

MIO-5154 Intel® Core™ i3-N305 Processor, Intel® Processor N-series 3.5" SBC (Code name: Alder Lake N) Startup Manual

Packing List

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

- 1 x MIO-5154 SBC
- 1 x Startup Manual P/N: 2046515400
- 1 x SATA Cable P/N: 1700006291
- 1 x Audio Cable P/N: 1700019584-01
- 2 x COM Cable P/N: 1700030404-01
- 1 x USB 3.0 Cable P/N: 1700032181-01
- 1 x SATA Power Cable P/N: 1700031583-01
- 1 x Heatsink for 15W/12W CPU P/N: 1970005854T001
- 1 x Heatsink for 6W CPU P/N: 1960064228T021

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

- Note 1:** For detailed contents of MIO-5154, please refer to the Advantech website for detailed 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 on this and other Advantech products, please visit our website at:

<http://www.advantech.com>

<http://www.advantech.com/eplatform>

For technical support and service, please visit our support website at:

<http://advantech.com/support>

This manual is for the MIO-5154 Series.

Part No. 2046515400
Printed in China

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Jan. 2024

Specifications

General

- CPU:**
 - Intel® Core™ i3-N305 Processor, 8 cores,
 - Max Frequency 3.8GHz
 - Intel® Processor N-series N97, 4 cores,
 - Max Frequency 3.6GHz
 - Intel® Processor N-series N50, 2 cores,
 - Max Frequency 3.4GHz
- System Memory:** Single Channel, SODIMM DDR5-4800 MT/s, up to 16 GB
- CPU TDP:**
 - Core™ i3-N305: 15W
 - N-series N97: 12W
 - N-series N50: 6W
- BIOS:** AMI uEFI 256 Mbit
- Watchdog Timer:** 65536 levels, 0~65535 sec, 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 E-Key 2230
- 1 x M.2 B-Key 2280
- 1 x M.2 B-Key 3052

Display

- Controller:** Intel® UHD Graphics (SoC integrated)
- Maximum Resolution:**
 - LCD:
LVDS dual channel 18-/24-bit up to 1920 x 1080
 - DisplayPort:
DP 1.4a, up to 4096 x 2304 x 36bpp@60Hz
 - HDMI:
HDMI 2.0, up to 4096 x 2160 x 24bpp@48-60Hz
- Multiple Displays:**
Triple Simultaneous Displays: LVDS + HDMI + DP

Ethernet Interface

- Speed:** 10/100/1000 BASE-T
- Controller:** 2 x Realtek RTL8111K

Mechanical and Environmental

- Dimensions:** 146 x 102 mm (5.7" x 4")
- Power Supply Type:** ACPI support
- Power Requirement:** +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 function 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
AT_ATX1	ATX/AT Mode Selection

Connectors

Label	Function
DCIN2	DC Input Connector
DCIN1	DC Input Connector (Adapter)
USB1	Internal USB 3.1 Gen1 Connector
COM1	COM Port Connector (RS232+RS422+RS485)
COM2	COM Port Connector (RS232+RS422+RS485)
COM3	COM Port Connector (RS232 only)
COM4	COM Port Connector (RS232 only)
COM5	COM Port Connector (RS232 only)
COM6	COM Port Connector (RS232 only)
AUDIO1	Audio Connector
LVDS1	LVDS Connector
I2C_SMB1	SMB Bus Connector
FAN1	FAN Connector
SATAP1	SATA Power Connector
BL1	Inverter Connector
GPIO1	GPIO Connector
FP1	Power/LED/Case Open/Buzzer Connector
M2_B1	M.2 B-Key (PCIe x1 / USB 2.0)
M2_B2	M.2 B-Key (SATA / PCIe x1)
M2_E1	M.2 E-Key (PCIe x1 / USB 2.0)
BAT1	RTC Battery Connector
SIM1	Nano SIM Connector

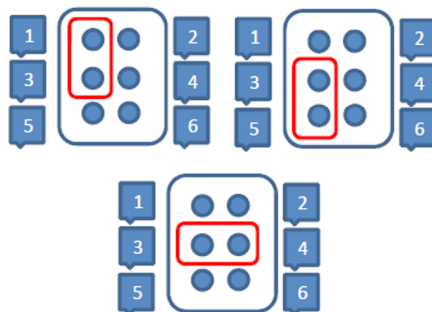
Jumper Settings

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

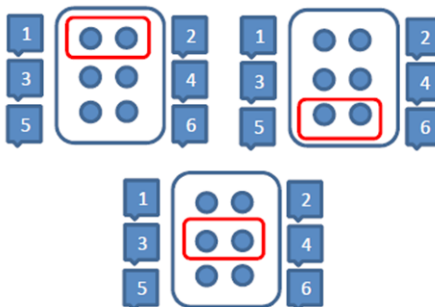
Jumpers and Connectors (Cont.)



