ATC 8110

Intel® Coffee Lake S/Refresh + Inference Accelerator

AI Powered for Autonomous and Machine Vision

ATC 8110

ATC 8110-F

Main Features

- In-vehicle AI recognition and machine vision applications
- Fanless/fan flexibility design
- Up to 8-core Intel® Coffee Lake S/Refresh processing power
- 3 x PCIe 3.0 slots for discrete graphics/inference/frame grabber cards
- Ultra-fast U.2/M.2 NVMe media for high-speed multi-cameras image capture
- RAID 0/1/5/10 configurable for data secure and integrity
- Wide-range 9~36VDC input with Ignition management
- Rich communication ports, 5 x USB 3.1, 2 x GbE and 4 x RS232/422/485
- Telemetric functionality of WWAN/5G NR, WLAN and GNSS with up to 4 x 4 MIMO and 4 SIM slots
- Compliant with E-mark, CE/FCC ClassA and MIL-STD-810G for anti-vibration/shock w/ graphics card installed
- Realize M-2-M through CAT-M (NB-IoT & eMTC)

Specifications

CPU

- Intel® Core™/Xeon® i7/i5/i3/Pentium®/Celeron® (Coffee Lake S/Refresh) processor (LGA1151)

  * Note: only Intel® Core™ i7-8700T applies for E-mark

PCH

- Intel® C246 chipset

Memory

- Two 260-pin DDR4 SO-DMIM sockets
- Up to 32GB + 32GB in size, 2400/2666 MHz
- ECC memory to support: i3-9100E/9100TE, G5400/5400T, G4900/4900T, E-2124G, E-2278GE/2278GEL

Storage

- 3 x 2.5” SATA 3.0 SSD/HDD (15mm height) or 2 x 2.5” SATA 3.0 SSD/HDD+ 1 x U.2 NVMe SSD
- 1 x CFast (externally accessible)

Expansion

- 1 x Full size mini-PCIe socket (PCIe 2.0 + USB 2.0)
- 1 x Full size mini-PCIe socket (USB 2.0 + PCM signal)
- 1 x M.2 3042/3052 Key B (USB 3.0 + PCM signal) for LTE/5G NR module
- 1 x PCIe 3.0 x16 slot for discrete graphics card, up to 321mm in length
- 2 x PCIe 3.0 x4 slots, up to 190mm in length

Discrete Graphics Card (option)

- Up to NVIDIA® GeForce RTX™ 4080, 350W

GPS and Sensor

- 1 x Default U-blox NEO-M8N GNSS module for GPS/Gloness/QZSS/Galileo/Beidou
- Optional modules with dead recking/RTK available
- Built-in G-sensor

Ethernet

- 2-Port independent GbE LAN, RJ45
- 9K byte jumbo frame
- PTP (IEEE 1588) support
- Controller: Intel® I210-IT, PHY: Intel® I219-LM
- vPro (iAMT) & WOL support
- Optional for 4/8-port independent GbE/PoE PCIe x4 card

Security

- TPM 2.0: Infineon SLB9665TT2.0FW5.62

I/O Ports, Front-Plate

- 5-Pin terminal block for 9~36VDC-IN
- ATX power button
- Reset button
- 5 x LED indicators for power/IGN/WLAN/WWAN/status
- 5 x LED indicators for storage/fan control
- 5 x LED indicators for user to program
- 1 x USB 3.1 + 1 x USB 2.0, type A
- 1 x DB15 (DI/DO + CAN 2.0B + DR signal)
- 1 x DB15, reserved for expansion
- 6 x SMA antenna holes
- 2 x DB9 (RS232/RS422/RS485 selectable)

I/O Ports, Rear-Plate

- 4 x USB 3.1, type A
- 2 x GbE (RJ45)
- 1x VGA + 1 x HDMI
- 2x DB9 (RS232/RS422/RS485 selectable)
- 12V/2A output
- 2 x SIM slots
- 1 x Antenna for GPS
- 1 x PCIe x16 lane slot
- 2 x PCIe x4 lane slots

