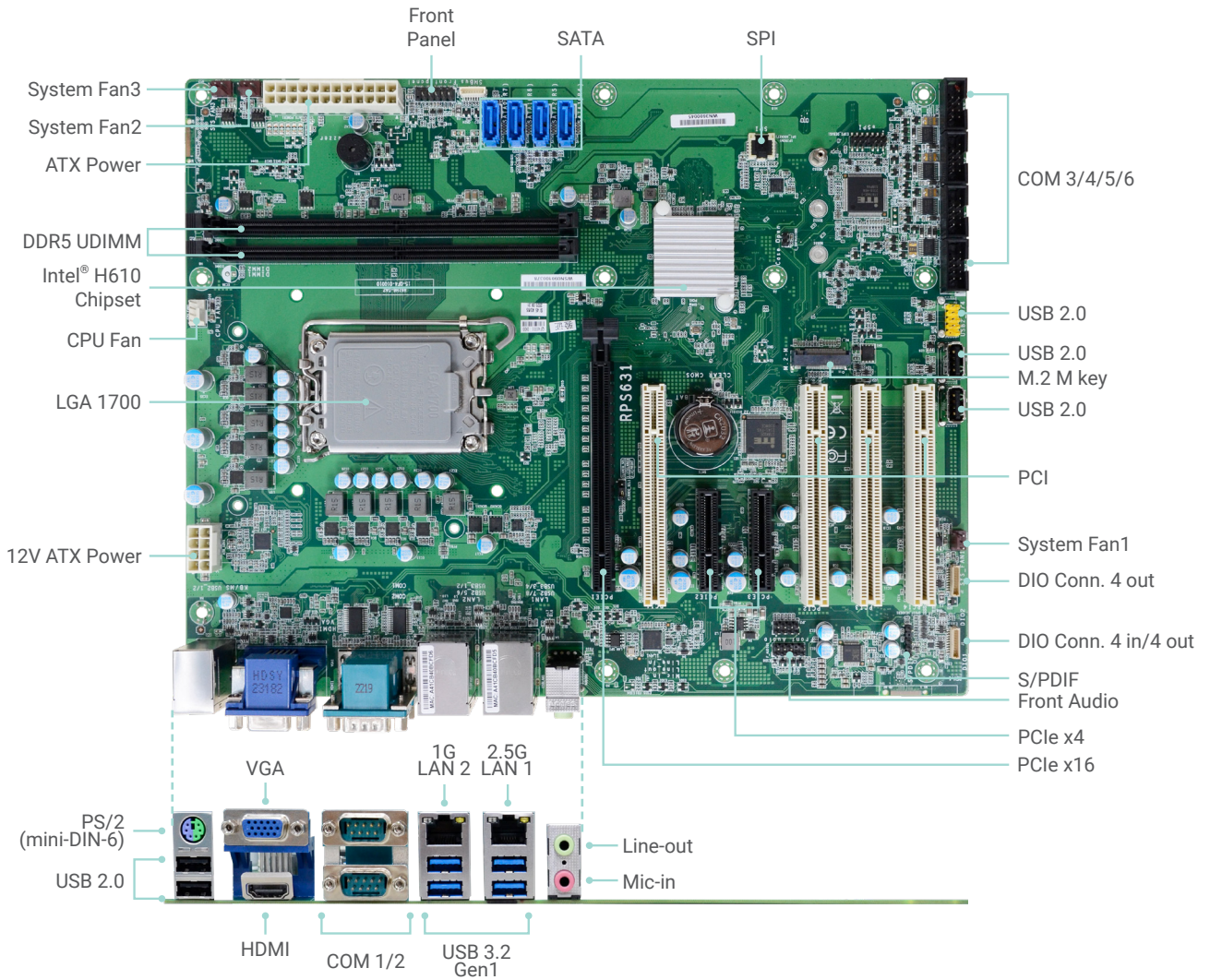


# RPS631-H610

14th/13th/12th Gen Intel® Core™  
Desktop  
ATX



Top View

## KEY FEATURES



### DDR5

2 DDR5 UDIMM up to 96GB



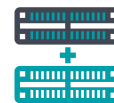
