

NAC 1000

NVIDIA® Jetson AGX Orin™ Rugged AI Computing System



- NVIDIA® Jetson AGX Orin™ platform with up to 275 TOPS of AI performance
- 2048-core NVIDIA Ampere™ GPU with 64 Tensor Cores and 12-core Arm® Cortex®-A78AE CPU
- Supports 8 GMSL 1/2 automotive cameras via Fakra-Z connectors
- Built-in Bosch IMU, Magnetometer, and Altimeter for sensor fusion applications
- 4 M12 PoE+ GigE LAN ports and 1 1000Base-T1 SPE LAN
- 2 Isolated CAN-FD interfaces, 2 USB 3.1 Gen 2, and 2 SIM sockets
- DC 9V to 50V input with software ignition control and M23 power connector
- Wide -25°C to 75°C fanless operating temperature range with MIL-STD shock/vibe

High-Performance AI Inference Platform | Advanced Integration Flexible Configuration | Industrial Optimization

The Rugged Science NAC-1000, built on the NVIDIA® Jetson AGX Orin™ platform, features a 12-core Arm® Cortex®-A78AE CPU, a 2048-core NVIDIA Ampere™ GPU, and 64 Tensor cores to deliver up to 275 TOPS of AI performance. Designed for high-bandwidth, sensor-rich workloads, the system supports 8 GMSL 1/2 automotive cameras with Fakra-Z connectors, 4 M12 PoE+ GigE LAN ports, a 1000Base-T1 SPE port, and dual isolated CAN-FD interfaces. The NAC-1000 also includes a built-in IMU, magnetometer, and altimeter, making it an ideal edge AI platform for robotics, autonomous machines, and intelligent industrial automation in rugged environments.



Specifications

System

CPU	R32: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU R64: 12-core Arm® Cortex®-A78AE v8.2 64-bit CPU
GPU	R32: 1792-core NVIDIA Ampere™ architecture GPU with 56 Tensor Cores R64: 2048-core NVIDIA Ampere™ architecture GPU with 64 Tensor Cores
DL Accelerator	2x NVDLA Engines
Memory	R32: 1 32GB LPDDR5 DRAM R64: 1 64GB LPDDR5 DRAM
OS	Linux Ubuntu 22.04 with NVIDIA JetPack 6

I/O Interface

USB	2 USB 3.1 Gen 2 Type-C
Serial	1 M12 COM RS-232/422/485
CAN Bus	2 Isolated CAN Bus support Flexible Data-rate
DIO	12 Isolated DIO (6 DI, 6 DO)
Micro USB	- 1 Micro USB console debug port - 1 Micro USB OS flash port - 1 Power Button
Button	- 1 Force Recovery Button - 1 Reset Button
LED	Power, SSD
SIM	2 SIM Card Socket
Antenna	6 Antenna for 5G/WiFi/4G/LTE/GPRS/UMTS

Expansion

PCIe (Optional)	1 PCIe x8 Slot (by request) - 1 M.2 Key B Socket (3042/3052, USB)
M.2	- 1 M.2 Key B Socket (3042/3052, PCIe) - 1 M.2 Key E Socket (2230/3042, PCIe/USB/UART)

Graphics

Interface	1 Digital Display, up to 4K60
Video Encode	R32: 1x 4K @60, 3x 4K @30, 6x 1080p @60 (HEVC) R64: 2x 4K @60, 4x 4K @30, 8x 1080p @60 (HEVC)
Video Decode	R32: 1x 8K @30, 4x 4K @30, 9x 1080p @60 (HEVC) R64: 1x 8K @30, 7x 4K @30, 11x 1080p @60 (HEVC)

Camera

GMSL	8 Fakra-Z connectors for GMSL 1/2 automotive cameras
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Sensor

IMU	Bosch BMI088
Magnetometer	Bosch BMM350
Altimeter	Bosch BMP581

Storage

M.2	2 M.2 Key M Socket (2280)
eMMC	1 eMMC 5.1, 64GB
SD	1 Micro SD (External)

Ethernet

LAN 1	10/100/1000 Base-T1 Ethernet GigE LAN, SPE Connector
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PoE

LAN 2 to LAN 5	Intel i350 GigE IEEE 802.3at (25.5W/48V) PoE™ LAN, M12 X-coded Connector
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Power

Power Input	DC 9V to 50V
Power Interface	6-pin M23 Connector
Ignition Control	16-mode Software Ignition Control

Others

TPM	Infineon SLB9673 XU2.0 FW26.10, I2C Interface (Optional)
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Mechanical

Dimensions	260 mm x 195 mm x 95 mm (10.24" x 7.68" x 3.74")
Weight	5.5 kg (12.13lb)
Mounting	Wallmount

Environment

Operating Temp.	50W TDP with 60W PoE load: -25°C to 60°C (-13°F to 140°F) 50W TDP without PoE load: -25°C to 75°C (-13°F to 167°F)
Storage Temp.	-40°C to 85°C (-40°F to 185°F)
Humidity	5% to 95% Humidity, non-condensing
Relative Humidity	95% @75°C
Shock	Operating, MIL-STD-810H, Method 516.8, Procedure I
Vibration	Operating, MIL-STD-810H, Method 514.7, Procedure I, Category 4
EMC	CE, FCC, EN50155, EN50121-3-2, EN62368-1

Order Information

RS-05072025

Model Name	Platform	RAM	LAN	USB 3.1	Serial	Iso. CAN	Iso. DIO	PoE+	GMSL	SIM	M.2
NAC-1000-R32	Jetson AGX Orin	32GB	5	2	1	2	12	4	8	2	4
NAC-1000-R64		64GB									

Dimensions & Drawing

Unit : mm (inch)

