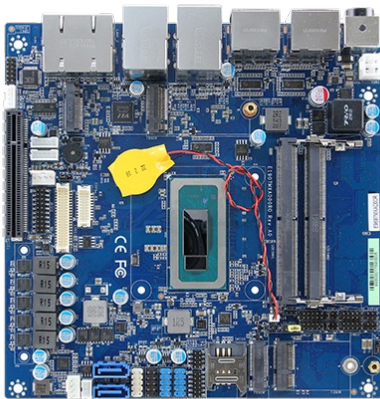




## EMX-ADLP

### 12th Gen Intel® Core™ SoC i7/i5/i3 & Celeron BGA Processor Mini ITX Motherboard

- Onboard 12th Gen. Intel® Core™ SoC i7/i5/i3 & Celeron® BGA Processor
- 2 x 262-pin DDR5 4800MHz SO-DIMM supports up to 64GB (non ECC only)
- 2 x DP++, 2 x DP, 1 x LVDS, 1 x eDP (Maximum: 6 for quadruple independent displays)
- 3 x Intel® I225LM co-lay I226LM 2.5 Gigabit Ethernet
- 1 x Intel® I219LM Gigabit Ethernet PHY
- Realtek ALC888S
- TI TPA3113D2PWP Stereo Class-D 6W x2 Audio Amplifier
- 1 x M.2 Type B 3042/3052 (with 1 x PCIe x1 (default), USB2.0, USB 3.2 Gen2 with 1 x SIM card slot support WWAN+GNSS
- 1 x M.2 Key E 2230 support Wi-Fi module and CNVi (1 x PCIe x1 & USB 2.0 Signal)
- 1 x M.2 Key B 2242 (SATA Signal, shared with SATA2) slot support SSD storage
- 1 x M.2 Key M 2280 (PCIe x4) slot for storage NVMe SSD
- H-series: 1 x PCIe x8 Gen 4 slot (with Redriver mux (DS160PR421 3.2US x1 & DS160PR412 3.2US x1))
- P/U-series: 1 x PCIe x4 Gen 4 slot (with Redriver mux (DS160PR421 3.2US x1 & DS160PR412 3.2US x1))
- GPIO 16bit
- Onboard NuvoTon NPCT754AADYX support TPM 2.0
- Support Line-out & Mic-in & Front audio pin-header
- DC in +12V~24V

