Ordinateur embarqué > Ordinateur à carte unique > Carte intégrée
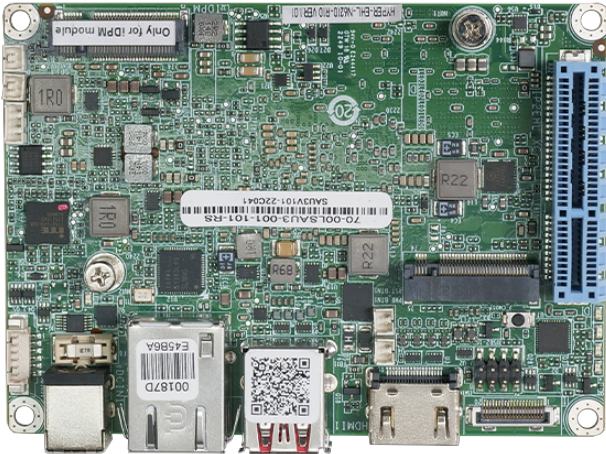
# HYPER-EHL

Pico-ITX SBC supports Intel® Celeron J6412/N6210 on-board SoC, with 4GB LPDDR4x memory on board default, with HDMI™, iDPM, M.2 M key, USB 3.2, iSATA 6GB/s, COM, PCIe x4 for riser card and RoHS

## Features

» Support Intel® Atom™ x6000 series / Pentium® / Celeron® processor (Elkhart Lake platform)

» Support Intel® I225V/I226V 2.5GbE Ethernet controller

» Support dual independent display via HDMI™ and iDPM

» Support one PCIe x4 and one M.2 M Key expansions

» Support two USB 3.2 Gen 2, two USB 2.0, with up to 10Gb/s transfer speed

## Specifications

| Form Factor | |
|---|---|
| Form Factor | Pico-ITX |
| **System** | |
| CPU | » Onboard Intel® Atom™ x6000 series Celeron® processor (Elkhart Lake platform) |
| | » Intel® Celeron® J6412 on-board SoC (up to 2.6GHz, quad-core, 1.5M Cache, TDP=10W) |
| | » Intel® Celeron® N6210 on-board SoC (up to 2.6GHz, dual-core, 1.5M Cache, TDP=6.5W) |
| Memory | LPDDR4x-3200Gbps 4GB,up to 8GB |
| Memory Max. | 8GB |
| **Physical Characteristics** | |
| Dimensions (LxWxH) (mm) | 100mm x 72mm |
| Net Weight | 600g |
| **Storage** | |
| Storage | 1 x SATA : iSATA 6Gb/s |
| | 1 x M.2(NGFF) : M key (2242,PCIe Gen3 X 2) |
| **I/O Interface** | |
| Display Output | 1 x HDMI™ : up to 4096x2160 @ 30Hz |
| | 1 x iDPM : support iEi eDP/ LVDS/ VGA module |
| Ethernet | 1 x LAN - |
| | LAN1: Intel® I225V/I226V 2.5GbE controller |
| I/O Interface | 1 x Internal RS-232/422/485 : 1x9 pin, P=1.25 |
| | 2 x Internal USB 2.0 : 2x4 pin, P=2.0 |
| | 2 x External USB 3.2 Gen2x1 : 10Gb/s (Type A) |
| Expansion | 1 x PCIe x4 (PCIe Gen3 x4) |
| | 1 x M.2(NGFF) : M key (2242,PCIe Gen3 X 2) |
| **Power** | |
| Power Consumption | 12V@ 2.07A |
| | (Intel® Celeron® J6412 CPU with 4 GB 3200 MHz LPDDR4x memory, max. loading, EuP mode enabled) |

