

Main Features

- AIoT Edge gateway for ADAS and smart factory applications
- Built-in NVIDIA Jetson® TX2 SOM up to 1.3 TFOPS compute
- The compact, rugged and fanless design
- 4-CH MIPI SerDes CAM to reach over 15m/25m distance
- Operate over a wide range temperature -30~70°C
- Two GbE with PoE for LiDAR or GigE vision
- Diverse image storage, eMMC, SD and 2.5" SSD
- Optional for LTE/5G NR, Wi-Fi and GNSS modules
- Rich I/O ports: USB 3.0, OTG, COM, DI/DO, CAN and 12V/5Vdc, etc.
- 9~36V DC-in with IGN control
- CE/FCC, Emark certified

Product Overview

AI has become an essential component of automated vehicle technologies. With built-in high cost-effective NVIDIA Jetson® TX2, the rugged ATC 3200 can perform a deep learning in inference acceleration up to 1.3TFLOPS computing suitable for in-vehicle/rolling stock applications like ANPR, ADAS, driver facial/behavior recognition even to ITS for smart city. Moreover, it also can be deployed on smart factory to expedite industrial 4.0. ATC 3200 is a compact, fanless box, which is designed with a 9~36V wide-range DC-in with IGN control, diverse I/O functions like GbE/PoE, USB 3.0, isolation CAN, serial COM, DI/DO, 5VDC-out, specialized to an AIoT edge gateway to interface with peripheral sensors like radar, ultrasonic, LiDAR, MIPI cameras to complete an ADAS system.

To be an edge gateway, ATC 3200 can support up to three media storages, 32/16GB eMMC, SD, 2.5" SSD, and WWAN/WLAN/GNSS in expansion. Besides, it can operate in a wide temperature range of -30~70°C and withstand vibration and shock for any tough environments. For certification, ATC 3200 can meet CE/FCC classA regulation, Emark certified and compliant with EN50155.

Specifications

NVIDIA Jetson® TX2 Integrated

- Dual-Core NVIDIA Denver 2 64-bit CPU and quad-core ARM A57
- 1.3 TFOPS compute (FP16)
- 256-Core Pascal integrated GPU @1.2GHz
- OpenGL 4.5, OpenGL ES 3.2, and Vulkan 1.0
- DirectX® 12 compliant
- H.264/H.265 HW encoder

Memory

- 8GB 128-bit LPDDR4, 1600MHz (4GB: ATC 3200-4G version)

Storage

- 32GB eMMC 5.1 storage (16GB eMMC: ATC 3200-4G version)
- 1 x accessible SD
- 1 x 2.5" SSD (15mm height) storage

Expansion

- 1 x Full size mPCIe socket (PCIe 2.0 + USB 2.0)
- Key B 3042/3052 M.2 socket (USB 3.0/2.0)

GbE

- 2-Port individual 10/100/1000Mbit/s, RJ45
- Controller: Intel® I210 IT (Jumbo frame & PTP support)

PoE

- IEEE 802.3af compliant
- 2-Port in total 15W power budget
- PoE ON/OFF and power watt monitoring

MIPI CSI-2 (option)

- Up to 4 x individual channel (up to 4K/8MP)
- Thine SerDes solution (V-by-One® HS)
- 1080p60 2Mpixel per channel @15m long reach
- 720p30 1Mpixel per channel @25m long reach
- Integrated with 3rd party Appro MIPI SerDes Camera
 - 1080p CAM: AP-AR0234GSC-ISP-S-SerDes(V-by-One®)
 - 720p CAM: AP-AR0144GSC-ISP-S-SerDes(V-by-One®)

USB

- 2 x USB 3.0, type A:
 - 5V@900mA each
 - 5Gbit/s link speed & compliance with USB2.0 (LS/FS/HS link speed)
- 1 x USB 2.0 type-A & 1 x OTG microUSB

