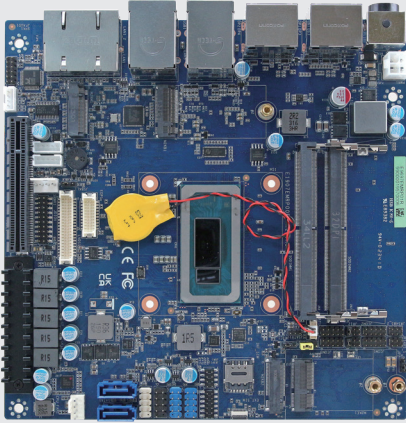


EMX-RPLP

13th Gen. Intel® Core™ SoC i7/i5/i3 & Celeron BGA
Processor, Mini ITX Motherboard



Features

- Onboard Raptor Lake-P 13th Intel® Core™ SoC i7/i5/i3/ Celeron Processor (TDP: 15~45W), H-Series: 25~45W, P-Series: 20~28W, U-Series: 12~15W
- 2 x 262-Pin DDR5 4800MHz SO-DIMM Socket Supports Up to 64GB (non ECC only)
- 2 x DP++, 2 x DP, 1 x LVDS, 1 x eDP
- H-series: 1 x PCIe x8, P/U-series: 1 x PCIe x4
- 3 x Intel® i226LM/IT, 1 x Intel® I219LM
- 2 x USB 3.2 Gen2, 2 x USB 3.2 Gen1, 4 x USB 2.0
- 1 x M.2 Type B 3042/2242/2260/2280, 1 x M.2 Type A
- 6 x COM
- DC in +12V~24V



DP++



DDR5
SO-DIMM



USB 3.2



RS232/422/485

Specifications

System Information

Processor	Onboard Raptor Lake-P 13th Intel® Core™ SoC i7/i5/i3/Celeron Processor (TDP: 15~45W) H-Series: 25~45W, P-Series: 20~28W, U-Series: 12~15W
System Memory	2 x 262-Pin DDR5 4800MHz SO-DIMM Socket Supports Up to 64GB (non ECC only)
I/O Chipset	EC iTE IT5782VG
Watchdog Timer	H/W Reset: 1Sec. ~ 65535Sec./Min. and 1 Sec. or 1Min./Step
BIOS	AMI uEFI BIOS, 256Mbit SPI Flash ROM
H/W Status Monitor	CPU Temperature Monitoring Voltage Monitoring CPU Fan Speed Control
TPM	Onboard nuvoTon NPCT754AABYX support TPM 2.0
Board	Mini ITX

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 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 (Gen4) 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)
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Display

Graphic Chipset	Intel® Iris® Xe Graphics (For Core i5 & i7) Intel® UHD Graphics for 12th Gen Intel® Processors (For Core i3 & Celeron)
Spec. & Resolution	DP1-4 (DP1.4): Max: 7680 x 4329@60Hz 2 x DP++ : 1920 x 1080@60Hz 2 x DP: 4096 x 2304@60Hz LVDS: 1920 x 1080 Dual Channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS) eDP 4096 x 2304@60Hz *2 x DP++, LVDS, eDP Default (Thin Mini ITX), Optional: DP3 and DP4 for Full Height (Maximum: 6 for Quadruple Independent Displays)
Multiple Display	2 x DP++/2 x DP/1 x LVDS/1 x eDP (Maximum: 6 for Quadruple Independent Displays)
LVDS	Dual Channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS) 1 x eDP

Audio

Audio Codec	Realtek ALC888S HD Audio Decoding Controller
Audio Interface	Support Line-out & Mic-in & Front Audio Pin-header
Audio Amplifier	2 x 6W 8Ω Amplifier

Ethernet

LAN Chipset	3 x Intel® i226LM/IT 2.5 Gigabit Ethernet (LAN2~4) 1 x Intel® i219LM Gigabit Ethernet PHY *LAN3~4 for Full height
Ethernet Interface	10/100/1000 Base-Tx GbE compatible & 2.5 Gigabit Ethernet
LAN Port	4 x RJ-45

Software Support

OS	Windows 11, Linux
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Certification

