



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
- > With extend temperature, -40°C ~ 85°C
- > Wide DC-Input, +9~36Vdc

+ Spec

System Information

Processor	Onboard Intel® Pentium®/Celeron®/Atom™ SoC BGA Processor (Elkhart Lake Platform 4.5~12W)- (with CPU Bottom Mounted)
Platform Controller Hub	Elkhart lake SoC integrated
System Memory	Single 260-pin DDR4 SODIMM Socket, Supports Up to 32GB DDR4 3200MTs SDRAM (non ECC Supported)
I/O Chipset	EC ITE IT5571
BIOS Information	AMI BIOS, 256Mbit SPI Flash ROM
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step
H/W Status Monitor	CPU & system temperature monitoring Voltages monitoring
TPM	TPM 2.0 NuvoTon_NPCT750AADYX (for standard temp) & NPCT754AADYX (for extend temp), co-lay Infineon_SLB9670VQ2.0 Default is NuvoTon

Expansion

Expansion	1 x M.2 (Key-B, 2242/3042, PCIe2, or (PCIe1+USB3.1 GEN 1), or (SATAIII + USB 3.1 GEN1), USB2.0, SIM Slot for SSD/LTE/IO Cards) *Default is PCIe1/SATAIII+USB3.1 GEN1 1 x M.2 (Key-E, 2230, PCIe1, USB2.0)
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Storage

Storage	1 x M.2 (Key-B, 2242) 1 x SATA III
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I/O

USB Port	2 x USB 3.1 (Gen2 10Gbps) 4 x USB 2.0
COM Port	1 x RS-232/422/485 3 x RS232
SATA	1 x SATA III
DIO	1 x 2x6-Pin Header (2.0mm) for 8-bit GPIO, SMBUS, +5V, GND
MIO	1 x eSPI
Other	2 x LAN

Display

Graphic Chipset	Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics
Spec. & Resolution	HDMI 2.0b Max resolution 4096x2160@60Hz DP 1.4a Max resolution 4096x2160@60Hz eDP 1.3 Max resolution 4096x2160@60Hz
Multiple Display	Triple Display

Audio

Audio Codec	92HD73C Tempo
Audio Interface	Mic-In, Line-In, Line-Out in pin header

Certifications

Certification Information	CE FCC Class B
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Ethernet

LAN Chipset	Intel® I225LM/I225IT, I210AT/I210IT
Ethernet Interface	1 x 10/100/1000/2.5G Base-Tx GbE compatible 1 x 10/100/1000 Base-Tx GbE compatible
LAN Port	2 x RJ-45

Mechanical & Environmental

Operating Temperature	Operating Standard Temp: 0°C ~ 60°C with 0.5m/s air flow Extend Temp: -40°C ~ 85°C with 0.5m/s air flow.
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.44lbs (0.2kg)



Vibration Test	1.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/Axis, 3 Axis
Shock Test	10G, IEC 60068-2-27, Half Sine, 11ms, Z Axis
Drop Test	ISTA 2A, IEC-60068-2-32 Test : Ed, 1 Corner, 3 Edges, 6 Faces
Power Requirement	Typical 12/24Vdc (+9~ 36Vdc)

ACPI	Single power ATX Support S0,S3, S4, S5 ACPI 5.0 Compliant
Power Mode	AT/ATX (Default Setting: AT)
Dimension (L x W)	5.7" x 4" (146mm x 101mm)
Software Support	
OS Information	Win 10 Linux
Ordering Information	
Ordering Information	ECM-EHL-J6412-A1R ECM-EHL/J6412/1SATA/4COM/6USB/2LAN/A1 ECM-EHL-J6413-A1R ECM-EHL/J6413/1SATA/4COM/6USB/2LAN/A1 ECM-EHL-X13E-A1R ECM-EHL/x6413E/1SATA/4COM/6USB/2LAN/A1 ECM-EHL-X25RE-A1R ECM-EHL/x6425RE/1SATA/4COM/6USB/2LAN/A1