

# RPS100-R680E RPS100-Q670E RPS100-H610E

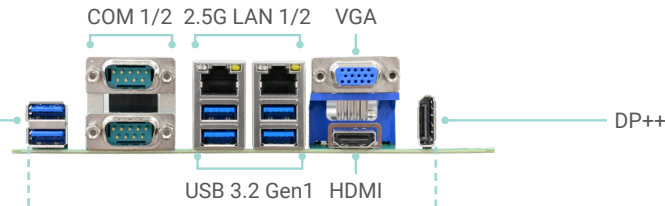
14th/13th/12th Gen Intel® Core™

Desktop

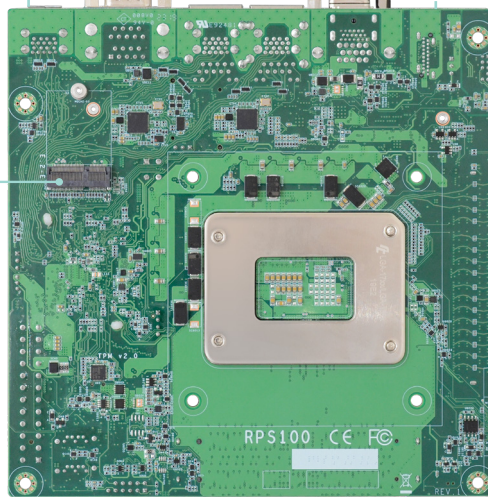
Mini-ITX



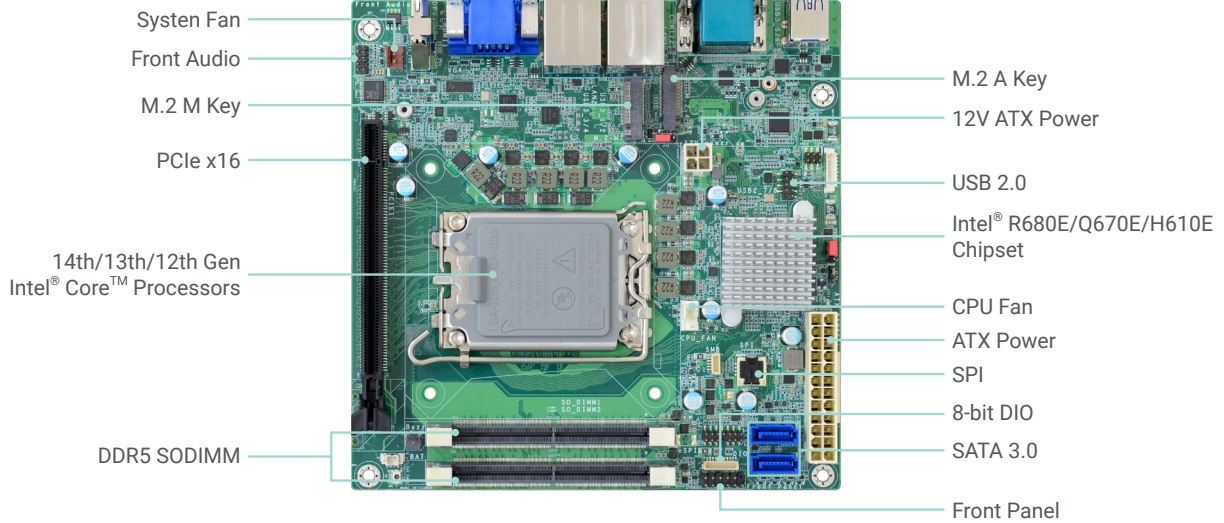
R680E: USB 3.2 Gen2  
Q670E: USB 3.2 Gen1  
H610E: USB 2.0



