

# EMS-EHL-PSE

**Intel® Elkhart Lake Atom®/Celeron® Processor Fanless Rugged Embedded System, w\_PoE IET Module**



## Product Features

- Intel® Celeron®/Atom™ J6413/x6425E SoC BGA Processor
- Rich I/O, 4-USB3.2, 2-USB2.0, 1-DP, 1-HDMI, 2-COM, 2-LAN, 4-PoE(af/at), 1-8bit GPIO
- Fanless operation temperature from -40°C ~ 70°C (WT) / 0°C ~ 65°C (ST)
- Wide range DC power input from +9~36V
- Support IET modules
- 1 x 260-pin SODIMM socket Max. up to 32GB DDR4 3200MT/s
- Support 5G (Sub-6G) module, HDMI 2.0b (4K @ 60Hz), LAN 2.5G Base-Tx GbE
- CE, FCC Class B, LVD 62368-1, IP50
- Support HW TPM 2.0

## Specification

### System Information

<b>Processor</b>	Intel® Celeron® Processor J6413 (1.5M Cache, up to 3.00Ghz), ST, Tj=105°C Intel® Atom® Processor x6425E(1.5M Cache, up to 3.00Ghz), WT, Tj=-40°C ~105°C
<b>System Memory</b>	1 x 260-pin SODIMM socket Max. Up to 32GB DDR4 3200 MT/s
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec.
<b>H/W Status Monitor</b>	CPU & system temperature monitoring and Voltages monitoring
<b>TPM</b>	TPM 2.0
<b>SBC</b>	EBM-EHLS

### Expansion

<b>M.2</b>	1 x M.2 Key-B 2242/3042/3052 support SATA3/ PCIe III/ USB3.2 Gen.1 and SIM slot1 (internal), default support 3.3V, jumper setting to adjust 3.3V/ 3.8V 1 x M.2 Key-E 2230 for Wi-Fi & BT Module (USB2.0/ PCIe III)
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## Storage

<b>M.2</b>	1 x M.2 Key-B 2242/2280, support SATA 1 x M.2 Key-B 2242, support SATA (share with expansion slot)
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## Front I/O

<b>Power Button</b>	1 x Push Button for Power on/off
<b>Reset Button</b>	1 x Push Button for Reset
<b>LED Indicator</b>	1 x Power LED (Blue) 1 x Storage LED (Yellow)- M.2 B-key SATA 1 x LTE LED (Green)- M.2 B-key PCIe 1 x Wifi LED (Green)- M.2 E key
<b>COM Port</b>	2 x COM RS232/422/485 (select via BIOS, auto flow control via HW)
<b>Digital I/O</b>	1 x 8-bit GPIO (DB9)
<b>Audio</b>	1 x Mic-In, 1 x Line-Out
<b>Wire-Control Power On/Off</b>	1 x 2-Pin Terminal Block for wire-control power on/off
<b>Antenna</b>	2 x Antenna with dust cover

## Rear I/O

<b>USB</b>	2 x USB 2.0 2 x USB 3.1 Gen.2 (10Gbp/s) 2 x USB 3.1 Gen.1 (5Gbp/s), via USB Hub
<b>LAN Port</b>	EMS-EHL-PSEBF 6 x RJ45, support 4 ports IEEE 802.3af  EMS-EHL-PSEBT 4 x RJ45, support 2 ports IEEE 802.3at
<b>Audio</b>	1 x Mic-In, 1 x Line-Out
<b>DP</b>	1 x DP 1.4
<b>HDMI</b>	1 x HDMI 2.0b
<b>Antenna</b>	2 x Antenna with dust cover

## Right I/O

<b>Antenna</b>	2 x Antenna with dust cover
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## Left I/O

<b>Antenna</b>	2 x Antenna with dust cover
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## Display

<b>Graphic Chipset</b>	Intel® UHD Graphics for 10th Gen Intel® Processors
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**Resolution** DP++ 1.4: 4096x2304 @ 60Hz  
HDMI 2.0b : Max. resolution 4096x2304 @ 60Hz

## Audio

**Audio Codec** Realtek ALC888S (co-lay with ALC897) HD codec

## Ethernet

**LAN Chipset** EMS-EHL-PSEBF  
2 x Intel® I226-IT  
4 x Intel® I210-IT

EMS-EHL-PSEBT  
2 x Intel® I226-IT  
2 x Intel® I210-IT

**Specification** EMS-EHL-PSEBF  
2 x 10/100/1000/2.5G Base-Tx GbE compatible  
4 x 10/100/1000Base-Tx GbE compatible

EMS-EHL-PSEBT  
2 x 10/100/1000/2.5G Base-Tx GbE compatible  
2 x 10/100/1000Base-Tx GbE compatible

## Power Requirement

**ACPI** Single power ATX Support S0,S3, S4, S5  
ACPI 5.0 Compliant

**Power Mode** AT/ATX (ATX is default setting)

## Software Support

**OS** Win 10 64bit / Win 11 64 bit/ Linux

## Certification

**Certification Information** CE, FCC Class B, LVD 62368-1

## Mechanical & Environmental

**Operating Temp.** -40°C ~ 70°C (w/SSD) ambient w/ 0.5 air flow, WT sku, x6425E  
-40°C ~ 60°C (w/SSD) ambient w/ 0.2 air flow, WT sku, x6425E  
0°C ~ 65°C (w/SSD) ambient w/ 0.5 air flow, ST sku, J6413  
0°C ~ 55°C (w/SSD) ambient w/ 0.2 air flow, ST sku, J6413

**Storage Temp.** -30°C ~ 70°C (-22°F ~ 158°F)

**Operating Humidity** 40°C @ 95% Relative Humidity, Non-condensing

**Dimension (W x L x H)** 240mm x 150mm x 64 mm (w/ IET module)

**Weight** 1.9 kg (System)  
2.7 kg (w\_Package)

**Vibration Test** With SSD : 5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 1hr/axis

**Shock Test** With SSD : 55Grms, IEC 60068-2-27, Half Sine, 11ms

**IP Rating**

IP 50

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**Mounting Kit**

Wall mount kit (standard)  
DIN RAIL (optional)

## Ordering Information

**Ordering Information**

Intel® Elkhart Lake Atom®/Celeron® Processor Fanless Rugged Embedded System, w\_PoE IET Module

Support 4 ports IEEE 802.3af  
EMS-EHL-J64-A1-DR (J6413)  
EMS-EHL-X64-A1-DR (x6425E)

Support 2 ports IEEE 802.3at  
EMS-EHL-J64-A1-ER (J6413)  
EMS-EHL-X64-A1-ER (x6425E)

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