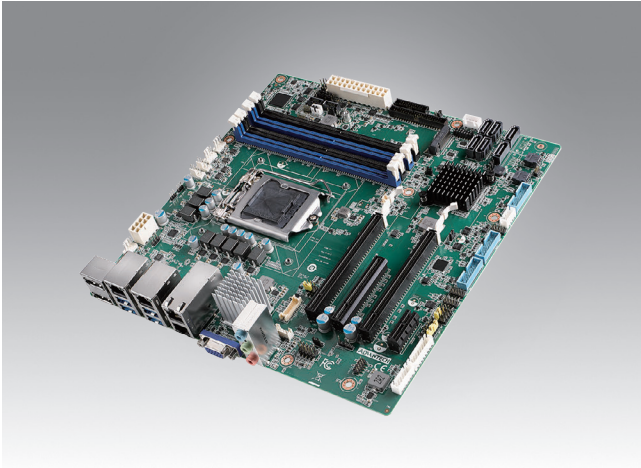


AIMB-587

Intel® Xeon® W10th Gen Core™ (Comet Lake-S) i9/i7/i5/i3 LGA1200, MicroATX with 2 x DP++/VGA/eDP/ 6 x COM, 2 x 10GbE LANs, 2 x GbE LANs, 4 x USB 3.2 Gen2, 6 x USB 3.2 Gen 1



Features

- Supports Intel® Xeon® W10th Gen Core™ (Comet Lake-S) i9/i7/i5/i3 processor with W480E/ Q470E/ H420E chipset
- Supports triple displays. (2DP++, eDP, VGA display)
- Supports Intel AMT 12.0 and Intel vPro competent
- Supports PCIe Gen3, max up to 4 x USB 3.2 Gen2, 6 x USB 3.2 Gen1, 6 x USB 2.0, 8 x SATAIII, 2 x GbE LANs, 2 x 10GbE LANs, M.2 (M Key)
- Supports Software RAID 0, 1, 5, 10, TPM 2.0 (optional)
- Supports DeviceOn and Embedded Software APIs
- Supports Dual BIOS feature (F sku)
- Supports Win10 / Win11

Software APIs:

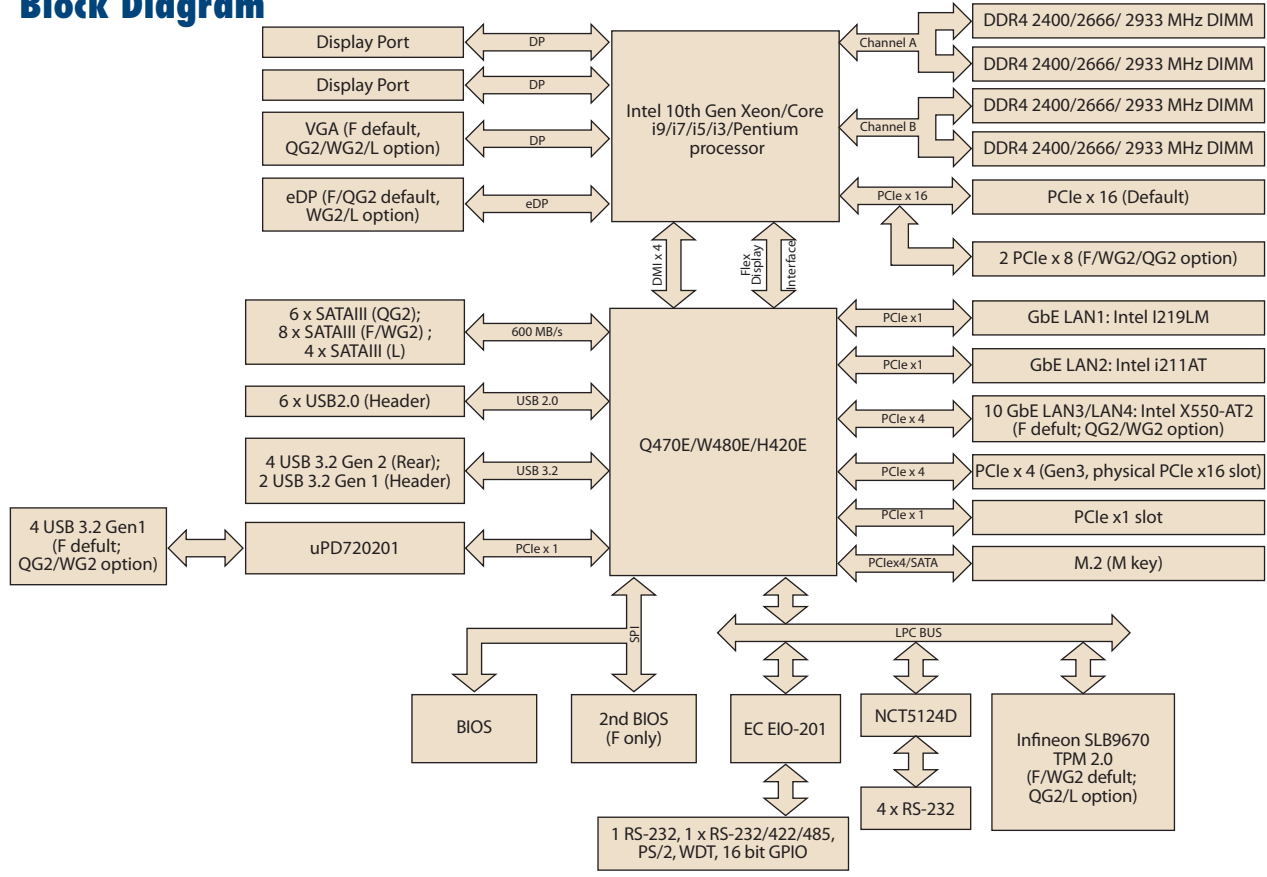
Utilities:

