



Main Features

- Built-in NVIDIA® Jetson AGX Orin™ SOM, up to 200/275 TOPS (INT8) performance
- Designed with rugged, compact and hybrid cooling solutions
- 6-port GbE PoE+ for IP CAM/LiDAR sensors, optional 1-port 10GbE
- HEVC/H.265 hardware DECODE up to 7 x 4K30 performance
- Wide range operating temperature of -20°C~70°C
- Ultra-speed PCIe 4.0 x4 NVMe SSD for data integrity
- Expansible for GNSS, LTE/5G NR & Wi-Fi 5/6
- 9~36V DC-IN with ignition control & OCP/OVP
- NEXCOM Acceleration Linux (NAL) integrated w/ JetPack 5.0.2
- Military standard of MIL-STD-810H for anti-vibration/shock
- CE/FCC, UKCA, E-mark Certified

Product Overview

AI has become an essential component of automated vehicle technologies. With its built-in high performance NVIDIA® Jetson AGX™ Orin SOM, the ATC 3750 can deliver up to 200/275 TOPS workload on Artificial Intelligence (AI) processing and inference, supporting applications such as ADAS in Transportation/Construction, ANPR, AMR, Machine Learning (ML), ITS and factory automation.

To operate the workload with 200/275 TOPS in harsh environments, the user can add an extractor fan kit to enable hybrid heat dissipation. The fan can be controlled depending on the operating temperature and the corresponding processors TDP (15W~60W).

The ATC 3750 is a rugged, compact-size in-vehicle AI powered computer that features 9~36VDC with IGN control, 6 PoE+ for accessing IP CAM/LiDAR sensors, and rich peripheral ports, USB 3.2, isolation CANBus, RS232, Console, DI/DO, OTG and HDMI. With the installation of 5G NR, Wi-Fi 5/6 modules, the ATC 3750 can collaborate with CPS for AI model re-training, making it suitable for deployment in sophisticated application such as ADAS/ANPR/AI-aided ITS/Construction, etc. In harsh environments, the ATC 3750 can operate at a wide temperature range of -20~70°C and meet the MIL-STD-810H military standard for anti-vibration and shock. For regulation, the ATC 3750 is certified by CE/FCC Class A, UKCA and E-mark (E13).

Specifications

NVIDIA® Jetson AGX™ Orin SOM

- 32GB 256-bit LPDDR5, 204.8 GB/s (ATC 3750-6C)
 - 8 x cores | 2 Cortex-A78AE CPU clusters (4 cores/cluster), 2.2GHz
 - 1792 CUDA® cores, 56 Tensor cores, 108 Sparse TOPS, 939 MHz
 - 200 INT8 Sparse TOPS
 - 2 x NVDLA v2.0 engines: 1.4 GHz | 46 TOPS each (Sparse INT8)
- 64 GB 256-bit LPDDR5, 204.8 GB/s (ATC 3750-6C-64)
 - 12 x cores | 3 Cortex-A78AE CPU clusters (4 cores/cluster), 2.2GHz
 - 2048 CUDA® cores, 64 Tensor cores, 170 Sparse TOPS, 1.3GHz
 - 275 INT8 Sparse TOPS
 - 2 x NVDLA v2.0 engines: 1.6 GHz | 52.5 TOPS each (Sparse INT8)
- Video Encode: 2 x 4K60 | 4 x 4K30 | 8 x 1080p60 (H.265)
- Video Decode: 1 x 8K30 | 3 x 4K60 | 6 x 4K30 | 12 x 1080p60 (H.265)
- OpenGL 4.6+, OpenGL ES 3.2, and Vulkan 1.2+, CUDA 10.2+
- NVIDIA® JetPack 5.0.2

Storage

- 64GB eMMC 5.1 flash storage, 200 MHz (HS400 or HS533)
- 1 x Accessible SD card (SDXC-I/ UHS-I, SD3.0)
- 1 x M.2 2280 Key M (PCIe4.0 x4), NVMe SSD