Certification Information CE, FCC, RoHS Compliant

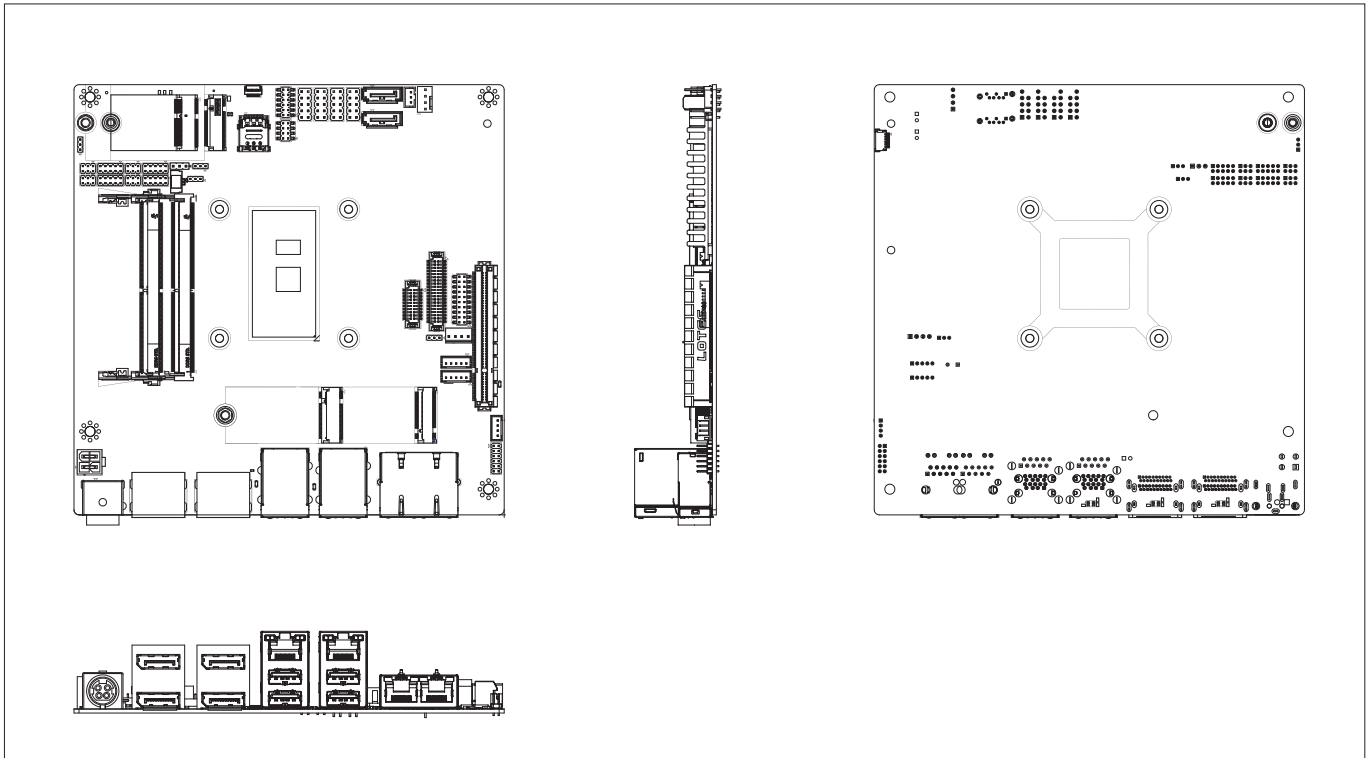
I/O

USB	2 x USB 3.2 Gen2 2 x USB 3.2 Gen1 4 x USB 2.0
COM Port	4 x RS232 (JCOM1 - JCOM4) 2 x RS22/485 (JCOM1 and JCOM2, need to modify BIOS Setup settings and change pin header & cable)
SATA	2 x SATA III 1 x SATA Power
DIO	1 x 16-bit GPIO

Mechanical & Environmental

Operating Temp.	0~60C (32~140°F) w/HDD/SSD, ambient with 0.5 m/s Air flow
Storage Temp.	-40 ~ 75°C (-40 ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Weight	0.88lbs (0.4Kgs)
Power Requirement	DC in +12V~24V
Power Mode	AT/ATX (Default Setting: ATX)
Dimension (L x W)	6.7" x 6.7" (170mm x 170mm)