ubuntu®

Specifications

| | CPU | *W1290E/ *W1290TE | *W1270E/ *W1270TE | *W1250E/ *W1250TE | i9-10900E/ i9-10900TE | i7-10700E/ i7-10700TE | i5-10500E/ i5-10500TE | i3-10100E/ i3-10100TE | G6400E/ G6400TE | G5900E/ G5900TE | |
|--------------------------|-----------------------------|--|----------------------|----------------------|--------------------------|--------------------------|--------------------------|----------------------------|--------------------|--------------------|--|
| Processor System | CPU | | | | | | | | | | |
| | Core Number | 10/10 | 8/8 | 6/6 | 10/10 | 8/8 | 6/6 | 4/4 | 2/2 | 2/2 | |
| | Max. Speed | 3.5GHz/ 1.8GHz | 3.4GHz/ 2.0GHz | 3.5GHz/ 2.4GHz | 2.8GHz/ 1.8GHz | 2.9GHz/ 2.0GHz | 3.1GHz/ 2.3GHz | 3.2GHz/ 2.3GHz | 3.8GHz/ 3.2GHz | 3.2GHz/ 3.0GHz | |
| | L3 Cache | 20MB/20MB | 16MB/16MB | 12MB/12MB | 20MB/20MB | 16MB/16MB | 12MB/12MB | 6MB/6MB | 4MB/4MB | 2MB/2MB | |
| | TDP (W) | 95W/35W | 80W/35W | 80W/35W | 65W/35W | 65W/35W | 65W/35W | 65W/35W | 58W/35W | 58W/35W | |
| | Supports Model | WG2/F | WG2/F | WG2/F | QG2/WG2/F/L | QG2/WG2/F/L | QG2/WG2/F/L | QG2/WG2/F/L | QG2/L | QG2/L | |
| | Chipset | Q470E/W480E/H420E | | | | | | | | | |
| | BIOS | AMI EFI 256 Mbit SPI, i9/i7/i5/i3/pentium/ celeron supports Legacy mode | | | | | | | | | |
| Expansion Slot | PCIe x1 (Gen3) | 1 GB/s per direction, 1 slot | | | | | | | | | |
| | PCIe x4 (Gen3) | 4 GB/s per direction, 1 slot (Gen3, physical PCIe x16 slot) | | | | | | | | | |
| | PCIe x8 (Gen3) | 8 GB/s per direction, 1 slot (Gen3, via BOM option for QG2/WG2/F) | | | | | | | | | |
| | PCIe x16 (Gen3) | 16 GB/s per direction, 1 slot (Gen3, x8 link when PCIe x8 slot is on board) | | | | | | | | | |
| Memory | Technology | Supports Dual Channel DDR4 2933 (Xeon/i9/i7 CPU) / 2666 (i5/i3 CPU) / 2400 (Pentium/ Celeron CPU), ECC memory supported by CPU in WG2/ F | | | | | | | | | |
| | Max. Capacity | 128GB (32GB per DIMM) | | | | | | | | | |
| | Socket | 4 x 288 pin U DIMM (QG2/WG2/F); 2x 288pin U DIMM (L) | | | | | | | | | |
| Graphics | Controller | Intel HD Graphics Supports DirectX11.1, OpenGL 5.0 and OpenCL 2.1 | | | | | | | | | |
| | VGA | 1, Max resolution 1920 x 1200 @ 60Hz (BOM option in QG2/WG2) | | | | | | | | | |
| | eDP | 1, Internal pin header, supports max. resolution 3840 x 2160 @ 60 Hz (Internal pin header) (default in QG2/ F sku, BOM option in WG2) | | | | | | | | | |
