

## Main Features

- Intel® Alder Lake N Processors, Intel 7 process
- 1 x DDR4 SO-DIMM, up to 16GB
- Support 2 x HDMI 2.0 output 4K@30Hz and 1 x eDP 1920 x 1080@60Hz (optional : LVDS selected by jumper)
- TPM 2.0 onboard design for security technology
- Richful I/O connectivity: 2 x 2.5GbE LAN, 4 x USB 3.2 Gen2
- 1 x M.2 2242 Key M for supporting PCIe & SATA storage device
- 1 x Mini PCIe slot support Wi-Fi and LTE module
- Support power input 12 VDC

## Product Overview

X102 is under the 3.5" SBC series which is based on multi-core SoC Intel® Alder Lake N processors. This X102 series of 3.5inch board is aimed at embedded application and powered by Intel® processor-N50, N97 featuring upgraded computing performance with low power-efficient and integrated a rich set of IOT features. It supports 2 x HDMI 2.0 display output, dual 2.5GbE LAN ports, 4 x USB 3.2 Gen 2 port, 1 x RS232/RS422/RS485 port, and an M.2 2242 Key M storage slot that supports PCIe and SATA format. In addition, the mPCIe slot support LTE and Wi-Fi6/6E module.

The X102 series is the ideal item for a lot of usages like IOT gateway, self-service kiosks, endless aisles, QSRs, drive-thru kiosks, bus stops, digital transit information signs, intelligent Pole/lighting system, information display system, such as PIDS for smart city.

## Specifications

### CPU Support

- Intel® Alder Lake N processor, N50 (up to 3.4 GHz, 6W)
- Intel® Alder Lake N processor, N97 (up to 3.6 GHz, 12W)

### Graphic & Display

- Intel® UHD graphics
- 2 x HDMI 2.0, up to 3840 x 2160@30Hz
- 1 x eDP, up to 1920 x 1080@60Hz (optional : LVDS selected by jumper)

### Main Memory

- 1 x DDR4 260-pin SO-DIMM, up to 3200MHz with non-ECC, unbuffered memory up to 16GB

### Onboard LAN

- 2 x 2.5GbE RJ45 LAN port, Intel® i226-V LAN controller
- Support wake on LAN function

### Audio

- Realtek ALC888S

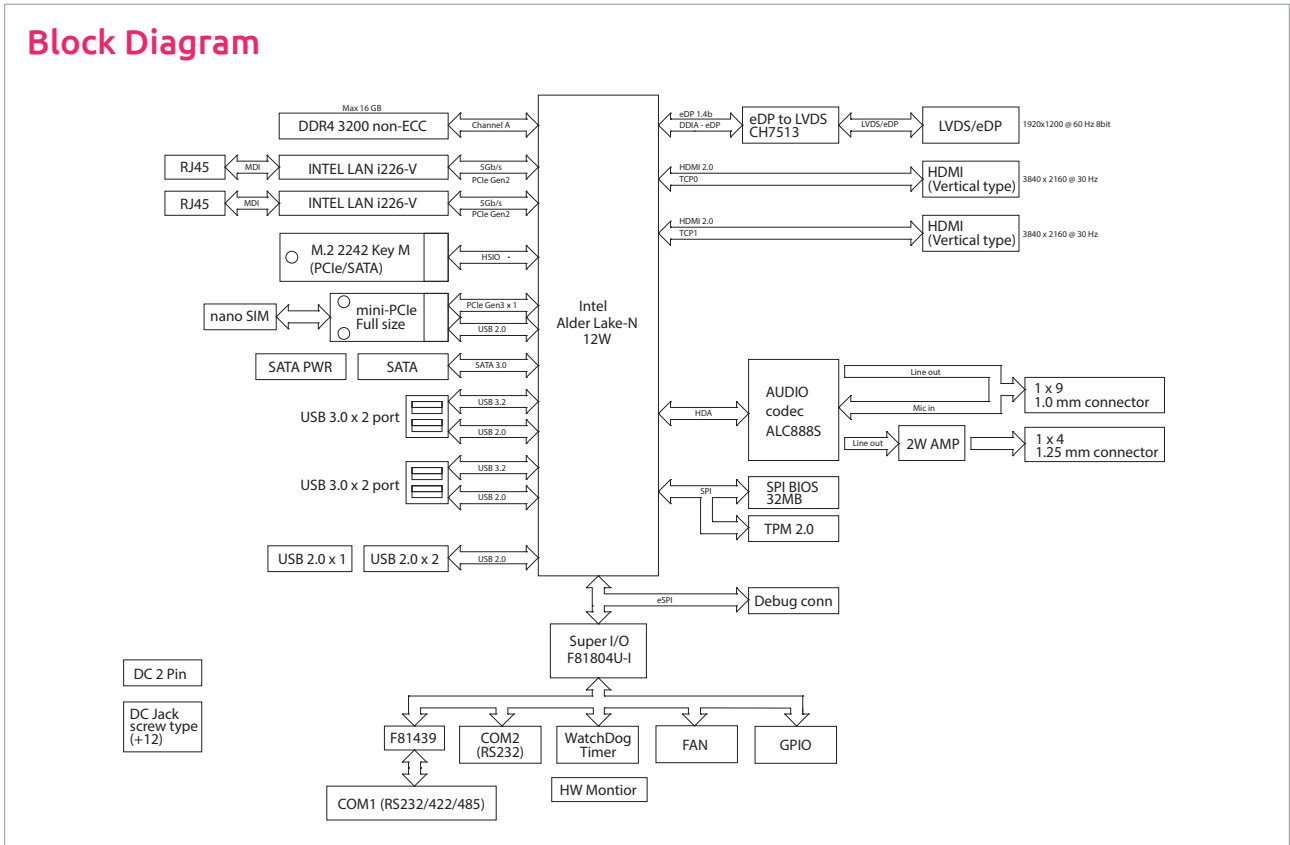
### Storage

- 1 x M.2 2242 Key M storage for supporting SATA & PCIe signal
- 1 x 7-pin SATA connector and 1 x 2-pin for SATA power connector

