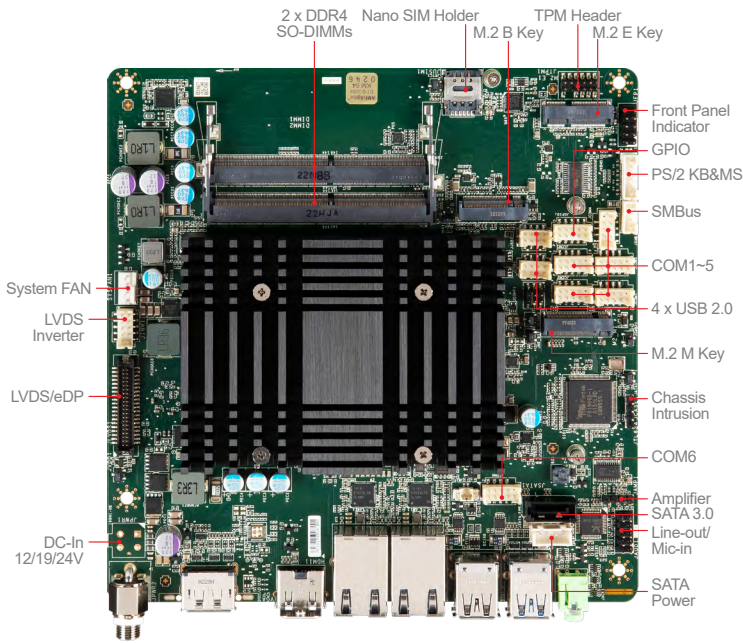


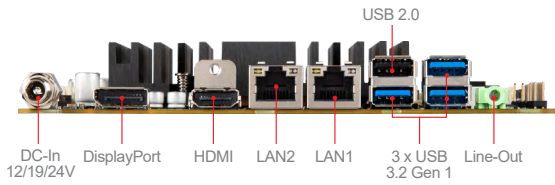
# MS-98N1

Mini-ITX with Intel® Elkhart Lake SoC Series for Fanless, Low-Power, High-Performance, Multi-Displays & Multi-Functions Solution

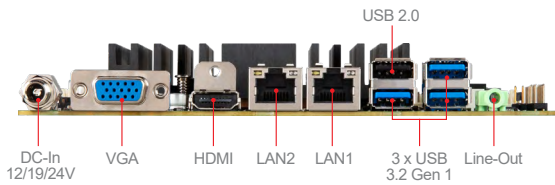
Industrial Computer  
COM Express Board  
Pico-ITX Board  
3.5" Board  
EPIC Board  
Mini-ITX Board  
Micro-ATX Board  
ATX Board  
Peripheral



## SKU 1



## SKU 2



## Features

- Intel® Elkhart Lake Series SoC
- 2 DDR4 3200MHz SODIMM slots up to 32GB
- Triple independent displays: 1 HDMI, 1 DP/VGA, 1 LVDS/eDP
- 2 2.5GbE LAN with RJ-45
- M.2 E Key, M.2 B Key (with SIM Holder)
- M.2 M Key, 1 SATA 3.0 for storage
- 3 USB 3.2 Gen 1, 5 USB 2.0, 6 COM (2 RS-485), GPIO, PS/2, Audio, System FAN
- Onboard TPM 2.0
- DC-in 12V/19V/24V

## Ordering Information

| Part Number | Description |
|-------------|-------------|
| Coming soon |             |

## Packing List

| Part Number | Description | Quantity |
|-------------|-------------|----------|
| Coming soon |             |          |

## Optional Item

| Part Number | Description |
|-------------|-------------|
| Coming soon |             |

