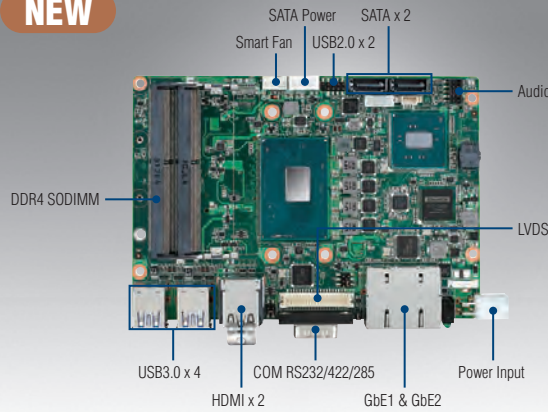


# MIO-5391

## 7th Gen Intel Core Mobile Processors, Xeon, i7, i5, i3 3.5" SBC w/ MIOe

**NEW**



### Specifications

|                    |   | i7-7820EQ   | i5-7442EQ | i3-7102E | E3-1505MV6 |
|--------------------|---|---|-----------|----------|------------|
| Platform           | Processor   | i7-7820EQ   | i5-7442EQ | i3-7102E | E3-1505MV6 |
|                    | Max. Frequency  | 3.7 GHz   | 2.9 GHz   | -        | 4.0 GHz    |
|                    | Base Frequency  | 3.0 GHz   | 2.1 GHz   | 2.1 GHz  | 3.0 GHz    |
|                    | Core/Tread  | 4   | 4         | 2        | 4          |
|                    | LLC   | 8MB   | 6MB       | 3MB      | 8MB        |
|                    | CPU TDP   | 45W   | 25W       | 25W      | 45W        |
|                    | Chipset   | QM175   | QM175     | QM175    | CM238      |
|                    | BIOS  | AMI UEFI 128Mbit  |           |          |            |
| Memory             | Technology  | DDR4 up to 2400MHz  |           |          |            |
|                    | Max. Capacity   | Up to 32GB  |           |          |            |
|                    | Channel/Socket  | Dual Channel 260P SO-DIMM (1 DIMM per Channel)  |           |          |            |
|                    | ECC Support   | ECC is supported with Xeon SKU  |           |          |            |
| Graphics           | Controller  | Intel Gen 9 low power graphics  |           |          |            |
|                    | Max. Frequency  | 1GHz  |           |          |            |
|                    | Base Frequency  | 350MHz  |           |          |            |
|                    | Graphics Memory   | Intel DMVT5.0, share memory up to 1024MB  |           |          |            |
| 3D/HW Acceleration | HW Codec: H.265/HEVC 8bit/10bit encode/decode, VP8 8bit encode/decode, VP9 10bit decode, MPEG2, JPEG, VC1/WMV9, Direct3D 2015/11.2/11.1/10/9, OpenGL5.0, OpenCL 2.0/1.2/1.0 |   |           |          |            |
|                    | LVDS  | 48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz<br>Supports 3.3/5/12V for VDD power, 5/12V for inverter                     |           |          |            |
| Display I/F        | HDMI  | Supports 2 ports HDMI 1.4 for HD Video playback<br>Max resolution up to 4096 x 2304 @ 30Hz                              |           |          |            |
|                    | Mult-Display  | HDMI + LVDS, Dual HDMI + LVDS with each display combinations  |           |          |            |
| Ethernet           | Controller  | LAN1: Intel 219LM, LAN2: Intel 210IT  |           |          |            |
|                    | Speed   | 10/100/1000 Mbps  |           |          |            |
| External I/O       | Ethernet  | 2 x RJ-45   |           |          |            |
|                    | VGA/HDMI/DP   | -/2/-   |           |          |            |
|                    | USB3.0/USB2.0   | 4/-   |           |          |            |
|                    | COM Port  | 1 x RS-232/422/485  |           |          |            |
|                    | LED   | Power status, HDD R/W   |           |          |            |