### 4K High Resolution

Supports 4K resolution



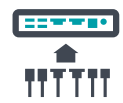
### Dual Displays

VGA, HDMI



### Multiple Expansion

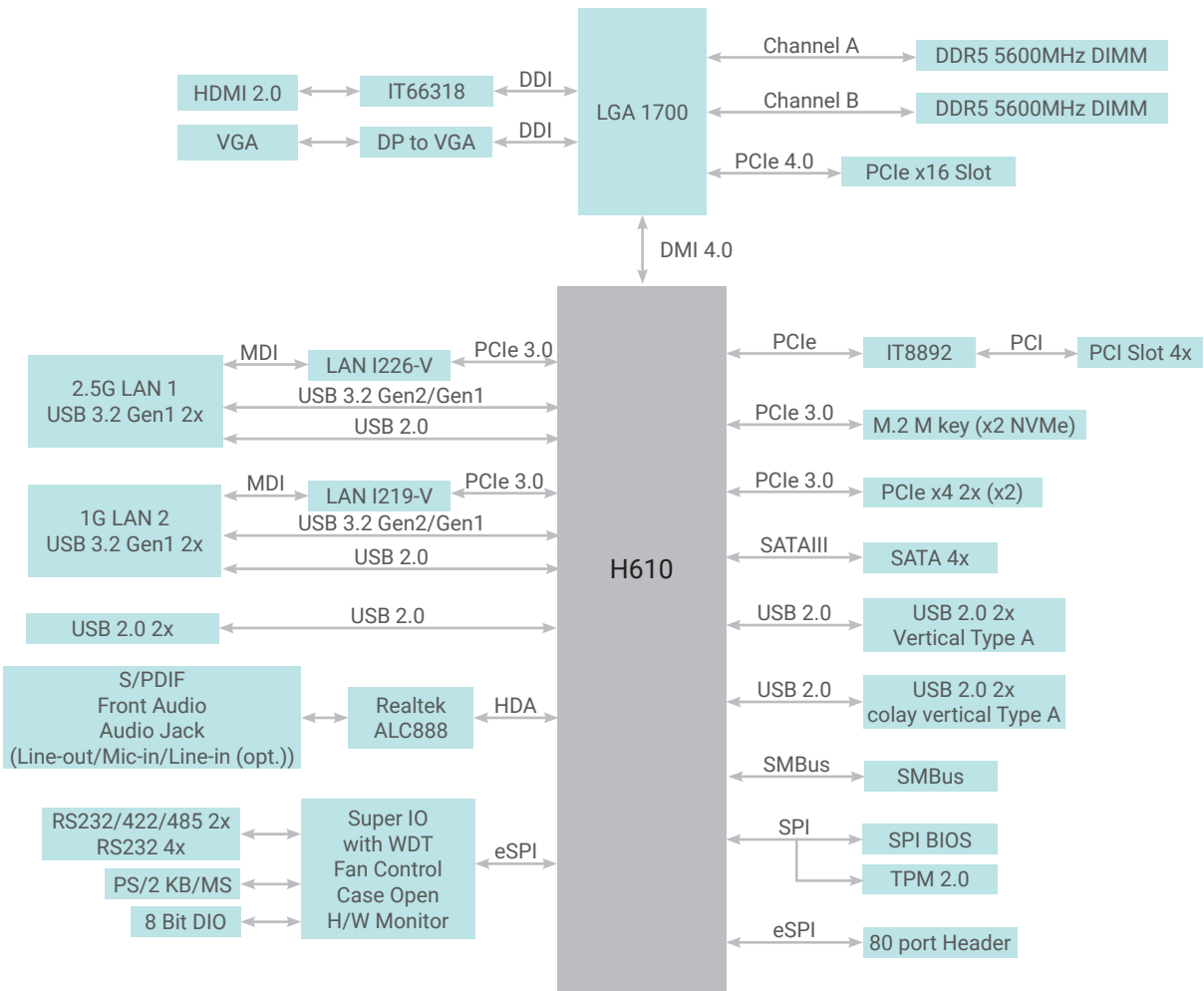
1 PCIe x16, 2 PCIe x4, 4 PCI, 1 M.2 M key



