ATC 3563-NA8C/NAA8CR

NVIDIA Jetson Orin Nano™ Solution
Accelerated Edge AI Computer

ATC 3563-NA8C

ATC 3563-NAA8CR

Main Features

- Built-in NVIDIA Jetson Orin Nano™ SoM, up to 67 INT8 Sparse TOPS AI performance in Super Mode
- The rugged, compact with fanless design
- 8 x GbE PoE+ (120W in total) for IP CAM & LiDAR sensors
- HEVC/H.265 hardware decode, supports up to 11 x 1080p@30fps
- Wide range operating temperature of -25°C~60°C (fanless in Super mode)
- Ultra-speed PCIe 4.0 x4 NVMe SSD for data integrity
- Expansible for GNSS, LTE/5G NR & Wi-Fi 5/6
- DC 9V~36V/24V rail with ignition control and OCP/OVP
- NEXCOM Acceleration Linux (NAL) OS w/ JetPack 6.2 integrated
- Military standard of MIL-STD-810H for anti-vibration/shock
- CE/FCC UKCA, E-mark, EN 50155 & EN 45545-2 certified

Product Overview

AI has become a vital part of autonomous vehicle technologies. Equipped with the high-performance NVIDIA Jetson Orin Nano™ SoM, the ATC 3563-NA8C/NAA8CR delivers up to 67 INT TOPS of AI inference performance in Super Mode, making it ideal for applications such as Advanced Driver Assistance Systems (ADAS) in transportation and construction, Automatic Number Plate Recognition (ANPR), Autonomous Mobile Robots (AMR), Machine Learning (ML), Intelligent Transportation Systems (ITS), Railway safety assurance, and factory automation.

Thanks to NEXCOM's advanced thermal design, the ATC 3563-NA8C/NAA8CR can maintain up to 67 TOPS even in harsh conditions, enabling consistent real-time AI inference.

The ATC 3563-NA8C/NAA8CR is purpose-built for in-vehicle and railway AI computing. It supports DC 9V to 36V/24V rail power with IGN control, and features eight GbE PoE ports for long-distance IP cameras and LiDAR sensors. It also offers a wide range of I/O, including USB 3.2, isolated CAN bus, RS-232, console port, digital I/O (DI/DO), OTG, and HDMI®. With optional 5G NR and Wi-Fi 5/6 modules, the ATC 3563-NA8C/NAA8CR can connect with CPS (Cyber-Physical Systems) for AI model retraining, enhancing inference precision in the field.

Built to endure tough conditions, the ATC 3563-NA8C/NAA8CR supports an operating temperature range of -25°C to 60°C, and complies with MIL-STD-810H for resistance to shock and vibration. It is certified to CE/FCC Class A, UKCA, E-mark and EN 50155, EN 45545-2 standards.

Specifications

NVIDIA Jetson Orin Nano™ SoM

- NVIDIA Jetson Orin Nano™ 8GB
  - CPU: 6-core Arm® Cortex®-A78AE v8.2 64-bit, 1.5MB L2 + 4MB L3
  - GPU: 1024-core NVIDIA® Ampere architecture with 32 Tensor Cores
  - Memory: 8GB 128-bit LPDDR5 102GB/s, 2133/3199MHz in frequency
  - AI performance: 67 TOPS in Super Mode
- OpenGL 4.6, OpenGL ES 3.2, CUDA® 11.4 and Vulkan 1.1
- 260-pin SO-DIMM form factor compatible with Orin™ NX
- NVIDIA® JetPack 6.2

Storage

- 1 x M.2 Key M 2280 PCIe 3.0 x4 NVMe SSD, 128GB in default

Expansion Slot

- 1 x M.2 Key E 2230 (PCIe 4.0 + USB 2.0)
- 1 x M.2 Key B 3042/3052 (USB 3.2/2.0) with 2 x nano-SIM slot

