing (HPC) applications onto GE’s rugged, scalable, multi-node GPGPU platforms to deliver more capable deployed radar, sonar, image processing and extended intelligence, surveillance and reconnaissance (ISR) mission profiles.

GE’s OpenVPX GPGPU solutions are ideal for applications that require increased performance in size, weight and power (SWaP) constrained deployed platforms.

The IPN250, Intel Penryn Core 2 Duo plus NVIDIA GT240 96 core COTS processor, paired with our NPN240, dual NVIDIA GT240 expansion card, are the first in a new family of 6U OpenVPX GPGPU cluster solutions targeting extended temperature, harsh environment mission pay loads for airborne, ground vehicle and underwater platforms.

GE’s 6U OpenVPX Starter Kit includes a four slot, uncommitted backplane along with rear transition modules and cables supporting multiple OpenVPX fabric topologies. This innovative concept enables a variety of multi-board / multi-node GPGPU cluster configurations during system design and application development.

The system integrator can now define and demonstrate multiple optimized architectures on the deployable COTS boards to minimize risk before making hard decisions about the SWaP profile of the deployed platform.

In addition to CUDA or OpenCL based image and signal processing, the 6U CUDA Starter Kit can support state-of-the-art performance for graphics, video and display applications running OpenGL and other graphics libraries.

The lab system comes with pre-installed IPN250 BIOS, CentOS 64bit LINUX (based on Red Hat) and a CD with the required CUDA drivers providing a quick start for system bring up. Three additional hard drives are included to facilitate booting multiple OS platforms to cater for the widest range of applications. The system will run versions of Windows 7 and Windows 7 Embedded (not included).

AXISLib optimized multithreaded DSP and math libraries are available for the INTEL SSE enabled multcore CPU (AXISLib-X86). In addition GE can now offer tuned VSIPPL libraries for the NVIDIA GPU platform (AXISLib-GPU).

The chassis can accommodate other GE SBCs, I/O solutions and suitable third party OpenVPX COTS boards for additional flexibility.
Specifications

- SCVPX6U - 19” 6 slot OpenVPX rack mount lab development chassis
- IPN250 - Intel Penryn Core 2 Duo + NVIDIA GT240 96 core GPGPU 6U OpenVPX processor card
- NPN240 - Dual NVIDIA GT240 6U OpenVPX processor card
- Data plane - 2 x 10GBase-CX4
- Expansion plane - 1 x16 or 2 x8 lane PCIe ports
- Control plane - 2 each 1000BaseT & 1000Base-BX on IPN250
- IPN250 User I/O –
  - 4 x USB, COM1 & 2, 8 x GPIO
  - 2 x SATA
  - Dual link DVI, HDMI 2 x VGA, audio, TV capture
- NPN240 User I/O –
  - 2 x Dual link DVI
  - 2 x HDMI
  - 4 x VGA
  - 2 x TV Capture
- 4 x 250GB SATA HDDs with ESATA interfaces
- 2 x Fabric rear transition modules
- One each IPN250 and NPN240 rear transition module assemblies & cables.
- 650W ATX power supply with primary power switch
- Air cooled chassis with variable speed fans
- CentOS 64-bit Linux pre-installed
- CUDA drivers

System Block Diagram showing Data Plane and Expansion Plane interconnect

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>SC-S-CUDA3USK1</td>
<td>3U VPX Based CUDA Starter Kit – CentOS Linux</td>
</tr>
<tr>
<td>SC-S-CUDA3USK1</td>
<td>3U VPX Based CUDA Starter Kit – RedHawk Linux (90 day evaluation)</td>
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The CUDA starter kit comprises the following items:

- SC-B84UNOS2A0 - VPX 3U Starter Cage, 2xSATA HD, 2U fan
- SBC341-144003 - 3U PXI single board computer
- SBC340RTM-11 - SBC340/341/324 rear transition mod 0.8"
- GRA111-100013 - 3U PXI graphics board
- GRA111RTM-113 - 2" rear transition module
- CABLE-X8PCI50CM - 50cm PCI Express cable
- C-CBL000224-001 - Dual link DVI-I to dual link DVI-I cable
- C-CBL000212-001 - ESATA male to SATA male data cable, 0.5M
- ARACC-3BNC5SM81 - Cable assembly, BNC to SMB (1M)

GE Intelligent Platforms Contact Information

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www.ge-ip.com/gpgpu