MIO-5152 Intel® Atom® x6000E and Celeron® N and J Series 3.5” SBC, DDR4, HDMI, DP, 2 x GbE, 4 x USB 3.2, M.2 E-key/B-Key, M.2 M-Key, 12V Power Input, iManager 3.0, & Edge AI Suite Startup Manual

Packing List

Before you begin installing your card, please make sure that the following items have been shipped:

1.	1 x MIO-5152 SBC	
2.	1 x Startup manual	p/n: 2046515200
3.	1 x SATA cable	p/n: 1700006291
4.	1 x Audio cable	p/n: 1700019584-01
5.	2 x COM cables	p/n: 1700030404-01
6.	1 x USB cable	p/n: 1700030406-01
7.	1 x SATA power cable	p/n: 1700031583-01
8.	1 x Heatsink for x6000E	p/n: 1970005053T001
9.	1 x Heatsink for Celeron series	p/n: 1970005053T011
10.	1 x DeviceOn package	

If any of the above items are missing or damaged, contact your distributor or sales representative immediately.

Note 1: For more information regarding MIO-5152, refer to the Advantech website for further information.

Note 2: Acrobat Reader is required to view any PDF file. Acrobat Reader can be downloaded at: http://get.adobe.com/reader/ (Acrobat is a trademark of Adobe)

For more information about this and other Advantech products, visit our website at

http://www.advantech.com

http://www.advantech.com/eplatform

For technical support and customer service, visit our support website at

http://support.advantech.com

This manual is for the MIO-5152 Series.

Part No. 2046515201 Edition 2
Printed in China Nov. 2022

Specifications

General

- **CPU:**
  - Intel® Celeron® J6412, 4 x cores, base frequency 2.0GHz; Max frequency 2.6GHz
  - Intel® Celeron® N6210, 2 x cores, base frequency 1.2GHz; Max frequency 2.6GHz
  - Intel® Atom® x6425E, 4 x cores, base frequency 2.0GHz; Max frequency 3.0GHz
- **System Memory:** Single channel, SODIMM DDR4-3200 MT/s, up to 32 GB
- CPU TDP:
  - Celeron® J6412: 10W
  - Celeron® N6210: 6.5W
  - Atom® x6425E: 12W
- **BIOS:** AMI uEFI 256 Mbit
- **Watchdog Timer**: 255 levels timer interval, programmable by software. Multi-level WDT (set by iManager)
- **Battery:** Lithium 3 V/210 mAH
- **Audio:** High-definition audio (HD), line-in, line-out, & mic-in

Expansion Interface

- 1 x M.2 M-Key 2242
- 1 x M.2 E-Key 2230 (option to B-Key 3042)

Display

- **Controller:** Intel Gen 11 Graphics Engines (SoC integrated)
- **Maximum Resolution:**
  - LCD: LVDS dual channel 18/24-bit up to 1920x1200
  - DisplayPort: DP1.4a, up to 4096 x 2160 x 36bpp@60Hz
- - HDMI: HDMI 1.4, up to 4096 x 2160 x 24bpp@60Hz
- **Multiple Display**
  - Triple simultaneous displays: LVDS + HDMI + DP

Ethernet Interface

- **Speed:** 10/100/1000 BASE-T
- **Controller:** 2 x Realtek RTL8111H

Mechanical and Environmental

- **Dimensions:** 146 x 102 mm (5.7 x 4 in)
- **Power Supply Type:** ACPI support
- **Power Requirements:** +12 V ± 10% (Default supports ATX 2x2pin 90D, DC Jack by T-P/N)
- **Operating Temperature:** 0 ~ 60°C (32 ~ 140°F)

Jumpers and Connectors

The board has a number of jumpers that allow you to configure your system to suit your application. The table below lists the functions of each of the jumpers and connectors.