Display Interface

- 1 x HDMI® 2.0a/b, up to 3840x2160@60Hz

G-Sensor

- 3D accelerometer and 3D gyroscope, ST LSM6DSLTR

Remote Power Trigger

- ATX power button, wafer reserved

PoE+

- 8 x 1GbE RJ45 port (ATC 3563-NA8C)/M12 X-coded connector (ATC 3563-NAA8CR)
- 9K byte Jumbo frame, PTP (IEEE 1588) support
- Switching: 2 x Realtek RTL8367RBI-VH-CG-I
- IEEE 802.11af/at PoE (120W power budget)
- PSE on/off & Watt monitoring

USB

- 2 x USB 3.2, Type-A
  - 5V@900mA each
  - up to 5Gbit/s link speed & compliance with USB 2.0 (LS/FS/HS link speed)
- 1 x OTG Micro-USB (w/ a door)
- 1 x USB 2.0, wafer reserved

Serial Port

- 1 x RS-232 (Tx, Rx)
  - RS-232 working voltage ± 9V, baud rate up to 115.2kb/s
  - Connector: MULTI-port (DB15)
- 1 x Console port (Tx, Rx), wafer reserved

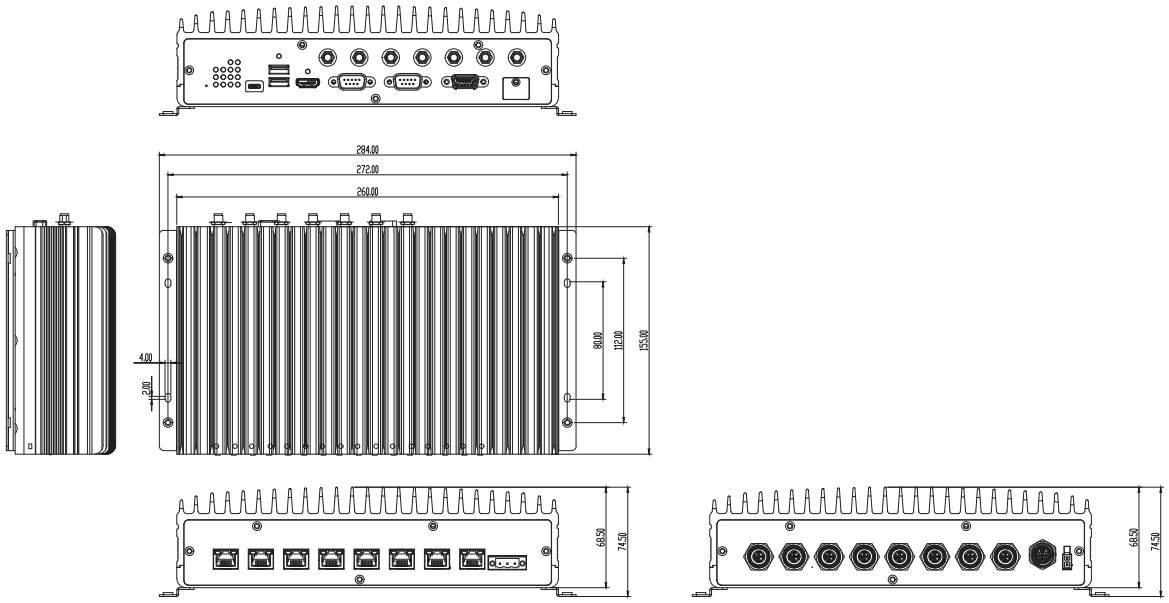
DI/DO

- 4-Bit input, isolation
  - Source: DC 9V~36V (12V@0.6mA/24V@1.2mA)
  - External: DC 0V~33V pull-high, high-level, DC 3.3V~33V; low-level, DC 0V~2V
- 4-Bit output, isolation
  - Source: DC 9V~36V (nominal 35mA@24V)
  - External: DC 5V~27V pull-high, sink current w/ 220mA for each bit, 500mA max (@25C)
- Source or external can be selected by software (default: source type)
- Connector: MULTI-port (DB15)

