ATC 3561-NX4C

NVIDIA® Jetson Orin™ NX Solution
Accelerated Edge AI Computer

Main Features

- Built-in NVIDIA® Jetson Orin™ NX 8GB/16GB SOM, up to 157 INT8 Sparse TOPS AI performance in Super Mode
- The rugged, palm size, and fanless/fan kit design
- 4 x GbE PoE+ port for IP CAM/LiDAR sensors
- HEVC/H.265 hardware decode, supports up to 18 x 1080p30
- Wide range operating temperature of -25°C~60°C (fan kit, 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 input with ignition control & 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, and E-mark certified

Product Overview

AI has become a vital part of autonomous vehicle technologies. Equipped with the high-performance NVIDIA® Jetson Orin™ NX SOM, the ATC 3561-NX4C delivers up to 157 TOPS of AI inference performance (16GB version 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 3561-NX4C can maintain up to 117 TOPS (8GB version) or 157 TOPS (16GB version) even in harsh conditions, enabling consistent real-time AI inference.

The ATC 3561-NX4C is purpose-built for in-vehicle and railway AI computing. It supports DC 9V to 36V/24V rail power with IGN control, and features four 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 3561-NX4C can connect with CPS (Cyber-Physical Systems) for AI model retraining, enhancing inference precision in the field.

Built to endure tough conditions, the ATC 3561-NX4C 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, and E-mark standards.

Specifications

NVIDIA® Jetson Orin™ NX SOM

- Jetson Orin NX™ 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 102.4GB/s
  - AI performance: 117 INT8 Sparse TOPS
- Jetson Orin NX™ 16GB
  - CPU: 8-core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3
  - GPU: 1024-core NVIDIA Ampere architecture with 32 Tensor Cores
  - Memory: 16GB 128-bit LPDDR5 102GB/s, 3200MHz in frequency
  - AI performance: 157 INT8 Sparse TOPS
- OpenGL 4.6, OpenGL ES 3.2, CUDA® 11.4, and Vulkan 1.1
- 260-pin SO-DIMM form factor compatible with Xavier NX/TX2
- NVIDIA® JetPack 6.2

Storage/Boot Disk

- 1 x M.2 Key M 2242 PCIe 4.0 x4 NVMe SSD, 128GB in default

Expansion

- 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

- 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+

- 4 x 1GbE RJ45 port
  - 9K byte Jumbo frame, PTP (IEEE 1588) supported
  - Switching: Realtek RTL8367RBI-VH-CG-I
  - IEEE 802.11af/at PoE (30W 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

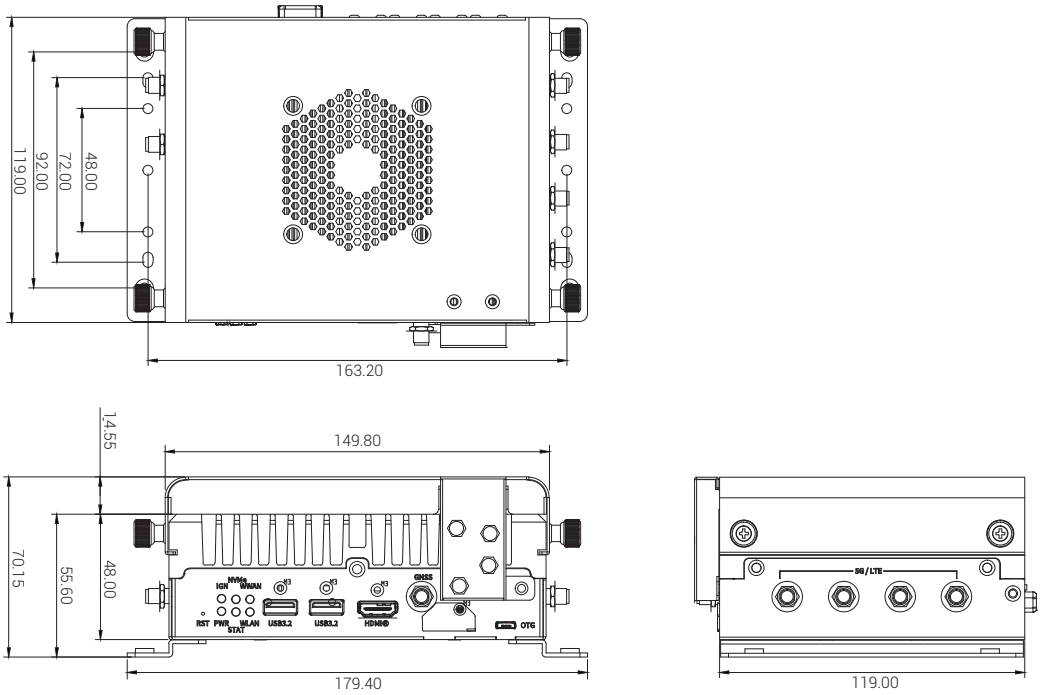
DI/DO

- 4-Bit input, non-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, non-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)

Serial Port

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

Dimension Drawing



CAN bus
- 1 x CAN FD, compatible with CAN 2.0A/2.0B
  - 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/Gloness/QZSS/ Galileo/Beidou
- Optional NEO-M9V w/ DR (dead reckoning) function

Power Supply
- Nominal voltage: DC 9V~36V
- Cranking voltage: DC 6V~9V (less than 20sec)
- OCP & UVP (shut down once exceeding 37V)
- Ignition on/off control & programmable on/off delay timer
- Opional for remote power on/off control

I/O Ports, Front-Plate
- 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)
- 1 x Antenna hole for GNSS (RP-SMA ant.)

I/O Ports, Rear-Plate
- DC 9V~36V input, terminal block
- 4 x 1GbE RJ45 PoE port

I/O Ports, Side-Plate
- 4 x Antenna hole for LTE/5G module (SMA ant.)
- 2 x Antenna hole for Wi-Fi 5/6 module (PR-SMA ant.)

Dimension & Weight
- Dimensions: 179.4mm (W) x 119mm (D) x 70.1mm (H) (w/ mount bracket, w/ fan kit)
- Weight: 1.58kg (w/ fan kit)

Environment
- Operating temperature: -25°C~60°C (w/ fan kit in Super Mode)
  - -25°C~60°C (w/ fan kit in Super Mode)
  - -25°C~55°C (fanless in Normal Mode)
- Storage temperature: -40°C~85°C
- Relative humidity: 10%~95% (non-condensing)

Vibration & Shock
- Vibration in operating
  - MIL-STD-810H, 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 approval, FCC Class A, UKCA, E-mark

Operating System
- NEXCOM Acceleration 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

External Cable
- Multi-port adapter cable, 20cm

Ordering Information

- **ATC 3561-NX4C (P/N: 10AT0356102X0)**
  Edge AI computer, NVIDIA® Jetson Orin™ NX 8GB, Super Mode supported, 128GB NVMe, 4 x PoE+, 1 x RS-232, 2 x USB 3.2, DC 9V~36V input, Fan kit

- **ATC 3561-NX4C-16 (P/N: 10AT0356103X0)**
  Edge AI computer, NVIDIA® Jetson Orin™ NX 16GB, Super Mode supported, 128GB NVMe, 4 x PoE+, 1 x RS-232, 2 x USB 3.2, DC 9V~36V input, Fan kit