### Edge I/O Interface

- 2 x RJ45 connector with LEDs
- 2 x HDMI 2.0 output
- 4 x USB 3.2 Gen 2
- 1 x Power button with LED
- 1 x DC in Jack with lock
- 1 x Storage active LED

## Block Diagram



### Onboard Internal I/O

- COM1: RS232/422/485, 1 x 9-pin header
- COM2: RS232 only, 1 x 9-pin header (RI/5V/12V)
- 1 x 10-pin header for GPIO, 4 x GPI, 4 x GPO
- 1 x 10-pin debug connector
- 1 x 4-pin fan connector
- 1 x 2-pin header for system reset button
- 2 x 6-pin header for 3 x USB 2.0 port
- 1 x 4-pin DIP switch for resolution selection
- 2 x 3-pin header for LVDS inverter connector
- 1 x 9-pin header for MIC-in and Line out
- 1 x 4-pin header for speaker out, 2W

### Expansion

- 1 x Mini PCIe full-size connector with SIM slot (nano) onboard, supports Wi-Fi 6/6E and LTE module

### Power Requirements

- 12V DC input

### Environment

- Operating temperature: 0°C to 60°C
- Storage temperature: -20°C to 80°C
- Relative humidity : 95% (non-condensing)

### Dimension

- 146mm (L) x 102mm (W) (5.7" x 4.0")

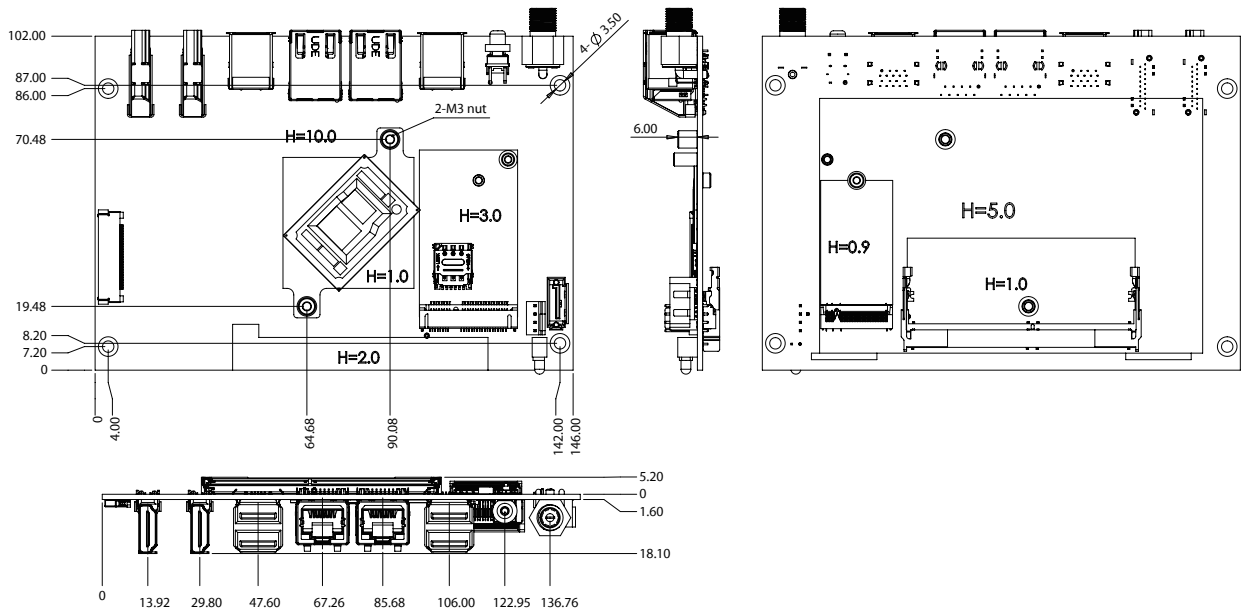
### Certification

- CE (EN55035 + EN55032)
- FCC Class B (EMI part 15B)

### Operating System

- Win 11 64-bit
- Win 10 64-bit
- Linux

## Dimension Drawing (mm)



## Ordering Information

- X102-N50 (P/N: 10W10X10203X0)**  
 Embedded board with Intel® Alder Lake N, N50 processor, 6W with 2 x HDMI 2.0, 4 x USB 3.2 Gen 2, 2 x 2.5GbE LAN, 2 x COM, 1 x eDP, 1 x M.2 Key M, 1 x Mini PCIe
- X102-N97 (P/N: 10W10X10204X0)**  
 Embedded board with Intel® Alder Lake N, N97 processor, 12W with 2 x HDMI 2.0, 4 x USB 3.2 Gen 2, 2 x 2.5GbE LAN, 2 x COM, 1 x eDP, 1 x M.2 Key M, 1 x Mini PCIe