CAN bus

- 1 x CAN FD, compatible with CAN 2.0A/2.0B

Dimension Drawing



ATC 3563-NA8C

ATC 3563-NAA8CR

- IEC 61000-4-2 Electrostatic Discharge (ESD): ± 4KV/8KV (contact/air, whole system)
- Up to 5Mb/s in data transmit, 2.5KV isolated
- Connector: MULTI-port (DB15)

GPS
- Onboard u-blox NEO-M9N GNSS module for GPS/GLONASS/QZSS/Galileo/Beidou
- Optional NEO-M9V w/ DR (dead reckoning) function

Power Management
- Nominal voltage: DC 9V~36V/24V rail
  - ATC 3563-NA8C: DC 9V~36V, cranking voltage of DC 6V~9V (less than 20 sec), terminal block
  - ATC 3563-NAA8CR: DC 24V (14.4V~33.6V), K-coded
- OCP & UVP (shut down once exceeding 37V)
- Ignition on/off control & programmable on/off delay timer
- Optional for remote power on/off control

I/O Interface Front
- 6 x LED indicator
- 1 x Reset button
- 2 x nano-SIM slot, 1 x OTG
- 1 x HDMI®
- 2 x USB 3.2
- 1 x MULTI-port (DB15)

I/O Interface Rear
- 9V~36V/24V rail DC-in, terminal block/K-coded (ATC 3563-NA8C/NAA8CR)
- 8 x 1GbE PoE+ RJ45/X-coded (ATC 3563-NA8C/NAA8CR)

II/O Interface Side
- 4 x Antenna hole for LTE/5G module (SMA ant.)
- 2 x Antenna hole for Wi-Fi 5/6 module (PR-SMA ant.)
- 1 x Antenna hole for GNSS (RP-SMA ant.)

Mechanical
- ATC 3563-NA8C:
  - Dimensions: 284mm (W) x 155mm (D) x 74.5mm (H) (w/ mount bracket)
  - Weight: 3.2kg
- ATC 3563-NAA8CR:
  - Dimensions: 284mm (W) x 155mm (D) x 74.5mm (H) (w/ mount bracket)
  - Weight: 3.3kg

Environment
- Operating temperature: -25°C~60°C (Super Mode)
- Storage temperature: -40°C~85°C
- Relative humidity: 10%~95% (non-condensing)

Vibration & Shock
- Vibration in operating
  - MIL-STD-810G, 514.8C, Procedure 6, Category 4
  - IEC 60068-2-64: 2.0g@5Hz~500Hz
  - MIL-STD-810G, 514.6E, Procedure 1, Category 24, 7.7g approx.
- Shock
  - Operating: MIL-STD-810G, Method 516.6, Procedure I, functional shock=20g
  - Non-operating: MIL-STD-810G, Method 516.6, Procedure V, crash hazard shock test=75g

Certifications
- CE/FCC, UKCA, E-mark, EN 50155, and EN 45545-2

Operating System
- NEXCOM Aided Linux (NAL) w/ Jetpack 6.2 integrated
  - NEXCOM custom functions (GNSS, 5G NR, 6-axis sensor, MCU control)
  - V4L2
  - Ubuntu 22.04@Kernel 5.15

Accessories
- External cable: MULTI-port adapter cable, 20cm

Ordering Information

- **ATC 3563-NA8C-8 (P/N: 10AT0356303X0)**
  Edge AI computer, NVIDIA Jetson Orin Nano™ 8GB, Super Mode, 128GB NVMe, 8 x PoE+, 2 x RS-232, 2 x USB 3.2, DC 9V~36V

- **ATC 3563-NAA8CR-8 (P/N: 10AT0356304X0)**
  Edge AI computer, NVIDIA Jetson Orin Nano™ 8GB, Super Mode, 128GB NVMe, 8 x X-coded PoE+, 2 x RS-232, 2 x USB 3.2, DC 24V rail

We reserve the right to change specifications and product descriptions at any time without prior notice.