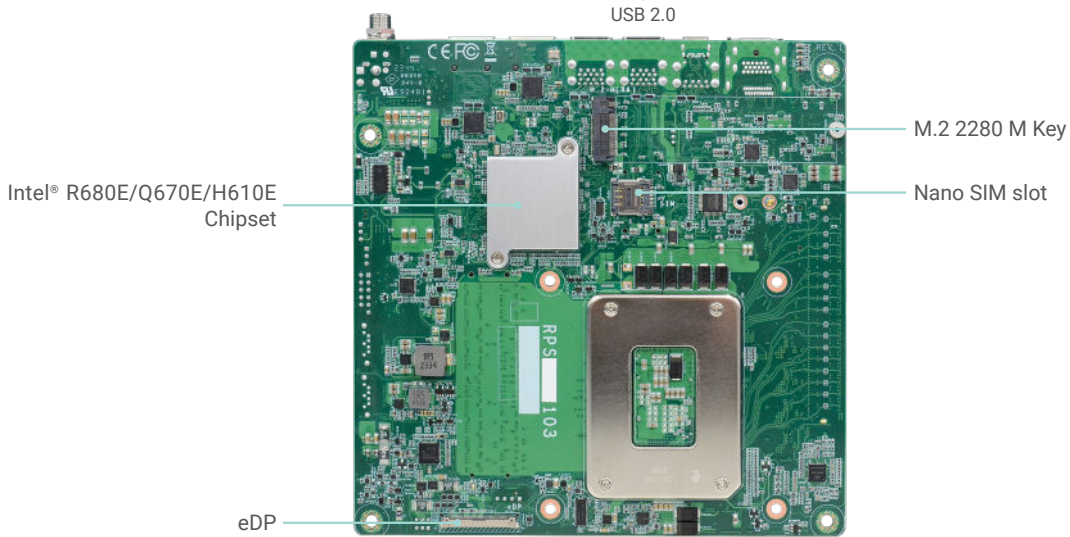
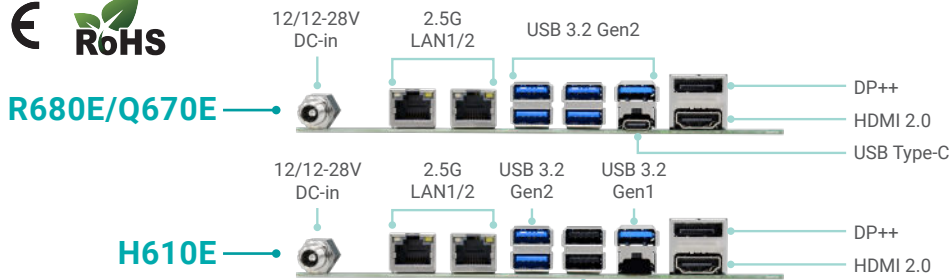
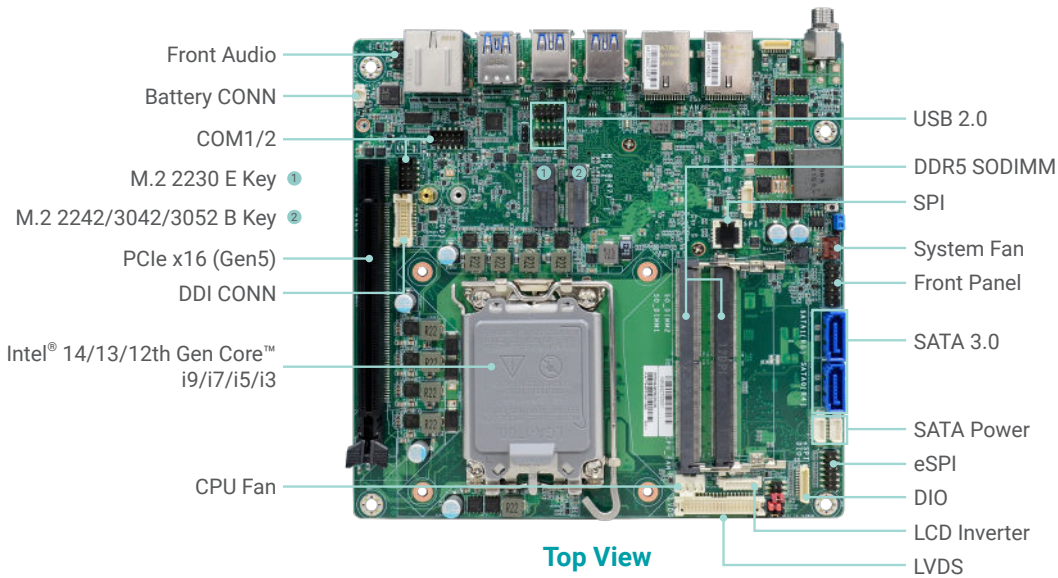


