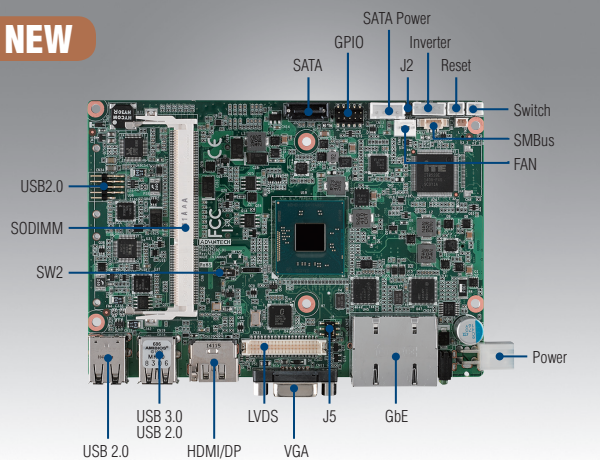


# MIO-5251

**Intel® Celeron J1900 & Atom™ E3825/E3845, 3.5" MI/O-Compact SBC, DDR3L, VGA, HDMI/DP, 48-bit LVDS/eDP, 2GbE, Mini PCIe, mSATA/SD card, iManager, MIOe**

**NEW**



**iManager susiAccess** **CE FCC**

## Features

- Intel® Celeron J1900 & Atom™ E3825/E3845, DDR3L-1066/1333MHz SODIMM up to 8GB
- DirectX11, OpenGL3.2, OpenCL1.2, multi-display: VGA+LVDS/eDP+ HDMI/DP\*
- Flexible design using integrated multiple I/O: MIOe to approach vertical applications & keep domain knowhow
- 2 Intel i210 GbE, rich I/O: 4COM, SATA, USB3.0, SMBus/I<sup>2</sup>C, GPIO full-size Mini PCIe w/ SIM holder, full-size mSATA or SD card
- Supports iManager, SUSIAccess and Embedded Software APIs

