ATC 3750-IP7-6C

NVIDIA® Jetson AGX Orin™ Solution

Performance Edge AI Computing

Main Features

- Built-in NVIDIA® Jetson AGX Orin™ SOM, up to 200/275 TOPS (INT8) performance
- Designed to be IP67 rated, rugged, and compact
- 6-port GbE PoE+ for IP CAM/LiDAR sensors, optional 1-port 10GbE
- HEVC/H.265 hardware DECODE, supporting up to 7 x 4K30
- Wide range operating temperature of -25°C~70°C
- Ultra-speed PCIe 4.0 x4 NVMe SSD for data integrity
- Expansible for GNSS, LTE/5G NR & Wi-Fi 5/6
- 9~36VDC & 24V rail combined, ignition control & OCP/OVP for In-vehicle/Rail
- NEXCOM Acceleration Linux (NAL) integrated w/ JetPack 6.0
- Military standard of MIL-STD-810H for anti-vibration/shock
- CE/FCC, UKCA, E-mark, EN50155 (EN50121-3-2, EN61373, OT3) 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-IP7-6C 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, railway safety assurance, and factory automation.

Thanks to NEXCOM excellent thermal solutions, ATC 3750-IP7-6C can work through its defined TDP (15W~60W) at the harsh environments without fan kit to achieve 200/275 TOPS workload performance.

The ATC 3750-IP7-6C is a IP67 rated, rugged, compact-size in-vehicle/rail AI powered computer that features 9~36VDC/24VDC rail with IGN control, 6 PoE+ and one optional 10GbE 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-IP7-6C 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-IP7-6C can operate at a wide temperature range of -25~70°C and meet the MIL-STD-810H military standard for anti-vibration and shock. For regulation, the ATC 3750-IP7-6C is certified by CE/FCC Class A, UKCA and , E-mark (E13) and EN50155.

Specifications

NVIDIA® Jetson AGX Orin™ SOM

- 32GB 256-bit LPDDR5, 204.8 GB/s
  - 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
  - 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 6.0

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, water-proof type

G-Sensor

- 3D accelerometer and 3D gyroscope, ST LSM6DSLTR

PoE+

- 6-port GbE, M12 X-coded 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:
  - M12 X-coded 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 RS232 (Tx, Rx, RTS, CTS)
- 1 x Console (Tx, Rx)
- RS232 working voltage, ±9V, baud rate up to 115.2kb/s
- M17 A-coded connector

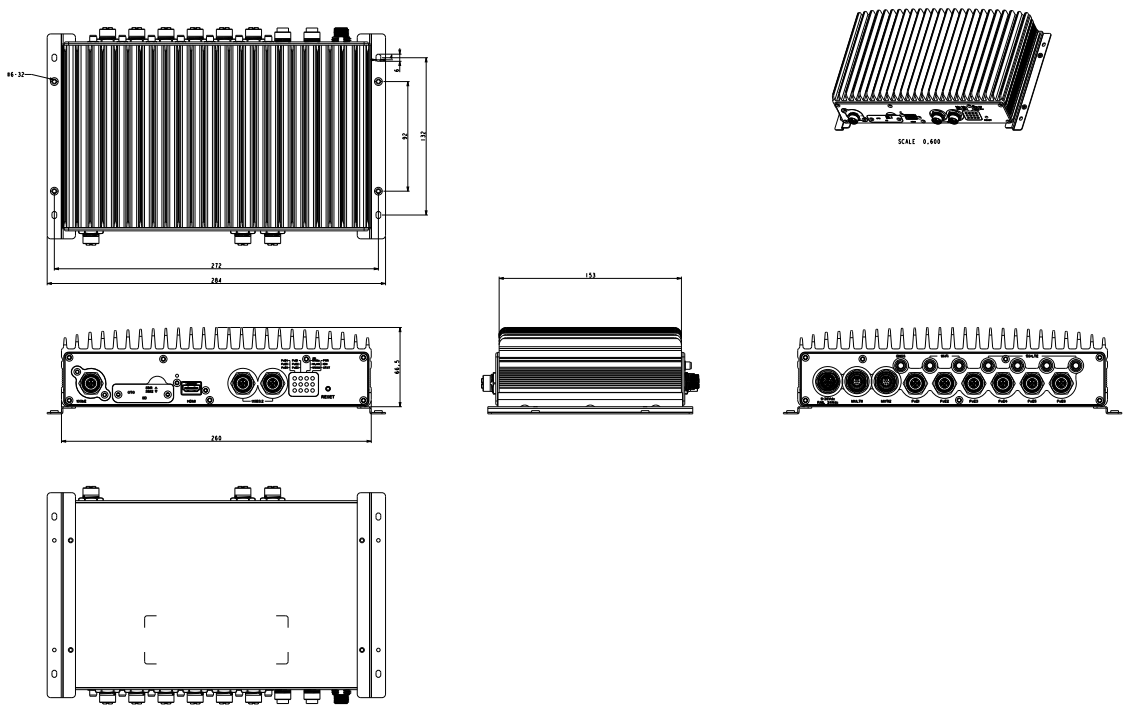
DI/DO (isolation)

- 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 2 x CAN FD, compatible with CAN2.0A/2.0B

Dimension Drawing



- IEC 61000-4-2 Electrostatic Discharge (ESD): ± 8KV/15KV (contact/air)
- Up to 5Mb/s in data transmit, 2.5KV isolated

10GbE, M12 X-coded (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
- IEEE1588 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

DC Power

- 5V/2A, wafer type

Power Supply

- Nominal voltage: 9~36V or 12Vdc non-isolation for rail
- 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

- 12 x LED Indicators
- 2 x USB3.2, M12 X-coded
- M12 X-coded for 10GbE (option)
- 1 x water-proof HDMI
- 2 x Nano SIMs, 1 x SD, 1 x OTG (a door to cover)

I/O Ports, Rear-Plate

- 9~36Vdc/24Vdc non-isolate, K-coded
- 6 x GbE PoE, X-coded
- 1 x M17 A-coded (Multi-1): 2 x CANFD+4 x DI+4 x DO
- 1 x M17 A-coded (Multi-2): 2 x RS232+ 1 x Console + remote PWR button/RESET + DR
- 1x SMA for GNSS
- 2X RP-SMA for Wi-Fi
- 2x SMA for LTE/5G

Dimensions & Weight

- 260.0mm x 172.8mm x 66.5mm (w/ mount bracket), weight: 3.5kg

Environment

- Operating temperatures: -25°C~70°C (TDP 15W~60W, fanless, w/ 80W PoE)
- Storage temperatures: -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@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, EN50155 certified

Operating System

- NEXCOM Aided Linux (NAL) w/ Jetpack 6.0 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)

- Multi-1 adapter cable, 15cm
- Multi-2 adapter cable, 15cm
- K-code power cable, 15cm
- X-coded LAN adapter cable, 15cm
- X-coded USB3.2 adapter cable, 15cm

Ordering Information

- **ATC 3750-IP7-6C (P/N: 10AT0375009X0)**
  NVIDIA® Jetson AGX Orin™ SOM, 32GB LPDDR5, 64GB eMMC, 6 x PoE+ (X-coded), 2 x USB 3.2, 2 x RS232, OTG/Console, IP67, 9~36Vdc/non-iso 24Vdc

- **ATC 3750-IP7-6C-64 (P/N: 10AT0375010X0)**
  NVIDIA® Jetson AGX Orin™ SOM, 64GB LPDDR5, 64GB eMMC, 6 x PoE+ (X-coded), 2 x USB 3.2, 2 x RS232, OTG/Console, IP67, 9~36Vdc/non-iso 24Vdc