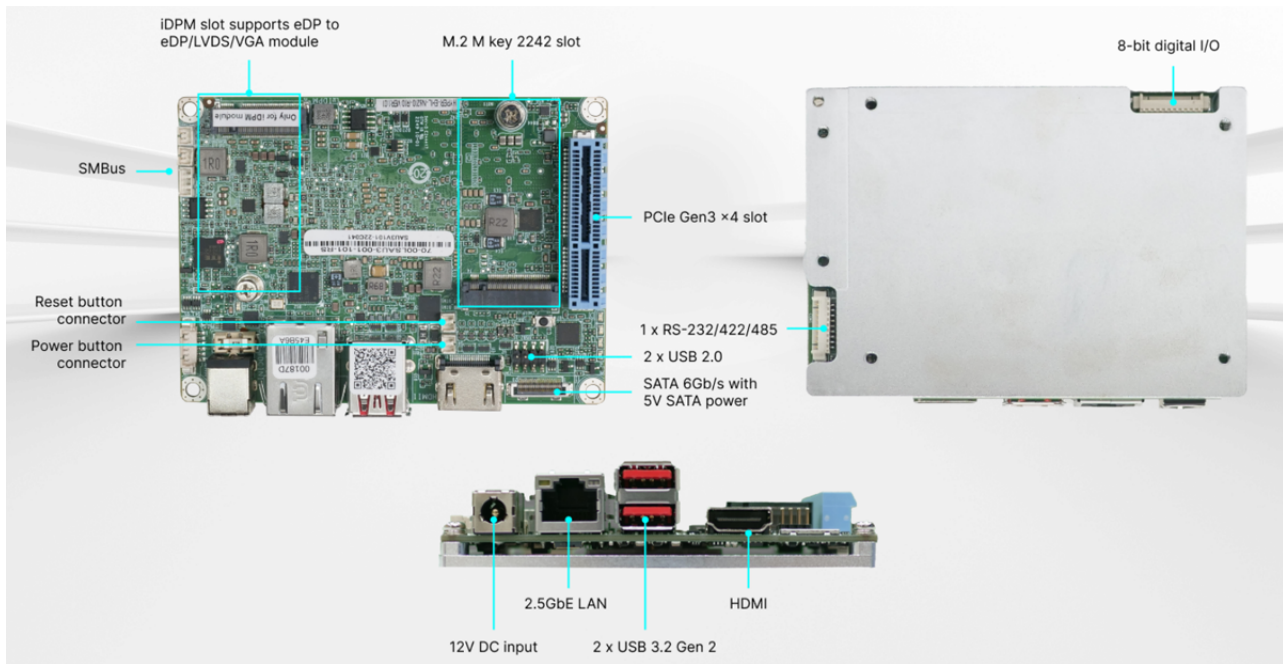| Power Supply | ATX/AT power supply |
|---|---|
| | Support AT/ATX mode |
| | ErP/EuP Compliant |
| Environment | |
| Operating Temperature | -10°C~60°C |
| Storage Temperature | -30°C~70°C |
| Humidity | 5% ~95%, non-condensing |

## Ordering Information

| HYPER-EHL-N6210B-R10 | PICO-ITX SBC supports Intel® two-core Celeron® N6210 1.2GHz on-board SoC, with 4GB LPDDR4x memory on board default,with HDMI™,iDPM,M.2 M key,USB 3.2,iSATA 6GB/s,COM,PCIe x4 for riser card and RoHS |
|---|---|
| HYPER-EHL-J6412B-R10 | PICO-ITX SBC supports Intel® quad-core Celeron® J6412 2.0GHz on-board SoC, with 4GB LPDDR4x memory on board default, with HDMI™,iDPM,M.2 M key,USB 3.2,iSATA 6GB/s,COM,PCIe x4 for riser card and RoHS |

## Packing List

| 1 x HYPER-EHL single board computer | 1 x iSATA Cable |
|---|---|
| 1 x QIG | |