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



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



Jumpers and Connectors (Cont.)

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



Jumpers and Connectors (Cont.)

AT_ATX1	ATX/AT Mode Selection
Setting	Function
(1-2)*	AT (Default)
(2-3)	ATX



MIO-5154 Connector Locations

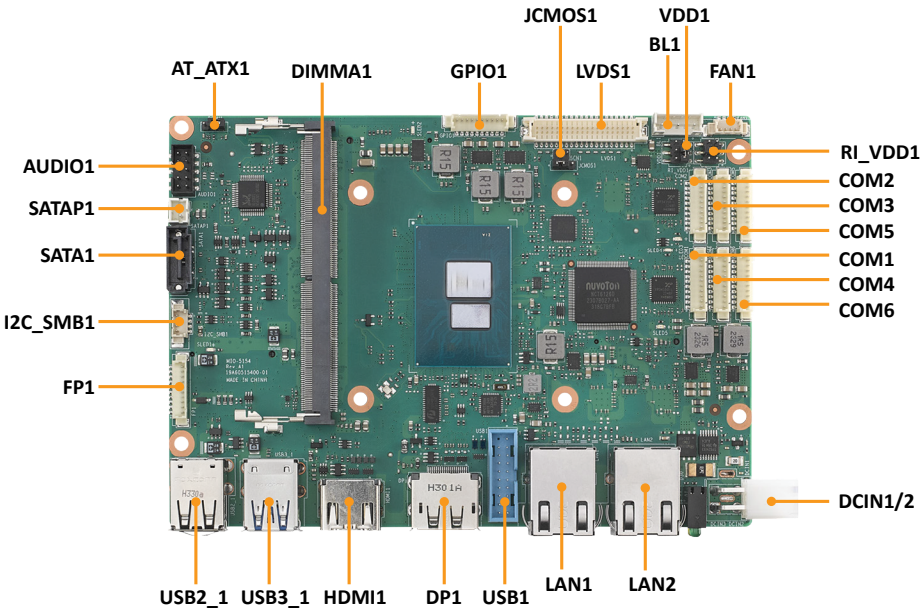


Figure 1: MIO-5154 Mechanical Drawing (Top Side)

MIO-5154 Connector Locations (Cont.)

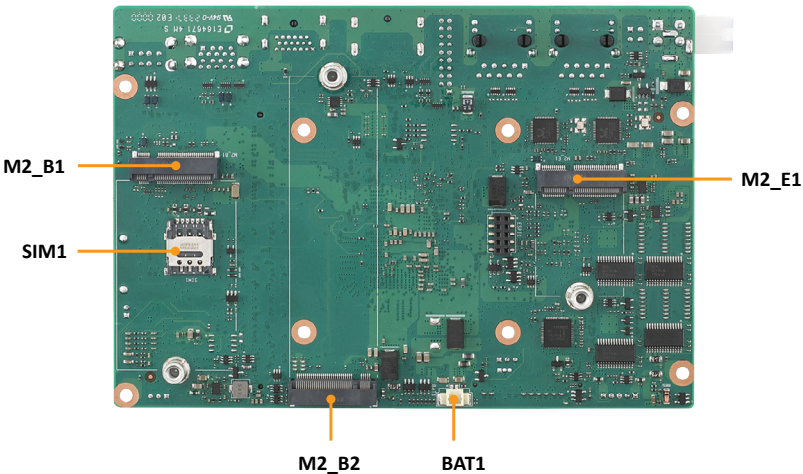


Figure 2: MIO-5154 Mechanical Drawing (Bottom Side)



Figure 3: MIO-5154 Mechanical Drawing (Coastline)

MIO-5154 Mechanical Drawing

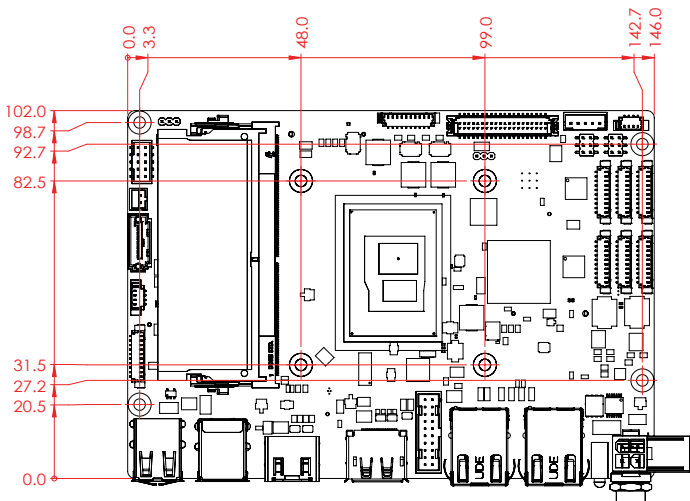


Figure 4: MIO-5154 Mechanical Drawing (Top View)