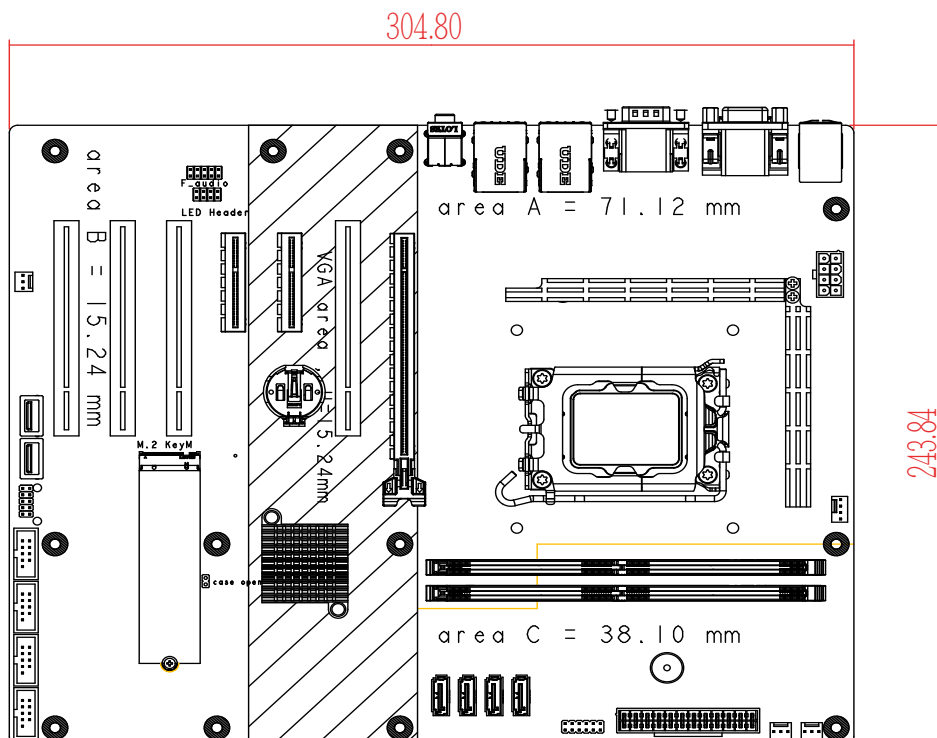
### Rich I/O

1 Intel 2.5GbE, 1 Intel 1GbE, 4 USB 3.2 Gen1, 6 USB 2.0, 4 SATA 3.0, 6 COM

## BLOCK DIAGRAM



## MECHANICAL DRAWING



## SPECIFICATION

<b>SYSTEM</b>	<b>Processor</b>	<p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W            Intel® Core™ i9-14900 (24 Cores, 36M Cache, up to 2.0 GHz); 65W            Intel® Core™ i9-14900T (24 Cores, 36M Cache, up to 1.1 GHz); 35W            Intel® Core™ i7-14700 (20 Cores, 33M Cache, up to 2.1 GHz); 65W            Intel® Core™ i7-14700T (20 Cores, 33M Cache, up to 1.3 GHz); 35W            Intel® Core™ i5-14500 (14 Cores, 24M Cache, up to 2.6 GHz); 65W            Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 1.7 GHz); 35W            Intel® Core™ i5-14400 (10 Cores, 20M Cache, up to 2.5 GHz); 65W            Intel® Core™ i5-14400T (10 Cores, 20M Cache, up to 1.5 GHz); 35W            Intel® Core™ i3-14100 (4 Cores, 12M Cache, up to 3.5 GHz); 60W            Intel® Core™ i3-14100T (4 Cores, 12M Cache, up to 2.7 GHz); 35W            Intel® 300 (2 Cores, 6M Cache, up to 3.9 GHz); 46W            Intel® 300T (2 Cores, 6M Cache, up to 3.4 GHz); 35W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W            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 4.4 GHz); 65W            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</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 125W            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</p>	
	<b>Chipset</b>	Intel® H610 Chipset	
	<b>Memory</b>	Two 288-pin UDIMM up to 96GB (Non-ECC) Dual Channel DDR5 up to 5600 MHz	
	<b>BIOS</b>	AMI SPI 256Mbit	
	<b>GRAPHICS</b>	<b>Controller</b>	Intel® HD Gen 9 Graphics
	<b>Feature</b>	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: MPEG2, AVC/H264, JPEG, HEVC/H265, VP8, VP9	
	<b>Display</b>	1 x VGA	VGA: resolution up to 1920x1200 @ 60Hz
		1 x HDMI 2.0a	HDMI: resolution up to 4096x2160 @ 24Hz
<b>EXPANSION</b>	<b>Interface</b>	1 x PCIe x16 (Gen 4) 2 x PCIe x4 (Gen 3, x2) 4 x PCI 1 x M.2 M key (PCIe x2 NVMe)	
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC888S	
<b>ETHERNET</b>	<b>Controller</b>	1 x Intel® I226V 1 x Intel® I219V	
<b>REAR I/O</b>	<b>Ethernet</b>	1 x 2.5GbE (RJ-45) 1 x 1GbE (RJ-45)	
	<b>Serial</b>	2 x RS-232/422/485 (RS-232 w/ power) (DB-9)	
	<b>USB</b>	4 x USB 3.2 Gen 1 2 x USB 2.0	
	<b>PS/2</b>	1 x PS/2 (mini-DIN-6)	
	<b>Display</b>	1 x VGA 1 x HDMI	
	<b>Audio</b>	1 x Line-out 1 x Mic-in 1 x Line-in (opt.)	

