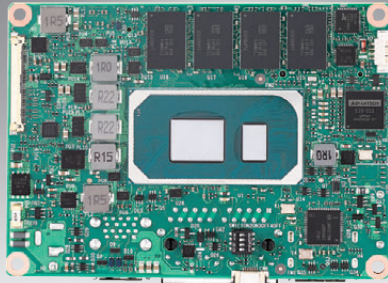


# MIO-2375

## 11th Gen. Intel® Core™ i7/i5/i3/Celeron U-series Pico-ITX SBC

NEW



### Features

- 11th Gen. Intel® Core™ Processor with Quad/Dual Cores, TDP 15W
- On-board LPDDR4x-4267 up to 32G with IB ECC for Industrial Sku
- Dual independent display: eDP/MIPI-DSI, DP up to 8K
- 2 GbE, 2 USB 3.2, COM Port, SMBus/I2C
- Expansion: M.2 E-Key, M.2 B-Key/M-Key NVMe x2
- Supports iManager & Software APIs, WISE-DeviceOn, and Edge AI Suite

#### Software APIs:



ubuntu yocto Windows 10 iManager WISE-DeviceOn CE FCC

### Specifications

| Platform      | Processor                                       | i7-1185G7E                                                                           | i7-1185GRE   | i5-1145G7E   | i3-1115G4E                   | Celeron® 6305E               |
|---------------|-------------------------------------------------|--------------------------------------------------------------------------------------|--------------|--------------|------------------------------|------------------------------|
|               | Max. Frequency                                  | 4.40 GHz                                                                             | 4.40 GHz     | 4.10 GHz     | 3.90 GHz                     | N/A                          |
| Memory        | Base Frequency                                  | 1.80 GHz                                                                             | 1.80 GHz     | 1.50 GHz     | 2.20 GHz                     | 1.80GHz                      |
|               | Core/Tread                                      | 4/8                                                                                  | 4/8          | 4/8          | 2/4                          | 2/2                          |
| Graphics      | LLC                                             | 12MB                                                                                 | 12MB         | 8MB          | 6MB                          | 4MB                          |
|               | CPU TDP                                         | 15W                                                                                  | 15W          | 15W          | 15W                          | 15W                          |
| Display I/F   | Chipset                                         | Intel 300 Series Chipset (SoC Integrated)                                            |              |              |                              |                              |
|               | BIOS                                            | AMI EFI 256Mbit                                                                      |              |              |                              |                              |
| Ethernet      | Technology                                      | LPDDR4x-4267                                                                         | LPDDR4x-4267 | LPDDR4x-4267 | LPDDR4x-3733                 | LPDDR4x-3733                 |
|               | Max. Capacity                                   | Up to 32GB                                                                           |              |              |                              |                              |
| External I/O  | Channel/Socket                                  | Single or Dual Channels / Onboard                                                    |              |              |                              |                              |
|               | ECC Support                                     | No                                                                                   | Yes          | No           | No                           | No                           |
| Expansion     | Controller                                      | Integrated Intel® Iris® Xe Graphics                                                  |              |              |                              |                              |
|               | Max. Frequency                                  | 1.35 GHz                                                                             | 1.35 GHz     | 1.30 GHz     | Intel® UHD Graphics 1.25 GHz | Intel® UHD Graphics 1.25 GHz |
| Board Feature | 3D/HW Acceleration                              | DX12, OGL4.0, OCL1.2, HW Encode: H.265/HEVC, H.264, MPEG2, HW Decode: H.264          |              |              |                              |                              |
|               | LCD                                             | eDP1.4 HBR3, up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz              |              |              |                              |                              |
| Internal I/O  | HDMI/DP                                         | Optional MIPI-DSI 2.5GHz, up to 3200x2000x24bpp@60Hz; with DSC 5120x3200x24bpp@60 Hz |              |              |                              |                              |
|               | Multiple Display                                | 1 x DP1.4 (DP++), up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz         |              |              |                              |                              |
| Power         | Dual simultaneous displays by eDP/MIPI-DSI + DP |                                                                                      |              |              |                              |                              |
|               | Controller                                      | LAN1: Intel 219LM, LAN2: Intel 210AT/IT                                              |              |              |                              |                              |
| Environment   | Speed                                           | 10/100/1000 Mbps                                                                     |              |              |                              |                              |
|               | Ethernet                                        | 2 x RJ-45                                                                            |              |              |                              |                              |
| Certification | VGA/HDMI/DP                                     | -/-/1                                                                                |              |              |                              |                              |
|               | USB3.2/USB2.0                                   | 2/-                                                                                  |              |              |                              |                              |
| Mechanical    | Power DC-Jack                                   | Optional                                                                             |              |              |                              |                              |