PCIe Gen3 x4   LPDDR4x-3200   Dual Display   M.2 M Key   2.5GbE   iSATA 6Gb/s
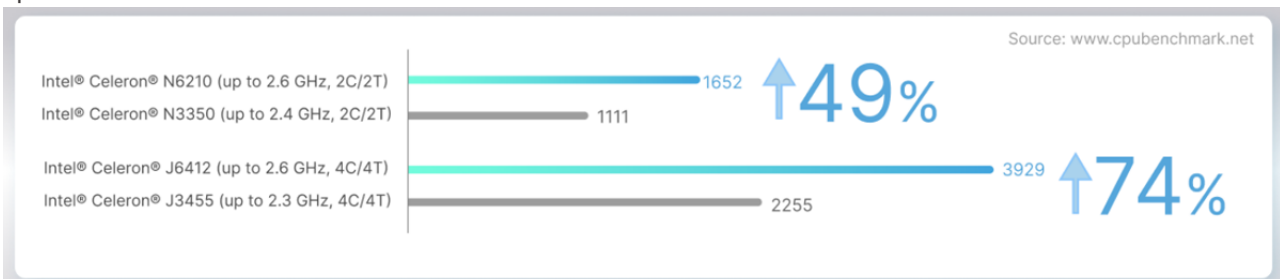
The HYPER-EHL is a 2.5" Pico-ITX fanless single board computer powered by an on-board Intel® Celeron® J6412/N6210 processor with Intel® UHD Graphics. It supports dual independent display, and offers multiple high-speed I/O on a board size of just 100 x 72 mm, including 2.5GbE, USB 10Gb/s and RS-232/422/485. Additional functionalities can be added through the equipped PCIe Gen3 x4 slot, enhancing the flexibility on system integration in many space-critical applications such as AMR/AGV, delivery robot, EV charging station and medical care system.

iDPM slot supports eDP to eDP/LVDS/VGA module

M.2 M key 2242 slot

8-bit digital I/O

SMBus

PCIe Gen3 ×4 slot

Reset button connector

Power button connector

1 x RS-232/422/485

2 x USB 2.0

SATA 6Gb/s with 5V SATA power

2.5GbE LAN

HDMI

12V DC input

2 x USB 3.2 Gen 2

## High Performance with Low Power Intel® Celeron® J6412/N6210 On-board SoC

Equipped with Intel® Celeron® J6412/N6210 processor and 4GB on-board LPDDR4X, the HYPER-EHL can deliver high levels of CPU and graphics performance at low power. Compared to the previous generation, it improves up to 1.7x on CPU and up to 2x on graphics, and gets up to 74% higher benchmark score. With the feature of low power and excellent throughput, the HYPER-EHL can benefit IoT edge computing by saving lots of energy while maintaining high computation.



Source: www.cpubenchmark.net

Intel® Celeron® N6210 (up to 2.6 GHz, 2C/2T) 1652 ↑49%
Intel® Celeron® N3350 (up to 2.4 GHz, 2C/2T) 1111

Intel® Celeron® J6412 (up to 2.6 GHz, 4C/4T) 3929 ↑74%
Intel® Celeron® J3455 (up to 2.3 GHz, 4C/4T) 2255

### Long-term Support

CERTIFIED LONG-TERM SUPPORT

Intel® Celeron® J6412/N6210 processor is available and supported for an extended period (based on Intel IOTG Roadmap). This long-term availability can benefit integrators who are looking to maximize their return on investment.

## Reliable 4GB LPDDR4x Memory

Equipped with 4GB dual-channel LPDDR4x soldered memory, the HYPER-EHL offers a fast memory speed of up to 3200MT/s and with low voltage (VDDQ voltage 0.6V). The soldered-on-board type enables the HYPER-EHL to deliver much more stable, solid operation compared to the socket-type memory for critical usage such as transportation, AMR and other mobile applications.