M.2 E Key



Bottom View



Top View

## KEY FEATURES



### DDR5

2 DDR5 SODIMM up to 64GB



### 4K High Resolution

Supports 4K resolution



### Quad Displays

1 DP++ + 1 HDMI + 1 VGA + M2A Display (eDP/LVDS/VGA/HDMI)



### Multiple Expansion

1 PCIe x16, 1 M.2 M key, 1 M.2 E Key, 1 M.2 A Key

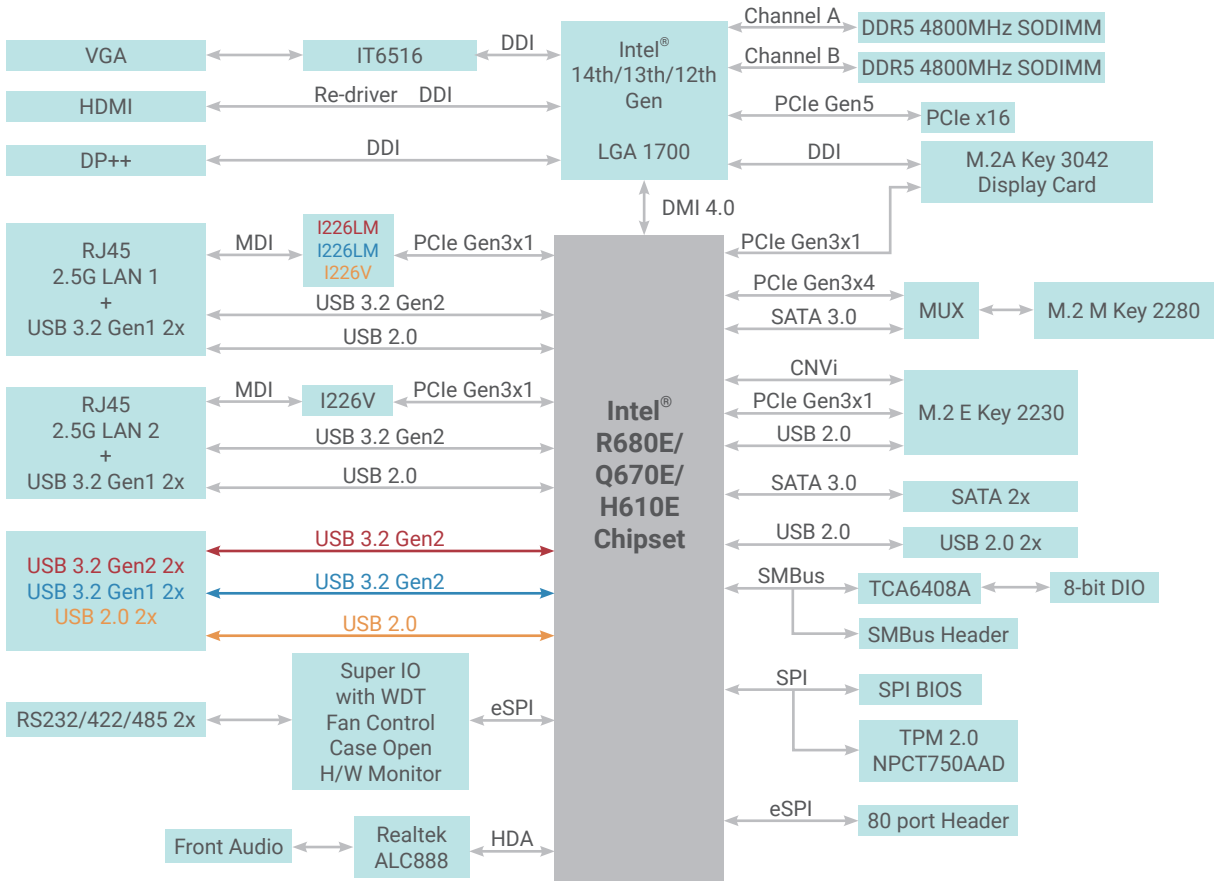


### Rich I/O

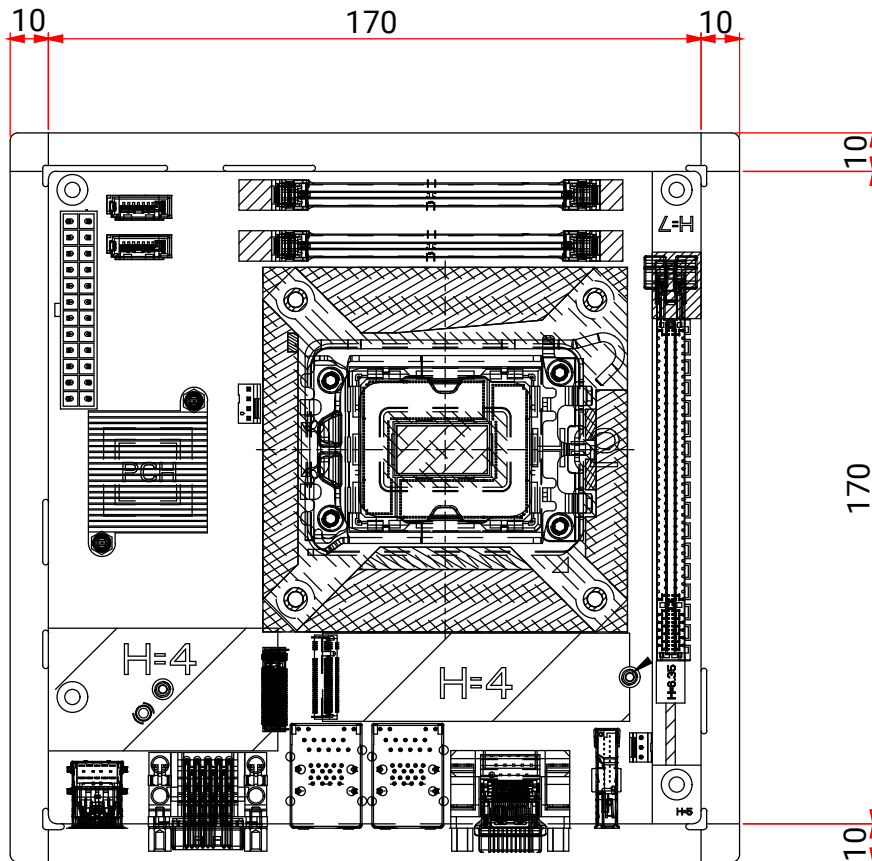
2 Intel 2.5GbE, 2 COM, up to 2 USB 3.2 Gen2, 4 USB 3.2 Gen1, 2 USB2.0 headers