# RPS101/RPS103

14/13/12th Gen Intel® Core™  
Thin Mini-ITX



Bottom View



Top View

## KEY FEATURES



### DDR5

2 DDR5 4800MHz SODIMM up to 64GB



### 4K High Resolution

Supports up to 4K resolution



### Quad Displays

1 DP++, 1 HDMI, 1 USB Type C, 1 LVDS/eDP, 1 DFI display extension port (DP/HDMI/VGA available)



### Multiple Expansion

1 PCIe x16, 1 M.2 E Key, 1 M.2 M Key, 1 M.2 B Key

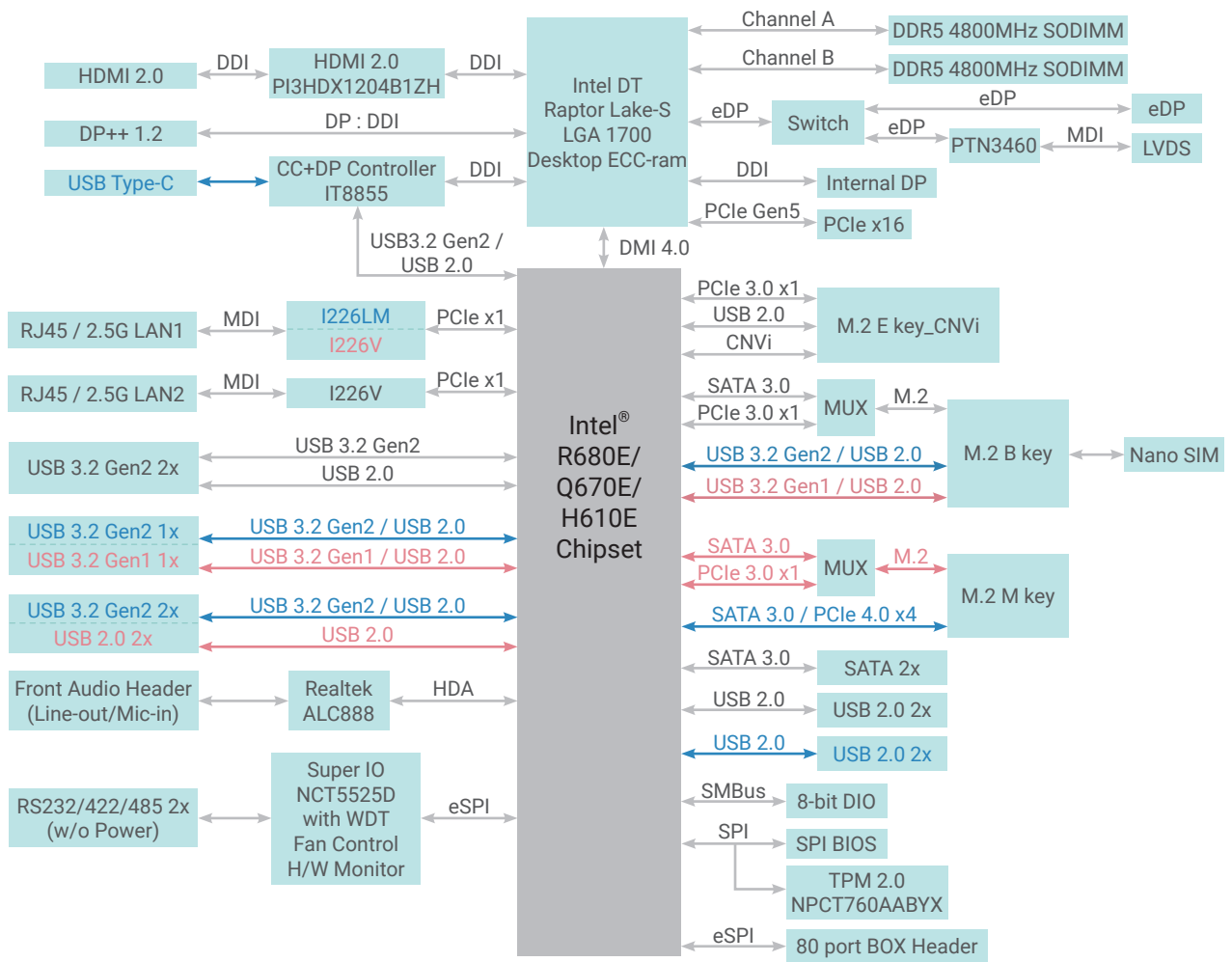


### Rich I/O

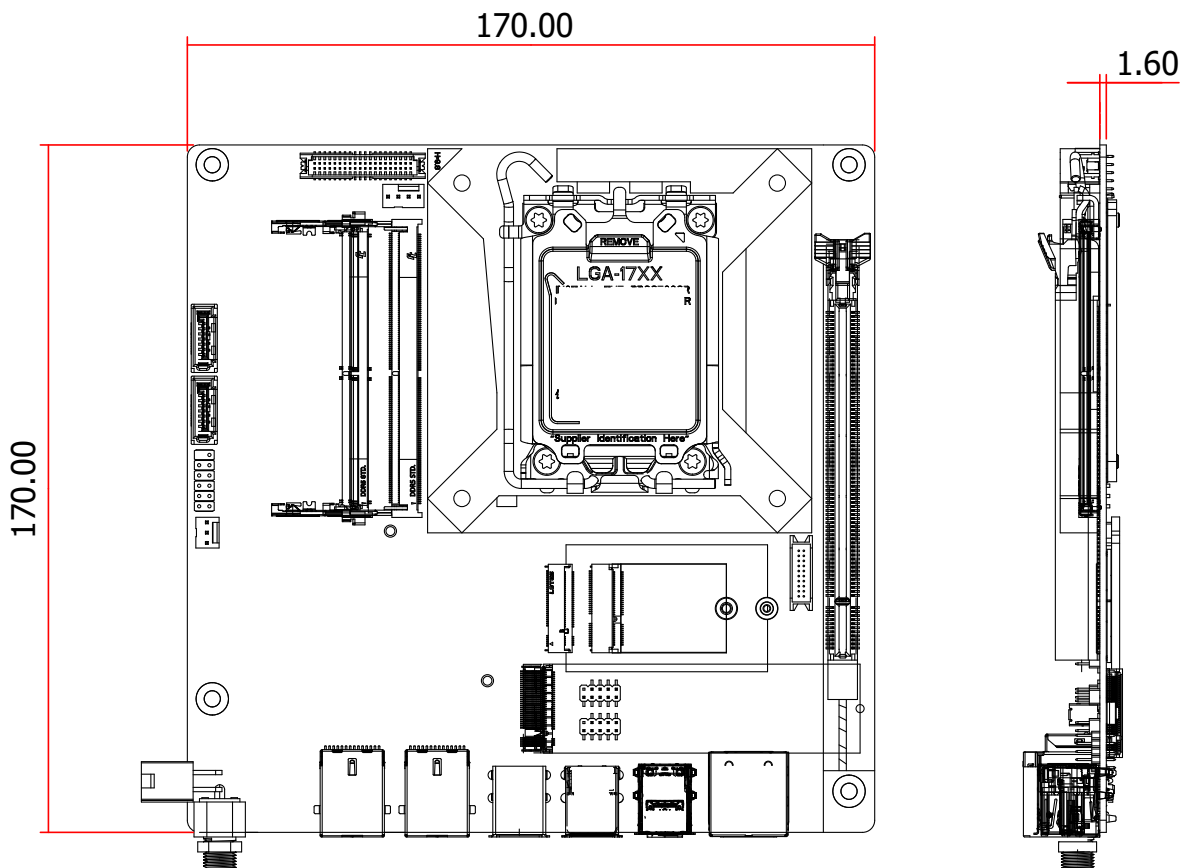
2 Intel 2.5GbE, 2 COM, 6 USB 3.2 Gen2, 4 USB 2.0, 2 SATA 3.0