LPDDR4x Memory
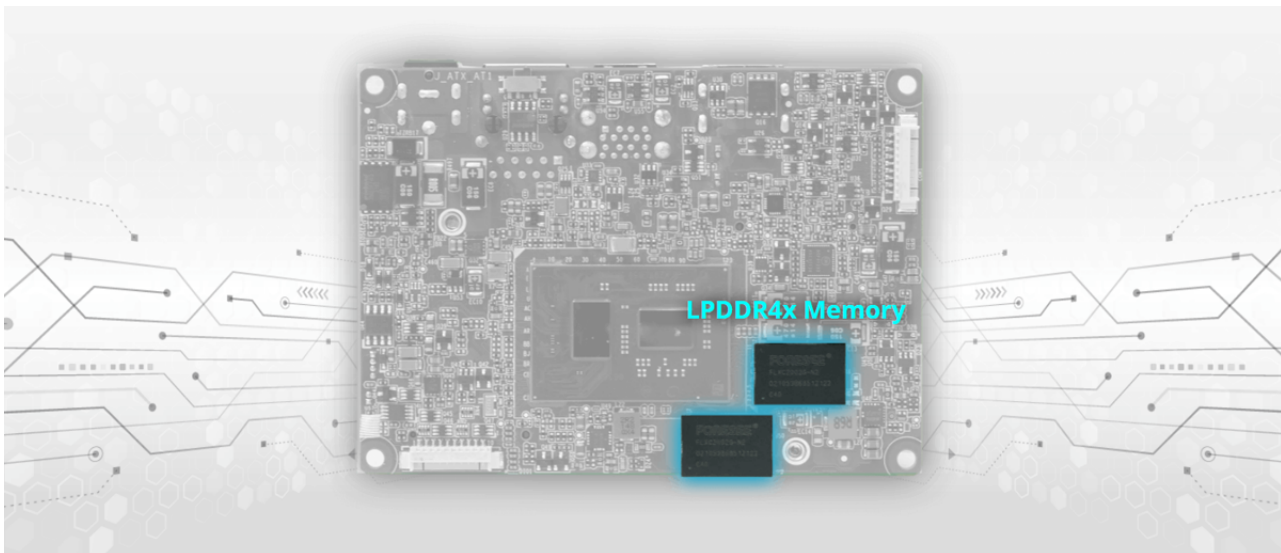
## PCI Express Gen3 Slot Allows Extensive I/O and Function Expansion
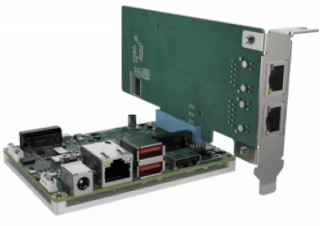
The HYPER-EHL features a PCIe Gen3 x4 (x4 signal) slot, which is a new design of IEI 2.5" single board computer to provide easy integration of PoE cards, video capture cards, I/O cards or the compatible IEI riser cards for more function expansions. IEI riser cards are available with different orientations and configurations, offering great flexibility and expandability. Each of the riser card came with a metal holder for enhancing stability, not only the riser card itself but also the expansion card installed on it.



**Outwards-facing Expansions: Two PCIe x2 / Four PCIe x1**
The outwards-facing riser cards enable the connection of up to four outwards-facing PCIe x1 slots via one PCI Express interface. Although may take up more space, it can help enhance the airflow and heat transfer within the system. It is ideal for the chassis that is wide enough for the expansion card to be placed.



**Inwards-facing Expansions: Two PCIe x2 / Four PCIe x1**
The inwards-facing riser cards enable the connection of up to four inwards-facing PCIe x1 slots via one PCI Express interface. It is suitable for installation where space is limited. With higher height to increase spacing between boards, it can ensure efficient heat dissipation for space-constrained applications.
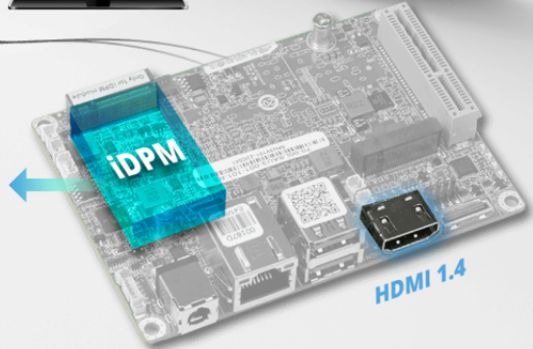
**PCIe x4 Interface Card Expansion**

The PCIe Gen3 x4 (x4 signal) slot, providing high-speed data transfer rate of up to 4GB/s, allows for additional customization and expansion. Directly installing a PCIe card enables the motherboard to run more complex and challenging tasks at the edge.

# Dual Display Outputs Support Graphics in 4K

The integrated Intel® UHD Graphics, featuring max. 16 EUs, up to 2x performance improvement and 4K support, makes the HYPER-EHL have the ability to drive a maximum resolution of 4kp30 on two simultaneous displays through the HDMI™ 1.4 port and the IEI-specific iDPM slot.