| | Display Port | 2, Supports max resolution 4096 x 2304 @ 60 Hz | | | | | | | | | |
| | Triple Display | eDP + DP++ + VGA, eDP + DP++ + DP++, DP++ + DP+++ + VGA | | | | | | | | | |
| | Dual Display | DP++ + VGA, DP++ + DP++ + eDP, VGA + eDP | | | | | | | | | |
| Ethernet | Controller | LAN1: Intel I219LM LAN2: Intel I211AT (QG2/WG2/F) LAN3/4: Intel X550-AT2 (F default; BOM option on QG2/WG2) | | | | | | | | | |
| | Connector | RJ 45 x 2 ((Max up to 4 ports via BOM option on QG2/WG2) / RJ 45 x 4 (F) | | | | | | | | | |
| SATA | Max Data Transfer Rate | 600 MB/s Max. (SATA 3.0) | | | | | | | | | |
| | Q'ty | 6 (QG2); 8 (WG2/F), 1 colay with M.2 M key; 4(L) | | | | | | | | | |
| Rear I/O | Display Port | 2 | | | | | | | | | |
| | VGA | 1 (F default; QG2/WG2/L via BOM option) | | | | | | | | | |
| | Ethernet | 2 (Default in QG2/WG2, Max 4 ports via BOM option); 4 (F); 1 (L) | | | | | | | | | |
| | USB | (4 USB 3.2 Gen2; USB3.2 Gen1 for L sku) | | | | | | | | | |
| | Audio | 2 (Mic-in/ Line-out) (Mic-in could be configured as "Line-in" under Win OS.) | | | | | | | | | |
| Internal Connector | USB 3.2 Gen1 | 2 (QG2/WG2/L, Max 6 ports via BOM option); 6 (F) | | | | | | | | | |
| | USB 2.0 | 6 (QG2/WG2/F); 2 (L) | | | | | | | | | |
| | Serial | 6 (5 x RS-232, 1 x RS-232/422/485 with auto flow control supported on QG2/F) 2 (1x RS-232, 1 x RS-232/422/485with auto flow control supported on WG2/L) | | | | | | | | | |
| | SATA 3.0 | 6 (QG2); 8 (WG2/F); 4(L) | | | | | | | | | |
| | Extended Display Port (eDP) | 1 (QG2/ F), 0 (WG2/L) | | | | | | | | | |
| | PS/2 (KBMS1) | 1 | | | | | | | | | |
| | M.2 (M key) | 1 (2280 NVMe PCIe4 and SATA M.2 support, QG2/WG2/F) | | | | | | | | | |
| | GPIO | 16-bit GPIO | | | | | | | | | |
| Watchdog Timer | Output | System reset | | | | | | | | | |
| | Interval | Programmable 1 ~ 255 sec/min | | | | | | | | | |
| Power Requirements | Power On | +5 V | 3.3 V | 12 V | 12V_8P | 5 Vsb | | | | | |
| | | 2A | 1A | 0.5A | 7A | 0.6A | | | | | |
| Environment | Operating | | | | | | | Non-Operating | | | |
| | Temperature | 0 ~ 60° C (14 ~ 158° F), depends on CPU speed and cooler solution | | | | | | -40 ~ 85° C (-40 ~ 185° F) | | | |
| Physical Characteristics | Dimensions | 244 mm x 244 mm (9.6" x 9.6") | | | | | | | | | |
| Power | Input Mode | ATX input | | | | | | | | | |

