## Features
- 11th Gen. Intel® Core™ Processor with Quad/Dual Cores, TDP 15W/28W
- Dual Channel DDR4-3200 up to 64GB
- 4 simultaneous displays: LVDS/HDMI/DP/USB Type-C, eDP (optional)
- 2 GbE, 4 USB3.2, CAN Bus, DC-in 12-24V
- Expansion: M.2 E-Key/B-Key/M-Key (supports NVMe, MIOe)
- Supports iManager, WISE-PaaS/RMM, SW API, and Edge AI Suite

## Specifications

### Platform
- **Processor**: 11th Gen. Intel® Core™ i7/i5/i3/Celeron U-Series (3.5" SBC w/ MIOe)
  - i7-1185G7E
  - i7-1185GRE
  - i5-1145G7E
  - i3-1115G4E
- **Max. Frequency**: 4.40 GHz / 4.40 GHz / 4.10 GHz / 3.90 GHz
- **Base Frequency**: 1.80 / 2.8 GHz / 1.80 / 2.6 GHz / 1.50 / 2.5 GHz / 2.20 / 3.0 GHz
- **Core/Thread**: 4 / 8 / 4 / 8 / 4 / 8 / 2 / 4
- **LLC**: 12MB / 12MB / 8MB / 6MB
- **CPU TDP-down/Up/Nominal**: 12W / 15W / 28W / 12W / 15W / 28W / 12W / 15W / 28W
- **Chipset**: Intel® 300 Series Chipset (SoC Integrated)
- **BIOS**: AMI EFI 256Mbit

### Memory
- **Technology**: DDR4-3200
- **Max. Capacity**: Up to 64GB
- **Channels/Socket**: Dual Channels / 2 Sockets
- **ECC Support**: No / Yes / No / No

### Graphics
- **Controller**: Intel® Iris® Xe graphics, up to 96 graphics execution units (EU)
- **Max. Frequency**: 3200MT/s / 3200MT/s / 3200MT/s / 3200MT/s

### Display I/F
- **LCD**: 1 x LVDS: Dual Channel 18/24-bit, up to 1920 x 1200
  - Optional eDP1.4 HBR3, up to 4096x2304x36bpp@60Hz or 5120x2000x36bpp@60Hz
- **HDMI/DP**: 1 x HDMI 2.0a, up to 4096x2304x36bpp@60Hz or 5120x2000x36bpp@60Hz
- **Multiple Display**: 4 simultaneous displays with each display interface combinations

### External I/O
- **Ethernet**: 2 x GbE, LANT: Intel i210AT/IT (for industrial grade)
- **HDMI/DP**: 1/1
- **USB Type-C**: 1 x USB3.2 Gen. 2x2 20Gbps, support DP1.4a via Alt. Mode
- **USB3.2**: 4 x USB3.2 Gen. 2x1 10Gbps
- **LED**: Power status, SATA R/W
- **Power DC-Jack**: Optional

### Internal I/O
- **SATA**: 1 x SATA GenIII 6.0 Gbps
- **USB2.0**: 2
- **Serial Bus**: I2C, SMBus
- **COM Port**: 2 x RS-232/422/485, 2 x RS-232 (4-wire)
- **GPIO**: 8-bit general purpose input output I/O
- **Audio**: Realtek ALC268, Line-in,Line-out,Line-in/Line-out/MIC
- **Inverter**: 12V/5V/3.3V selectable
- **LPC/SP Bus**: LPC
- **CAN Bus**: 1 x CANBus 2.0
- **Fan**: 4-wire smart fan
- **Front Panel Control**: Power-on, Reset, Buzzer, SATA LED, CaseOpen

### Board Feature
- **Watchdog Timer**: 65536 level, 0~65535 sec
- **TPM**: TPM2.0, Infineon SBLi8670
- **iManager 3.0**: SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT

### Expansion
- **M.2 E-Key**: 1 x E-Key x2 (PCIe x1, USB3.2, I2C)
- **M.2 B-Key**: 1 x B-Key x4 (USB3.2) / Nano-SIM
- **M.2 M-Key**: 1 x M-Key 2280 (PCIe x4 Gen A for PCIe SSD), optional SATA
- **MIO Extension**: 4 PCIe x1 (Gen 3), 1 x USB2.0, LPC, SMBus, Line-Out, Optional DP, Power-on, Reset

### Power
- **Supply Voltage**: Vin-DC 12V-24V ± 5%, RTC Battery, Lithium 3V/20mA
- **Connector**: ATX 2x2 pin 90D, optional DC-Jack or ATX 2x2 pin 180D
- **Power Management**: AT, ATX
- **Max. Consumption**: 43.3W (12V) / 46.8W (24V)
- **Idle Consumption**: 16.0W (12V) / 19.2W (24V)
- **Environment**: Operating: Standard 0 ~ 60 °C (32 ~ 140 °F), Extend -40 ~ -85 °C (-40 ~ 185 °F)
  - Storage: -40 ~ -85 °C (-40 ~ 185 °F)
- **Humidity**: Operating: 40 °C @ 95% relative humidity, non-condensing
  - Storage: 60 °C @ 95% relative humidity, non-condensing
- **Vibration Resistance**: 3.9 Gms

### Certification
- **EMC**: FCC, Class B

### Mechanical
- **Dimensions**: 146 x 102 mm (5.7” x 4”)

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All product specifications are subject to change without notice.

