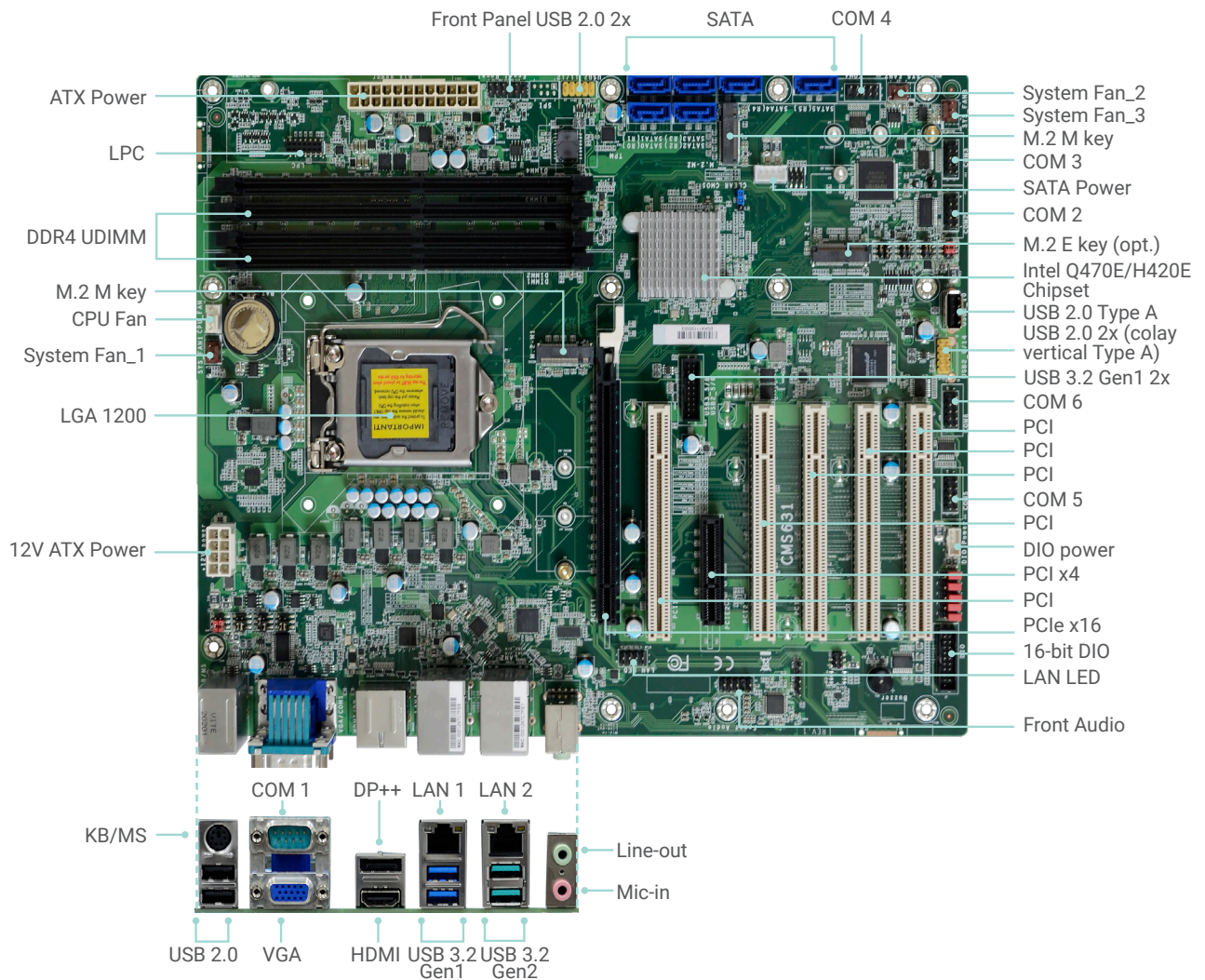


# CMS631-Q470E/H420E Desktop 10th Gen Intel® Core™ ATX



**Top View**

\*The photo above refers to CMS631-Q470E.