### Software APIs:



### Utilities:



## Specifications

| Processor System         |  | Intel Celeron J1900                                                                                                                                             | Intel Atom E3845    | Intel Atom E3825     |
|--------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------|
|                          |  | Base Frequency<br>2 GHz (Quad-Core)                                                                                                                             | 1.91GHz (Quad-Core) | 1.33 GHz (Dual-Core) |
| Memory                   |  | Burst Frequency<br>2.42 GHz                                                                                                                                     | -                   | -                    |
|                          |  | L2 Cache<br>2MB                                                                                                                                                 | 2MB                 | 1MB                  |
| Display                  |  | BIOS<br>AMI UEFI BIOS at 64 Mb                                                                                                                                  |                     |                      |
|                          |  | Technology<br>DDR3L 1333 MHz                                                                                                                                    | DDR3L 1333MHz       | DDR3L 1066 MHz       |
| Ethernet                 |  | Max. Capacity<br>8 GB                                                                                                                                           |                     |                      |
|                          |  | Socket<br>1 x 204-pin SODIMM                                                                                                                                    |                     |                      |
| Audio                    |  | Controller<br>Intel Gen7 graphic engine                                                                                                                         |                     |                      |
|                          |  | Graphic Features<br>DirectX11, OpenGL3.2, OpenCL1.2<br>HW Decode: H.264, MPEG2, MVC, VC-1, WMV9, MJPEG and VP8. HW Encode: H.264 (MPEG2 and MVC only for J1900) |                     |                      |
| WatchDog Timer           |  | VGA<br>2560 x 1600 at 60Hz                                                                                                                                      |                     |                      |
|                          |  | LVDS<br>48-bit LVDS up to WUXGA 1920 x 1200 at 60Hz<br>Supports 3.3/5/12V for VDD power, 5/12V for inverter                                                     |                     |                      |
| Storage                  |  | eDP*<br>up to 2560 x 1600 at 60Hz                                                                                                                               |                     |                      |
|                          |  | HDMI / DisplayPort*<br>HDMI 1.4a for HD video playback, 1080P at 60Hz<br>Displayport*, up to 2560 x 1600 at 60Hz                                                |                     |                      |
| Rear I/O                 |  | Mult-Display<br>VGA + HDMI/Displayport*, VGA+ LVDS/eDP*, HDMI/Displayport* +LVDS/eDP                                                                            |                     |                      |
|                          |  | Speed<br>10/100/1000Mbps                                                                                                                                        |                     |                      |
| Internal I/O             |  | Controller<br>Intel i210                                                                                                                                        |                     |                      |
|                          |  | Connector<br>2 RJ45                                                                                                                                             |                     |                      |
| Expansion                |  | Codec<br>Realtek ALC888S, High Definition Audio (HD), Line-in, Line out, Mic-in                                                                                 |                     |                      |
|                          |  | Amplifier*<br>Optional via MIOe                                                                                                                                 |                     |                      |
| Power                    |  | Output System reset, Programmable counter from 1 ~ 255 minutes/ seconds                                                                                         |                     |                      |
|                          |  | SATA<br>1, up to 3Gb/s (300 MB/s)                                                                                                                               |                     |                      |
| Environment              |  | mSATA<br>1 x Full-size                                                                                                                                          |                     |                      |
|                          |  | SD slot*<br>1 (Shared with mSATA), only support on E3825/E3845                                                                                                  |                     |                      |
| Physical Characteristics |  | Ethernet<br>2 (10/100/1000Mbps)                                                                                                                                 |                     |                      |
|                          |  | VGA<br>1                                                                                                                                                        |                     |                      |
| Power                    |  | HDMI / DisplayPort*<br>1                                                                                                                                        |                     |                      |
|                          |  | USB 2.0<br>3                                                                                                                                                    |                     |                      |
| Expansion                |  | USB 3.0<br>1                                                                                                                                                    |                     |                      |
|                          |  | LED<br>Power, HDD                                                                                                                                               |                     |                      |
| Power                    |  | DC Jack*<br>1                                                                                                                                                   |                     |                      |
|                          |  | Serial<br>2 x RS-232 from COM1/2, 2 x RS-232/422/485 from COM3/4 with auto flow control (ESD protection: air gap ±15kV, contact ±8kV)                           |                     |                      |
| Power                    |  | USB2.0<br>1                                                                                                                                                     |                     |                      |
|                          |  | I <sup>2</sup> C<br>1 (Shared with SMBus pin)                                                                                                                   |                     |                      |
| Power                    |  | SMBus<br>1                                                                                                                                                      |                     |                      |
|                          |  | GPIO<br>8-bit (5V tolerance)                                                                                                                                    |                     |                      |
| Power                    |  | Mini PCIe<br>1 x Full-size with SIM holder                                                                                                                      |                     |                      |
|                          |  | MIOe<br>SMBus, 3 x USB2.0, LPC, 1 x PCIe x1, line out, DisplayPort*, +5 Vsb/+12 Vsb power, Power On, Rest                                                       |                     |                      |
| Power                    |  | Power Type<br>Single 12V DC power input                                                                                                                         |                     |                      |
|                          |  | Power Supply Voltage<br>12V ± 10%                                                                                                                               |                     |                      |
| Power                    |  | Power Consumption (Typical)<br>MIO-5251J-U0A1E: 0.62A @12V (7.44W)<br>MIO-5251EW-S9A1E: 0.51A @12V (6.12W)<br>MIO-5251E-S3A1E: 0.39A @12V (4.68W)               |                     |                      |
|                          |  | Power Consumption (Max, test in HCT)<br>MIO-5251J-U0A1E: 1.16A @12V (13.92W)<br>MIO-5251EW-S9A1E: 0.92A @12V (11.04W)<br>MIO-5251E-S3A1E: 0.78A @12V (9.36W)    |                     |                      |
| Power                    |  | Power Management<br>ACPI                                                                                                                                        |                     |                      |
|                          |  | Battery<br>Lithium 3 V / 210 mAh                                                                                                                                |                     |                      |
| Environment              |  | Operating<br>Standard: 0 ~ 60° C (32 ~ 140° F), Extend: -40 ~ 85° C (-40 ~ 185° F)                                                                              |                     |                      |
|                          |  | Storage: -40 ~ 85° C (-40 ~ 185° F)                                                                                                                             |                     |                      |
| Environment              |  | Non-Operating<br>-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing                                                                                               |                     |                      |
|                          |  | Dimensions (L x W)<br>146 x 102 mm (5.7" x 4"), same as 3.5"                                                                                                    |                     |                      |
| Physical Characteristics |  | Weight<br>0.5kg (1.1lb), weight of total package                                                                                                                |                     |                      |
|                          |  | Height<br>Top Side: 19 mm; Bottom Side: 6.8 mm; PCB: 1.6 mm                                                                                                     |                     |                      |

