



## ECM-EHL

### Intel® Elkhart Lake 3.5" Micro Module

- > Bottom Layer Soldered Processor
- > Single DRAM Socket, Max, Up to 32GB DDR4 3200MTs (non-ECC Supported)
- > Triple Display, DP 1.4a , HDMI 2.0b, eDP 1.3
- > Dual Expansion Slot, M.2 Key-B, M.2 Key-E
- > Dual Intel® Gigabit Ethernet, 2.5GbE, 1GbE
- > Wide Temperature, -40°C ~ 85°C
- > Wide DC-Input, +9~36Vdc

## + Spec

System Information	
<b>Processor</b>	Onboard Intel® Pentium®/Celeron®/Atom™ SoC BGA Processor (Elkhart Lake Platform 4.5~12W)- (with CPU Bottom Mounted)
<b>Platform Controller Hub</b>	Elkhart lake SoC integrated
<b>System Memory</b>	Single 260-pin DDR4 SODIMM Socket, Supports Up to 32GB DDR4 3200MTs SDRAM (non ECC Supported)
<b>I/O Chipset</b>	EC ITE IT5571
<b>BIOS Information</b>	AMI BIOS, 256Mbit SPI Flash ROM
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step
<b>H/W Status Monitor</b>	CPU & system temperature monitoring Voltages monitoring
<b>TPM</b>	TPM 2.0 (NuvoTon_NPC750AAAYX/ Infineon_SLB9670VQ2.0 co-lay) Default is NuvoTon
Expansion	
<b>Expansion</b>	1 x M.2 (Key-B, 2242/3042, PCIe2, or ( PCIe1+USB3.1 GEN2), or (SATAIII + USB 3.1 GEN2), USB2.0, SIM Slot for SSD/LTE/IO Cards) *Default is PCIe1/SATAIII+USB3.1 GEN2 1 x M.2 (Key-E, 2230, PCIe1, USB2.0)
Storage	
<b>Storage</b>	1 x M.2 (Key-B, 2242) 1 x SATA III
I/O	
<b>USB Port</b>	2 x USB 3.1 (Gen2 10Gbps) 4 x USB 2.0
<b>COM Port</b>	1 x RS-422/485 3 x RS232
<b>SATA</b>	1 x SATA III
<b>DIO</b>	1 x 2x6-Pin Header (2.0mm) for 8-bit GPIO, SMBUS, +5V, GND
<b>MIO</b>	1 x eSPI
<b>Other</b>	2 x LAN
Display	
<b>Graphic Chipset</b>	Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics
<b>Spec. &amp; Resolution</b>	HDMI 2.0b Max resolution 4096x2160@60Hz DP 1.4a Max resolution 4096x2160@60Hz eDP1.3 Max resolution 4096x2160@60Hz
<b>Multiple Display</b>	Triple Display
Audio	
<b>Audio Codec</b>	92HD73C Tempo
<b>Audio Interface</b>	Mic-In, Line-In, Line-Out in pin header
Certifications	
<b>Certification Information</b>	CE FCC Class B
Ethernet	
<b>LAN Chipset</b>	Intel® I225LM, I210AT for standard temperature Intel® I225IT, I210IT for wide temperature
<b>Ethernet Interface</b>	1 x 10/100/1000/2.5G Base-Tx GbE compatible 1 x 10/100/1000 Base-Tx GbE compatible
<b>LAN Port</b>	2 x RJ-45
Mechanical & Environmental	
<b>Operating Temperature</b>	Standard Temperature: 0°C ~ 60°C with 0.2m/s air flow Wide Temperature: -40°C ~ 85°C with 0.5m/s air flow
<b>Storage Temperature</b>	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Weight</b>	0.44lbs (0.2kg)
<b>Vibration Test</b>	1.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/Axis, 3 Axis

<b>Shock Test</b>	10G, IEC 60068-2-27, Half Sine, 11ms, Z Axis
<b>Drop Test</b>	ISTA 2A, IEC-60068-2-32 Test : Ed, 1 Corner, 3 Edges, 6 Faces
<b>Power Requirement</b>	Typical 12/24Vdc (+9~ 36Vdc)

<b>ACPI</b>	Single power ATX Support S0,S3, S4, S5 ACPI5.0 Compliant
<b>Power Mode</b>	AT/ATX (Default Setting: AT)
<b>Dimension (L x W)</b>	5.7" x 4" (146mm x 101mm)
<b>Software Support</b>	
<b>OS Information</b>	Win 10 Linux
<b>Ordering Information</b>	
<b>Ordering Information</b>	<p>ECM-EHL-J6412-A1R (0~+60C) ECM-EHL/J6412/1SATA/4COM/6USB/2LAN/A1</p> <p>ECM-EHL-J6413-A1R (0~+60C) ECM-EHL/J6413/1SATA/4COM/6USB/2LAN/A1</p> <p>ECM-EHL-X13E-A1R (Wide temp.-40~+85C) ECM-EHL/x6413E/1SATA/4COM/6USB/2LAN/A1</p> <p>ECM-EHL-X25E-A1R (Wide temp.-40~+85C) ECM-EHL/x6425RE/1SATA/4COM/6USB/2LAN/A1</p>