|               | SATA                                            | 1 x SATA GenIII 6.0Gbps                                                              |              |              |                              |                              |
| Expansion     | USB2.0                                          | 2                                                                                    |              |              |                              |                              |
|               | Serial Bus                                      | I2C (default), SMBus*(optional)                                                      |              |              |                              |                              |
| Power         | COM Port                                        | 1 x RS-232/422/485, 1 x RS-232                                                       |              |              |                              |                              |
|               | GPIO                                            | 4-bit general purpose input output I/O                                               |              |              |                              |                              |
| Environment   | Audio                                           | Realtek ALC888s, Line-in/Line-out/MIC                                                |              |              |                              |                              |
|               | Inverter                                        | 12V                                                                                  |              |              |                              |                              |
| Expansion     | Fan                                             | 1 smart fan 4-wire @ 12V                                                             |              |              |                              |                              |
|               | Front Panel Control                             | Power-on, Reset, Buzzer, SATA LED, CaseOpen                                          |              |              |                              |                              |
| Power         | Watchdog Timer                                  | 65536 level, 0-65535 sec                                                             |              |              |                              |                              |
|               | TPM                                             | TPM2.0                                                                               |              |              |                              |                              |
| Power         | iManager 3.0                                    | SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT   |              |              |                              |                              |
|               | M.2 E-Key                                       | 1 x E-Key 2230 (PCIe x1, USB2.0)                                                     |              |              |                              |                              |
| Power         | M.2 B-Key/ M.2 M-Key                            | 1 x B-Key 3042/2242 (SATA x1, USB2.0 x1) w/ Nano-SIM                                 |              |              |                              |                              |
|               |                                                 | *Optional 1 x M-Key 2242 (PCIe x2 NVMe)                                              |              |              |                              |                              |
| Power         | Supply Voltage                                  | Vin: DC 12V ± 10%; RTC Battery: Lithium 3V/210mAH                                    |              |              |                              |                              |
|               | Connector                                       | ATX 2pin 180D, optional DC-Jack                                                      |              |              |                              |                              |
| Power         | Power Management                                | AT, ATX                                                                              |              |              |                              |                              |
|               | Max. Consumption                                | 61.608W                                                                              | 59.496W      | 43.704W      | 32.76W                       |                              |
| Power         | Idle Consumption                                | 17.368W                                                                              | 8.820W       | 16.872W      | 13.991W                      |                              |
| Environment   | Temperature                                     | Operating: Standard: 0 ~ 60 °C (32 ~ 140 °F)                                         |              |              |                              |                              |
|               |                                                 | Operating: Extend: -40 ~ 85 °C (-40 ~ 185 °F) for Industrial Sku                     |              |              |                              |                              |
| Environment   | Humidity                                        | Storage: -40 ~ 85 °C (-40 ~ 185 °F)                                                  |              |              |                              |                              |
|               |                                                 | Operating: 40 °C @ 95% relative humidity, non-condensing                             |              |              |                              |                              |
| Environment   | Vibration Resistance                            | Storage: 60 °C @ 95%relative humidity, non-condensing                                |              |              |                              |                              |
|               |                                                 | 3.5 Grms                                                                             |              |              |                              |                              |
| Mechanical    | Dimensions                                      | 100 x 72 mm (3.9" x 2.8")                                                            |              |              |                              |                              |
|               | Net Weight                                      | 80g                                                                                  |              |              |                              |                              |

