GVC1001

Ultra-High Performance Graphics, Vision and AI Evaluation Platform

The GVC1001 is an ultra-high performance graphics, vision and AI evluation platform based around NVIDIA ®'s AI and Deep Learning enabled Jetson™ AGX Xavier SoM. With 512 CUDA™ cores with Tensor (AI) cores and Deep Learning Accelerators providing up to 10 TFLOPs (HP16) performance, the GVC1001 provides the foundation to meet the demands and challenges of low size, weight and power (SWaP) graphics-, vision-, AI- and sensory computing applications.

Aimed at SWaP-sensitive platforms primarily within defense and aerospace markets, example applications include 360° situational awareness, autonomous vehicles, EO/IR processing, non-Cert Degraded Visual Environment (DVE), display processing, moving map, wide-area persistent surveillance, hyperspectral sensor fusion, IED detection, synthetic aperature radar processing and many more.

These types of compute, data and image intensive applications are now requiring AI, deep learning techniques and inferencing engines which the NVIDIA Jetson AGX Xavier SoM delivers. This new level of processing is required for advanced digital maps, image recognition, image segmentation, object localization, image fusion, image stabilization, object tracking and image correction within the target applications.

The GVC1001 is based on the NVIDIA Jetson AGX Xavier SoM which features 512 Volta class cores with Tensor cores and an 8-core ARM® v8.2 64-bit CPU, 8MB L2 and 4MB L3. In total, the Jetson Xavier can provide up to 10 TFLOPs (HP16) or up to 32 TOPs (int8) peak performance.

This is backed up by 16GB LPDDR4 capable of 137GB/s for very high bandwidth movement of data in and out of the GPU and 32GB eMMC 5.1.

The GVC1001 leverages the NVIDIA Jetson AGX Xavier SoM functionality and performance by combining it with an I/O-rich host card and packages it in a low SWaP form factor. Dual SFP+ (fiber) 10 Gigabit Ethernet data plane ports (e.g. for multiple GigE camera aggregation), dual 1 Gigabit Ethernet control/data plane ports, dual DisplayPort™ 1.4 connectivity, dual CANbus ports and dual USB 3.0 are among the interfaces available on the GVC1001. Bulk storage is provided by the onboard 256 GB NVMe SSD, allowing the GVC1001 to accomodate very large data sets.

The GVC1001 is supported with the NVIDIA JetPack SDK as well as Abaco's AXIS ImageFlex for image processing and manipulation. Additionally, to enable rapid application development, the GVC1001 is code compatible with desktop environments such as CUDA and MATLAB®, allowing easy porting of applications and algorithms onto the deployable platform.

FEATURES:

- NVIDIA Jetson AGX Xavier SoM
  - Up to 10 TFLOPS (FP16)
  - Up to 32 TOPS HP (int8)
- 2x DisplayPort 1.4 outputs
- 2x SFP+ (fiber) 10 Gigabit Ethernet ports
- 2x 1 Gigabit Ethernet ports
- 2x USB 3.0 ports
- 4x USB 2.0 ports
- 2x CANbus ports
- 3x UARTs
- Audio I/O
- GPIO
- 256 GB NVMe SSD
- NVIDIA Jetpack SDK
- Abaco AXIS ImageFlex
- Abaco AXIS EventView
- Low SWaP
- Lab grade operating environment evluation and application development
- Roadmap to fully rugged product

abaco
SYSTEMS

GVC1001 *Ultra-High Performance Graphics, Vision and AI Evaluation Platform*

Specifications

NVIDIA Jetson AGX Xavier SoM:

- Up to 32 TOPS HP (int8)
- Up to 10 TFLOPs (FP16)
- 512-core Volta GPU with Tensor cores
- 8-core ARM v8.2 64-Bit CPU
- 8 MB L2 + 4 MB L3
- 16 GB 256-Bit LPDDR4x Memory
- 32 GB eMMC 5.1 Flash Storage
- (2x) NVDLA DL Accelerator Engines
- 7-Way VLIW Vision Processor
- (2x) 4Kp60 | HEVC Video Encoder
- (2x) 4Kp60 | 12-bit Video Decoder

GVC1001 MDP I/O:

- 2x DisplayPort 1.4 outputs
  - 4K @ 60Hz
- 2x 10 Gigabit Ethernet ports
  - SFP+ (fiber)
  - Dataplane
- 2x 1 Gigabit Ethernet ports
  - Base-T
  - Control Plane/additional data plane
- 2x CANbus ports
- 2x USB 3.0 ports
- 4x USB 2.0 ports
- 3x UARTs
  - RS232 / RS422 / RS485
- Audio I/O and GPIO

Bulk Storage:

- 256 GB NVMe SSD

Software:

- NVIDIA JetPack SDK
- Abaco AXIS ImageFlex
- Abaco AXIS EventView

Environmental:

- Lab grade operating environment
- Base-plate cooled

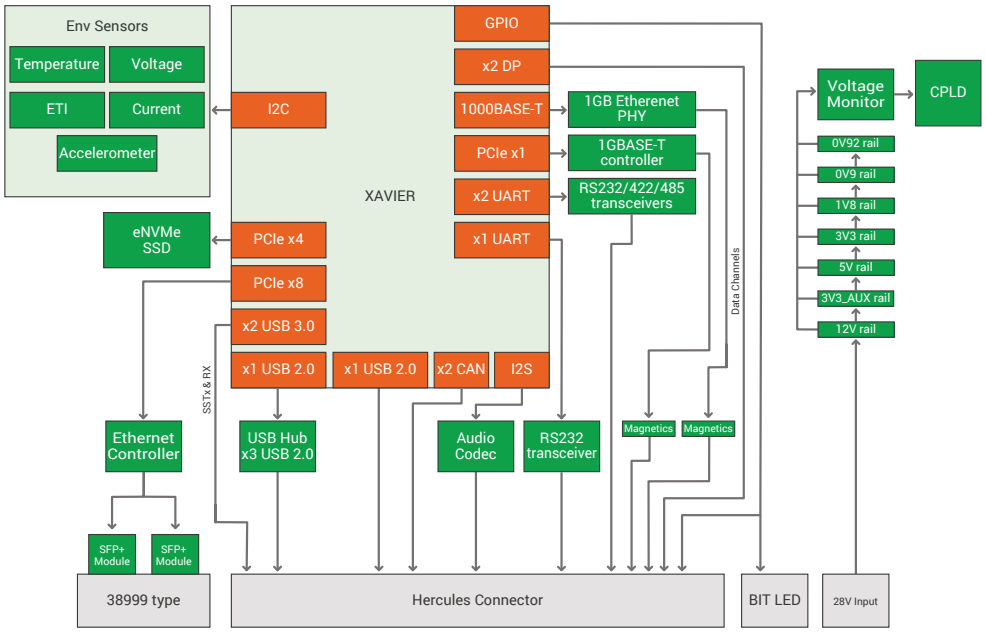
SWaP:

- W: 10.88 inches (276.3 mm)
- H: 3.51 inches (89.19 mm)
- D: 7.32 inches (186.04 MM)

Weight:

- 10.3 lbs (4.68 Kg)

Block diagram



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