|                    | Power DC-Jack   | Optional  |           |          |            |
| Internal I/O       | SATA  | 2 x SATA GenIII 6.0Gbps   |           |          |            |
|                    | USB2.0  | 2   |           |          |            |
|                    | Serial Bus  | SMBus default, I2C optional   |           |          |            |
|                    | COM Port  | 1 x RS-232/422/485  |           |          |            |
|                    | GPIO  | 16-bit general purpose input output I/O (Option to 2x COM ports, RS-232 only)   |           |          |            |
|                    | Audio   | Realtek ALC888S, High Definition Audio (HD), Line-in, Line-Out, Mic-in  |           |          |            |
|                    | Inverter  | 3.3/5/12V for VDD power, 5/12V for inverter   |           |          |            |
|                    | LPC/SPI Bus   | -   |           |          |            |
|                    | CAN Bus   | -   |           |          |            |
|                    | Fan   | 1 x Smart Fan   |           |          |            |
| Board Feature      | Front Panel Control   | Power-on, Reset, Buzzer, ...  |           |          |            |
| Storage            | Watchdog Timer  | 65536 level, 0-65535 sec  |           |          |            |
|                    | TPM   | TPM2.0 (support by request)   |           |          |            |
|                    | iManager 3.0  | Yes   |           |          |            |
| Expansion          | SATA  | 2, up to 6Gb/s (600 MB/s)   |           |          |            |
|                    | mSATA   | 1 x Full-size   |           |          |            |
|                    | NVME*   | 1, dimension: 2230; PCIe x2   |           |          |            |
| M.2                | M.2   | E-Key (PCIe x1, USB2.0)   |           |          |            |
|                    | mPCIe/mSATA   | 1 x full size mSATA with Sim holder   |           |          |            |
| Power              | M/I/O Extension   | DDI x 1, 4 PCIe x1, USB2.0, LPC, SMBus, reset, Line out, Power on   |           |          |            |
|                    | Supply Voltage  | Vin: DC 12V +/- 10%, RTC Battery: Lithium 3V/210mAh   |           |          |            |
|                    | Connector   | ATX 2x2 pin 90D, optional DC-Jack or ATX 2x2 pin 180D   |           |          |            |
|                    | Power Management  | AT, ATX   |           |          |            |
|                    | Max. Consumption  | 67.6W   | 50.729W   | 29.623 W | TBD        |
| Environment        | Idle Consumption  | 8.2W  | 6.595W    | 5.333 W  | TBD        |
|                    | Temperature   | Operating: Standard: 0 - 60° C (32 - 140° F), Extend: -40 - 85° C (-40 - 185° F)<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      |           |          |            |
| Certification      | Vibration Resistance  | 3.5 Grms  |           |          |            |
|                    | EMC   | CE, FCC   |           |          |            |
| Mechanical         | Safety  | -   |           |          |            |
|                    | Dimensions  | 146 x 102 mm (5.7" x 4")  |           |          |            |

