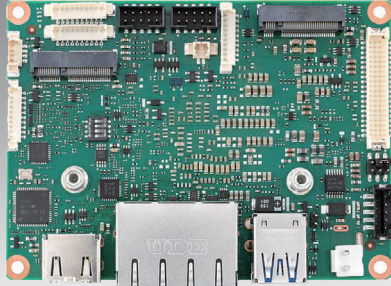


# MIO-2363

## Intel® Atom® x6000 Series Processor (Code Name: Elkhart Lake) Pico-ITX SBC



### Features

- Intel Atom x6000E Series
- Onboard LPDDR4x up to 8GB and EMMC up to 128GB
- Support 12-24V wide voltage range and -40-85°C operating temperature
- 2x GbE LAN, 2x USB3.2, 2x RS-232/422/485, I2C
- M.2 E-Key and B-Key for SATA storage, option to support RS-232 module
- Support iManager & Software APIs, WISE-DeviceOn, and EdgeAI Suite

#### Software APIs:



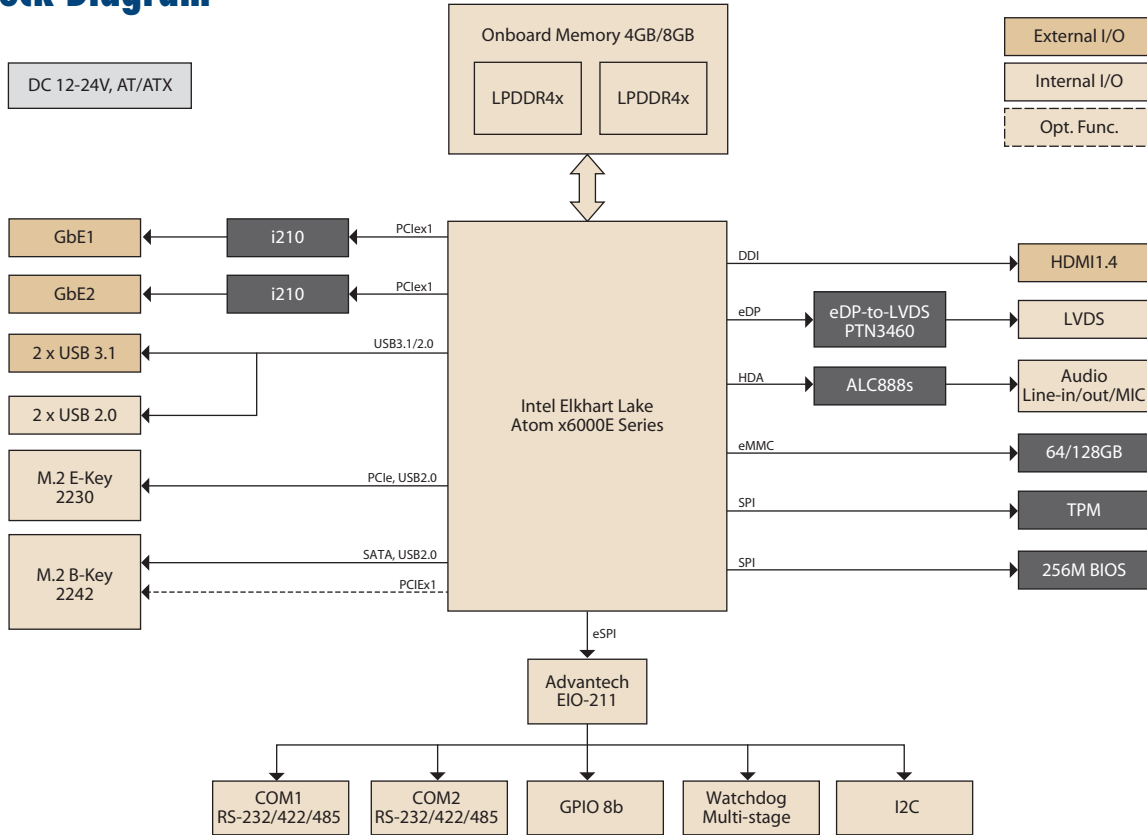
ubuntu yocto Windows 10 iManager WISE-DeviceOn CE FCC

