



## EMX-WHLGP

**Onboard 8th Gen Intel® Whiskey Lake U Core™ SoC i7/i5/i3 & Celeron® BGA Processor Thin Mini ITX Motherboard**

- > Onboard 8th Gen Intel® Whiskey Lake U Core™ SoC i7/i5/i3 & Celeron® BGA Processor
- > Two 260-pin DDR4 2400 MHz SO-DIMM socket, supports up to 32GB Max (non ECC only)
- > 2 x HDMI + 1 x HDMI/Dual-channel LVDS (default LVDS)
- > 1 x Intel® I219LM Gigabit Ethernet PHY, 2 x Intel® I210IT PCIe Gigabit Ethernet (Co-lay Intel® I211AT/I210AT)
- > Realtek ALC888S Audio Codec, TI TPA3113D2PWP Stereo Class-D 6W x 2 Audio Amplifier
- > 1 x M.2 Key A 2230 support WiFi module ( 1 x PCIe x 1 & USB 2.0 Signal), 1 x M.2 Key B 3042/2242/2260/2280 support WWAN+GNSS or SSD with 1 x SIM card slot
- > 1 x SATA III, 1 x SATA Power, 4 x USB 2.0, 3 x USB 3.1, 1 x USB Type C(USB 3.1 Gen1)
- > 1 x PCIe x 8 Golden Finger (1 x PCIe x 1, 1 x PCIe x 4, 1 x SATA III, 1 x USB 2.0)
- > 4 x RS232, 2 x RS232/422/485, 16-bit GPIO
- > Mic-in, Line-out, 1 S/PIDF
- > DC in +12V~24V

### Spec

System Information	
<b>Processor</b>	Onboard 8th Gen Intel® Whiskey Lake U Core™ SoC i7/i5/i3 & Celeron® BGA Processor
<b>System Memory</b>	Two 260-pin DDR4 2400 MHz SO-DIMM socket, supports up to 32GB Max (non ECC only)
<b>I/O Chipset</b>	EC IT8528E-I
<b>BIOS Information</b>	AMI 256Mbit SPI BIOS
<b>Watchdog Timer</b>	H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step
<b>H/W Status Monitor</b>	Monitoring System Temperature and Voltage with Auto Throttling Control
<b>TPM</b>	1 x onboard TPM2.0
Expansion	
<b>Expansion</b>	1 x M.2 Key B 3042/2242/2260/2280 (with 1 x PCIe x 1 (default) or SATA by BIOS), USB 2.0 with 1 x SIM card slot, support WWAN+GNSS or SSD with 1 x SIM card slot, support WWAN+GNSS or SSD. 1 x M.2 Key A 2230 support WiFi module ( 1 x PCIe x 1 & USB 2.0 Signal)
I/O	
<b>USB Port</b>	3 x USB 3.1, 1 x USB Type C (USB 3.1 Gen1, without DP signal) at I/O 4 x USB 2.0
<b>COM Port</b>	4 x RS232 2 x RS232/422/485
<b>SATA</b>	1 x SATA Power 1 x SATA III
<b>DIO</b>	1 x 16-bit GPIO
Display	
<b>Graphic Chipset</b>	Intel® Processor Graphics
<b>Spec. &amp; Resolution</b>	3 x HDMI 1.4b: 3840 x 2160 @ 30 Hz, 2560 x 1600 @ 30 Hz 2CH 18/24bits LVDS 1920 x 1080 (Chrontel. CH7511B eDP to LVDS Converter)
<b>Multiple Display</b>	Triple Display
<b>LVDS</b>	2CH 18/24bits LVDS 1920 x 1080 Chrontel. CH7511B eDP to LVDS Converter
Audio	
<b>Audio Codec</b>	Realtek ALC888S supports 2-CH
<b>Audio Interface</b>	Mic-in, Line-out
<b>Audio Amplifier</b>	TI TPA3113D2PWP Stereo Class-D 6W x 2
Ethernet	
<b>LAN Chipset</b>	1 x Intel® I219LM Gigabit Ethernet PHY 2 x Intel® I210IT PCIe Gigabit Ethernet (Co-lay Intel® I211AT/I210AT)
<b>Ethernet Interface</b>	10/100/1000 Base-Tx GbE compatible
<b>LAN Port</b>	3 x RJ45
Mechanical & Environmental	
<b>Operating Temperature</b>	-20~ 60°C (-68 ~ 140°F), 60°C with 0.5 m/s air flow
<b>Storage Temperature</b>	-40 ~ 75°C (-40 ~ 167°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing
<b>Weight</b>	0.88lbs (0.4Kgs)
<b>Power Requirement</b>	+12V~24V
<b>Power Mode</b>	AT/ATX
<b>Dimension (L x W)</b>	6.69" x 6.69" (170mm x 170mm)
Ordering Information	
<b>Ordering Information</b>	Onboard 8th Gen Intel® Whiskey Lake U Core™ SoC i7/i5/i3 & Celeron® BGA Processor Thin Mini ITX Motherboard EMX-WHLGP-430-B 1R (w/o heatsink)/ EMX-WHLGP-43B1-01R (w/heatsink and heater, wide temp) EMX-WHLGP-814-B 1R (w/o heatsink)/ EMX-WHLGP-81B1-01R (w/heatsink and heater, wide temp) EMX-WHLGP-836-B 1R (w/o heatsink)/ EMX-WHLGP-83B1-01R (w/heatsink and heater, wide temp) EMX-WHLGP-866-B 1R (w/o heatsink)/ EMX-WHLGP-86B1-01R (w/heatsink and heater, wide temp) Note: EMX-WHLGP standard package does not include I/O shields due to LAN 2 & 3 port exceed standard Thin MiniITX chassis. Customer need to make customized changes on chassis.