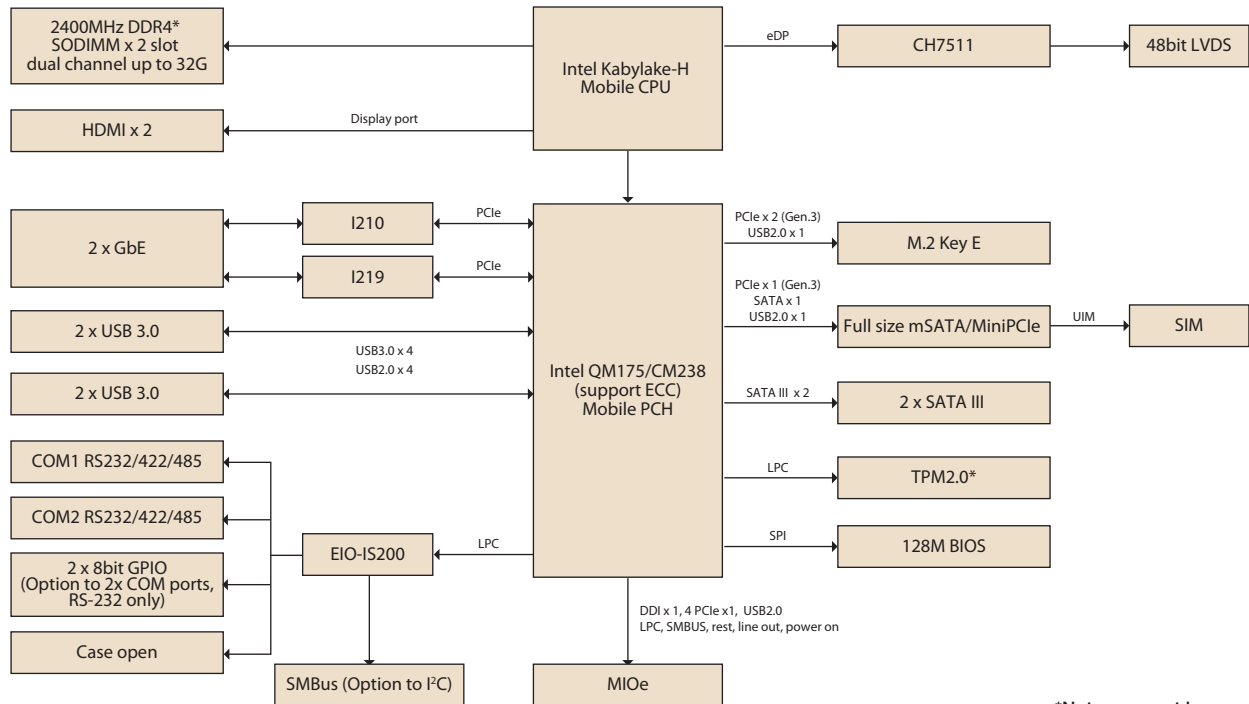
### Features

- 7th Gen Intel Core i7/i5/i3 + PCH QM175 & Xeon + PCH CM238
- Dual channel DDR4 2400, Max 32GB
- 1 Intel i210 GbE & 1 Intel i219 GbE support iAMT, rich I/O: 2COM, SATA, USB3.0, SMBus/I2C, 16 bit GPIO full-size Mini PCIe or mSATA/M.2 E Key support NVME, 12V Power input
- Full-size Mini PCIe or mSATA/M.2 E Key
- Support NVME (optional)
- Supports iManager, WISE-PaaS/RMM, emb. SW API

#### Software APIs:



## Block Diagram



\*Note: support by request

## Ordering Information

| Part No.           | CPU        | Max. Frequency | Core | TDP | DDR4 Memory | PCH   | Thermal Solution | Operating Temperature |
|--------------------|------------|----------------|------|-----|-------------|-------|------------------|-----------------------|
| MIO-5391E4M-H0A2   | E3-1505MV6 | 4.0GHz         | 4    | 45W | ECC support | CM238 | Active           | 0 ~ 60 °C             |
| MIO-5391C7-H0A2    | i7-7820EQ  | 3.7GHz         | 4    | 45W | non-ECC     | QM175 | Active           | 0 ~ 60 °C             |
| MIO-5391C5-U1A2    | i5-7442EQ  | 2.9GHz         | 4    | 25W | non-ECC     | QM175 | Passive          | 0 ~ 60 °C             |
| MIO-5391C3-U1A2    | i3-7102E   | 2.1GHz         | 2    | 25W | non-ECC     | QM175 | Passive          | 0 ~ 60 °C             |
| MIO-5391E4MZ2-H0A2 | E3-1505MV6 | 4.0GHz         | 4    | 45W | ECC support | CM238 | Active           | -40 ~ 85 °C           |
| MIO-5391C7Z2-H0A2  | i7-7820EQ  | 3.7GHz         | 4    | 45W | non-ECC     | QM175 | Active           | -40 ~ 85 °C           |
| MIO-5391C5Z2-U1A2  | i5-7442EQ  | 2.9GHz         | 4    | 25W | non-ECC     | QM175 | Passive          | -40 ~ 85 °C           |

## Packing List

| Part No.       | Description                                    | Quantity |
|----------------|--|----------|
|                | MIO-5391 SBC                                   | 1        |
| 2006539100     | Startup Manual                                 | 1        |
| 1700006291     | M Cable SATA 7P/SATA 7P 30cm C=R 180/90        | 1        |
| 1700018785     | SATA 35cm power cable                          | 1        |
| 1700019414     | A Cable D-SUB 9P(M)/2*5P-2.0 30cm for FWA-5442 | 1        |
| 1700019584     | Audio Cable 2*5P-2.0/JACK*3 20cm               | 1        |
|                | mini Jumper pack                               | 1        |
| 1960089060T001 | Cooler (for TDP 45W SKU)                       | 1        |
| 1960089142T001 | Heatsink (for TDP 25W SKU)                     | 1        |

## Optional Accessories

| Part No.       | Description                     |
|----------------|---------------------------------|
| 1960090936N001 | Heat spreader (16.7mm height)   |
| 1700002172     | Internal 2 ports USB cable 17CM |

## Embedded OS/API

| Embedded OS/API          | Part No.       | Description                        |
|--------------------------|----------------|------------------------------------|
| WIN10 for I7 & Xeon SKUs | 20706WX9HS0017 | img W10 19HL MIO-5391 64b 1809 ENU |
| WIN10 for I5 & I3 SKUs   | 20706WX9VS0020 | img W10 19VL MIO-5391 64b 1809 ENU |
| Software API             |                | SUSI 4.0/iManager 3.0              |
| Software API             |                | WisePaaS/DeviceOn                  |

## Rear I/O View