Expansion

- 1 x Full size mPCIe socket (PCIe 4.0, USB 2.0)
- 1 x M.2 3042/3052 Key B socket (USB 3.2/2.0), 2 x Nano SIM slots
- 1 x M.2 3030 Key E socket (PCIe 4.0, USB 2.0) for Wi-Fi 5/6

Display

- 1 x HDMI 2.0A/B, up to 3840 x 2160@60Hz

G-Sensor

- 3D accelerometer and 3D gyroscope, ST LSM6DSLTR

PoE+

- 6-port GbE, RJ45 connector
 - 9Kbyte Jumbo frame
 - IEEE 802.3af/at, total 80W
 - IEEE1588 supported
 - PSE ON/OFF & Watt monitoring
 - GIGA LAN SWITCH: KSZ9477STXI

USB

- 2 x USB 3.2 Gen 2:
 - Host Type-A connector
 - 5V@900mA each
 - Up to 10Gbit/s link speed & compliance with USB 2.0 (LS/FS/HS link speed)
- 1 x OTG, micro-USB

Serial Port

- 2 x Full RS232 (DB9)
- 1 x Console (Tx, Rx)
- RS232 working voltage, ±9V, baud rate up to 115.2kb/s

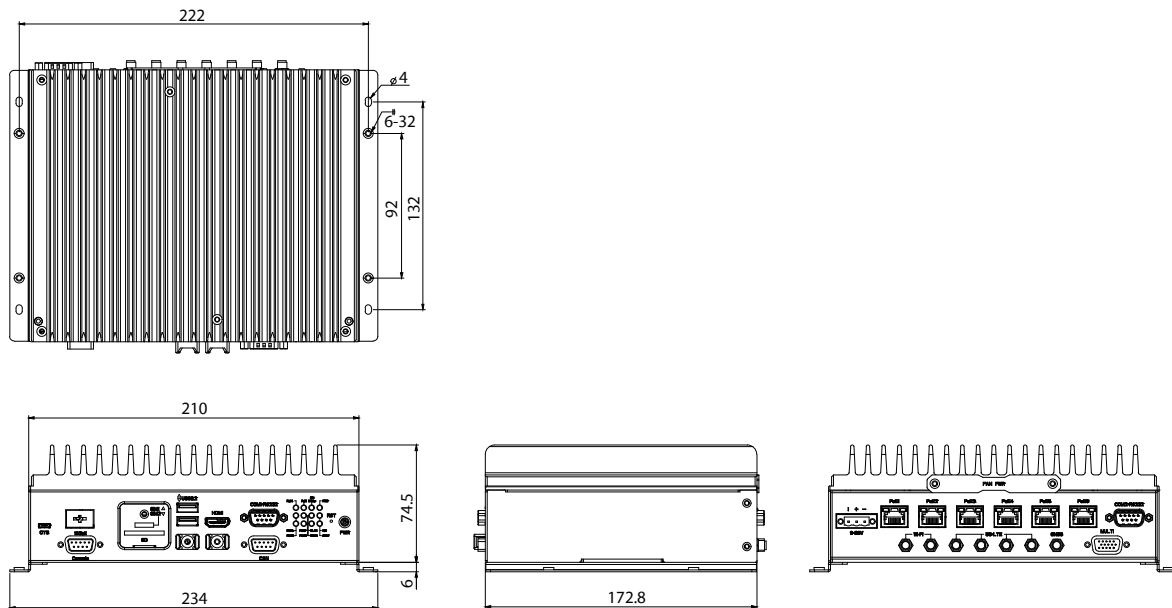
DI/DO

- 4-bit input
 - Source: 9~36VDC (12V@1.1mA/24V@2.2mA)
 - External: 0~33VDC pull-high, high-level, 3.3 - 33 VDC; low-level, 0-2 VDC
- 4-bit output
 - Source: 9~36VDC (nominal 35mA@24V)
 - External: 5~27VDC pull-high, sink current w/ 220mA for each bit, 500mA max (@25C)
- Source or external can be selected by software (default: source type)

