

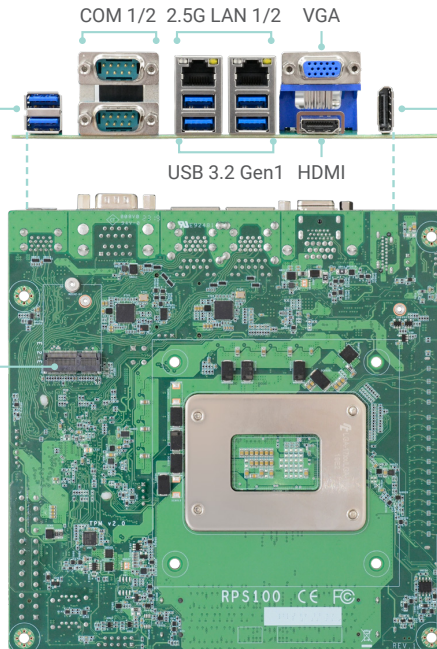
# RPS100

Desktop

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



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



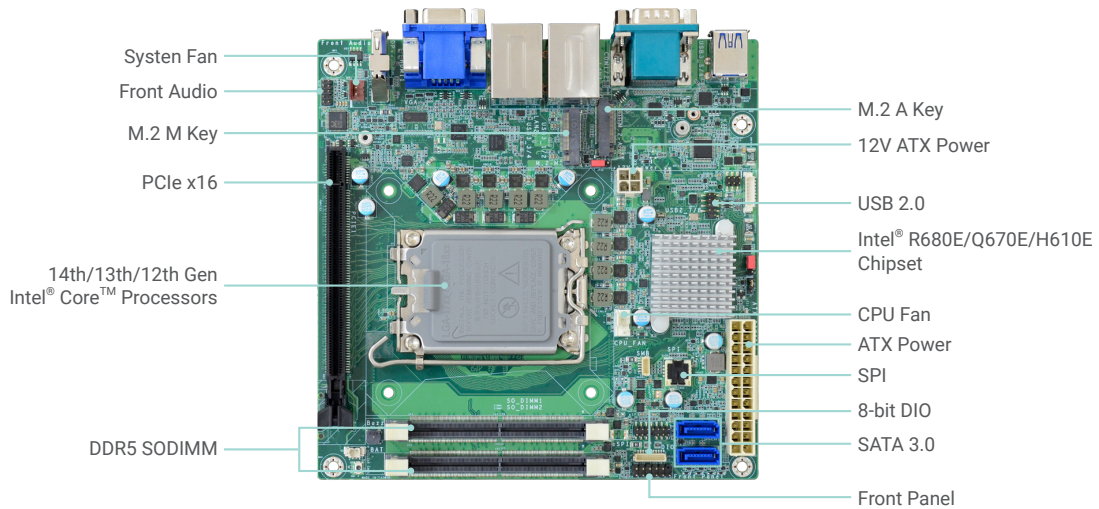
M.2 E Key

COM 1/2 2.5G LAN 1/2 VGA

USB 3.2 Gen1 HDMI

DP++

Bottom View



System Fan

Front Audio

M.2 M Key

PCIe x16

14th/13th/12th Gen  
Intel® Core™ Processors

DDR5 SODIMM

M.2 A Key

12V ATX Power

USB 2.0

Intel® R680E/Q670E/H610E  
Chipset

CPU Fan

ATX Power

SPI

8-bit DIO

SATA 3.0

Front Panel

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

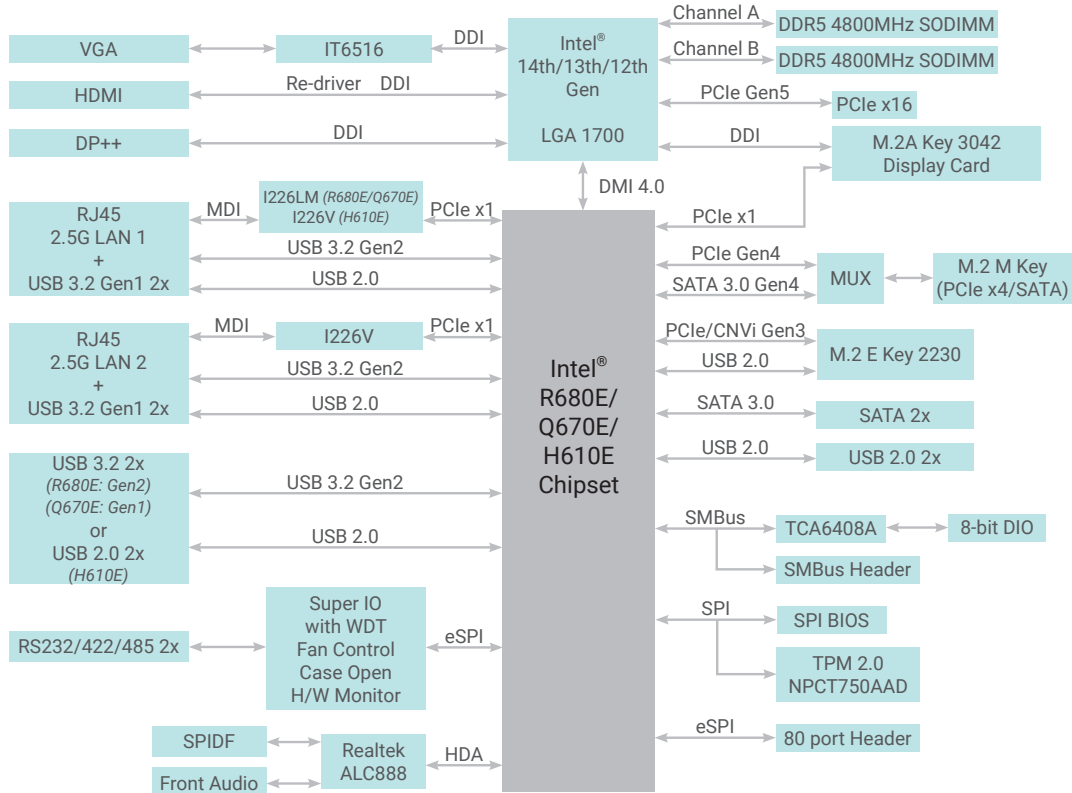
1 PCIe x16, 1 M.2 M key,  
1 M.2 E Key, 1 M.2 A Key