# BLOCK DIAGRAM

- R680E Only
- Q670E Only
- H610E Only



# MECHANICAL DRAWING



## SPECIFICATION

Model Name		RPS100-R680E	RPS100-Q670E	RPS100-H610E
SYSTEM	Processor	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 GHz); 65W Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 4.8 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 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™ 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™ i7-13700T (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™ i5-13500T (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™ i3-13100E (4 Cores, 12M Cache, up to 3.3 GHz); 60W Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W 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™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.6 GHz); 35W 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™ 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® Pentium® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W Intel® Pentium® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W Intel® Celeron® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W Intel® Celeron® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W		
	Chipset	Intel® R680E Chipset	Intel® Q670E Chipset	Intel® H610E Chipset
	Memory	2x 262-pin SODIMM up to 64GB Dual Channel DDR5 4800MHz (ECC supported w/ i7&i5, Non-ECC supported)	2x 262-pin SODIMM up to 64GB Dual Channel DDR5 4800MHz (Non-ECC supported)	2x 262-pin SODIMM up to 64GB Dual Channel DDR5 4800MHz (Non-ECC supported)
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit	AMI SPI 256Mbit
	GRAPHICS	Controller	Intel® UHD Graphics 700 series	Intel® UHD Graphics 700 series
	Feature	OpenGL 4.5, DirectX 12, OpenCL 2.1 <b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 <b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9	OpenGL 4.5, DirectX 12, OpenCL 2.1 <b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 <b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9	OpenGL 4.5, DirectX 12, OpenCL 2.1 <b>HW Decode:</b> AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 <b>HW Encode:</b> MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9
	Display	1 x HDMI 1 x DP++ 1 x VGA <b>HDMI:</b> resolution up to 3840x2160 @ 24Hz <b>DP++:</b> resolution up to 3840x2160 @ 60Hz <b>VGA:</b> resolution up to 2048x1536 @ 60Hz	1 x HDMI 1 x DP++ 1 x VGA <b>HDMI:</b> resolution up to 3840x2160 @ 24Hz <b>DP++:</b> resolution up to 3840x2160 @ 60Hz <b>VGA:</b> resolution up to 2048x1536 @ 60Hz	1 x HDMI 1 x DP++ 1 x VGA <b>HDMI:</b> resolution up to 3840x2160 @ 24Hz <b>DP++:</b> resolution up to 3840x2160 @ 60Hz <b>VGA:</b> resolution up to 2048x1536 @ 60Hz
	Quad Displays	HDMI + DP++ + VGA + M2A-Display (optional)	HDMI + DP++ + VGA + M2A-Display (optional)	HDMI + DP++ + VGA + M2A-Display (optional)
EXPANSION	Interface	1 x PCIe Gen 5 x16 (Bifurcation 1 x16, 2 x8)	1 x PCIe Gen 5 x16 (Bifurcation 1 x16, 2 x8)	1 x PCIe Gen 5 x16 (Bifurcation 1 x16, 2 x8)
		1 x M.2 2230 E Key (PCIe Gen3x1 and USB2.0, support Intel® CNVi)	1 x M.2 2230 E Key (PCIe Gen3x1 and USB2.0, support Intel® CNVi)	1 x M.2 2230 E Key (PCIe Gen3x1 and USB2.0, support Intel® CNVi)
		1 x M.2 3060 A Key support DFI M2A-display module (DDI/PCIe Gen3x1) (opt. MOQ required)	1 x M.2 3060 A Key support DFI M2A-display module (DDI/PCIe Gen3x1) (opt. MOQ required)	1 x M.2 3060 A Key support DFI M2A-display module (DDI/PCIe Gen3x1) (opt. MOQ required)
		1 x M.2 2280 M Key (PCIe Gen 3x4 or SATA3), support NVMe	1 x M.2 2280 M Key (PCIe Gen 3x4 or SATA3), support NVMe	1 x M.2 2280 M Key (PCIe Gen 3x4 or SATA3), support NVMe
AUDIO	Audio Codec	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S

