Rugged HPC Computing Platform
Server-grade Computing at the Edge for Complex Applications

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HPC at the EDGE?

As industrial applications migrate from automation to autonomy, the demand for processing power has increased dramatically. However, the reach of high-performance computing (HPC) has always been limited by the need for large, air-conditioned rooms.

Is it possible to deploy an HPC at the edge? Limited by an HPC’s heat products on air dissipation needs, size restrictions, power supply requirements, such constraints have not been possible in the past. But with Nexasys RGS, things are about to change!

Powered by AMD EPYC 7003 Series

Rugged –25°C to 60°C Wide-temperature Operation

Ruggedized product connections with convenient effective airflow to the CPU, GPU, and add-on cards for reliable operations.

Wide-range DC & Patented Design

Wide-range DC in/out, shock-robust-damping bracket, screw-lock mechanism, and more

ADAS and Autonomous Driving

Sensing, Perception and Planning in One

Overview

A deep neural network (DNN) or computer with deep learning algorithms, by connecting to appropriate sensors and LiDARs, it enables the vehicle to perceive objects and react to the surrounding environment.

Nexasys Edge HPC Solution

- System Architecture
- Perception & Recognition
- Sense & Detect
- Plan & Execute

Advanced AI Machine Vision

ROI, ANN & Interface Expansion

Overview

Machine vision is one of the most common implementations in today’s industrial applications. Complex machine vision requires high power and AI computer that can detect in real-time, identify and display defects with excellent accuracy. Such a system demands consistency, efficiency, productivity, quality, and worker safety is a competitive and demanding industry.

Nexasys Advanced AI MV Solution

- Image Acquisition
- Image Pre-Processing
- AI Machine Reasoning
- Object Detection
- Distinctive Discrepancy
- Feature Extraction
- Frame Grabber Cog
Rugged HPC Server

**System Core**

- **Processor**: AMD® EPYC™ 7003 "Milos" series server CPU, up to 64 core / 128 thread
- **Graphics**: Integrated graphics in ASPEED AST2500 BMC, supporting 1920x1200 resolution
- **Memory**: 4x RDIMM / LDIMM slots, supporting up to 512GB DDR4-3200
- **TPM**: Supports TPM 2.0
- **1Gb Ethernet**: 2x 10GBase-T ports by Intel® X550-AT2, supporting 1GbE (3G/ 2.5G)
- **Gigabit Ethernet**: 4x GbE ports by Intel® I350-AM4
- **PoE+**: IEEE 802.3at PoE+ PSE capability on 4x GbE ports
- **Video Port**: 1x VGA port via ASPEED AST2500 BMC
- **USB**: 4x USB 3.2 Gen1 (5 Gbps) ports
- **Serial Port**: 2x software-programmable RS-232/422/485 ports

**Storage Interface**

- **SATA**: 4x easy-swappable HDD trays for 2.5” HDD/ SSD installation
- **M.2**: 1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD

**Expansion Bus**

- **PCI Express**: 1x PCIe x16 slot@Gen4, 16-lanes for RTX A6000 / A6500 installation
- **PCI Express**: 2x PCIe x16 slots@Gen4, 8-lanes
- **M.2**: 1x M.2 3052 / 3052 8 key with dual micro-SIM sockets for 4G / 5G module
- **mini-PCIe**: 2x full-size mini PCI Express sockets with USIM support

**Power Supply**

- **DC Input**: 2x 4-pin 7.4V DC pitch plugable terminal block for 8 to 48V DC input and ignition control input

**Mechanical**

- **Dimension**: 444.4 mm (W) x 359 mm (D) x 88.1 mm (H)
- **Weight**: 8.6 Kg (net. CPU & RAM)
- **Mounting**: Wall-mount with damping brackets (standard), Rack-mount (optional)

**Operating Temperature**: -25°C ~ 60°C with 100% CPU / GPU loading *^*

**Storage Temperature**: -40°C ~ 85°C

**Humidity**: 10%–90%, non-condensing

**Vibration**: Operating, MIL-STD-810G, Method 516.6, Category 4

**Shock**: Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-8

**EMC**: CE / FCC Class A, according to EN 55032 & EN 55035
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