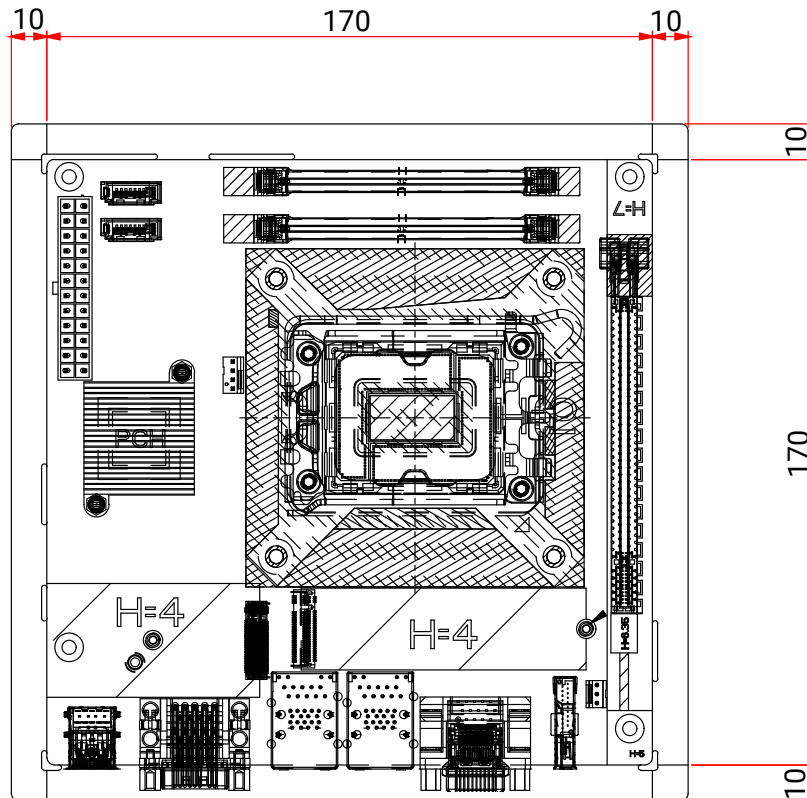
### Rich I/O

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

**BLOCK DIAGRAM**



**MECHANICAL DRAWING**



## SPECIFICATION

SYSTEM	Processor	<p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W</p> <p>Intel® Core™ i9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 35W</p> <p>Intel® Core™ i7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W</p> <p>Intel® Core™ i7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W</p> <p>Intel® Core™ i7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W</p> <p>Intel® Core™ i5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W</p> <p>Intel® Core™ i5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W</p> <p>Intel® Core™ i5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W</p> <p>Intel® Core™ i5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W</p> <p>Intel® Core™ i3-13100E (4 Cores, 12M Cache, up to 3.3 GHz); 60W</p> <p>Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W</p> <p>Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W</p> <p>Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W</p> <p>Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W</p> <p>Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.6 GHz); 35W</p> <p>Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W</p> <p>Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W</p> <p>Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W</p> <p>Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W</p> <p>Intel® Pentium® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W</p> <p>Intel® Pentium® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W</p> <p>Intel® Celeron® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W</p> <p>Intel® Celeron® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p>						
	Chipset	Intel® R680E/Q670E/H610E Chipset						
	Memory	<p>2x 262-pin SODIMM up to 64GB</p> <p>Dual Channel DDR5 4800MHz</p> <p>ECC memory supported by R680 with i7 and i5</p>						
	BIOS	AMI SPI 256Mbit						