\* This specification is supported by request

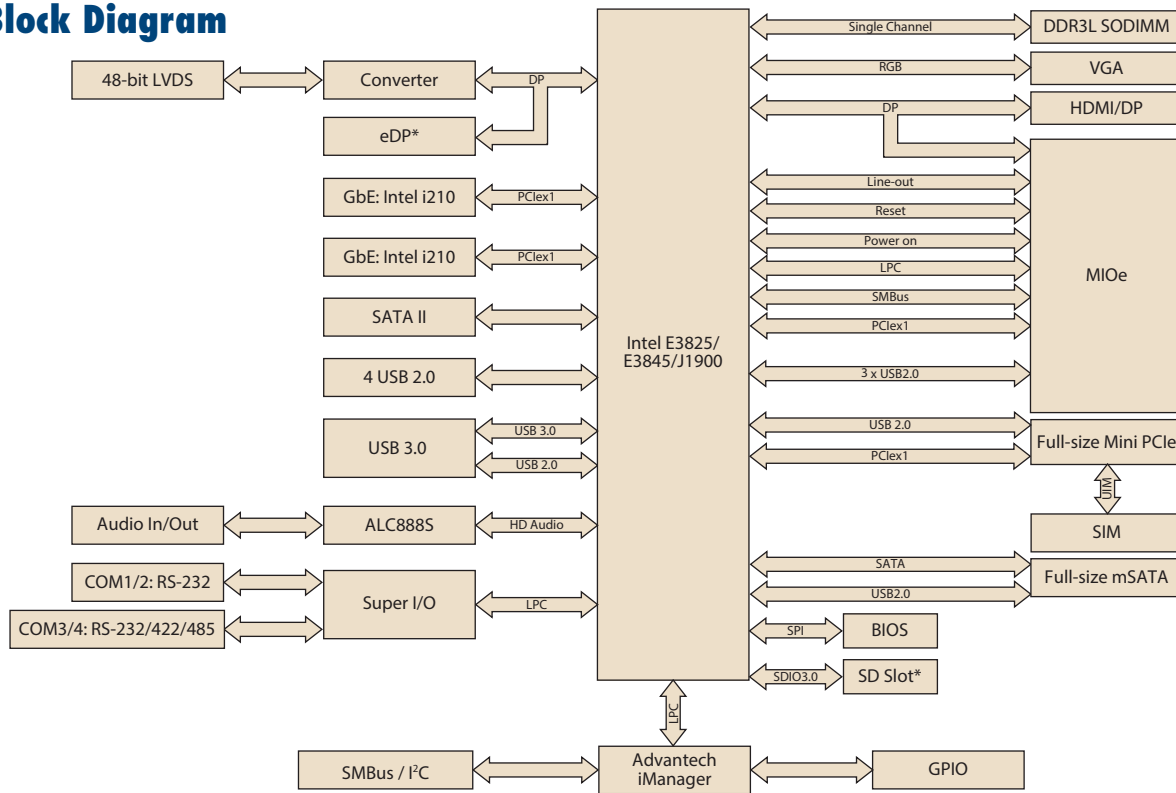
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**MI/O Extension SBCs, Modules and Chassis**

All product specifications are subject to change without notice.