Mechanical Drawing



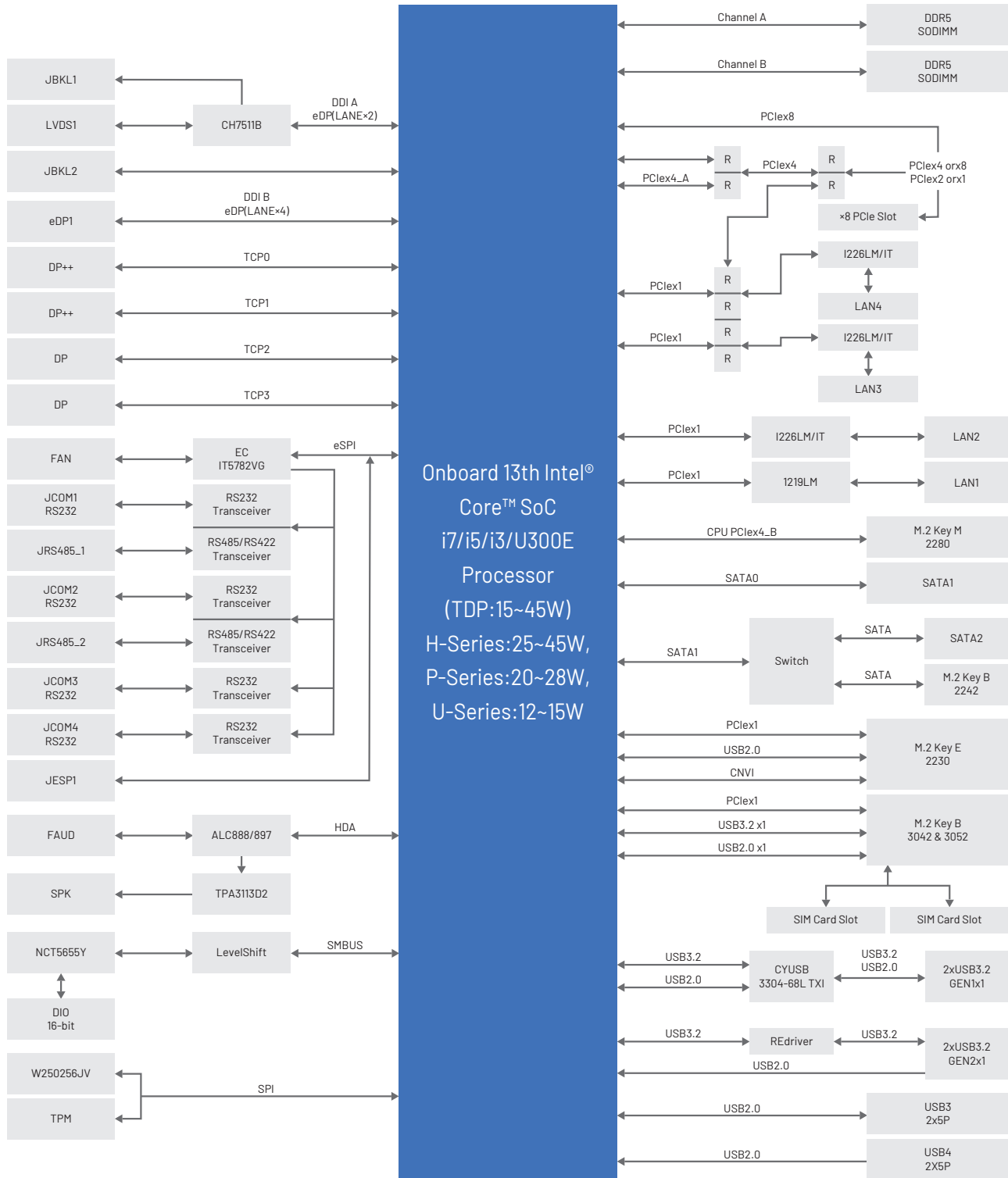
Ordering Information

P/N	Processor	Chipset	LAN	USB	COM	PCIe Slot	Power Input	Temp.
EMX-RPLP-300-A1R	Intel® Celeron® U300E	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S15-A1R	Intel® Core™ i3-1315UE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S35-A1R	Intel® Core™ i5-1335UE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S65-A1R	Intel® Core™ i7-1365UE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S20-A1R	Intel® Core™ i3-1320PE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S40-A1R	Intel® Core™ i5-1340PE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S30-A1R	Intel® Core™ i3-13300HE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-S60-A1R	Intel® Core™ i5-13600HE	NA	2	8	6	1	DC in +12V ~ +24V	0°C ~ 60°C (32~140°F)
EMX-RPLP-W15-A1R	Intel® Core™ i3-1315URE	NA	2	8	6	1	DC in +12V ~ +24V	-40°C ~ 80°C (-40~176°F)
EMX-RPLP-W45-A1R	Intel® Core™ i5-1345URE	NA	2	8	6	1	DC in +12V ~ +24V	-40°C ~ 80°C (-40~176°F)
EMX-RPLP-W65-A1R	Intel® Core™ i7-1365URE	NA	2	6	6	1	DC in +12V ~ +24V	-40°C ~ 80°C (-40~176°F)
EMX-RPLP-W20-A1R	Intel® Core™ i3-1320PRE	NA	4	8	6	1	DC in +12V ~ +24V	-40°C ~ 60°C (-40~140°F)
EMX-RPLP-W50-A1R	Intel® Core™ i5-1350PRE	NA	4	8	6	1	DC in +12V ~ +24V	-40°C ~ 60°C (-40~140°F)

Packing List

Item	P/N	Quantity
SATA Cable	-	1
SATA Power Cable	-	1
IO shield	-	1

Block Diagram



I/O Overview