	GRAPHICS	Controller	Intel® UHD Graphics 700 series					
GRAPHICS	Feature	<p>OpenGL 4.5, DirectX 12, OpenCL 2.1</p> <p>HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9</p> <p>HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9</p>						
	Display	<table border="0"> <tr> <td>1 x HDMI</td> <td>HDMI: resolution up to 3840x2160 @ 24Hz</td> </tr> <tr> <td>1 x DP++</td> <td>DP++: resolution up to 3840x2160 @ 60Hz</td> </tr> <tr> <td>1 x VGA</td> <td>VGA: resolution up to 2048x1536 @ 60Hz</td> </tr> </table>	1 x HDMI	HDMI: resolution up to 3840x2160 @ 24Hz	1 x DP++	DP++: resolution up to 3840x2160 @ 60Hz	1 x VGA	VGA: resolution up to 2048x1536 @ 60Hz
	1 x HDMI	HDMI: resolution up to 3840x2160 @ 24Hz						
1 x DP++	DP++: resolution up to 3840x2160 @ 60Hz							
1 x VGA	VGA: resolution up to 2048x1536 @ 60Hz							
Quad Displays	HDMI + DP++ + VGA + M2A-Display (optional)							
EXPANSION	Interface	<p>1 x PCIe Gen 5 x16 (Bifurcation 1 x16, 2 x8)</p> <p>1 x M.2 2230 E Key (PCIe Gen3x1 and USB2.0, support Intel® CNVi)</p> <p>1 x M.2 3060 A Key support DFI M2A-display module (opt. MOQ required)</p> <p><b>R680E/Q670E:</b></p> <p>1 x M.2 2280 M Key (PCIe Gen 3x4 or SATA3)</p> <p><b>H610E:</b></p> <p>1 x M.2 2280 M Key (PCIe Gen 3x1 or SATA3)</p>						
	AUDIO	Audio Codec	Realtek ALC888S					
	ETHERNET	Controller	<p><b>R680E/Q670E:</b></p> <p>1 x Intel® I226LM (10/100/1000/2500Mbps)</p> <p>1 x Intel® I226V (10/100/1000/2500Mbps)</p> <p><b>H610E:</b></p> <p>2 x Intel® I226V (10/100/1000/2500Mbps)</p>					
REAR I/O	Ethernet	2 x 2.5GHz RJ45						
	USB	<b>R680E:</b>	<p>2 x USB 3.2 Gen2</p> <p>4 x USB 3.2 Gen1</p>					
		<b>Q670E:</b>	6 x USB 3.2 Gen1					
		<b>H610E:</b>	<p>4 x USB 3.2 Gen1</p> <p>2 x USB 2.0</p>					
Display	<p>1 x DP++</p> <p>1 x HDMI</p> <p>1 x VGA</p>							
Serial	2 x RS-232/422/485							
INTERNAL I/O	USB	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						
	Audio	1 x Line-out/Mic-in						
	SATA	2 x SATA 3.0						
	DIO	1 x 8-bit DIO						
	SMBus	1 x SMBus						