## SPECIFICATION

Model Name		RPS100-R680E	RPS100-Q670E	RPS100-H610E
ETHERNET	Controller	1 x Intel® I226LM (10/100/1000/2500Mbps) 1 x Intel® I226V (10/100/1000/2500Mbps)	1 x Intel® I226LM (10/100/1000/2500Mbps) 1 x Intel® I226V (10/100/1000/2500Mbps)	2 x Intel® I226V (10/100/1000/2500Mbps)
	REAR I/O			
REAR I/O	Ethernet	2 x 2.5GHz RJ45	2 x 2.5GHz RJ45	2 x 2.5GHz RJ45
	USB	2 x USB 3.2 Gen2 4 x USB 3.2 Gen1	6 x USB 3.2 Gen1	4 x USB 3.2 Gen1 2 x USB 2.0
	Display	1 x DP++ 1 x HDMI 1 x VGA	1 x DP++ 1 x HDMI 1 x VGA	1 x DP++ 1 x HDMI 1 x VGA
	Serial	2 x RS-232/422/485	2 x RS-232/422/485	2 x RS-232/422/485
INTERNAL I/O	USB	2 x USB 2.0 (2.0mm pitch)	2 x USB 2.0 (2.0mm pitch)	2 x USB 2.0 (2.0mm pitch)
	Display	1 x M.2 A key, support M2A-Display (eDP/LVDS/VGA/HDMI/DP) by optional	1 x M.2 A key, support M2A-Display (eDP/LVDS/VGA/HDMI/DP) by optional	1 x M.2 A key, support M2A-Display (eDP/LVDS/VGA/HDMI/DP) by optional
	Audio	1 x Line-out/Mic-in	1 x Line-out/Mic-in	1 x Line-out/Mic-in
	SATA	2 x SATA 3.0	2 x SATA 3.0	2 x SATA 3.0
	DIO	1 x 8-bit DIO	1 x 8-bit DIO	1 x 8-bit DIO
	SMBus	1 x SMBus	1 x SMBus	1 x SMBus
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	dTPM (default) fTPM (option)	dTPM (default) fTPM (option)	dTPM (default) fTPM (option)
POWER	Type	ATX	ATX	ATX
	Connector	4-pin ATX 12V power 24-pin ATX power	4-pin ATX 12V power 24-pin ATX power	4-pin ATX 12V power 24-pin ATX power
	Consumption	<b>Idle:</b> Intel i9-13900E 65W: 12V @ 4.475A (53.7W) <b>Max:</b> Intel i9-13900E 65W: 12V @ 22.167A (266.0W)	<b>Idle:</b> Intel i9-13900E 65W: 12V @ 4.475A (53.7W) <b>Max:</b> Intel i9-13900E 65W: 12V @ 22.167A (266.0W)	<b>Idle:</b> Intel i9-13900E 65W: 12V @ 4.475A (53.7W) <b>Max:</b> Intel i9-13900E 65W: 12V @ 22.167A (266.0W)
	RTC Battery	CR2032 Coin Cell	CR2032 Coin Cell	CR2032 Coin Cell
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit Windows 11 LTSC	Windows 10 IoT Enterprise 64-bit Windows 11 LTSC	Windows 10 IoT Enterprise 64-bit Windows 11 LTSC
	Linux	Linux	Linux	Linux
ENVIRONMENT	Temperature	<b>Operating:</b> -5°C ~ 65°C <b>Storage:</b> -40°C ~ 85°C	<b>Operating:</b> -5°C ~ 65°C <b>Storage:</b> -40°C ~ 85°C	<b>Operating:</b> -5°C ~ 65°C <b>Storage:</b> -40°C ~ 85°C
	Humidity	<b>Operating:</b> 5% ~ 90% RH <b>Storage:</b> 5% ~ 90% RH	<b>Operating:</b> 5% ~ 90% RH <b>Storage:</b> 5% ~ 90% RH	<b>Operating:</b> 5% ~ 90% RH <b>Storage:</b> 5% ~ 90% RH
	MTBF	<b>RPS100-R680EDB:</b> 586,419 hrs @ 25°C; 359,315 hrs @ 45°C; 236,986 hrs @ 60°C; 177,038 hrs @ 70°C <b>Calculation model:</b> Telcordia Issue 4 <b>Environment:</b> GB, GC – Ground Benign, Controlled	TBD	TBD
MECHANISM	Dimensions	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")	Mini-ITX Form Factor 170mm (6.7") x 170mm (6.7")
	Height	PCB: 1.6mm Top Side: TBD	PCB: 1.6mm Top Side: TBD	PCB: 1.6mm Top Side: TBD
CERTIFICATION	Certification	CE, FCC, RoHS, UKCA	CE, FCC, RoHS, UKCA	CE, FCC, RoHS, UKCA

## ORDERING INFORMATION

Model Name	P/N	Memory	Rear I/O				Internal I/O		TPM	Power	Operating Temp.
			Display	2.5 GbE	USB	COM	M.2	USB			
RPS100-R680EDB	770-RPS1001-000G	2 DDR5	DP++/HDMI/VGA	2	2 USB 3.2 Gen2, 4 USB 3.2 Gen1	2	M.2 M/B/E Key	2 USB 2.0	w/ TPM	ATX	-5 to 65°C
RPS100-Q670EDB	770-RPS1001-100G				6 USB 3.2 Gen1						
RPS100-H610EDB	770-RPS1001-200G				4 USB 3.2 Gen1, 2 USB 2.0						

## PACKING LIST

• 1 RPS100 motherboard
• 1 Serial ATA data cable (Length: 500mm)
• 1 I/O shield (P/N: TBD)
• 3 M.2 screw/standoff

## OPTIONAL ITEMS

• Thermal solution (For 65W, Height: 46mm)	A71-101137-000G
• Thermal solution (For 35W, Height: 39mm)	A71-101136-000G