ATC 3750-6C

Main Features

- Built-in NVIDIA® Jetson AGX Orin™ SOM, up to 200/275 INT8 Sparse TOPS AI performance
- Designed to be fanless, rugged, and compact
- 6 x GbE PoE+ port for IP CAM/LiDAR sensors, optional 1 x 10GbE port
- HEVC/H.265 hardware decode, supports up to 7 x 4K30
- Wide range operating temperature of -25°C~60°C

- Ultra-speed PCIe 4.0 x4 NVMe SSD for data integrity
- Expansible for GNSS, LTE/5G NR & Wi-Fi 5/6
- 9V~36V DC-in with ignition control & OCP/UVP
- NEXCOM Acceleration Linux (NAL) integrated w/ JetPack 6.1
- 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 3750-6C 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.

Thanks to NEXCOM's excellent thermal solutions, the ATC 3750-6C can work through its defined TDP (15W to 60W) in harsh environments without a fan kit to achieve 200/275 TOPS workload performance.

The ATC 3750-6C is a rugged, compact-size in-vehicle AI powered computer that features DC 9V to 36V with IGN control, six PoE+ ports for accessing IP CAM/LiDAR sensors, and rich peripheral ports, USB 3.2, isolation CAN bus, RS-232, Console, DI/DO, OTGand HDMI®. With the installation of 5G NR, Wi-Fi 5/6 modules, the ATC 3750-6C can collaborate with CPS for AI model re-training, making it suitable for deployment in sophisticated applications such as ADAS/ANPR/AI-aided ITS/Construction, etc. In harsh environments, the ATC 3750-6C can operate at a wide temperature range of -25°C to 60°C and meet the MIL-STD-810H military standard for anti-vibration and shock. For regulation, the ATC 3750-6C is certified by CE/FCC Class A, UKCA and E-mark (E13).

Specifications

NVIDIA® Jetson AGX Orin™ SOM
- Jetson AGX Orin™ 32GB
  - CPU: 8-core Arm® Cortex®-A78AE v8.2 64-bit, 2MB L2 + 4MB L3
  - GPU: 1792-core NVIDIA® Ampere architecture with 56 Tensor Cores
  - Memory: 32GB 256-bit LPDDR5, 204.8GB/s
  - AI performance: 200 INT8 Sparse TOPS
  - 2 x NVDLA v2.0 engines: 1.4 GHz, 46 INT8 Sparse TOPS each
  - Video encode: 1 x 4K60/3 x 4K30/6 x 1080p60/12 x 1080p30 (H.265)
  - Video decode: 1 x 8K30/2 x 4K60/4 x 4K30/9 x 1080p60/ 18 x 1080p30 (H.265)
- Jetson AGX Orin™ 64GB
  - CPU: 12-core Arm® Cortex®-A78AE v8.2 64-bit, 3MB L2 + 6MB L3
  - GPU: 2048-core NVIDIA® Ampere architecture with 64 Tensor Cores
  - Memory: 64GB 256-bit LPDDR5, 204.8GB/s
  - AI performance: 275 INT8 Sparse TOPS
  - 2 x NVDLA v2.0 engines: 1.6 GHz, 52.5 INT8 SparseTOPS each
  - Video encode: 2 x 4K60/4 x 4K30/8 x 1080p60/16 x 1080p30 (H.265)
  - Video decode: 1 x 8K30/3 x 4K60/7 x 4K30/11 x 1080p60/ 22 x 1080p30 (H.265)
- OpenGL 4.6+, OpenGL ES 3.2, CUDA® 10.2+, and Vulkan 1.2+
- NVIDIA® JetPack 6.1

Storage
- 64GB eMMC 5.1 flash storage, 200MHz (HS400 or HS533)
- 1 x Accessible SD card (SDXC-I/ UHS-I, SD 3.0)
- 1 x M.2 Key M 2280 (PCIe 4.0 x4) NVMe SSD

Expansion
- 1 x Full size Mini PCIe slot (PCIe 4.0, USB 2.0)
- 1 x M.2 Key B 3042/3052 (USB 3.2/2.0), 2 x nano-SIM
- 1 x M.2 Key E 3030 (PCIe 4.0, USB 2.0) for Wi-Fi 5/6

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

G-Sensor
- 3D accelerometer and 3D gyroscope, ST LSM6DSLTR

PoE+
- 6 x GbE port, RJ45 connector
  - 9Kbyte Jumbo frame
  - IEEE 802.3af/at, total 80W
  - IEEE 1588 supported
  - PSE on/off & Watt monitoring
  - GIGA LAN switch: KSZ9477STXI