# BLOCK DIAGRAM

● R680E/Q670E Only  
 ● H610E Only



# MECHANICAL DRAWING



## SPECIFICATION

<b>SYSTEM</b>	<b>Processor</b>	<p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W            Intel® Core™ i9-14900 (24 Cores, 36M Cache, up to 5.8 GHz); 65W            Intel® Core™ i9-14900T (24 Cores, 36M Cache, up to 5.5 GHz); 35W            Intel® Core™ i7-14700 (20 Cores, 33M Cache, up to 5.4 GHz); 65W            Intel® Core™ i7-14700T (20 Cores, 33M Cache, up to 5.2 GHz); 35W            Intel® Core™ i5-14500 (14 Cores, 24M Cache, up to 5.0 GHz); 65W            Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 4.8 GHz); 35W            Intel® Core™ i5-14400 (10 Cores, 20M Cache, up to 4.7 GHz); 65W            Intel® Core™ i5-14400T (10 Cores, 20M Cache, up to 4.5 GHz); 35W            Intel® Core™ i3-14100 (4 Cores, 12M Cache, up to 4.7 GHz); 60W            Intel® Core™ i3-14100T (4 Cores, 12M Cache, up to 4.4 GHz); 35W            Intel® 300 (2 Cores, 6M Cache, 3.9 GHz); 46W            Intel® 300T (2 Cores, 4M Cache, 3.4 GHz); 35W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W            Intel® Core™ i9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W            Intel® Core™ i9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 35W            Intel® Core™ i9-13900 (24 Cores, 36M Cache, up to 5.6 GHz); 65W            Intel® Core™ i7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W            Intel® Core™ i7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W            Intel® Core™ i7-13700 (16 Cores, 30M Cache, up to 5.2 GHz); 65W            Intel® Core™ i7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W            Intel® Core™ i5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W            Intel® Core™ i5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W            Intel® Core™ i5-13500 (14 Cores, 24M Cache, up to 4.8 GHz); 65W            Intel® Core™ i5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W            Intel® Core™ i5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W            Intel® Core™ i5-13400 (10 Cores, 20M Cache, up to 4.6 GHz); 65W            Intel® Core™ i3-13100E (4 Cores, 12M Cache, up to 4.4 GHz); 65W            Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W            Intel® Core™ i3-13100 (4 Cores, 12M Cache, up to 4.5 GHz); 65W            Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W            Intel® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W            Intel® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W            Intel® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W            Intel® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W            Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W            Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W            Intel® Core™ i9-12900 (16 Cores, 30M Cache, up to 5.0 GHz); 65W            Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W            Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.7 GHz); 35W            Intel® Core™ i7-12700 (12 Cores, 25M Cache, up to 4.8 GHz); 65W            Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W            Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W            Intel® Core™ i5-12500 (6 Cores, 18M Cache, up to 4.6 GHz); 65W            Intel® Core™ i5-12400 (6 Cores, 18M Cache, up to 4.4 GHz); 65W            Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W            Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W            Intel® Core™ i3-12100 (4 Cores, 12M Cache, up to 4.3 GHz); 60W            Intel® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W            Intel® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W            Intel® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W            Intel® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p>	
	<b>Chipset</b>	Intel® R680E/Q670E/H610E Chipset	
	<b>Memory</b>	Two 262-pin SODIMM up to 64GB Dual Channel DDR5 4800 MHz (ECC support: R680E only)	
	<b>BIOS</b>	AMI SPI 256Mbit	
	<b>Controller</b>	Intel® UHD Graphics 770	
<b>GRAPHICS</b>	<b>Feature</b>	3D graphics HW acceleration:DX12, Open GL 4.6, Vulkan 1.2	
		HW Video Decode: 8K60 12b 4:2:0 HEVC/VP9/SCC 8K30 10b 4:2:0 AV1 5K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC	HW Video Encode: 8K30 or 5K60 8b/10b 4:2:0 HEVC/VP9/SCC 4K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC
	<b>Display</b>	1 x HDMI 2.0 1 x DP++ 1.2 1 x USB Type-C (H610E not support) 1 x eDP/LVDS 1 x DFI display extension port (DP/HDMI/VGA available)	HDMI: resolution up to 4096x2160 @ 60Hz DP++: resolution up to 4096x2304 @ 60Hz USB Type C: resolution up to 4096x2304 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz LVDS: resolution up to 1920x1200 @ 60Hz
	<b>Quad Displays</b>	DP++ + HDMI + LVDS/eDP +USB Type C +DFI display extension port (DP/HDMI/VGA available)	