**iDPM Modules**   iDPM-LVDS-R10   iDPM-eDP-R10   iDPM-VGA-R10

iDPM-LVDS-R10
eDP to LVDS converter

HDMI 1.4

## 2.5GbE Network Enables Efficient Data Transfer

The RJ45 LAN port provides 2.5GbE connectivity by the integrated Intel® I225V controller. It accelerates overall network performance, delivers lightning-fast speed, and improves the bandwidth required at large-scale workloads. By connecting with a 2.5G network switch, it can form a solid, optimized infrastructure for the deployment of edge IoT to communicate between devices efficiently.

## NVMe SSD via M.2 PCIe Gen3 Ensures Fast and Stable Data Transfer

SSD is widely used in industrial applications to provide reliable data storage due to its features of shock and temperature resistance, long lifetime and high stability. The equipped M.2 2242 M-key socket comes with PCI Express® Gen3 x2 bandwidth and supports up to 16Gbps data-transfer speeds, making them the perfect choice for installing NVMe SSD to provide fast data access in rugged environment.
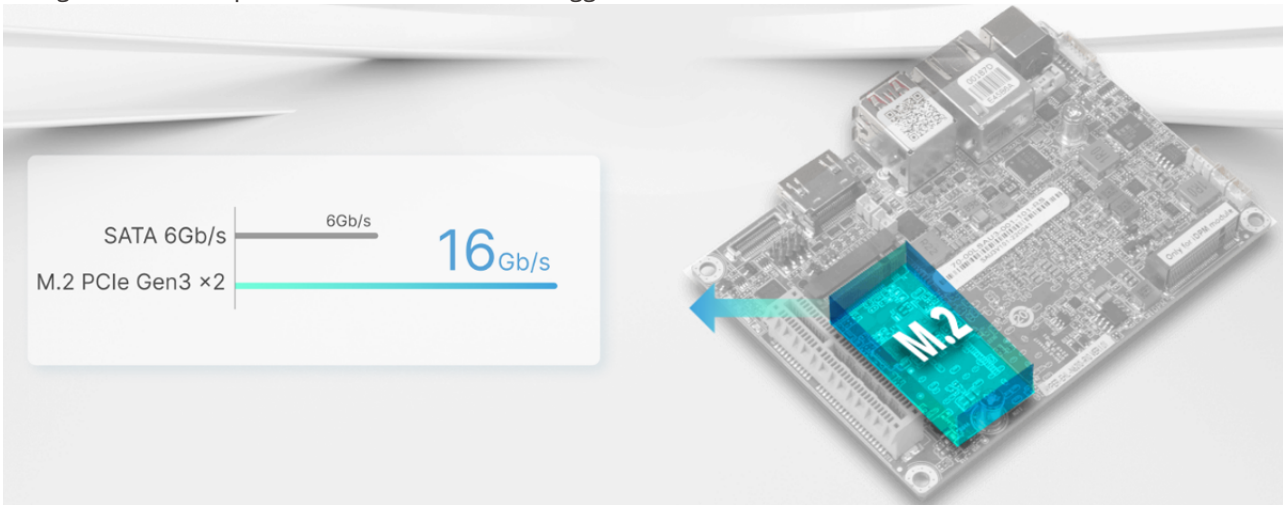