## Specifications

|                            |                              | SKU1   | SKU2 |
|----------------------------|------------------------------|--|------|
| <b>Processor</b>           | CPU                          | Intel® Celeron® Processor J6412, QC, 10W<br>Intel® Celeron® Processor N6210, DC, 6.5W  |      |
|                            | Frequency                    | J6412, 2.0 GHz, up to 2.6 GHz<br>N6210, 1.2 GHz, up to 2.6 GHz   |      |
|                            | L2 Cache                     | 1.5MB  |      |
|                            | CPU Type                     | BGA  |      |
|                            | Chipset                      | Integrated in SoC  |      |
| <b>Memory</b>              | BIOS                         | AMI  |      |
|                            | Technology                   | Dual-channel DDR4 3200 MHz   |      |
|                            | Max. Capacity                | Up to 32 GB  |      |
|                            | Socket                       | 2 x 260-pin DDR4 SO-DIMMs  |      |
| <b>Display</b>             | Controller                   | Intel® UHD Graphics  |      |
|                            | Graphic Memory               | Depends on CPU   |      |
|                            | LVDS                         | 1 x Dual channel 18/24-bit (Connector shared with eDP)   |      |
|                            | eDP                          | 1 (Connector shared with LVDS)   |      |
|                            | VGA                          | N/A  | 1    |
|                            | DVI                          | N/A  |      |
|                            | HDMI                         | 1  |      |
| <b>Ethernet</b>            | DisplayPort                  | 1  | N/A  |
|                            | Multiple Display             | 3 independent displays   |      |
|                            | Display Interface            | LVDS up to 1920 x 1200 @60Hz   |      |
|                            |                              | eDP up to 4096 x 2160 @60Hz  |      |
| DP up to 4096 x 2160 @60Hz |                              |  |      |
| <b>Ethernet</b>            | HDMI up to 4096 x 2160 @24Hz |  |      |
|                            | VGA up to 1920 x 1200 @60Hz  |  |      |
| <b>Ethernet</b>            | Controller                   | 2 x Intel® I225-V 2.5 GbE LAN  |      |
| <b>Audio</b>               | Controller                   | Realtek® ALC888-VD2-GR HD Audio Codec (Co-Lay ALC897)  |      |
| <b>Super I/O</b>           | Controller                   | Fintek F81966D-I   |      |
| <b>H/W Monitor</b>         | Watchdog Timer               | 256-level Watchdog Timer   |      |
|                            | Smart Fan                    | Yes  |      |
| <b>TPM</b>                 | Controller                   | Infineon SLB9672VU 2.0   |      |
| <b>I/O Interface</b>       | USB                          | 5 x USB 2.0 (1 x rear, 4 x internal)<br>3 x USB 3.2 Gen 1 (rear)   |      |
|                            | Serial                       | 6 x COM ports (internal)<br>COM1: RS-232/422/485, RI/OV/5V/12V<br>COM2: RS-232/422/485, OV/5V/12V<br>COM3-6: RS-232, W/O Power               |      |
|                            | Parallel                     | N/A  |      |
|                            | PS/2                         | 1 (pin header)   |      |
|                            | GPIO                         | 8-bits (8 x GPI, 8 x GPO), 5V  |      |
|                            | <b>Expansion Slot</b>        | PCIe x 16  | N/A  |
| PCIe x 4                   |                              | N/A  |      |
| PCIe x 1                   |                              | N/A  |      |
| PCI                        |                              | N/A  |      |
| M.2                        |                              | 1 x M key (SATA), 2242<br>1 x B key (PCIe x1, USB 3.2 Gen 1 x 1, USB 2.0 w/NANO SIM-Holder), 2242/3042<br>1 x E key (PCIe x1, USB 2.0), 2230 |      |
| Mini-PCIe                  |                              | N/A  |      |
| <b>Storage</b>             | SATA                         | 1 x SATA 3.0   |      |
|                            | IDE                          | N/A  |      |
|                            | eSATA                        | N/A  |      |
|                            | CFast                        | N/A  |      |
|                            | mSATA                        | N/A  |      |
| <b>Power Supply</b>        | CompactFlash                 | N/A  |      |
|                            | DC                           | DC-in 12/19/24V  |      |
| <b>Environment</b>         | ATX                          | N/A  |      |
|                            | Operating Temperature        | -10 ~ 60°C<br>Note: Thermal w/ Airflow:0.7m/s  |      |
|                            | Operating Humidity           | 10 ~ 90%, non-condensing   |      |
| <b>Form Factor</b>         | Storage Temperature          | -20 ~ 80°C   |      |
|                            | Storage Humidity             | 10 ~ 90%, non-condensing   |      |
| <b>Certification</b>       | Dimensions                   | 170 x 170 mm (Mini-ITX)  |      |
|                            | Weight                       | 0.50 kg  |      |
| <b>Software Platform</b>   | EMC                          | FCC, CE, RCM, VCCI, BSMI, UKCA, IIC  |      |
|                            | OS Support                   | Windows 10 IoT Enterprise 2021 LTSC (64-bit, 21H2)<br>Linux Ubuntu22.04 (kernel5.15) (by request)  |      |