## SPECIFICATION

<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>	dTPM (default) fTPM (option)	
<b>POWER</b>	<b>Type</b>	ATX	
	<b>Connector</b>	4-pin ATX 12V power 24-pin ATX power	
	<b>Consumption</b>	TBD	
	<b>RTC Battery</b>	CR2032 Coin Cell	
<b>OS SUPPORT</b>	<b>Microsoft</b>	Windows IoT Enterprise 10 LTSC Windows 11	
	<b>Linux</b>	Linux	
<b>ENVIRONMENT</b>	<b>Temperature</b>	Operating: -5°C ~ 65°C	
		Storage: -40°C ~ 85°C	
	<b>Humidity</b>	Operating: 5% ~ 90% RH	
		Storage: 5% ~ 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>	PCB: 1.6mm Top Side: TBD	
<b>CERTIFICATION</b>	<b>Certification</b>	CE, FCC, RoHS	

## ORDERING INFORMATION

Model Name	P/N	Description
RPS100-R680EDB	770-RPS1001-000G	RPS100-R680EDB, 2 DDR5, Rear I/O( DP++/HDMI/VGA, I, 2 LAN, 6 USB 3.2 Gen2, 2 COM ), Internal I/O (M.2 M/E/A Key, 2 USB 2.0, w/TPM), ATX, -5°C ~ 65°C
RPS100-Q670EDB	770-RPS1001-100G	RPS100-Q670EDB, 2 DDR5, Rear I/O( DP++/HDMI/VGA, I, 2 LAN, 6 USB 3.2 Gen2, 2 COM ), Internal I/O (M.2 M/E/A Key, 2 USB 2.0, w/TPM), ATX, -5°C ~ 65°C
RPS100-H610EDB	770-RPS1001-200G	RPS100-H610EDB, 2 DDR5, Rear I/O( DP++/HDMI/VGA, I, 2 LAN, 2 USB 3.2 Gen2, 2 USB3.2Gen1, 2 COM ), Internal I/O (M.2 M/E/A Key, 4 USB 2.0, w/TPM), ATX, -5°C ~ 65°C

## 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

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

### US

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +1 347 719 4508  
Support: +1 347 719 4508

1309 Coffeen Ave  
Ste 1200  
Sheridan  
WY 82801  
USA

### EMEA

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +44 (0)1785 879 050  
Support: +44 (0)1785 879 050

Unit A5 Douglas Park  
Stone Business Park  
Stone  
ST15 0YJ  
United Kingdom

VAT Number: 120 9546 28  
Business Registration Number: 07699660