Last updated: 13-Sep-2018

## Block Diagram



\*: Supported by request

## Ordering Information

| Part No.          | CPU                     | L2 Cache | Memory      | LVDS   | VGA | HDMI/DP | GbE | Audio | RS-232/422/485 | RS-232 | USB 3.0 | USB 2.0 | SATAII | Mini PCIe | mSATA     | MIOe | Power connector | Thermal Solution* | Operating Temp. |
|-------------------|-------------------------|----------|-------------|--------|-----|---------|-----|-------|----------------|--------|---------|---------|--------|-----------|-----------|------|-----------------|-------------------|-----------------|
| MIO-5251J-U0A1E   | Intel J1900 2GHz 10W    | 2MB      | SODIMM      | 48-bit | Yes | 1       | 2   | Yes   | 2              | 2      | 1       | 4       | 1      | Full-size | Full-size | Yes  | 2x2pin          | Passive           | 0°C~60°C        |
| MIO-5251E-S3A1E   | Intel E3825 1.33GHz 6W  | 1MB      | SODIMM      | 48-bit | Yes | 1       | 2   | Yes   | 2              | 2      | 1       | 4       | 1      | Full-size | Full-size | Yes  | 2x2pin          | Passive           | 0°C~60°C        |
| MIO-5251EW-S9A1E  | Intel E3845 1.91GHz 10W | 2MB      | SODIMM      | 48-bit | Yes | 1       | 2   | Yes   | 2              | 2      | 1       | 4       | 1      | Full-size | Full-size | Yes  | 2x2pin          | Passive (higher)  | -40°C~85°C      |
| MIO-5251JZ-2GA1E  | Intel J1900 2GHz        | 2MB      | 2GB bundled | 48-bit | Yes | 1       | 2   | Yes   | 2              | 2      | 1       | 4       | 1      | Full-size | Full-size | Yes  | 2x2pin          | Passive (higher)  | -20°C~80°C      |
| MIO-5251JZ2-2GA1E | Intel J1900 2GHz        | 2MB      | 2GB bundled | 48-bit | Yes | 1       | 2   | Yes   | 2              | 2      | 1       | 4       | 1      | Full-size | Full-size | Yes  | 2x2pin          | Passive (higher)  | -40°C~85°C      |

Note1: J1900 and E3845/E3825 with different version BIOS and only for 64bit Win8/Win7, 32bit supported by T-P/N. (Default setting is Legacy boot)

Note2: passive=fanless

## Packing List

| Part No.       | Description                                                      | Quantity |
|----------------|------------------------------------------------------------------|----------|
|                | MIO-5251 SBC                                                     | 1        |
| 2006525100     | Startup Manual                                                   | 1        |
| 1700006291     | M Cable SATA 7P/SATA 7P 30cm C=R 180/90                          | 1        |
| 1700018785     | SATA 35cm power cable                                            | 1        |
| 1701200220     | COM RS-232 Cable 2*10P-2.0/D-SUB 9P (M)*2 22CM                   | 2        |
| 1700019584     | Audio Cable 2*5P-2.0/JACK*3 20cm                                 | 1        |
| 9689000002     | mini Jumper pack                                                 | 1        |
| 1960062791T001 | Heatsink (104 x 83 x 19 mm) for MIO-5251E/J                      | 1        |
| 1960066556T001 | Wide temp. heatsink (145.4 x 84.2 x 29 mm) for MIO-5251JZ/JZ2/EW | 1        |

## Optional Accessories

| Part No.         | Description                      |
|------------------|----------------------------------|
| 1960065073N001   | Heat spreader (16.7mm height)    |
| 96PSA-A60W12R1-1 | ADP 100-240V 60W 12V WO/PFC      |
| 1703100264       | Internal 1 port USB cable 22.5cm |

## Embedded OS/API

| Embedded OS/API | Part No.   | Description               |
|-----------------|------------|---------------------------|
| WE8S            | 2070013167 | 64bit (ENG/T-CH/S-CH/JP)  |
| WES7E           | 2070013061 | 64bit (ENG/T-CH/S-CH/JP)  |
| WEC7            | 2070013993 | img WEC7 MIO-5251 v1.0 EN |
| Linux           |            | Ubuntu 14.04              |
| VxWorks         |            | 6.9.3.3                   |
| Android         |            | Kit Kat 4.4               |
| Software API    |            | iManager 2.0              |

## Rear I/O View



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