## Low-profile SATA 6Gb/s Port with Data and Power Integrated

SATA 6Gb/s SSD or HDD is supported through the iSATA connector that provides both SATA and SATA power (+5V) signals in a small footprint. This low-profile connector can save space in system integration while enabling high-speed data transfer between devices at the edge.
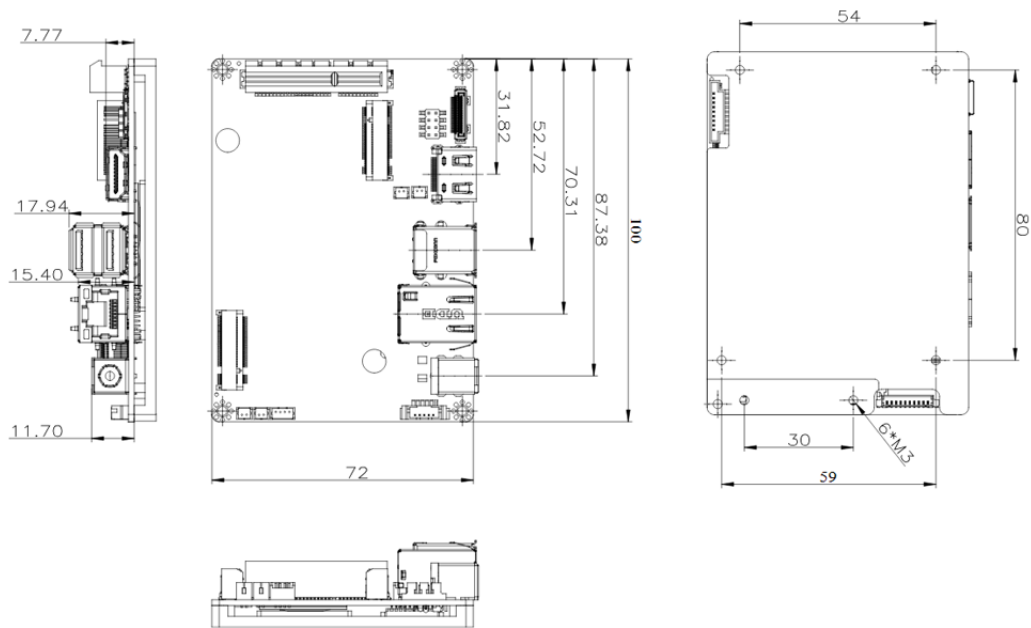


## Applications



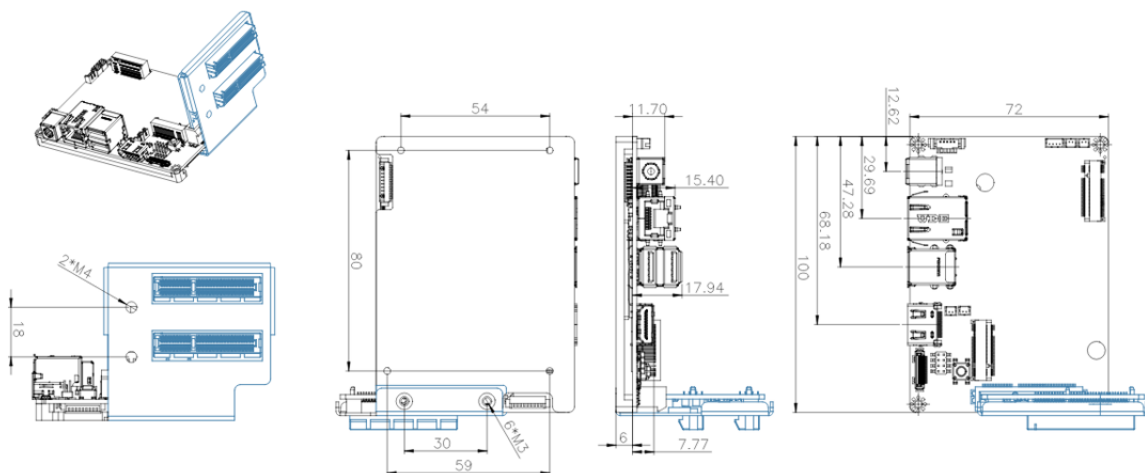AMR/AGV

Robot arm

Delivery drone
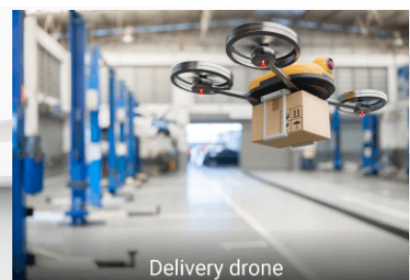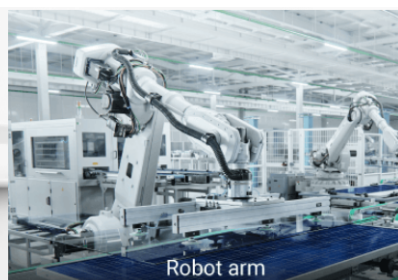
EV charging station