#### + Spec

| -System Information- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor            | Onboard Alder Lake-P 12th Intel® Core™ SoC i7/i5/i3/Celeron Processor (TDP: 15~45W)<br>H-Series: 25~45W, P-Series: 20~28W, U-Series: 12~15W                                                                                                                                                                                                                                                                                                                                                                                                                            |
| System Memory        | 2 x 262-pin DDR5 4800 MHz SO-DIMM supports up to 64GB (non ECC only)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| I/O Chipset          | EC iTE IT5782VG<br>MAX3243 for RS232, MAX13487 Transceiver & SP485 IC for RS422/485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| BIOS Information     | AMI uEFI BIOS, 256Mbit SPI Flash ROM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Watchdog Timer       | H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| H/W Status Monitor   | CPU temperature monitoring<br>Voltages monitoring<br>CPU fan speed control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| TPM                  | Onboard NuvoTon NPCT754AABYX support TPM 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Expansion            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Expansion            | * 1 x M.2 Type B 3042/3052 (with 1 x PCIe x1 (default), USB2.0, USB 3.2 Gen2 with 1 x SIM card slot support WWAN+GNSS<br>* 1 x M.2 Key E 2230 support Wi-Fi module and CNVi (1 x PCIe x1 & USB 2.0 Signal)<br>* 1 x M.2 Key B 2242 (SATA Signal, shared with SATA2) slot support SSD storage<br>* 1 x M.2 Key M 2280 (PCIe x4) slot for storage NVMe SSD<br>* H-series: 1 x PCIe x8 Gen 4 slot (with Redriver mux (DS160PR421 3.2US x1 & DS160PR412 3.2US x1))<br>* P/U-series: 1 x PCIe x4 Gen 4 slot (with Redriver mux (DS160PR421 3.2US x1 & DS160PR412 3.2US x1)) |
| I/O                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| USB Port             | 2 x USB3.2 Gen2, 2 x USB 3.0 Gen2 at I/O<br>4 x USB2.0 by pin header                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| COM Port             | 4 x RS232<br>2 x RS422/485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SATA                 | 1 x SATA Power<br>2 x SATA III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DIO                  | 1 x 16-bit GPIO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Display              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Graphic Chipset      | Intel® Iris® Xe Graphics (For Core i5 & i7)<br>Intel® UHD Graphics for 12th Gen Intel® Processors (For Core i3 & Celeron)                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Spec. & Resolution   | DP1+DP3 (DP1.4): Max: 7680 x 4320@60 Hz<br>DP2+DP4 (DP1.4): Max: 7680 x 4320@60 Hz<br>Intel resolution as below:<br>2 x DP++ : 1920 x 1080@60 Hz<br>2 x DP: 4096 x 2304@60 Hz<br>LVDS: 1920 x 1080 Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS)<br>eDP 4096 x 2304@60 Hz<br>*2 x DP++, LVDS, eDP Default (Thin Mini ITX), Optional: DP3 and DP4 for full height<br>(Maximum: 6 for quadruple independent displays)                                                                                                                                      |
| Multiple Display     | 2 x DP++/2 x DP/1 x LVDS/1 x eDP<br>(Maximum: 6 for quadruple independent displays)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| LVDS                 | 2CH 18/24bits LVDS 1920 x 1080<br>Chrontel. CH7511B eDP to LVDS Converter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Audio                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Audio Codec          | Realtek ALC888S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Audio Interface      | Support Line-out & Mic-in & Front audio pin-header                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Audio Amplifier      | 2 x Stereo Class-D 6W Audio Amplifier                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Ethernet             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| LAN Chipset          | 3 x Intel® i226LM 2.5 Gigabit Ethernet (LAN2~4)<br>1 x Intel® i219LM Gigabit Ethernet PHY<br>*LAN3~4 for Full height                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                    |                                    |
|--------------------|------------------------------------|
| Ethernet Interface | 10/100/1000 Base-Tx GbE compatible |
|--------------------|------------------------------------|

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|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN Port                   | 4 x RJ45                                                                                                                                                                                                                                     |
| Mechanical & Environmental |                                                                                                                                                                                                                                              |
| Operating Temperature      | 0~60C (32~140°F) w/HDD/SSD, ambient with 0.5 m/s Air flow                                                                                                                                                                                    |
| Storage Temperature        | -40 ~ 75°C (-40 ~ 167°F)                                                                                                                                                                                                                     |
| Operating Humidity         | 40°C @ 95% Relative Humidity, Non-condensing                                                                                                                                                                                                 |
| Weight                     | 0.88lbs (0.4Kgs)                                                                                                                                                                                                                             |
| Power Requirement          | +12V~24V                                                                                                                                                                                                                                     |
| Power Mode                 | AT/ATX                                                                                                                                                                                                                                       |
| Dimension (L x W)          | 6.69" x 6.69" (170mm x 170mm)                                                                                                                                                                                                                |
| Software Support           |                                                                                                                                                                                                                                              |
| OS Information             | Win11 64bit, Win10 64bit<br>Linux                                                                                                                                                                                                            |
| Ordering Information       |                                                                                                                                                                                                                                              |
| Ordering Information       | EMX-ADLP-U15-A1R (Core i3-1215UE Thin, 2DP/2LAN)<br>EMX-ADLP-U45-A1R (Core i5-1245UE Thin, 2DP/2LAN)<br>EMX-ADLP-P20-A1R (Core i3-1220PE Full, 4DP/4LAN)<br>Intel® 12th Gen. Core™ SoC i7/i5/i3 & Celeron®BGA Processor Mini ITX Motherboard |

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