### Specifications

|               |  |   |                            |                            |
|---------------|--|---|----------------------------|----------------------------|
| Platform      | Processor  | x6211E  | x6413E                     | x6425E                     |
|               | Max. Frequency   | 3.0GHz  | 3.0GHz                     | 3.0GHz                     |
|               | Base Frequency   | 1.3GHz  | 1.5GHz                     | 2.0GHz                     |
|               | Core/Tread   | 2/2   | 4/4                        | 4/4                        |
|               | L2 Cache   | 1.5 MB  | 1.5 MB                     | 1.5 MB                     |
|               | CPU TDP  | 6W  | 9W                         | 12W                        |
|               | Chipset  | Intel® Chipset (SoC Integrated)   |                            |                            |
|               | BIOS   | AMI UEFI 256Mbit  |                            |                            |
| Memory        | Technology   | LPDDR4x-3200  | LPDDR4x-3200               | LPDDR4x-3733               |
|               | Max. Capacity  | 4GB   | 4GB                        | 8GB                        |
|               | Channel/Socket   | Dual Channels / Onboard   |                            |                            |
|               | ECC Support  | IBECC   |                            |                            |
| Storage       | eMMC   | 64GB  | 64GB                       | 128GB                      |
| Graphics      | Controller   | Intel® UHD Graphics for 10th Gen Intel® Processors  |                            |                            |
|               | Max. Frequency   | 750MHz  | 750MHz                     | 750MHz                     |
|               | Base Frequency   | 350MHz  | 500MHz                     | 500MHz                     |
|               | 3D/HW Acceleration   | DX12, OGL4.5, OCL1.2, Vulkan 1.1; HW encode HEVC/H.265, MPEG2, JPEG/MJPEG   |                            |                            |
| Display I/F   | LCD  | LVDS Dual Channel 18/24-bit LVDS  |                            |                            |
|               | HDMI   | Up to 2160 x 3840 @ 30Hz  |                            |                            |
|               | Multiple Display   | LVDS+HDMI   |                            |                            |
| Ethernet      | Controller   | 2 x RJ-45, LAN1: Intel i210, LAN2: Intel i210   |                            |                            |
|               | Speed  | 10/100/1000 Mbps  |                            |                            |
| External I/O  | Ethernet   | 2 x RJ-45   |                            |                            |
|               | VGA/HDMI/DP  | -/1/-   |                            |                            |
|               | USB3.2/USB2.0  | 2/-   |                            |                            |
|               | Power DC-Jack  | Optional  |                            |                            |
| Internal I/O  | SATA   | -   |                            |                            |
|               | USB2.0   | 2   |                            |                            |
|               | Serial Bus   | 1x I2C  |                            |                            |
|               | COM Port   | 2 x RS-232/422/485  |                            |                            |
|               | GPIO   | 8-bit general purpose input output I/O  |                            |                            |
|               | Audio  | Realtek ALC888, Line-in/Line-out/MIC  |                            |                            |
|               | Inverter   | 12V/5V  |                            |                            |
|               | LPC/SPI Bus  | eSPI for EIO-211 / SPI for TPM / no LPC   |                            |                            |
|               | Front Panel Control  | Power-on, Reset, Buzzer, SATA LED, CaseOpen   |                            |                            |
|               | Watchdog Timer   | Programmable 1 - 65535 sec/min  |                            |                            |
|               | TPM  | TPM2.0 (Infineon SLB 9670)  |                            |                            |
| iManager 3.0  | SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT |   |                            |                            |
| Expansion     | M.2  | 1x M.2 E-Key for 2230 module (PCIex1, USB 2.0 to support wireless module)<br>1x M.2 B-Key for 2242 module (SATA, USB2.0 to support SATA storage; BOM option to PCIex1 to support PCIe storage or RS-232 module) |                            |                            |
|               | Power  | Vin: DC 12-24V +/- 10%; RTC Battery: Lithium 3V/210mAh  |                            |                            |
| Power         | Connector  | 2pin Power Connector (180D); Optional: DC-IN Jack   |                            |                            |
|               | Power Management   | AT, ATX   |                            |                            |
|               | Max. Consumption   | 22.30W (12V), 23.86W (24V)  | 27.40W (12V), 29.65W (24V) | 27.86W (12V), 29.81W (24V) |
|               | Idle Consumption   | 9.26W (12V), 11.21W (24V)   | 9.41W (12V), 11.90W (24V)  | 8.95W (12V), 11.37W (24V)  |
| Environment   | Temperature  | Operating Standard: 0 - 60 °C (32 - 140 °F) with 0.7m/s airflow<br>Operating Extend: -40 - 85 °C (-40 - 185 °F) with 0.7m/s airflow<br>Storage: -40 - 85 °C (-40 - 185 °F)                                      |                            |                            |
|               | Humidity   | Operating: 40 °C @ 95% relative humidity, non-condensing<br>Storage: 60 °C @ 95% relative humidity, non-condensing  |                            |                            |
|               | Vibration Resistance   | 3.5 Grms  |                            |                            |
| Certification | EMC  | CE, FCC Class B   |                            |                            |
| Mechanical    | Dimensions   | 100 x 72 mm (3.9" x 2.8")   |                            |                            |
|               | Net Weight   | 86g   |                            |                            |