## SPECIFICATION

INTERNAL I/O	Serial	4 x RS-232	
	USB	2 x USB 2.0 Type A 1 x USB 2.0 (2.54mm pitch, colay vertical Type A, opt.: MOQ required)	
	Audio	1 x Front Audio 1 x S/PDIF	
	SATA	4 x SATA 3.0 (up to 6Gb/s)	
	DIO	4-IN / 8-OUT DIO	
	eSPI	1 x eSPI	
	SMBus	1 x SMBus	
	WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	TPM2.0	
POWER	Type	ATX	
	Connector	8-pin ATX 12V power 24-pin ATX power	
	Consumption	Typical: i9-12900K: 3.3V @ 0.4A (1.32W); 5V @ 0.85A (4.25W); 12V @ 1.09A (13.08W) Max.: i9-12900K: 3.3V @ 0.63A (2.08W); 5V @ 3.02A (15.1W); 12V @ 26.39A (316.68W)	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit Windows 11 Enterprise	
	Linux	Linux	
ENVIRONMENT	Temperature	Operating: -5 to 65°C	
		Storage: -30 to 60°C with RTC Battery; -40 to 85°C without RTC Battery	
	Humidity	Operating: 5 to 95% RH Storage: 5 to 95% RH	
	MTBF	TBD	
MECHANISM	Dimensions	ATX Form Factor	305mm (12") x 244mm (9.6")
	Height	PCB: 1.6mm	
		Top Side: 33.3mm Bottom Side: 4mm	
CERTIFICATIONS	Certifications	CE, FCC Class B	

## ORDERING INFORMATION

Model Name	P/N	Memory	1 GbE	2.5 GbE	RS-232/ 422/485	USB 3.2 Gen1	USB 2.0	TPM 2.0	Power	Thermal	Temp.
RPS631-H610E	770-RPS6311-000G	2 UDIMM	1	1	2	4	6	1	24-pin ATX/8-pin ATX 12V	Active	-5 to 65°C

## PACKING LIST

1 RPS631 motherboard
1 COM port cables (Length: 300mm, 2 x COM ports)
1 Serial ATA data cable (Length: 500mm)
1 I/O shield
1 M.2 screw/standoff

## OPTIONAL ITEMS

USB 2.0 port cable (Length: 350/398mm)	A81-001066-016G
USB 3.2 Gen1 port cable (Length: 320mm)	A81-001052-023G
USB 3.2 Gen2 port cable (Length: 300mm)	A81-001075-017G
COM port cable (Length: 300mm, 2 x COM ports)	A81-015026-023G
Serial ATA data cable (Length: 500mm, W/LOCK)	332-553001-005G
Serial ATA data cable (Length: 500mm, W/LOCK, 90D)	A81-002128-017G
Thermal solution (For 35W, Height: 29.39mm)	A71-101136-000G
Thermal solution (For 65W, Height: 46mm)	A71-101137-000G
Thermal solution (For 95W/125W, Height: 110mm)	A71-101145-000G
DP to HDMI Dongle	612-D2H13M-000G
M.2-COM4 (M.2 serial port module)	770-M2COM1-000G
M.2-2LAN (M.2 LAN port module)	770-M22LN2-000G
M.2-2PSE (M.2 PSE module)	770-M22PS2-000G