Block Diagram



Ordering Information

| P/N | Chipset | USB3.2 Gen2 | USB3.2 Gen1 | USB2.0 | DP/VGA | eDP | GbE LAN | 10GbE LAN | SATA III | COM | PCIex16*** | PCIex8*** | PCIex4 | PCIex1 | M.2 M-key | TPM | Dual BIOS |
|-------------------|---------|-------------|-------------|--------|--------|-----|---------|-----------|----------|-------|------------|-----------|--------|--------|-----------|-----|-----------|
| AIMB-587QG2-00A1E | Q470E | 4 | 2+(4)** | 6 | 2/(1) | 1 | 2 | (2) | 6 | 6 | 1 | (2) | 1 | 1 | 1 | (1) | No |
| AIMB-587F-00A1E | W480E | 4 | 6 | 6 | 2/1 | 1 | 2 | 2 | 8 | 6 | 1 | (2) | 1 | 1 | 1 | 1 | Yes |
| AIMB-587WG2-00A1E | W480E | 4 | 2+(4)** | 6 | 2/(1) | (1) | 2 | (2) | 8 | 2+(4) | 1 | (2) | 1 | 1 | 1 | 1 | No |
| AIMB-587L-00A1E | H420E | 0 | 6+(4)** | 2 | 2/(1) | (1) | 1 | 0 | 4 | 2 | 1 | 0 | 1 | 0 | 0 | (1) | No |

* () means BOM option

** BOM option with added USB 3.2 Gen 1 from controller IC

*** (PCIEX16_1 / PCIEX8_1: single at x16 (PCIEX16_1); dual at x8 (PCIEX16_1)/ x8 (PCIEX8_1)

Riser Card

| Part Number | Description |
|------------------|---------------------------------------|
| AIMB-RF10F-01A1E | 1U riser card with 1 PCIe16 expansion |

Packing List

| Part Number | Description | Quantity |
|----------------|------------------|----------|
| 1700003194 | SATA HDD cable | 2 |
| 1700022749-13 | SATA power cable | 2 |
| 1960101473T001 | I/O port bracket | 1 |
| 2046058700 | Startup manual | 1 |
| 1930001071 | M.2 device screw | 2 |

I/O View



AIMB-587F-00A1E AIMB-587L-00A1E AIMB-587QG2-00A1E

Optional Accessories

| Part Number | Description |
|----------------|---|
| 1700026162-01 | Dual port USB 2.0 (pitch 2.0) cable 30cm with bracket |
| 1700020277-01 | Dual port USB 3.0 cable 30cm with bracket |
| 1960067860N001 | LGA1155 CPU cooler for 4U and wallmount chassis, for CPU TDP ≤ 125W |
| 1960047669N001 | LGA1155 CPU cooler for 4U and wallmount chassis, for CPU TDP ≤ 84W, 4.72" (W) x 4.72" (L) x 3.03" (H) |
| 1960052651N021 | LGA1155 CPU for cooler 2U and backplane version of chassis, for CPU TDP ≤ 65W, 3.54"(W) x 3.54"(L) x 2.68"(H) |
| 1960053207N001 | LGA1155 CPU for cooler 2U and wallmount chassis, for CPU TDP ≤ 45W, 3.66"(W) x 1.81"(H) |
| 1700018699 | PS/2 KB/MS cable (KMBS1) 1*6P-2.5"/M-DIN 6P(F)*2 25cm |
| 1700000447 | 1-to-4 serial ports cable kit, 45cm |
| 1701400181 | 1-to-4 serial ports cable kit, 18cm |
| 1960109853T000 | 1U IO bracket for chassis ACP-1010MB & HPC-7120S (should order screws separately) |
| 1700022363-01 | 1-to-1 serial port cable kit, 17cm |
| 1700030647-01 | 1-to-1 serial port cable kit, 30cm |
| 1700032328-01 | 2-to-2 serial port cable kit with IO bracket, 45 cm |