\*Note: xxx

## Block Diagram



## Ordering Information

| PN               | CPU    | Max. Frequency | Core | Memory | eMMC  | USB3.2 | GbE | Cable Kit | Thermal Solution | Operating Temperature |
|------------------|--------|----------------|------|--------|-------|--------|-----|-----------|------------------|-----------------------|
| MIO-2363AW-P1A1  | x6211E | 3.0GHz         | 2    | 4GB    | 64GB  | 2      | 2   | Y         | Y; Passive       | -40 ~ 85 °C           |
| MIO-2363AW-P2A1  | x6413E | 3.0GHz         | 4    | 4GB    | 64GB  | 2      | 2   | Y         | Y; Passive       | -40 ~ 85 °C           |
| MIO-2363AW-P3A1  | x6425E | 3.0GHz         | 4    | 8GB    | 128GB | 2      | 2   | Y         | Y; Passive       | -40 ~ 85 °C           |
| MIO-2363ALW-P1A1 | x6211E | 3.0GHz         | 2    | 4GB    | 64GB  | 2      | 2   | N         | N                | -40 ~ 85 °C           |
| MIO-2363ALW-P3A1 | x6425E | 3.0GHz         | 4    | 8GB    | 128GB | 2      | 2   | N         | N                | -40 ~ 85 °C           |

## Packing List

| Part No.       | Description                       | Quantity |
|----------------|-----------------------------------|----------|
|                | MIO-2363 SBC                      | 1        |
| 2006236300     | Startup Manual                    | 1        |
| 1970005240T001 | MIO-2363 Passive Heatsink         | 1        |
| 1700030406-01  | USB cable (2 ports, 20cm)         | 1        |
| 1700030404-01  | COM port cable (20cm)             | 2        |
| 1700019584-01  | Audio cable (3 phone jacks, 20cm) | 1        |
| 1700019705-01  | ATX 2x2P power cable (10cm)       | 1        |

## Optional Accessories

| Part No.       | Description           |
|----------------|-----------------------|
| 1970005500N001 | MIO-2363 heatspreader |

## Embedded OS/API

| OS           | Part No.           | Description  |
|--------------|--------------------|--|
| Win10        | 20706WX1ES0123     | 64-bit (UEFI mode only)  |
| Ubuntu       | 20706U20DS0026     | Ubuntu Desktop 20.04 LTS 64-bit Image & License Sticker for MIO-2363 |
| Yocto BSP    | Support by Request | Yocto BSP and Test Image   |
| Software API | Website Download   | SUSI v4.0  |

