



Rugged HPC Computing Platform

Server-grade Computing at the Edge for Complex Applications



www.neosys-tech.com

HPC at the EDGE?

As industrial applications migrate from automation to autonomy, the demand for processing power has increased dramatically. However, the realm of high-performance computing (HPC) has always been reserved for large-size servers in air-conditioned rooms.

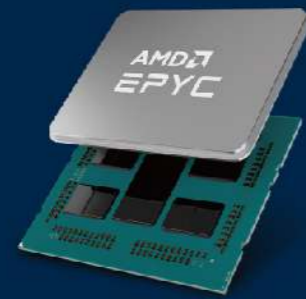
Is it possible to deploy an HPC to the edge? Limited by an HPC's heat production and dissipation needs, size restrictions, power supply requirements, such feat has not been possible in the past. But with Neousys RGS, things are about to change!



- Wide Temp.** Segregated compartment for -25°C to 60°C operations
- Compact Dimension** 2U form factor conformity but only 350mm (13.78") deep
- Sturdy Construction** Rugged construction with dedicated brackets and component holders

Powered by AMD® EPYC™ 7003 Series

Powered by AMD® EPYC™ 7003 series "MILAN" processor with up to 64-core/ 128-thread, and supports up to 512GB registered memory



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

Uniquely partitioned compartments with extremely effective airflow to the CPU, GPU, and add-on cards for reliable operations



Supports NVIDIA® RTX A6000/ A4500

Supports an NVIDIA® RTX A6000 or A4500 GPU that provides up to 38.7 TFLOPS FP32 or 309.7 TFLOPS tensor performance



Rich I/O Connectivity

Two 10G Ethernet ports for high-speed data transmission; four Gigabit PoE+ and four USB 3.1 Gen1 ports for camera connectivity

2U 19" Dimensions but Only 350mm Deep

The compact dimension and server-comparable performance are perfect for autonomy applications



Wide-range DC & Patented Design

Wide-range DC input, shock/ vibration damping bracket, screw-lock mechanism, and more



ADAS and Autonomous Driving

Sensing, Perception and Planning in One



Overview

An AI-empowered edge HPC 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.

Neousys Edge HPC Solution



RGS-8805GC

ACTION 1	 Camera, LiDAR, mmWave, GPS	Sense & Detect Utilize PCIe-GL26 for "Fusion" to gather vital information with GMSL2 cameras and sensors
ACTION 2	 Camera, LiDAR, mmWave, GPS	Perceive & Recognize Perception and recognition of objects and pedestrians are achieved with NVIDIA TESLA/ RTX GPU
ACTION 3	 Camera, LiDAR, mmWave, GPS	Plan & Execute Route planning and control require mass data analysis, and the AMD EPYC CPU is certainly up to the task

Advanced AI Machine Vision

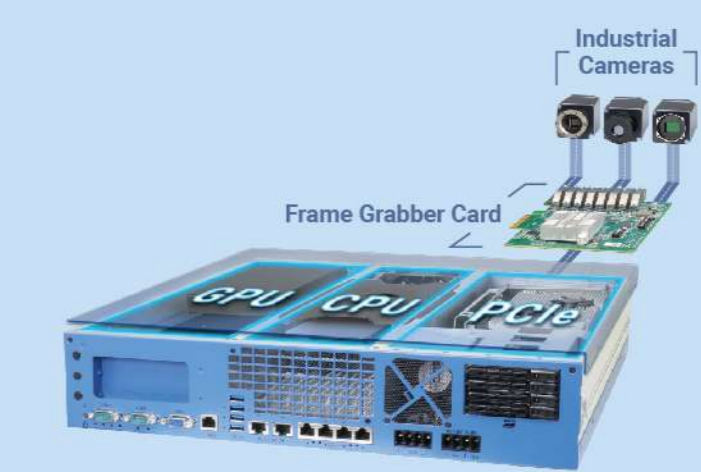
ROI, ANN & Interface Expansion



Overview

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

Neousys Advanced AI MV Solution



RGS-8805GC

ACTION 1	 Camera, Frame Grabber Card	Image Acquisition Install a frame grabber card to connect to industrial hi-res cameras to acquire detail images
ACTION 2	 Camera, Frame Grabber Card	Distinguish Discrepancy Perception and recognition of objects and discrepancies can be taught and achieved with NVIDIA TESLA/ RTX GPU
ACTION 3	 Camera, Frame Grabber Card	AI Machine Reasoning Machine reasoning and job planning require mass data analysis, and the AMD EPYC CPU is certainly capable



RUGGED HPC Server



Rugged HPC Server		
Model Name	RGS-8805GC	
System Core	Processor	AMD® EPYC™ 7003 "Milan" series server CPU, up to 64-core/ 128-thread
	Graphics	Integrated graphics in ASPEED AST2500 BMC, supporting 1920x1200 resolution
	Memory	4x RDIMM/ LRDIMM slots, supporting up to 512GB DDR4-3200
	TPM	Supports TPM 2.0
I/O Interface	10G Ethernet	2x 10GBASE-T ports by Intel® X550-AT2, supporting NBASE-T (5G/ 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 Gen4 x4) for NVMe SSD
Expansion Bus	PCI Express	1x PCIe x16 slot@Gen4, 16-lanes for RTX A6000/ A4500 installation 2x PCIe x16 slots@Gen4, 8-lanes
	M.2	1x M.2 3042/ 3052 B 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 7.62mm pitch pluggable terminal block for 8 to 48V DC input and ignition control input
Mechanical	Dimension	444.4 mm (W) x 350 mm (D) x 88.1 mm (H)
	Weight	8.6 Kg(incl. CPU & RDIMM)
	Mounting	Wall-mount with damping brackets (standard) Rack-mount (optional)
Environmental	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 514.6, Category 4
	Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/ FCC Class A, according to EN 55032 & EN 55035	

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