\*Note: Support by request

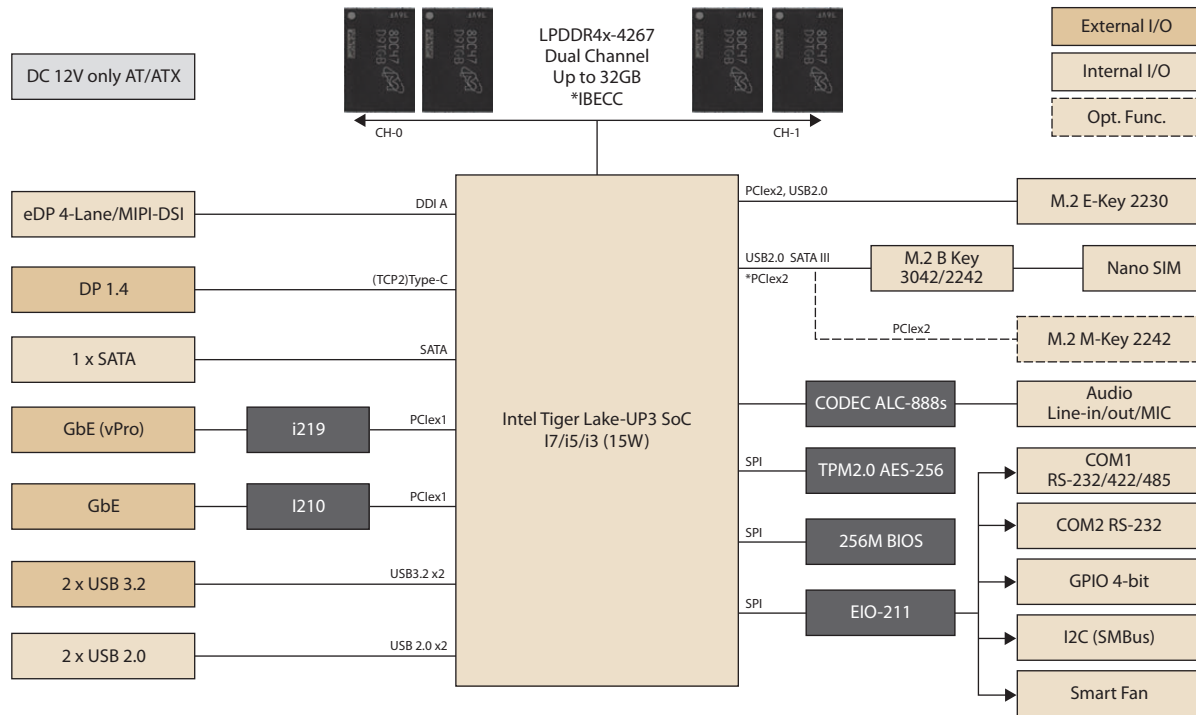
ADVANTECH

MIO Extension SBCs, Modules and Chassis

All product specifications are subject to change without notice.

Last updated: 31-Aug-2023

## Block Diagram



## Ordering Information

| Part No.          | CPU           | Max. Frequency | Core | Memory | Sim Holder | TPM | Thermal Solution | Operating Temperature |
|-------------------|---------------|----------------|------|--------|------------|-----|------------------|-----------------------|
| MIO-2375C7P-Q4A1  | i7-1185G7E    | 4.40 GHz       | 4    | 16GB   | Yes        | Yes | Active           | 0 ~ 60 °C             |
| MIO-2375C5P-Q1A1  | i5-1145G7E    | 4.10 GHz       | 4    | 16GB   | Yes        | Yes | Active           | 0 ~ 60 °C             |
| MIO-2375C3P-P9A1  | i3-1115G4E    | 3.90 GHz       | 2    | 8GB    | Yes        | Yes | Active           | 0 ~ 60 °C             |
| MIO-2375C7PX-Q4A1 | i7-1185GRE    | 4.40 GHz       | 4    | 16GB   | Yes        | Yes | Active           | -40 ~ 85 °C           |
| MIO-2375CRP-S8A1  | Celeron 6305E | NA             | 2    | 8GB    | Yes        | Yes | Passive          | 0 ~ 60 °C             |