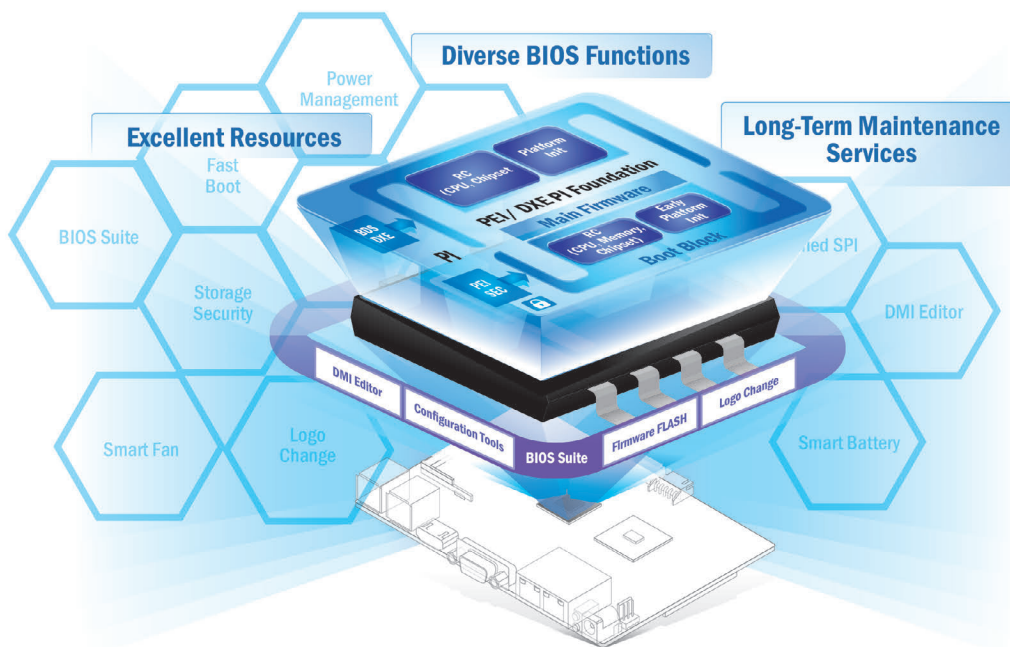
## Rear I/O View



# 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

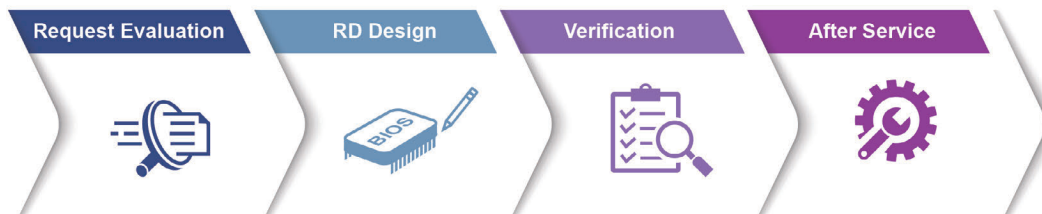
### Diverse BIOS Functions

- 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

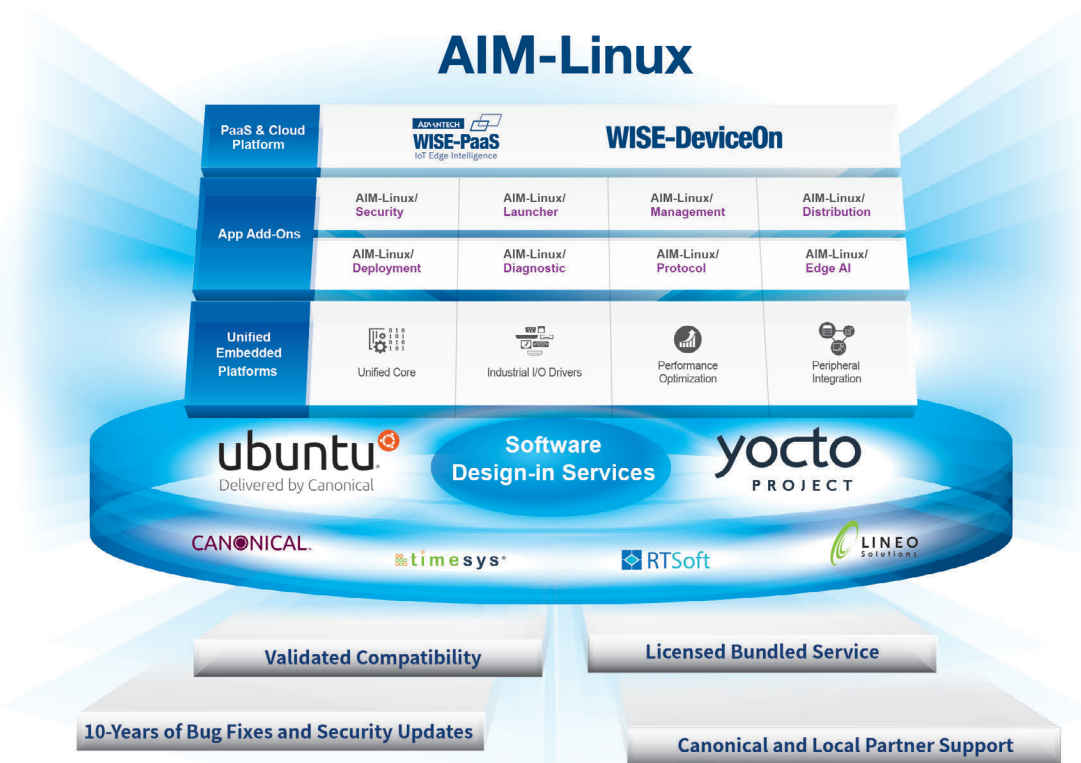
## Value-Added Customization Process



# 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

|  |  |  |   |
|--|--|--|---|
| <p><b>Certified OS and BSP</b></p> <ul style="list-style-type: none"> <li>Platform compatibility tests</li> <li>Preloaded functional driver and software stacks</li> </ul> | <p><b>Licensed Services</b></p> <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> | <p><b>Numerous AI and Edge Resources</b></p> <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> | <p><b>Local Partner Alliance</b></p> <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   | Remote Access  | Efficient Operations   |
|--|--|--|
| <ul style="list-style-type: none"> <li>• Devices status</li> <li>• Peripherals/firmware</li> <li>• Open for extension</li> </ul> | <ul style="list-style-type: none"> <li>• Real-time monitoring</li> <li>• Remote controls</li> <li>• Troubleshooting</li> </ul> | <ul style="list-style-type: none"> <li>• Zero-touch on-boarding</li> <li>• OTA updates</li> <li>• Batch control</li> </ul> |

### Product Highlights



**SOM-6883**

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



**MIO-5375**

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



**EPC-B5587**

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



**EPC-R3220**

Arm based IoT Edge Gateway