

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, 4/8 GigE (PoE) and 4 x RS232/422/485
- Telematics 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® Coffee-Lake S/Refresh Core™/Xeon® i7/i5/i3/Pentium®/Celeron® processor (LGA1151)

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

PCH

- Intel® chipset C246

Memory

- Two 260-pin DDR4 SO-DMIM sockets
- Up to 32GB+32GB in size, 2400/2666 MHz

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 mPCIe socket (PCIe 2.0 + USB 2.0)
- 1 x Full size mPCIe socket (USB 2.0 + PCM signal)
- 1 x Key-B 3042/3052 M.2 socket (USB 3.0 + PCM signal) for LTE/5G NR modem
- 2 x Key-M 2280 M.2 socket (PCIe 3.0 x2) for NVMe (optional GE74 card installed)
- 1 x PCIe 3.0 x16 slot for discrete graphics card, up to 321mm in length
- 2 x PCIe 3.0 x4 slot, up to 190mm in length

GigE/Frame Grabber (option)

- 4/8-Port independent GbE w/ 802.3af/at, RJ45 or M12

Discrete Graphics Card (option)

- Up to NVIDIA® RTX 2080Ti, 250W or more advanced in the future

GPS and Sensor

- 1 x Default: U-blox NEO-M8N GNSS module for GPS/Glonass/QZSS/Galileo/Beidou
- Optional modules with dead reckoning 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® I219LM
- vPro (iAMT) & WOL support
- Additional 4/8-port independent GbE/PoE PCIe card for option

Security

- TPM 2.0: Infineon SLB9660TT1.2-FW4.40 (option)

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

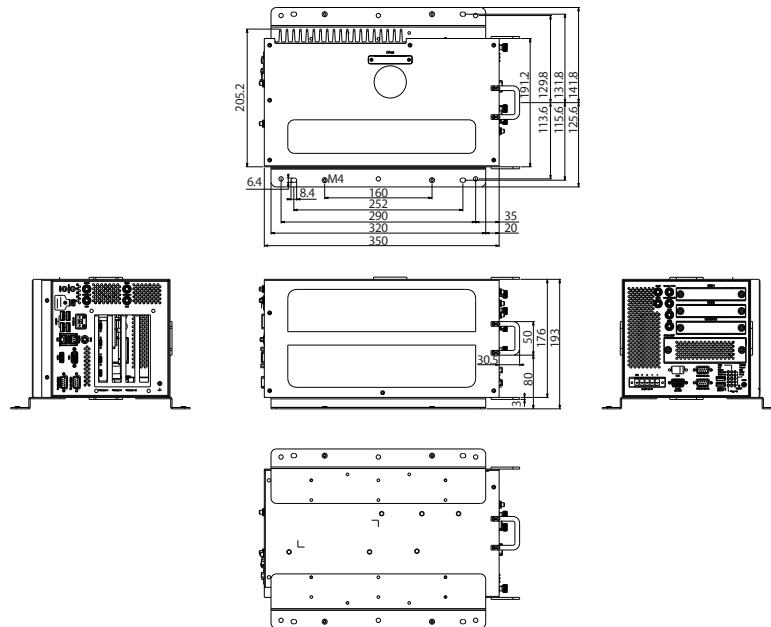
DI/DO (isolation)

- 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 - 2 VDC
- 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)

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Dimension Drawing



ATC 8110-F

Audio

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

CAN 2.0B (isolation)

- CAN 2.0B (isolation)
- Controller: SJA1000
- Bit rate up to 1Mbit/s
- Socket CAN supported
- 11-bit & 29-bit identifiers, ISO 11898-1, ISO 11898-2
- ESD: $\pm 8\text{KV}/15\text{KV}$ (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 3, 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

Ordering Information

♦ ATC 8110-F (P/N:10AT0811001X0)

System bare-bone with fan-kit installed. Intel® Coffee-Lake S/Refresh, LGA1151, dual SO-DIMM up to 64GB DDR4

♦ ATC 8110 (P/N:10AT0811000X0)

System bare-bone in fan-less. Intel® Coffee-Lake S/Refresh, 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			
4GB	8GB	16GB	32GB
Graphics card			
RTX20xx series (250W/160W)	GTX16xx series (120W/75W)	AIBooster-X8 (20W)	

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

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