Last updated: 8-Jul-2021
### Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>CPU</th>
<th>cTDP</th>
<th>Max. Frequency</th>
<th>Core</th>
<th>Gbe</th>
<th>USB</th>
<th>RS32/242/4885</th>
<th>RS-232</th>
<th>MIOe</th>
<th>TPM2.0</th>
<th>Thermal solution</th>
<th>Operating Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIO-5375C7P-04A1</td>
<td>i7-1185G7E</td>
<td>28W</td>
<td>4.4 GHz</td>
<td>4</td>
<td>2</td>
<td>US3.0/4*4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Y</td>
<td>Active</td>
<td>0 – 60 °C</td>
</tr>
<tr>
<td>MIO-5375C7-04A1</td>
<td>i7-1185G7E</td>
<td>15W</td>
<td>4.4 GHz</td>
<td>4</td>
<td>2</td>
<td>US3.0/4*4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Y</td>
<td>Passive</td>
<td>0 – 60 °C</td>
</tr>
<tr>
<td>MIO-5375C5-01A1</td>
<td>i5-1145G7E</td>
<td>15W</td>
<td>4.1 GHz</td>
<td>4</td>
<td>2</td>
<td>US3.0/4*4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Y</td>
<td>Passive</td>
<td>0 – 60 °C</td>
</tr>
<tr>
<td>MIO-5375C3-01A1</td>
<td>i3-1115G4E</td>
<td>15W</td>
<td>3.9 GHz</td>
<td>2</td>
<td>2</td>
<td>US3.0/4*4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Y</td>
<td>Passive</td>
<td>0 – 60 °C</td>
</tr>
<tr>
<td>MIO-5375C7X-04A1</td>
<td>i7-1185GRE</td>
<td>15W</td>
<td>4.4 GHz</td>
<td>4</td>
<td>2</td>
<td>US3.0/4*4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Y</td>
<td>Passive -40~85 °C</td>
<td></td>
</tr>
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</table>

Note: Standard product has two different cTDP setting (28/15W), and it has different BIOS setting. Please choose the correspond cTDP sku for your application.

### Optional Accessories

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>197004833N001</td>
<td>Heat spreader</td>
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</table>

### Embedded OS/API

<table>
<thead>
<tr>
<th>OS</th>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WIN10</td>
<td>20706WX9HM0017</td>
<td>64-bit (UEFI mode only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software API</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Download by website</td>
</tr>
</tbody>
</table>

### Rear I/O View

![Rear I/O View Image]

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**Block Diagram**

Intel Tiger Lake-Up3 SoC 17/15/13/Celeron (15/28W)

- LVDS 2-CH 48-bit
- eDP 4-Lane
- HDMI2.0b
- DP
- USB Type-C
- USB 3.1 Gen.2
- GbE (vPro)
- i219LM/-V
- GbE
- i210
- PClex1
- PClex1
- PClex1
- PClex1
- USB2.0
- SMB
- Line-out
- Display port
- LPC
- CANBus
- SMBus
- MIO Extension I/F
- eSPI-to-LPC
- eSPI

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**Packing List**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIO-5375 SBC</td>
<td>1</td>
</tr>
<tr>
<td>Startup Manual</td>
<td>1</td>
</tr>
<tr>
<td>1700006291</td>
<td>SATA cable, 7P 30cm</td>
</tr>
<tr>
<td>1700001583-01</td>
<td>SATA Power cable, 1SP/1*2P2.0 35cm</td>
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<tr>
<td>1700003406-01</td>
<td>USB2.0 cable, 2*5P2.0/USB-A 4P(F)/2 20cm</td>
</tr>
<tr>
<td>1700003404-01</td>
<td>COM1/2 Cable, D-SUB 9P(M)/1*10P1.25 20cm</td>
</tr>
<tr>
<td>1700001582-01</td>
<td>COM3/4 Cable, D-SUB 9P(M)/1*5P1.25 20cm</td>
</tr>
<tr>
<td>1700019584-01</td>
<td>Audio cable, 2<em>5P2.0/Audio JACK</em>3 20cm</td>
</tr>
<tr>
<td>1960091427N001</td>
<td>MIO-5375 heatsink</td>
</tr>
<tr>
<td>1970004884T001</td>
<td>MIO-5375 QFCS Cooler</td>
</tr>
<tr>
<td>96665375000</td>
<td>Screws kit</td>
</tr>
<tr>
<td>96665375001</td>
<td>mini Jumper pack</td>
</tr>
</tbody>
</table>
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

- Request Evaluation
- RD Design
- Verification
- After Service
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**
- Platform compatibility tests
- Preloaded functional driver and software stacks

**Licensed Services**
- License authorized Canonical delivers 10-years of bug fixes and security updates
- In-house bundled service

**Numerous AI and Edge Resources**
- Containerized technology for service provision and deployment
- AI resources from Caffe, TensorFlow, and mxnet

**Local Partner Alliance**
- Embedded Linux and Android Alliance (ELAA)
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.
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 11th Gen Intel®
  COMe Type 6 Module

- **MIO-5375**
  Compact 11th Gen Intel® Outdoor
  Focused 3.5” SBC

- **EPC-85587**
  10th Gen Intel® Xeon® based Edge server

- **EPC-R3220**
  Arm based IoT Edge Gateway