Note: Purchasing AIMB-587's proprietary CPU cooler from Advantech is a must, other CPU cooler might be not compatible with AIMB-587. Note: screws P/N: 1933030500 for ACP-1010MB, 1930004607 for HPC-7120S

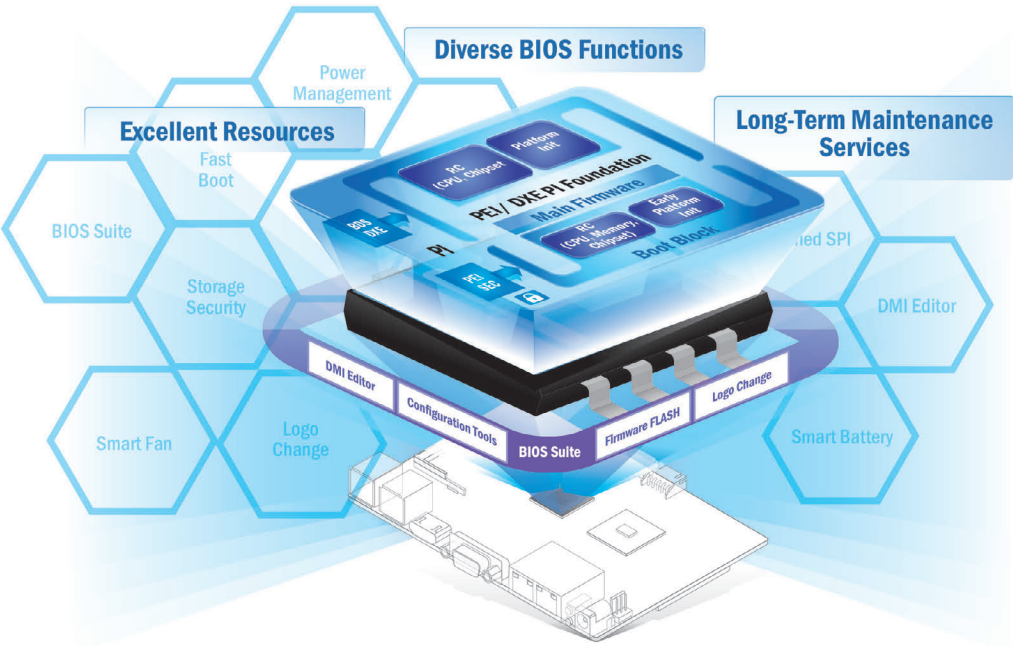
Embedded OS/API

| OS/API | Part No. | Description |
|---------------|----------------|---|
| win10 IoT Ent | 20706WX9HS0136 | img W10 1809HL(Eng) |
| | 20706WX9ES0150 | img W10 1809VL(Eng) |
| Ubuntu20.4 | 20706U20DS0040 | Ubuntu Desktop 20.04 LTS 64bit Image & license sticker for AIMB-587 |

Reliable Embedded BIOS Solutions

Custom BIOS services with long-term support

Advantech's high-quality embedded BIOS solutions deliver rapid execution and feature expert BIOS team support. These solutions feature multi-functional designs that ensure security and enable power/boot management. Advantech further provides 10+ years of BIOS version management, internal management, and longevity support for both hardware and BIOS — enhancing application efficiency, diversifying functionality, and optimizing performance.