Jumpers	
Label	**Function**
JCMOS1	CMOS clear switch
VDD1	Panel voltage selection
RI_VDD1	COM1 RI# pin RI#/5V/12V selection

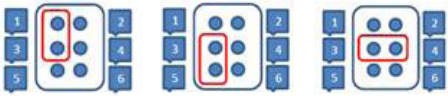
Connectors	
Label	**Function**
DCIN2	DC input connector
DCIN1	DC input connector (adapter)
LAN2	RJ45 connector (1 x port)
LAN1	RJ45 connector (1 x port)
USB56	Internal USB connector
DP1	DP connector
HDMI1	HDMI connector
USB2	USB 3.2 connector GEN2 (2 x ports)
USB1	USB 3.2 connector GEN2 (2 x ports)
COM1	COM port connector (RS232+RS422+RS485)
COM2	COM port connector (RS232+RS422+RS485)
COM3~6	COM port connector (RS232 only)
AUDIO1	Audio connector
DIMMA1	DDR4 SODIMM 260P/H9.2mm
LVDS1	LVDS connector
SATA1	HDD connector
SMB1	SMB bus connector
FAN1	FAN connector
SATAP1	HDD power connector
BL1	Inverter connector
PSON1	ATX/AT mode selection
GPIO1	GPIO connector
CN2	Power/LED/case open/Buzzer connector
M2_B1	M.2 Key B (PCIe_USB 2.0)
M2E1_1	M.2 Key E (PCIe_USB 2.0)
M2_M1	M.2 Key M (SATA)
BAT1	RTC battery connector
SIM1	SIM card connector

Jumpers and Connectors (Cont.)

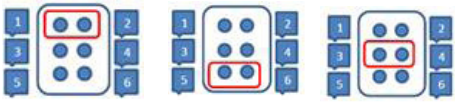
Jumper Settings

JCMOS1	CMOS Clear Switch
Setting	Function
(1-2)*	Keep COMS data (Default)
(2-3)	Load CMOS date

VDD1	Panel Voltage Selection
Setting	Function
(1-3)*	Panel voltage settings: +V3.3 (Default)
(3-5)	Panel voltage settings: +V5
(3-4)	Panel voltage settings: +V12



RI_VDD1	COM1 RI# pin RI#/5V/12V Selection
Setting	Function
(1-2)	RI# Voltage settings: +V5
(5-6)	RI# Voltage settings: +V12
(3-4)*	RI# Voltage settings: RI# (Default)



Caution! The computer is provided with a battery-powered real-time clock circuit. Batteries are at risk of exploding if incorrectly replaced. Replace only with same or equivalent type as recommended by the manufacturer. Discard used batteries according to manufacturer's instructions.

PSON1	ATX/AT Mode Selection
Setting	Function
(1-2)*	AT (Default)
(2-3)	ATX

Connector Locations

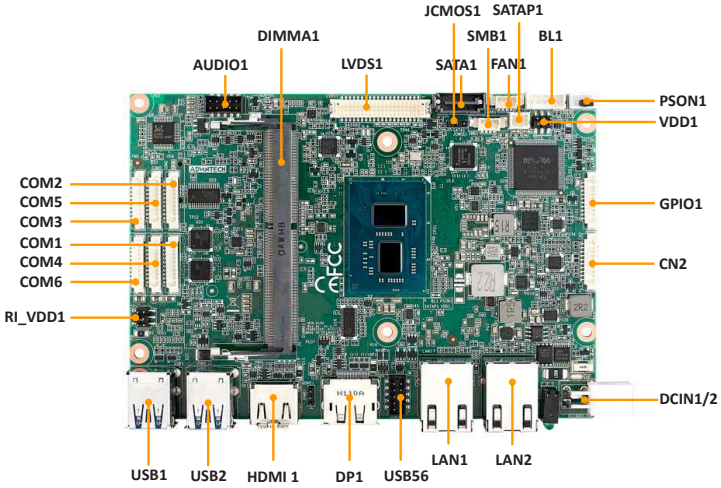


Figure 1. Connector Locations (Top)

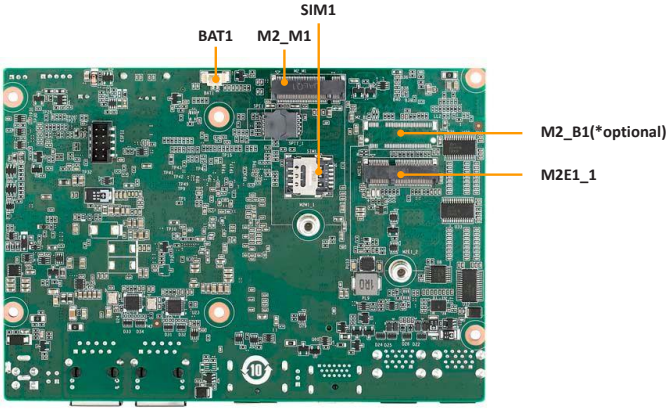


Figure 2. Connector Locations (Bottom)