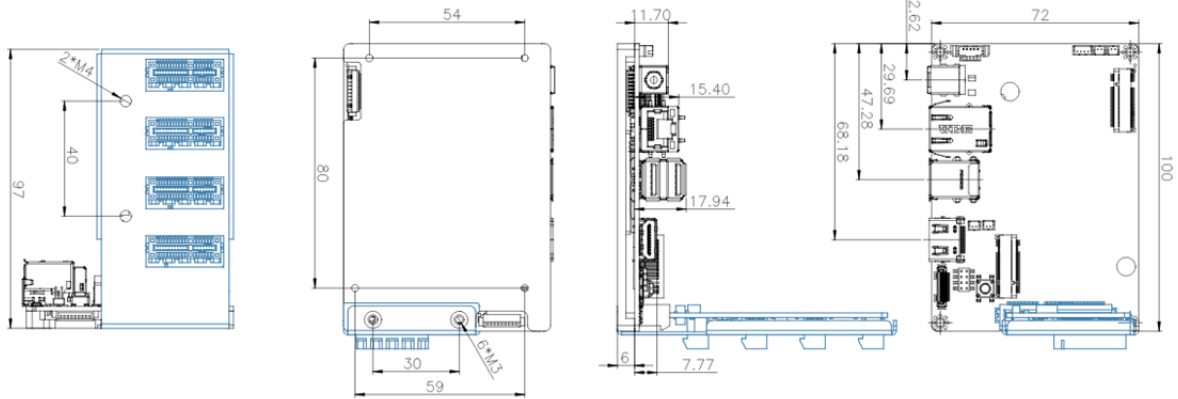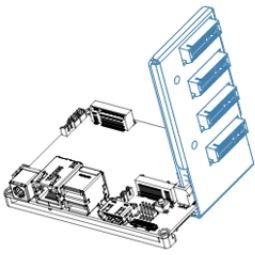Medical care system


Smart parcel locker
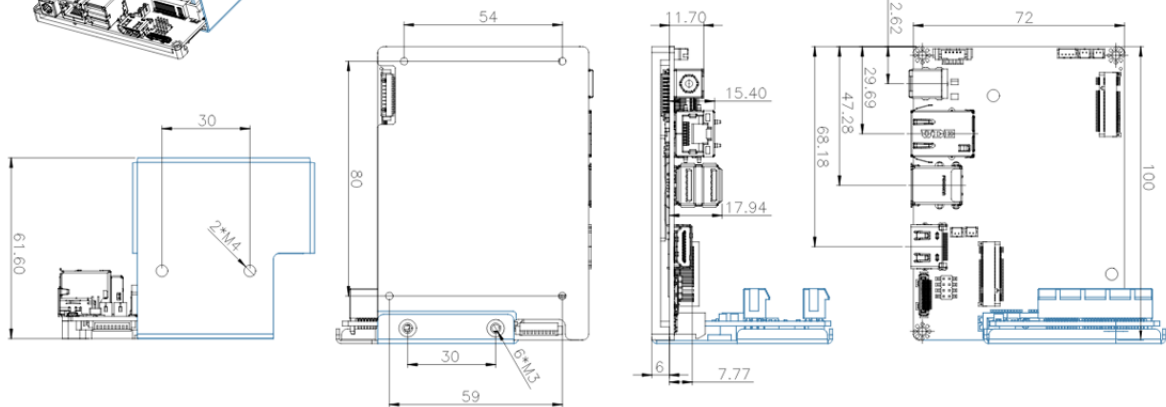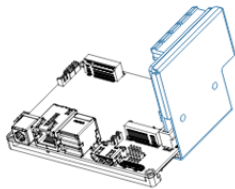
# Dimensions

## HYPER-EHL



## SBC with Outwards-facing Riser Card (R2S)



## SBC with Outwards-facing Riser Card (R4S)

SBC with Inwards-facing Riser Card (L2S)



SBC with Inwards-facing Riser Card (L4S)