



ESM-EHLC

Onboard Intel® Celeron®/ Pentium®/ Atom™ SoC BGA Processor Type 6 COMe Compact Module

- > Onboard Intel® Celeron®/ Pentium®/ Atom™ SoC BGA Processor
- > 2x SODIMM DDR4 3200 SDRAM slot up to 32GB, support In-Band ECC memory protection (selected SKUs)
- > Triple display support, Display Port1.4, HDMI2.0b/1.4b, Dual Channel LVDS, VGA, eDP1.3 (optional)
- > Intel I225 Gigabit Ethernet
- > 2 SATA (6.0GB/s), 8 USB 2.0, 4 x USB 3.2 Gen2x1, 3 PCIe1 Gen3, 8-bit GPIO, eMMC Flash (build option)
- > HD Audio Interface
- > +9~+19V Wide Range Power Input
- > Type 6 Rev3.0 Pin-out
- > Compact Size: 95x95mm
- > TPM 2.0 (Optional)
- > eMMC 5.1 up to 128GB (optional)

Spec

System Information	
Processor	Intel® Celeron® J6413 4C 1.8 GHz/ 10W Intel® Celeron® J6412 4C 1.8 GHz/ 10W Intel® Atom® x6413E 4C 1.5 GHz/ 9W Intel® Atom® x6425RE 4C 1.9 GHz/ 12W
Platform Controller Hub	Elkhart Lake SoC integrated
System Memory	Two 260-pin SODIMM DDR4 3200 SDRAM slot up to 32GB, support In-Band ECC memory protection (selected SKUs)
I/O Chipset	ITE IT5571
BIOS Information	AMI uEFI BIOS, 256 Mbit SPI Flash ROM
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec. and 1sec./step
H/W Status Monitor	Monitoring System Temperature, Voltage and FAN Status with Auto Throttling Control
TPM	TPM 2.0 (Optional)
Expansion	
Expansion	3 PCIe1 Gen3 (8.0 GT/s)
I/O	
USB Port	8 x USB 2.0 4 x USB 3.2 Gen2x1 (10 Gbps)
COM Port	2 x COM Ports (RX/TX only)
SATA	2 x SATA3.0 (6.0Gb/s)
DIO	1 x 8bit GPIO
MIO	1 x SMBus 1x LPC (via eSPH-to-LPC bridge), or 1x eSPI (Only support 20MHz), build option 1 x I2C 1 x I2C
Other	eMMC 5.1 up to 128GB (optional)
Display	
Graphic Chipset	Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics
Spec. & Resolution	HDMI 1.4b/2.0b: 4096x2160 @60Hz DP 1.4: 4096x2160 @60Hz *Per Intel design guide, need to add Redriver (Redriver in carrier board to fine tune the signal of DP1.4) eDP 1.3b (Optional): 4096x2160 @60Hz (Only support 4Lanes 2560x1440 & 2Lanes 1920x1080) LVDS (via eDP-to-LVDS): 1920x1080 @60Hz, LVDS via CH7511B VGA (via DP-to-VGA): 1920x1080 @60Hz, VGA via CH7517A (DP to VGA)
LVDS	CH7511B(eDP to LVDS)
DDI	HDMI DP DisplayPort
Audio	
Audio Interface	Intel® HD Audio integrated in SoC
Certifications	
Certification Information	CE FCC Class B
Ethernet	
LAN Chipset	1 x Intel KT225LM for STD-Temp. SKU 1 x Intel KT225IT for Wide-Temp. SKU
Ethernet Interface	1 x 10BASE-TE/100BASE-TX/1000BASE-T/2500BASE-T compatible Gigabit, above 70°C Tc, the recommended speed is 1G
Mechanical & Environmental	
Operating Temperature	Operating Standard: 0°C ~ 60°C with 0.2m/s air flow Conditional extend: -40°C ~ 85°C with 0.5m/s air flow. (Note: Above 70°C Tc, the recommended ethernet speed is 1G.)
Storage Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.44lbs (0.2kg)
Power Requirement	+9V ~ +19V
ACPI	Single power ATX Support S0, S3, S4, S5 ACPI 6.0 Compliant
Power Mode	AT/ATX
Dimension (L x W)	95 x 95 mm (3,74" x 3,74")
Software Support	



OS Information	Windows* 10 IoT Enterprise (64-bit) Linux
Ordering Information	
Ordering Information	<p>ESM-EHLC-J6413-A1R Intel® Celeron® SoC Processor J6413 Type6 COMe Compact Module</p> <p>ESM-EHLC-J6412-A1R Intel® Celeron® SoC Processor J6412 Type6 COMe Compact Module</p> <p>ESM-EHLC-X13E-A1R Intel® Atom® SoC Processor x6413E Type6 COMe Compact Module</p> <p>ESM-EHLC-X25RE-A1R Intel® Atom® SoC Processor x6425RE Type6 COMe Compact Module</p> <p>EEV-EX16-B1R mATX Ev. Board for COMe Type 6</p> <p>ACC-ESMEHLC-SK-1R Heatsink of ESM-EHLC W/O FAN H=34mm for Standard Temp. SKUs</p> <p>ACC-ESMEHLC-CL-1R Cooler of ESM-EHLC W/FAN H=60mm for Wide Temp. SKUs</p> <p>ACC-ESMAPLC-SD-1R Heatspreader for ESM-EHLC H=11mm for the Module W/ Standard Temp. CPU SKUs</p> <p>ACC-ESMAPLC-SD-2R Heatspreader for ESM-EHLC H=11mm for the Module W/ Wide Temp. CPU SKUs</p>