Figure 3. Connector Locations (Coastline)

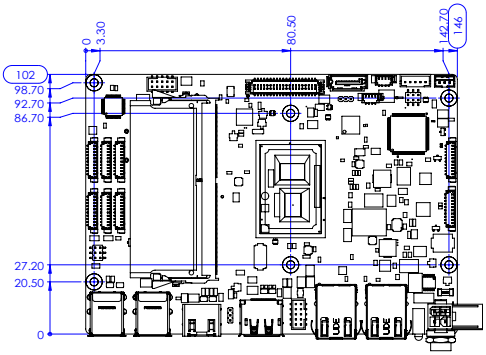


Figure 4. Mechanical Diagram (Top View)

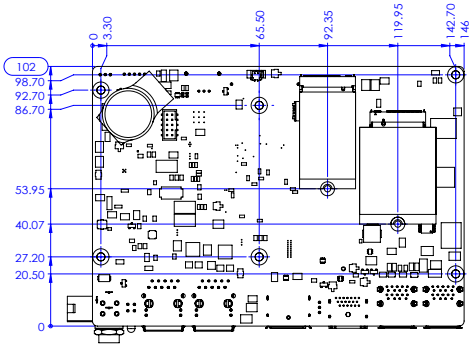


Figure 5. Mechanical Diagram (Bottom View)

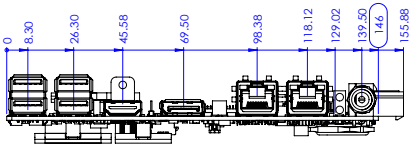


Figure 6. Mechanical Diagram (Side View)

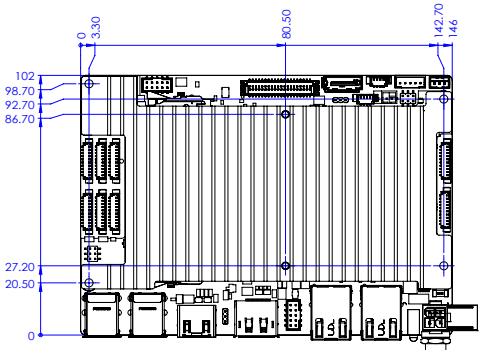


Figure 7. Mechanical Diagram with Heatsink (Top Side)

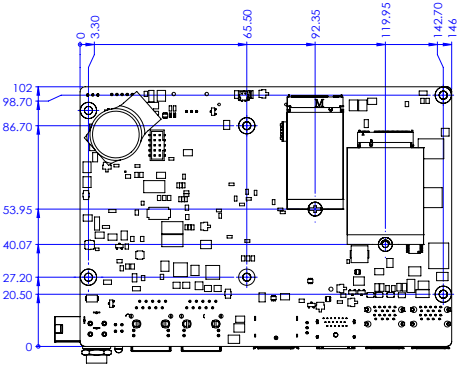


Figure 8. Mechanical Diagram with Heatsink (Bottom Side)

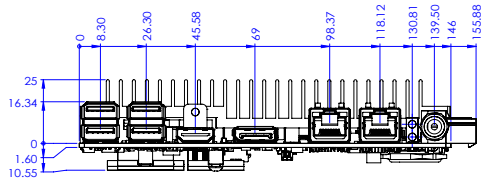
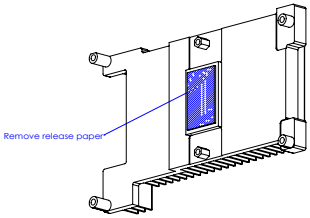


Figure 9. Mechanical Diagram with Heatsink (Coastline)

Quick Installation Guide

There is a Heatsink in the white box, please remove the release paper from the thermal pads.



There are screws and stand-offs inside the box, follow the installaion instructions demonstrated below to secure the heatsink: