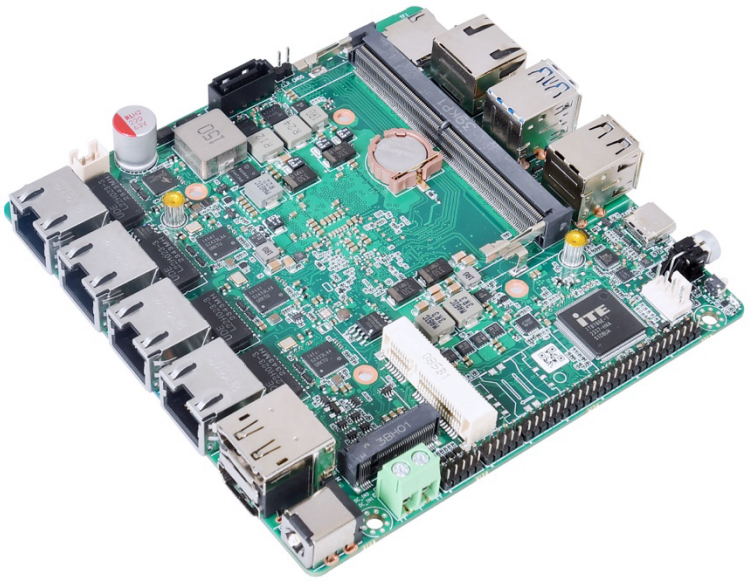
R2 POE Motherboard



User Manual

(AD30NA4L)

2024.04.26

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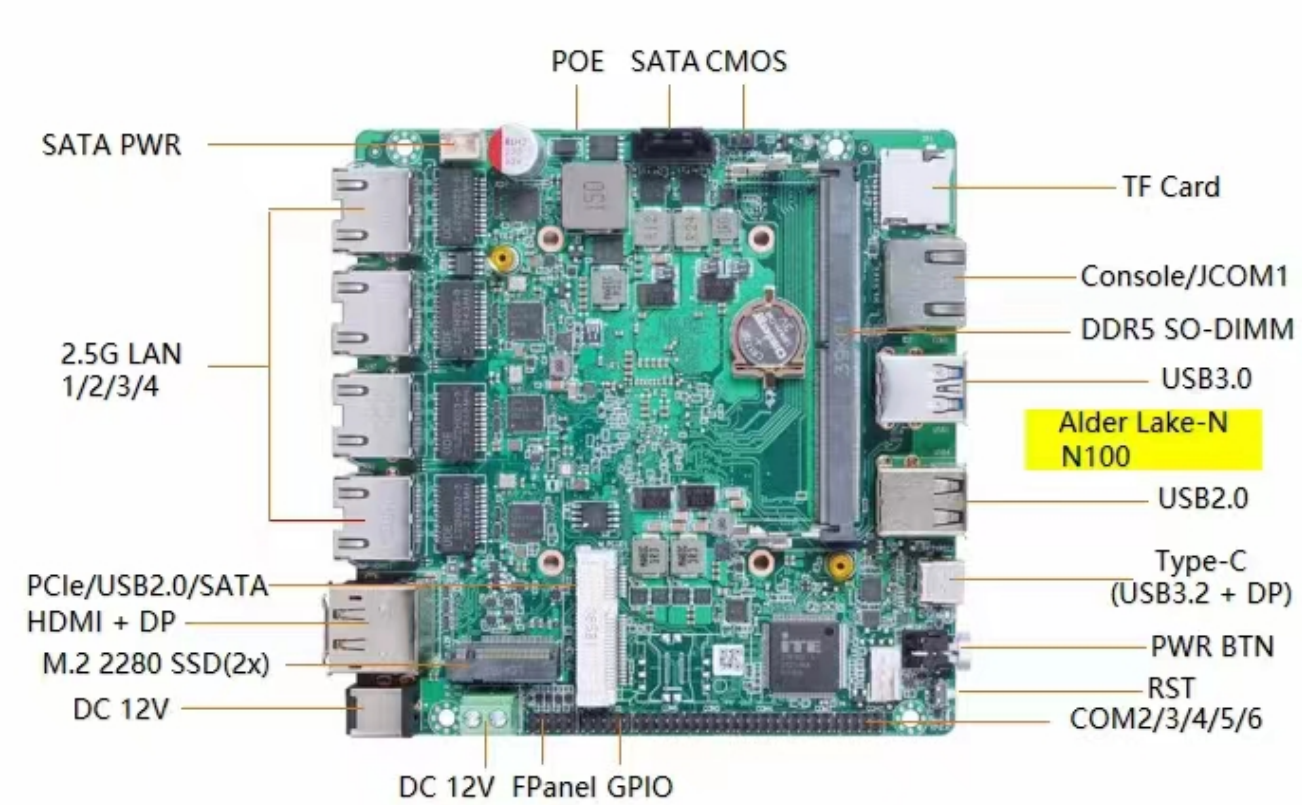
Chapter 1: Product Introduction

1. Product Specification

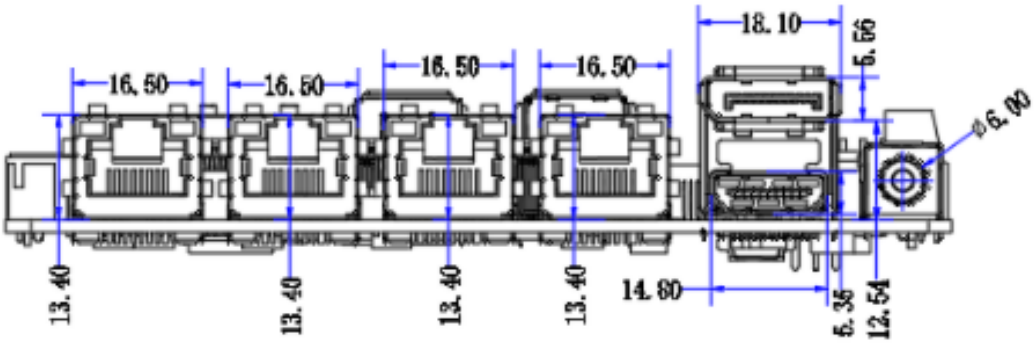
1.1 Hardware:

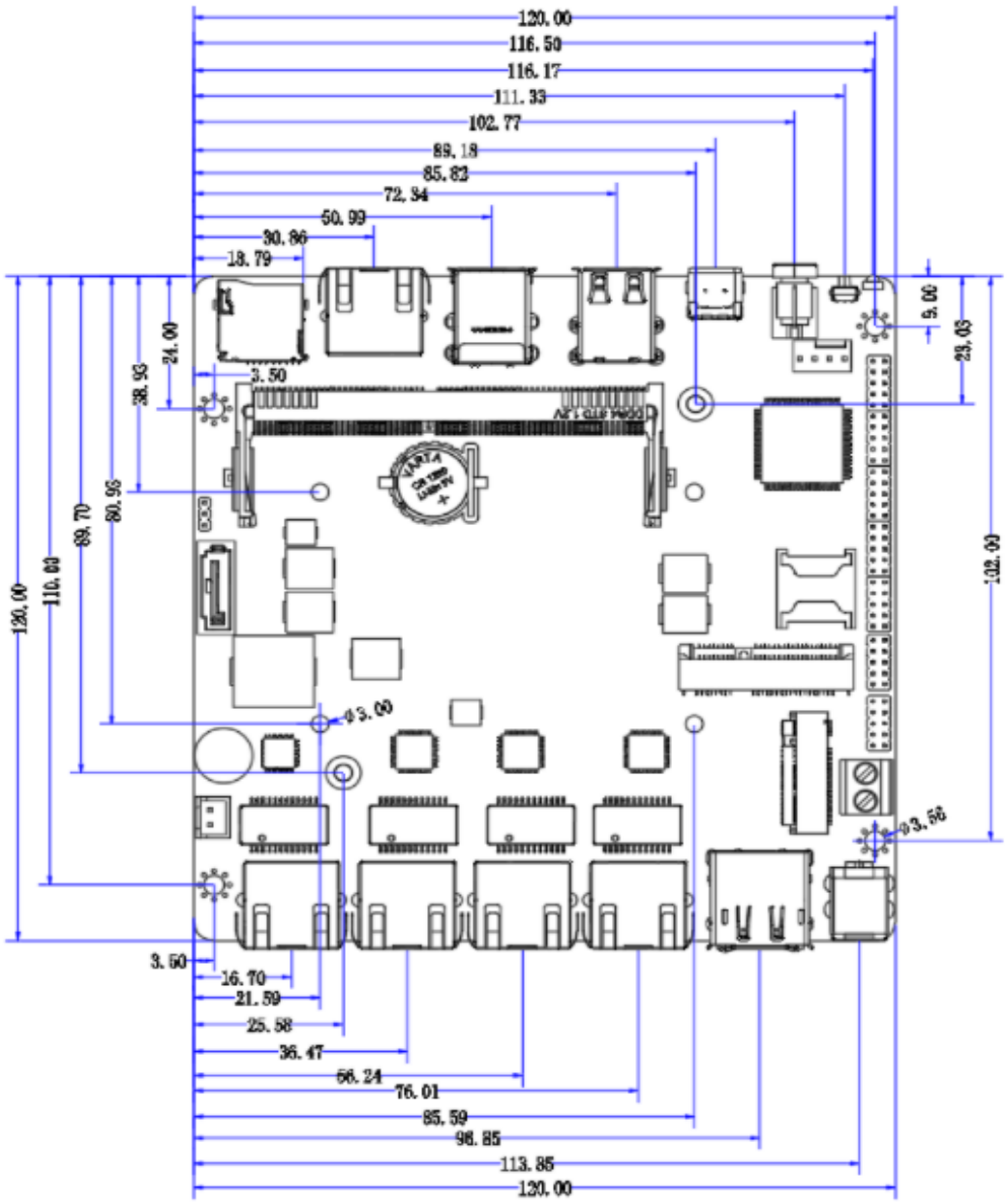
Processor	Intel Alder Lake-N N95, N100, N305 Optional
	AMI EFI BIOS
Memory	1* DDR5 SO-DIMM，Max Support 16GB
Storage	1* M.2 M-Key 2280 (NVMe PCIe3.0 x2 Protocal)
	1* SATA3.0 Slot，2Pin 5V Power Pin
Display	1* HDMI2.0，Support 4096x2160@60Hz
	1* DP，Support 7680x4320@60Hz
	1* USB-C，Support DP 7680x4320@60Hz & USB3.2 Gen2
I/O	Power on btn、Reset btn、2* USB3.0、2* USB2.0、TF Slot(bootable)
	DC JACK、HDMI+DP、Type-C
	4* LAN（3* Intel 226-V(eth0,eth1,eth2)，1*RTL8156B(eth3)， POE 48V/15W Optional）、RJ45 console
Expansion	External TPM2.0 is optional and not included by default. The default configuration uses the CPU's built-in TPM2.0.
	1* MiniPCIe（PCIe+USB2.0+SATA3.0 Protocols, Support WIFI/BT/4G/mSATA Modules）, Micro SIM Slot
	5* RS232 Pin Headers, Pitch 2.0mm；8* GPIO
	1* 4Pin PWM CPU FAN
Power	DC 12V 3A 36W or above
Temperature	Operating temperature: -20°C to +60°C; Operating humidity: 5% to 90%.
	Storage temperature: -40°C to +85°C; Storage humidity: 5% to 90%.
Systems	Windows10，Windows11，Linux
Dimensions	120x120 mm
Net weight	120g

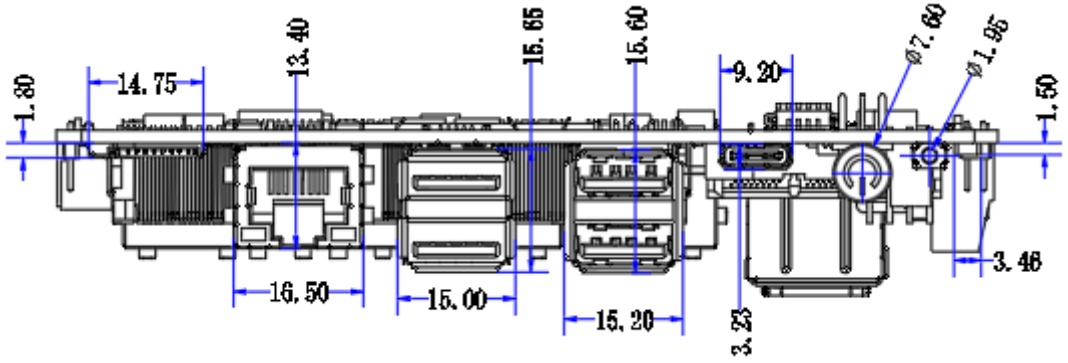
1.2 Product front panel functional diagram



1.3 CAD dimensions：




120.00
116.50
116.17
111.33
102.77
89.18
85.82
72.34
50.99
30.86
18.79
24.00
38.93
80.95
89.70
110.60
120.00
3.50
9.00
23.03
102.00
Ø3.00
Ø3.58
3.50
16.70
21.59
25.58
36.47
56.24
76.01
85.59
98.85
113.85
120.00

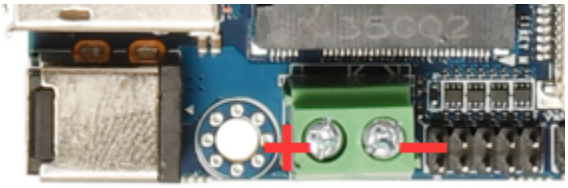

1.80
14.75
13.40
15.65
15.60
9.20
Ø7.60
Ø1.95
1.50
3.46
16.50
15.00
15.20
3.53

Chapter 2: Pin definition

2.1 Pin:

The pin has a prominent triangular, square, or numerical identifier.

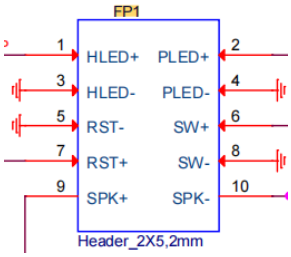
2.2 DC IN Power & phoenix terminal interface：



PAY ATTENTION TO THE POLARITY.

DC_IN3 uses a 5525 DC JACK power interface; DC_IN1 uses a 2-pin phoenix terminal interface. DC_IN1 and DC_IN2 share the same LAY, with DC_IN2 using a 4-pin ATX power interface.

2.3 FP1:



PITCH 2MM

2.4 CFAN SYS_FAN3:

The both are 4-pin CPU fan socket, defined as follows:

PIN	Definition
1	GND
2	+5V
3	FANTAC
4	PWM

2.5 JP1:

CL_CMOS pin header, 1x3Pin, pitch 2.0mm, defined as follows:

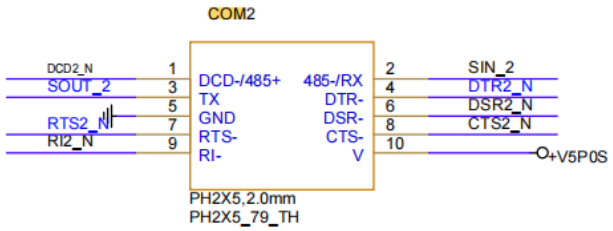
Pin status	Definition	Pin	Definition
Close1-2	Clear CMOS	Open	Default state

2.6 COM

2.6.1 COM1: COM1 (CONSOLE) shares pins with LAY, with RS232 and RS485 of the pins selected through hardware materials.

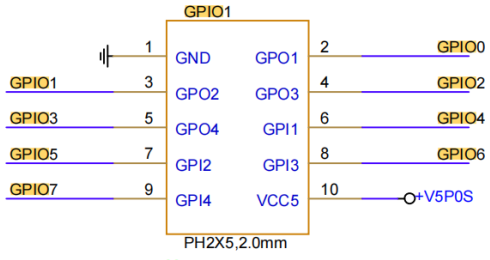
2.6.2 COM2/3/4/5/6:

2 x 5 Pin, pitch 2.0mm, defined as follows:



2.7 GPIO:

2 x 4Pin, pitch 2.0mm, defined as follows:



Appendix: Common Fault Analysis and Solutions

Fault	Checkpoint
The system does not start up after power-on	1. Check if the power connection cable is properly connected. 2. Verify if the power supply meets the motherboard's power requirements. 3. Try reseating the memory modules. 4. Attempt to replace the memory modules. 5. Try clearing the motherboard CMOS according to the motherboard manual. 6. Confirm if there are any expansion cards installed; try removing them to see if the issue persists.
VGA does not output	1. Check if the monitor is turned on. 2. Verify that the power cable is correctly connected to both the monitor and the system unit. 3. Ensure that the monitor cable is properly connected to both the system unit and the monitor. 4. Check if the brightness control on the monitor is set to a dark state; you can increase the brightness using the brightness control. For detailed instructions, refer to the monitor's user manual. 5. The monitor may be in "power saving" mode; press any key on the keyboard to wake it up.
BIOS Setup can’t be saved	1. Please confirm if the CMOS battery voltage is below 2.8V. If it is below 2.8V, please replace the battery with a new one and reset to save settings. 2. Incorrect BIOS settings. According to the startup screen prompts (such as pressing "DEL"), adjust the time and date in BIOS Setup.
No bootable device found	1. Please check if the hard drive power cable and data cable are properly connected. 2. Please confirm if the drive has any physical damage. 3. Please verify if the operating system is properly installed on the storage

Blue screen or system crash during startup.	1. Please check if the memory modules and external cards are loose. 2. Try removing newly installed hardware, uninstalling drivers, or software. 3. Attempt to replace the memory.
Slow system startup	1. Try using third-party software to check for bad sectors on the hard drive. 2. Verify if there is insufficient remaining space on the partition where the system is installed. 3. Confirm if the CPU cooling fan is functioning properly.
Automatic system restart	1. Please check if the CPU cooling fan is operating normally. 2. Verify if the industrial computer reset button was accidentally triggered. 3. Use antivirus software to check for virus infections in the system. 4. Ensure that the memory modules and expansion cards are securely seated. 5. Verify if the power supply has sufficient capacity; consider trying a different power supply if necessary.
Unable to detect USB device.	1. Please check if the USB device requires separate power. 2. Ensure there is no loose connection in the USB port. 3. Confirm in the BIOS Setup that the USB controller is enabled.