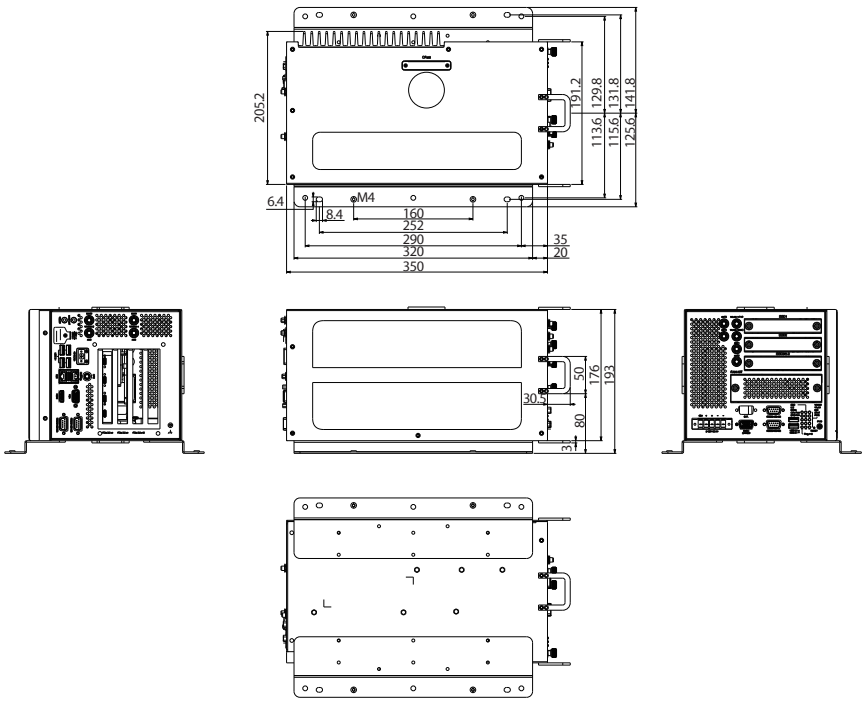
Display

- 1 x VGA port, up to 2560 x 1600@60Hz
- 1 x HDMI v1.4, up to 4096 x 2304@24Hz

DI/DO (isolation)

- 4-Bit input
  - Source: 9~36V-IN (12V@1.1mA/24V@2.2mA)
  - External: 0~33VDC pull-high, high-level, 3.3-33 VDC; low-level, 0-2VDC
- 4-Bit output
  - Source: 9~36V-IN (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)

Dimension Drawing



ATC 8110-F

Audio
- Line-out (green-color): unbalance stereo, left & right channel
- MIC-in (pink-color)

CAN 2.0B (isolation)
- Controller: SJA1000, socket CAN supported
- Bit rate up to 1Mbit/s, ISO 11898-1/11898-2
- ESD:+- 8KV/15KV (contact/air), 2.5KV isolated

In-Vehicle Power Management
- Dual 9~36VDC-IN (each for 12V/30A in max.)
- Cranking voltage: 6V~9V (< 30 seconds)
- Reverse protection, OCP & UVP
- Ignition on/off control/programmable on/off delay timer
- Extra 12V@2A for DC-out

Dimensions & Weight
- ATC 8110 (fanless): 191.2 x 176 x 350 (W x D x H) (mm)
- ATC 8110-F (fan-kit installed): 207.4 x 176 x 350 (W x D x H) (mm)
- ATC 8110/ATC 8110-F: 8KG/8.2KG (w/ o graphics/PCIe card)

Environment
- Operating temperatures (ATC 8110 & ATC 8110-F)
  - -30°C~60°C (fanless design w/ 35W TDP CPU, 60°C for industrial SSD, 45°C for hard drive)
- Storage temperatures: -40°C~85°C
- Relative humidity: 10%~95% (non-condensing)

Vibration (random)
- IEC 60068-2-64
  - 1.0g@5~500Hz (in operating, HDD), 1.6g for HDD w/ damping brackets
  - 2.0g@5~500Hz (in operating, SSD + graphics card)
- MIL-STD-810G (SSD + graphics card)
  - Operating: MIL-STD-810G, 514.6C, Procedure 1, Category 4

Shock (SSD + graphics card)
- Operating: MIL-STD-810G, Method 516.6, Procedure I, functional shock=20g

Certifications
- CE approval, FCC Class A, E13

OS Support
- Windows 10 64-bit/ Windows 10 IoT 64-bit, Windows 11
- Linux (Ubuntu 18.04), Yocto by request

Ordering Information

- **ATC 8110-F (P/N:10AT0811001X0)**
  System bare-bone with fan-kit installed. Intel® Core™/Xeon® i7/i5/i3/ Pentium®/Celeron® (Coffee Lake S/Refresh) processor (LGA1151), dual SO-DIMM up to 64GB DDR4

- **ATC 8110 (P/N:10AT0811000X0)**
  System bare-bone in fan-less. Intel® Core™/Xeon® i7/i5/i3/Pentium®/ Celeron® (Coffee Lake S/Refresh) processor (LGA1151), dual SO-DIMM up to 64GB DDR4

- **Options**

CPU			
Model Name	Core	Freq.	TDP
Xeon® E-2278GE	8c	4.7GHz	80W
Xeon® E-2278GEL	8c	3.9GHz	35W
Core™ i7-9700E	8c	4.4GHz	65W
Core™ i7-9700TE	8c	3.8GHz	35W
Core™ i7-8700T	6c	4.0GHz	35W
Core™ i5-9500E	6c	4.2GHz	65W
Core™ i5-9500TE	6c	3.6GHz	35W
Core™ i3-9100E	4c	3.7GHz	65W
Core™ i3-9100TE	4c	3.2GHz	35W
SO-DIMM DDR4 2400/2666MHz			
4GB	8GB	16GB	32GB
Graphics card			
RTX 30xx, 40xx series (~350W)		GTX16xx series (120W)	
Others			
650W power supply kit (P/N: 10AT0811002X0)		Damping brackets (P/N: 10AT0811006X0)	
NVMe M.2 2280 adapter bay (P/N: 10VK0UTOM00X0)		1000W power supply kit (P/N: 10AT0811003X0)	