## Packing List

| Part No.       | Description                          | Quantity |
|----------------|--------------------------------------|----------|
|                | MIO-2375 SBC                         |          |
|                | Startup Manual                       |          |
| 1700006291     | SATA cable 30cm                      | 1        |
| 1700027546-01  | A CABLE SATA Power 15P/1*4P-2.5 15cm | 1        |
| 1700030406-01  | M Cable 2*5P-2.0/USB-A 4P(F)*2 20cm  | 1        |
| 1700030404-01  | RS-232 9P(M)/1*10P-1.25 20cm         | 2        |
| 1700019584-01  | A Cable 2*5P-2.0/Audio JACK*3 20cm   | 1        |
| 1700019705-01  | AT power cable 12 cm                 | 1        |
| 1970004956T001 | MIO-2375 Cooler                      | 1        |

## Optional Accessories

| Part No.       | Description           |
|----------------|-----------------------|
| 1970004968N001 | MIO-2375 Heatspreader |

## Embedded OS/API

| Embedded OS/API | Part No.           | Description                                                          |
|-----------------|--------------------|----------------------------------------------------------------------|
| Windows 10      | 20706WX9HMO020     | 64-bit (UEFI Mode Only)                                              |
| Ubuntu 20.04    | 20706U20DS0013     | Ubuntu Desktop 20.04 LTS 64-bit Image & License Sticker for MIO-2375 |
| Yocto           | Support by Request | Yocto BSP and Test Image                                             |
| Software API    | Website Download   | SUSI v4.0                                                            |