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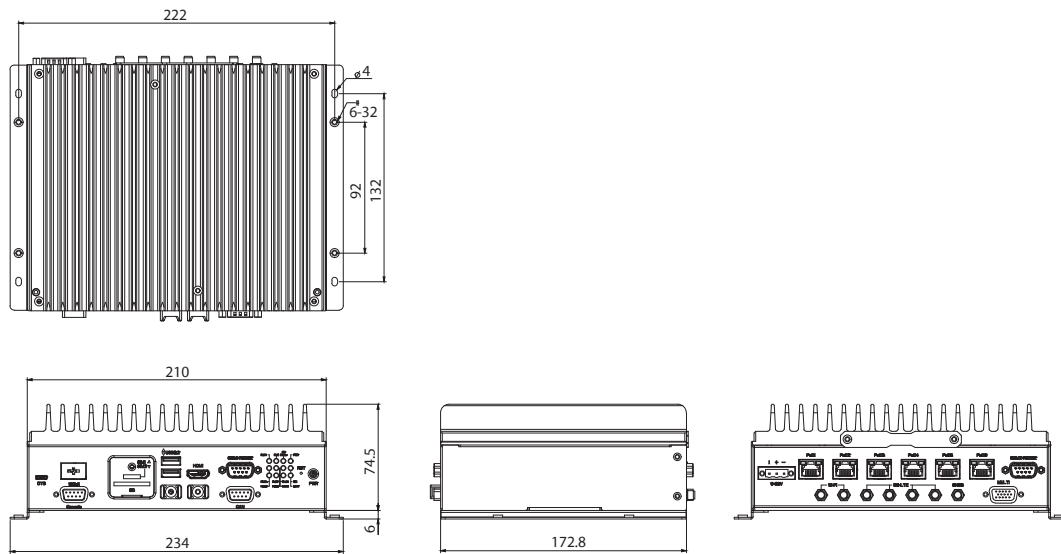- 1 x OTG, Micro-USB

Serial Port
- 2 x Full RS-232 (DB9)
- 1 x Console (Tx, Rx)
- RS-232 working voltage ± 9V, baud rate up to 115.2kb/s

DI/DO
- 4-bit input
  - Source: DC 9V~36V (12V@1.1mA/24V@2.2mA)
  - External: DC 0V~33V pull-high, high-level, DC 3.3V~33V; low-level, DC 0V~2V

Dimension Drawing

- 4-bit output
  - 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)

CAN bus
- 2 x CAN FD
- IEC 61000-4-2 Electrostatic Discharge (ESD): ± 8KV/15KV (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

Watch Dog Timer
- Yes, through MCU

Remote ATX PWR & Reset Trigger
- Reserved, wafer-type

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

Power Supply
- Nominal voltage: DC 9V~36V
- Cranking voltage: DC 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
- 1 x ATX power button
- 1 x Reset button
- 12 x LED Indicator
- 2 x USB 3.2 Type-A
- 1 x Console (DB9)
- 2 x CAN (DB9)
- 1 x COM port1 (DB9), supports RS-232
- 2 x nano-SIM
- 1 x HDMI®
- 1 x SD
- 1 x OTG

I/O Ports, Rear-Plate
- 1 x COM port2 (DB9), supports RS-232
- 6 x 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
- 9V~36V DC-in

Dimension & Weight
- Dimensions: 234.0mm (W) x 172.8mm (D) x 80.5mm (H) w/ mount bracket
- weight: 3.5kg

Environment
- Operating temperature: -25°C~60°C (TDP 15W~60W, fanless, w/ 80W PoE)
- 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
- 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 6.1 integrated
  - NEXCOM custom functions (GNSS, 5G/NR, 6-axis sensor, MCU control)
  - Ubuntu 22.04 (L4T 36.3, Linux Kernel 5.15)

External Cable (optional)
- DB15 multi-port adapter cable, 20cm

Ordering Information

- **ATC 3750-6C (P/N: 10AT0375000X0)**
  NVIDIA® Jetson AGX Orin™ 32GB, 64GB eMMC, 6 x PoE+, 2 x USB 3.2, 2 x RS-232, OTG/Console, 9V~36V DC/IGN

- **ATC 3750-6C-64 (P/N: 10AT0375001X0)**
  NVIDIA® Jetson AGX Orin™ 64GB, 64GB eMMC, 6 x PoE+, 2 x USB3.2, 2 x RS-232, OTG/console, 9V~36V DC/IGN