CAN Bus

- 2 x CAN 2.0A/2.0B

Dimension Drawing



- IEC 61000-4-2 Electrostatic Discharge (ESD): $\pm 8\text{KV}/15\text{KV}$ (contact/air)
- 2.5KV isolated

10GbE, RJ45 (optional)

- Ethernet PHY: Marvell AQR113C-BO-I
- 10GBASE-T/5GBASE-T/2.5GBASE-T/1000BASE-T/100BASE-TX/10BASE-T
- Compliant with IEEE 802.3az
- 9Kbyte Jumbo frame
- IEEE 1588 supported

GNSS

- u-blox NEO-M9N GNSS module for GPS/Glonass/QZSS/Galileo/Beidou
- Optional DR (Dead Reckoning) function, NEO-M9V/M8L

Power Supply

- Nominal voltage: 9~36V
- Cranking voltage: 6V~9V (less than 20 sec)
- 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 Ports, Front-Plate

- ATX power button
- Reset button
- 12 x LED Indicators
- 2 x USB3.2 Type A
- Console (DB9)
- 2 x CAN (DB9)
- COM1/RS232 (DB9)
- 2 x Nano SIMs
- 1 x HDMI
- 1 x SD
- 1 x OTG

I/O Ports, Rear-Plate

- COM2/RS232 (DB9)
- 6x RJ45 (GbE PoE+)
- 1 x Multi (DI/DO, DR signal)
- 1 x SMA for GNSS
- 2 x RP-SMA for Wi-Fi
- 4 x SMA for LTE/5G
- 9~36V DC-IN

Dimensions & Weight

- 234.0mm x 172.8mm x 80.5mm (w/ mount bracket), weight: 3.5kg
- 234.0mm x 184.5mm x 103.6mm (w/ the extractor fan kit, w/ mount bracket), weight: 4.2kg

Environment

- Operating temperatures: $-20^{\circ}\text{C}\sim 70^{\circ}\text{C}$ (TDP 40W or less, w/ 80W PoE)
- Operating temperatures: $-20^{\circ}\text{C}\sim 70^{\circ}\text{C}$ (TDP 50W/60W, w/ 80W PoE, w/ fan kit)
- Storage temperatures: $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$
- 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@5~500 Hz
- Vibration in storage:
 - MIL-STD-810G, 514.6E Procedure 1, Category 24, 7.7g
- Shock:
 - MIL-STD-810G, 516.6 Procedure I, trucks and semi-trailers=40g
 - Crash hazard: Procedure V, ground equipment=75g

Certifications

- CE approval, FCC Class A, UKCA, E13 Certified

Operating System

- NEXCOM Aided Linux (NAL) w/ Jetpack 5.0.2 integrated
- NEXCOM custom Functions (GNSS, 5G/NR, 6-axis sensor, MCU control)
- Ubuntu 20.04 (L4T 35.1, Linux Kernel 5.10)

External Cable

- DB15 multi-port adapter cable, 20cm

Ordering Information

• ATC 3750-6C (P/N: 10AT0375000X0)

NVIDIA® Jetson AGX™ Orin SOM, 32GB LPDDR5, 64GB eMMC, 6 x PoE+, 2 x USB 3.2, 2 x RS232, OTG/Console, 9~36VDC/IGN

• ATC 3750-6C-64 (P/N: 10AT0375001X0)

NVIDIA® Jetson AGX™ Orin SOM, 64GB LPDDR5, 64GB eMMC, 6 x PoE+, 2 x USB3.2, 2 x RS232, OTG/console, 9~36VDC/IGN

• VTK FAN92-01 (P/N: 10VK00FAN01X0)

Fan kit for ATC 3750, 92mm x 92mm