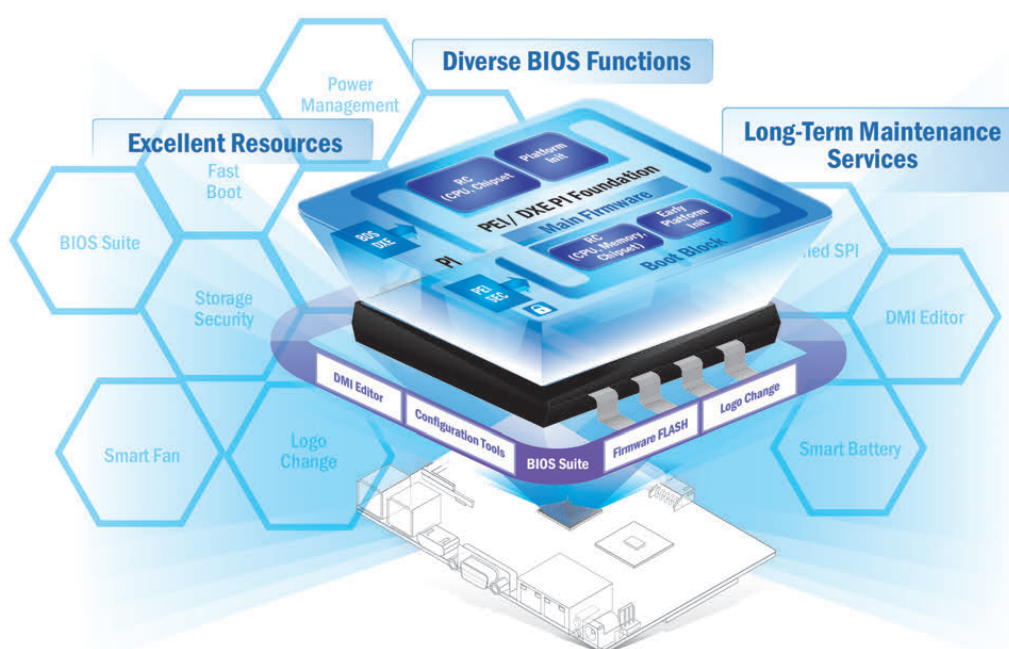
## Rear I/O View



# 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

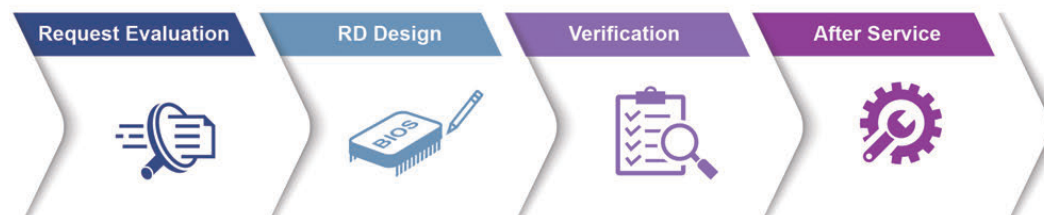
### Diverse BIOS Functions

- 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

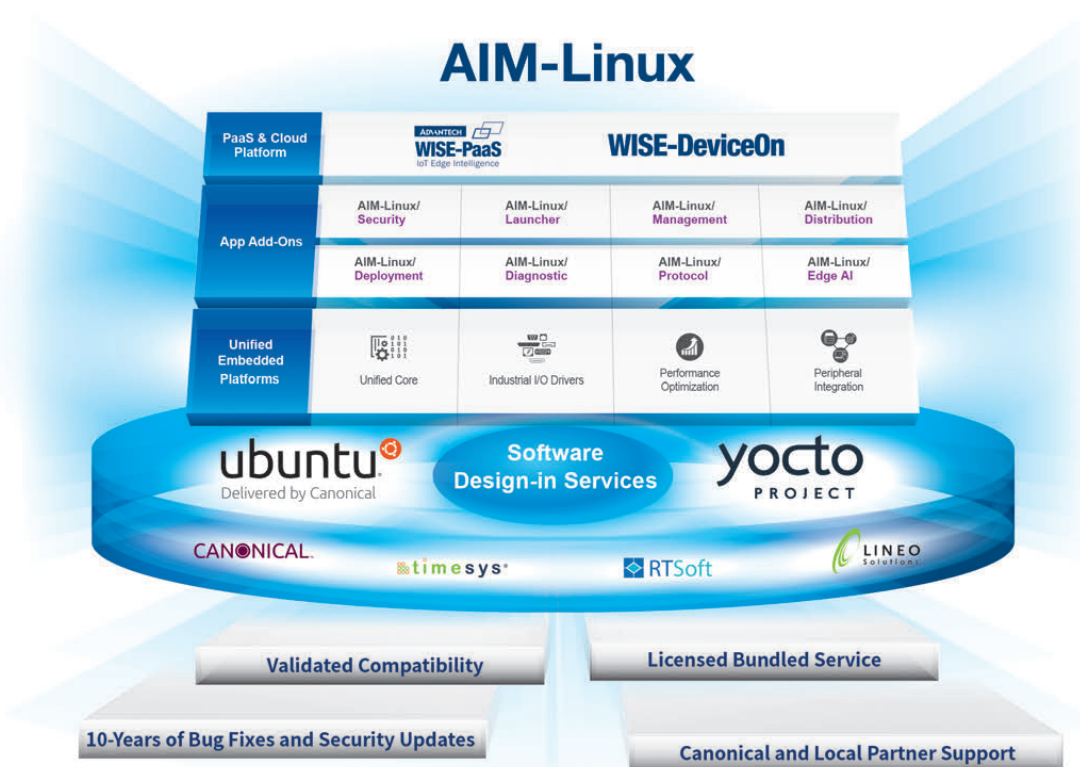
## Value-Added Customization Process



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

# 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"> <li>Integrated Intel® OpenVINO™ technology</li> <li>Boost AI using Advantech hardware</li> </ul> | <ul style="list-style-type: none"> <li>Build AI environment in under 5 minutes</li> <li>Ready-to-use configuration</li> </ul> | <ul style="list-style-type: none"> <li>User friendly configuration guidance</li> <li>One-click Benchmark acquisition</li> </ul> | <ul style="list-style-type: none"> <li>Easy access to 100+ AI inference extensions</li> <li>Software development package available</li> </ul> | <ul style="list-style-type: none"> <li>Diverse CPU/RAM options</li> <li>Find hardware solutions for AI development</li> </ul> |

# 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

- Devices status
- Peripherals/firmware
- Open for extension

#### Remote Access

- Real-time monitoring
- Remote controls
- Troubleshooting

#### Efficient Operations

- Zero-touch on-boarding
- OTA updates
- Batch control

### Product Highlights



**SOM-6883**

High-performance 11<sup>th</sup> Gen Intel®  
COMe Type 6 Module



**MIO-5375**

Compact 11<sup>th</sup> Gen Intel® Outdoor  
Focused 3.5" SBC



**EPC-B5587**

10<sup>th</sup> Gen Intel® Xeon® based Edge  
server



**EPC-R3220**

Arm based IoT Edge Gateway