Embedded BIOS Solution Advantages

Sufficient Sources

- Strong partnership with BIOS vendors
- 50+ engineers with extensive industrial BIOS experience

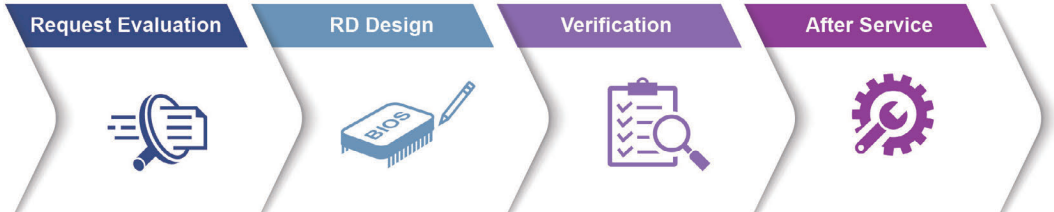
Diverse BIOS Functions

- Multi-layer security
- 3 second fast boot
- Power management
- BIOS suite utility

Long-Term Maintenance Services

- Platform longevity support
- 10-year BIOS version control
- BIOS remote backup

Value-Added Customization Process



WISE-DeviceOn

Massive IoT Device Management Utility

IoT deployment and management typically involves numerous disparate devices installed on multiple sites. These devices require effective monitoring, managing, and tracking. Advantech's easy-to-use WISE-DeviceOn interface enables users to remotely monitor device health, troubleshoot problems, and send software/firmware updates over-the-air (OTA). In sum, DeviceOn empowers quick real-time responsiveness to emerging problems.



Features

| Comprehensive Management | Remote Access | Efficient Operations |
|--|--|--|
| <ul style="list-style-type: none">• Devices status• Peripherals/firmware• Open for extension | <ul style="list-style-type: none">• Real-time monitoring• Remote controls• Troubleshooting | <ul style="list-style-type: none">• Zero-touch on-boarding• OTA updates• Batch control |

Product Highlights

| | | | |
|--|---|--|--|
|  <p>SOM-6883 High-performance 11th Gen Intel[®] COMe Type 6 Module</p> |  <p>MIO-5375 Compact 11th Gen Intel[®] Outdoor Focused 3.5" SBC</p> |  <p>EPC-B5587 10th Gen Intel[®] Xeon[®] based Edge server</p> |  <p>EPC-R3220 Arm based IoT Edge Gateway</p> |
|--|---|--|--|

Edge AI Suite

AI development for diverse application at the Edge

Increasing demand for AI inference/analytic capabilities at the Edge make AI training models, software development environments, and hardware configuration key factors in successful solution deployment. Advantech's Edge AI Suite helps users build AI demo devices quickly and choose optimal hardware solutions easily.



| 5x Performance Boost | All-in-one Installation | One Click AI Experience | Plug-and-play Environment | Discover Cost-effective Hardware |
|--|--|--|--|--|
| <ul style="list-style-type: none">• Integrated Intel® OpenVINO™ technology• Boost AI using Advantech hardware | <ul style="list-style-type: none">• Build AI environment in under 5 minutes• Ready-to-use configuration | <ul style="list-style-type: none">• User friendly configuration guidance• One-click Benchmark acquisition | <ul style="list-style-type: none">• Easy access to 100+ AI inference extensions• Software development package available | <ul style="list-style-type: none">• Diverse CPU/RAM options• Find hardware solutions for AI development |

Embedded Linux Support and Design-in Services

Hardware Certified Ubuntu and Yocto with Eco Partner Services

Linux is the most popular embedded OS for transportation, outdoor services, factory automation, and mission critical applications. Its open source and kernel reliability features ease security updates, and make it particularly adaptable to new AI and Edge computing technology. Advantech has cooperated with Canonical and other software partners to provide hardware certified Ubuntu image and Yocto BSP as Linux offerings. The Advantech, Embedded Linux, and Android Alliance (ELAA) delivers local software services and consultation.



Features

| Certified OS and BSP | Licensed Services | Numerous AI and Edge Resources | Local Partner Alliance |
|---|--|---|--|
| <ul style="list-style-type: none"> Platform compatibility tests Preloaded functional driver and software stacks | <ul style="list-style-type: none"> License authorized Canonical delivers 10-years of bug fixes and security updates In-house bundled service | <ul style="list-style-type: none"> Containerized technology for service provision and deployment AI resources from Caffe, TensorFlow, and mxnet | <ul style="list-style-type: none"> Embedded Linux and Android Alliance (ELAA) |