## SPECIFICATION

<b>EXPANSION</b>	<b>Interface</b>	1 x PCIe x16 (Gen 5) (Max. 75W) 1 x M.2 2230 E Key (USB 2.0x1/CNVix1/PCIe3.0 x1)	
		<b>R680E/Q670E:</b> 1 x M.2 2242/3042/3052 B Key (PCIe 3.0 x1/SATA 3.0x1/USB 3.2 Gen2x1/USB 2.0x1) 1 x M.2 2280 M Key (PCIe 4.0x4 or SATA 3.0x1) <b>H610E:</b> 1 x M.2 2242/3042/3052 B Key (PCIe 3.0x1/SATA3.0x1/USB 3.2 Gen1x1/USB 2.0x1) 1 x M.2 2280 M Key (PCIe 3.0x1/SATA3.0x1)	
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC888	
<b>ETHERNET</b>	<b>Controller</b>	1 x Intel® I226-LM (Core i9/i7/i5 support iAMT) 1 x Intel® I226-V 2 x Intel® I226-V (only H610E support)	
<b>REAR I/O</b>	<b>Ethernet</b>	2 x 2.5GbE (RJ-45)	
	<b>USB</b>	<b>R680E/Q670E:</b> 5 x USB 3.2 Gen 2 Type A 1 x USB 3.2 Gen 2 USB Type C	<b>H610E:</b> 2 x USB 3.2 Gen 2 1 x USB 3.2 Gen 1 2 x USB 2.0
	<b>Display</b>	1 x HDMI 2.0 1 x DP++ 1.2 1 x USB Type-C(H610E not support)	
<b>INTERNAL I/O</b>	<b>Serial</b>	2 x RS-232/422/485 (w/o Power) Box header (2.0mm pitch)	
	<b>USB</b>	<b>R680E/Q670E:</b> 4 x USB 2.0 (2 2x5 2.0mm pitch header)	<b>H610E:</b> 2 x USB 2.0 (1 2x5 2.0mm pitch header)
	<b>Display</b>	1 x eDP/LVDS 1 x DFI display extension port (DP/HDMI/VGA available)	
	<b>Audio</b>	1 x Front Audio Header (1 x Line-out, 1 x Mic-in)	
	<b>SATA</b>	2 x SATA 3.0 (up to 6Gb/s) 2 x SATA Power RAID 0/1/5/10 (w/ M.2 Key-M/B slot + 2 SATA Conn.)	
	<b>SMBus</b>	1 x SMBus	
	<b>DIO</b>	1 x 8-bit DIO	
	<b>WATCHDOG TIMER</b>	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds
<b>SECURITY</b>	<b>TPM</b>	Nuvoton TPM 2.0	
<b>POWER</b>	<b>Type</b>	Single 12V +/-10% DC (RPS101)	Wide Range 12~28V (RPS103)
	<b>Connector</b>	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	
	<b>Consumption</b>	TBD	
	<b>RTC Battery</b>	CR2032 Coin Cell	
<b>OS SUPPORT</b>	<b>Microsoft</b>	Windows 10 IoT Enterprise 64-bit Windows 11 Enterprise	
	<b>Linux</b>	Linux	
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: -5 to 65°C	Storage: -40 to 85°C
	<b>Humidity</b>	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	<b>MTBF</b>	TBD	
<b>MECHANISM</b>	<b>Dimensions</b>	Mini-ITX Form Factor	170mm (6.7") x 170mm (6.7")
	<b>Height</b>	Top Side:19mm Bottom Side: 4.5mm	
<b>STANDARDS AND CERTIFICATION</b>	<b>Certifications</b>	CE, FCC Class B, RoHS	

## EVT ORDERING INFORMATION

Model Name	P/N	Memory	2.5 GbE	RS-232/422/485	USB 3.2 Gen2	USB 3.2 Gen1	USB 2.0	TPM 2.0	Power	Thermal	Operating Temp.
RPS101-R680E	770-RPS1011-000G	2 SODIMM	2	2	6	-	4	1	12V DC	Active	-5 to 65°C
RPS103-Q670E	770-RPS1031-100G	2 SODIMM	2	2	6	-	4	1	12-28V DC	Active	-5 to 65°C
RPS103-H610E	770-RPS1031-200G	2 SODIMM	2	2	2	1	4	1	12-28V DC	Active	-5 to 65°C

## PACKING LIST

1 RPS101/RPS103 motherboard	
1 Serial ATA data & power cable w/lock (Length: 300mm)	A81-002101-016G
1 COM port cable (Length: 250mm, 1 x COM port)	A81-015011-001G
1 I/O shield	
- w/ icon (2LAN/5USB)	TBD