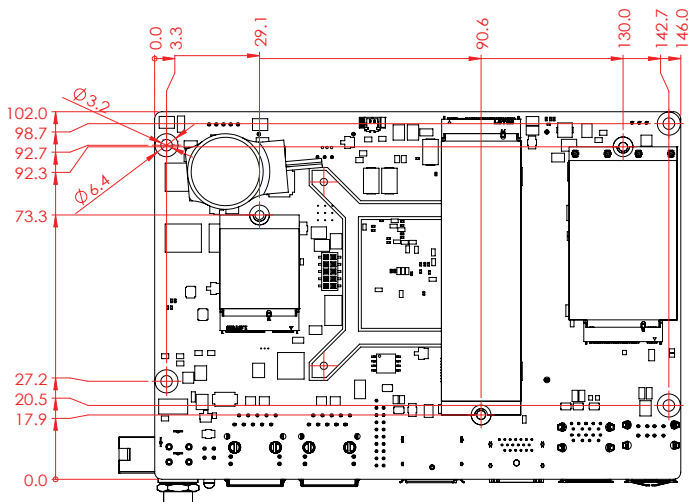


Figure 5: MIO-5154 Mechanical Drawing (Bottom View)

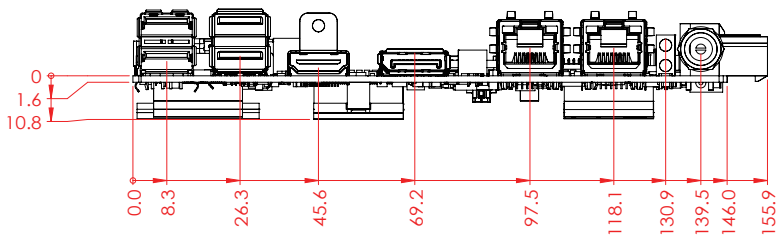


Figure 6: MIO-5154 Mechanical Drawing (Side View)

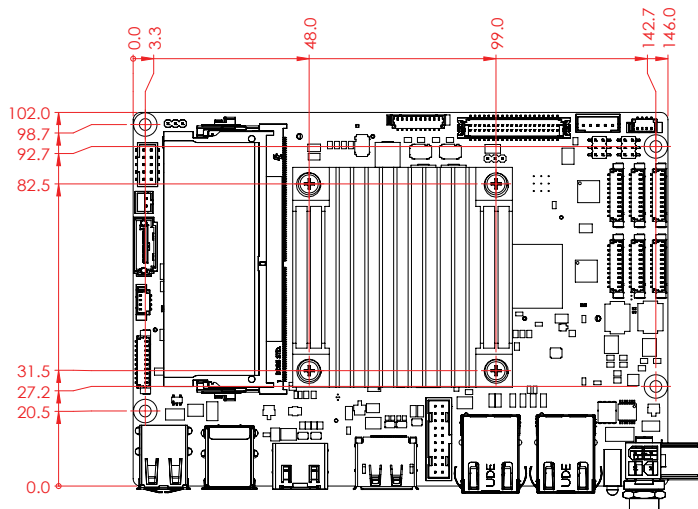


Figure 7: MIO-5154 Mechanical Drawing with CPU Heatsink (Top View)

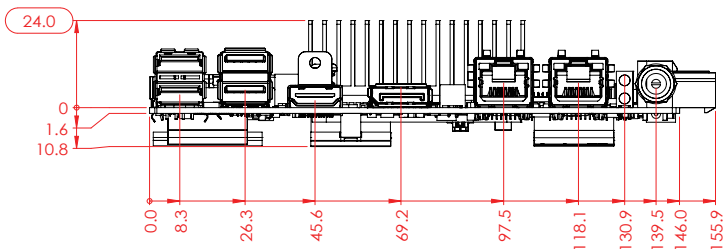


Figure 8: MIO-5154 Mechanical Drawing with 15W/12W CPU Heatsink (Coastline)

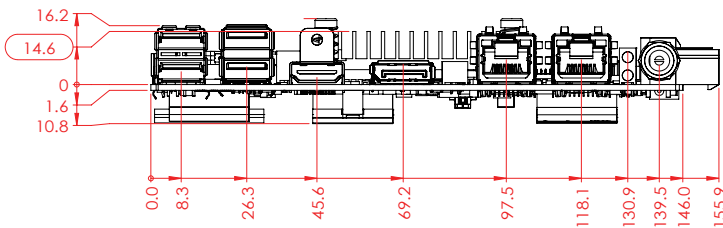


Figure 8: MIO-5154 Mechanical Drawing with 6W CPU Heatsink (Coastline)