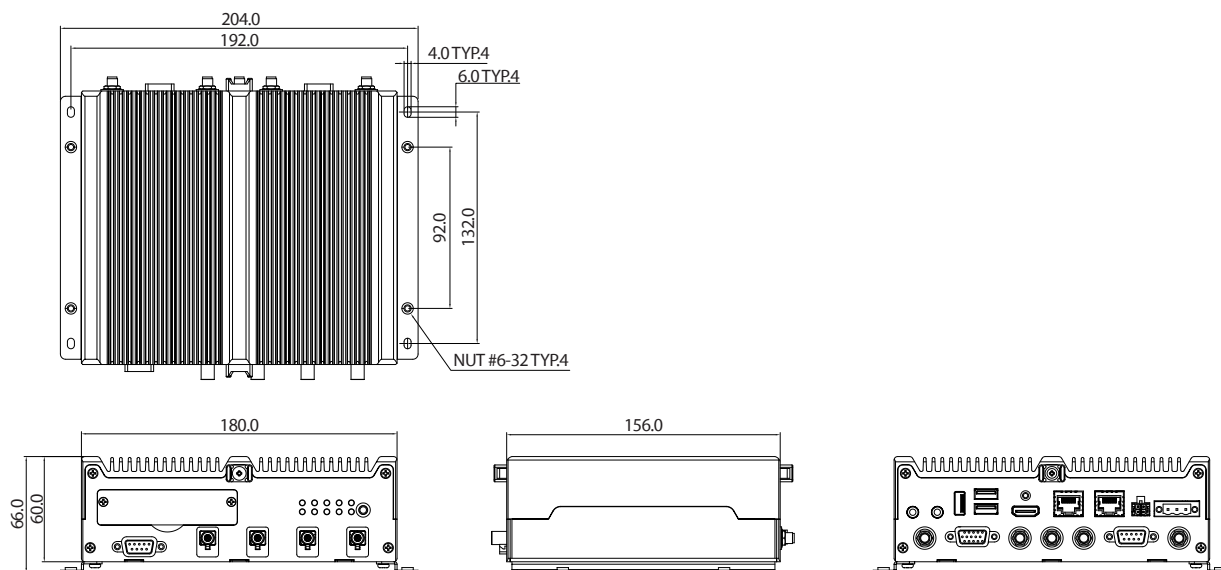
Serial Port

- 2 x RS232/422/485 software selectable
- RS232: working voltage, + 9V, baud rate up to 115.2kb/s
- 2-Wire RS482: baud rate: 300~115.2Kbps, data bit: 7/8-bit, stop

DI/DO

- 4-Bit input
 - Source: 9~36VDC (12V@1.1mA/24V@2.2mA)
 - External: 0~33VDC pull-high, high-level, 3.3 - 33VDC; low-level, 0 - 2 VDC
- 4-Bit output
 - Source: 9~36V-in (nominal 17mA@12V, 35mA@24V)
 - External: 5~27VDC pull-high, sink current w/ 220mA for each bit, 500mA max (@25°C)
- Source or external can be selected by software (default: source type)

Dimension Drawing



CAN Bus

- 2 x CAN 2.0A/2.0B from TX2 SOM
- IEC 61000-4-2 Electrostatic Discharge (ESD): $\pm 8\text{KV}/15\text{KV}$ (contact/air)
- 2.5KV isolated

DC-Out

- 12VDC/2A & 5VDC/1A, mini-fit connector

Audio

- Line-out (unbalance stereo, left & right channel) & Mic-in

Display

- 1x HDMI v1.4, up to 4096x2304@24Hz

GPS and Sensor

- U-blox NEO-M8N GNSS module for GPS/Glonass/QZSS/Galileo/Beidou
- Dead reckoning available (NEO-M8U/M8L) in option
- Built-in G-sensor

I/O Ports, Front-Plate

- ATX power button
- Reset button
- 8 x LED indicators for PWR/IGN/WLAN/WWAN/Storage/PoE
- 1 x OTG
- 1 x SD socket
- 2 x Micro SIM slots
- 1 x DB9 (RS232/ RS422/ RS485)

I/O Ports, Rear-Plate

- 3-Pin terminal block for 9~36VDC-in
- 2 x USB 3.0 + 1 x USB 2.0, type A
- 1 x HDMI
- 2 x GbE (RJ45)
- 1 x DB9 (RS232/ RS422/ RS485)
- 1 x DB15 (4 x DI + 4 x DO + 2 x CANBus)
- 12V & 5VDC output
- 2 x Audio-jack (left/right Line-out & Mic)
- 5 x SMA connectors

Dimensions & Weight

- 180 x 156 x 60 (W x D x H, mm)
- 2.4kg

Environment

- Operating temperatures: $-30^{\circ}\text{C}\sim 70^{\circ}\text{C}$ (depends on TX2 throttling control)
- Storage temperatures: $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$
- Relative humidity: 10%~95% (non-condensing)

Vibration & Shock

- Vibration in operating:
 - MIL-STD-810G, 514.6C, Procedure 3, Category 4
 - IEC 60068-2-64: 2.0g@5~500 Hz
- Vibration in storage: MIL-STD-810G, 514.6E, Procedure 1, Category 24, minimum integrity test
- 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

Regulation

- CE approval, FCC Class A, E13 Certified

Operating System & Software

- Ubuntu Linux x64 version 18.04 or 16.04
- Driver/SDK ready
 - NVIDIA JetPack SDK, MIPI SerDes Pack, Custom-made SDK

Options

Ublox-M8U module	4-CH MIPI SerDes D/B	MIPI-cable-15m
MIPI-cable-25m	Ublox-M8L module	

Ordering Information

- **ATC 3200-8G (P/N: 10xxxxxxx)**
AIoT edge gateway, NVIDIA TX2 SOM w/ 8GB DDR4, 32GB eMMC, 2 x COM, 2 x PoE GbE (RJ45), 2 x USB 3.0
- **ATC 3200-4G (P/N: 10xxxxxxx)**
AIoT edge gateway, NVIDIA TX2 SOM w/ 4GB DDR4, 16GB eMMC, 2 x COM, 2 x PoE GbE (RJ45), 2 x USB 3.0
- **CAM-MIPI-1080 (P/N: 10xxxxxxx)**
Appro MIPI CAM, 1080p60, AP-AR0234GSC-ISP-S-SerDes(V-by-One®)
- **CAM-MIPI-720 (P/N: 10xxxxxxx)**
Appro MIPI CAM, 720p30, AP-AR0144GSC-ISP-S-SerDes(V-by-One®)