## KEY FEATURES



### DDR4

Q470E: 2 DDR4 UDIMM up to 128GB  
H420E: 2 DDR4 UDIMM up to 64GB



### 4K High Resolution

Supports 4K/ 2K resolution



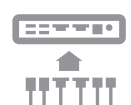
### Multiple Displays

Q470E: VGA + DP++ + HDMI  
H420E: VGA + DP++, VGA + HDMI, DP++ + HDM



### Multiple Expansion

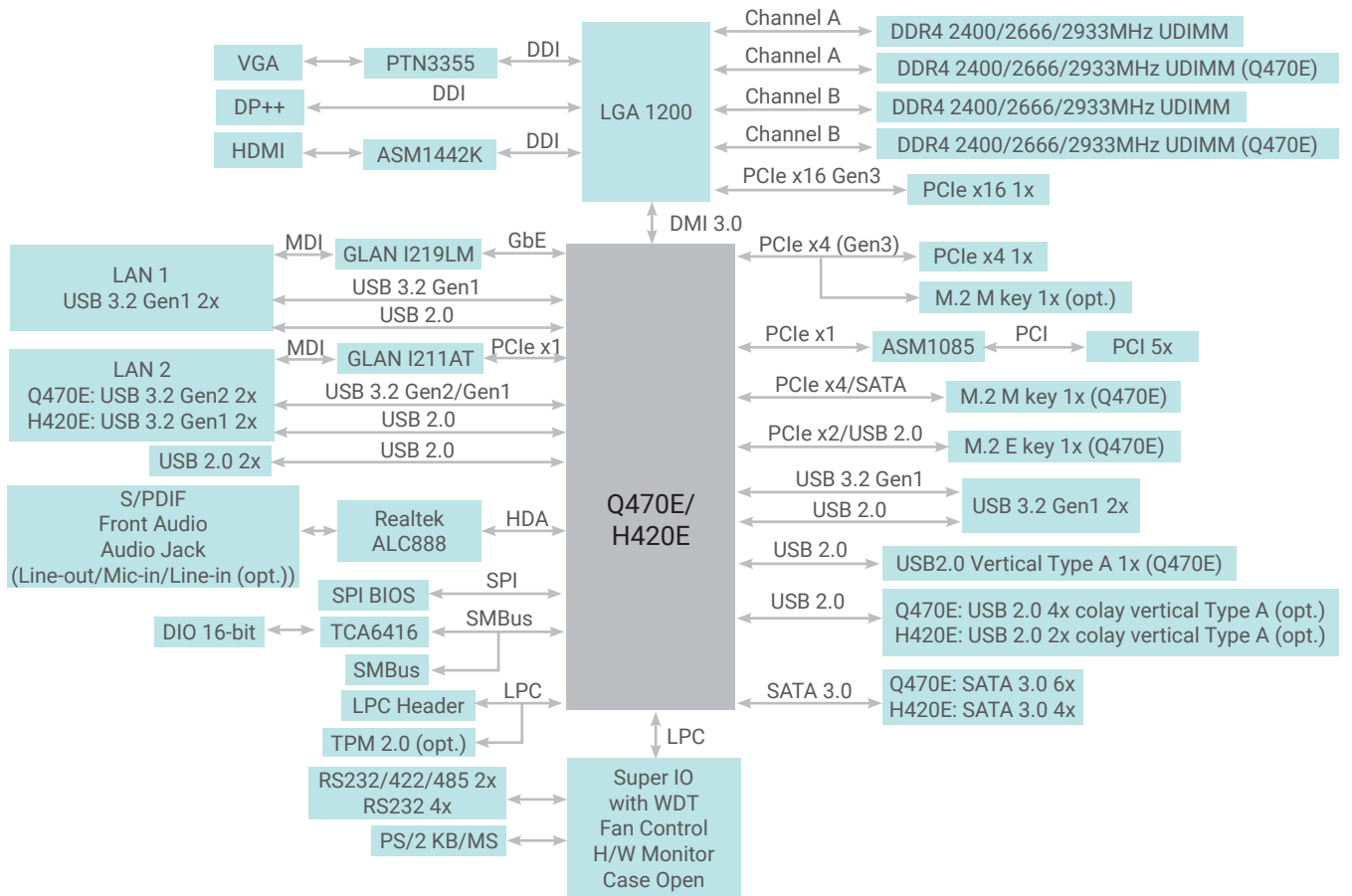
1 PCIe x16, 1 PCIe x4, 5 PCI, 1 M.2 M key, 1 M.2 E key



### Rich I/O

2 Intel GbE, 6 COM  
Q470E: 13 USB  
H420E: 10 USB

## BLOCK DIAGRAM



## MECHANICAL DRAWING



## SPECIFICATION

System	Processor	10th Generation Intel® LGA 1200 Socket Processors, TDP support up to 125W Intel® Core™ i9-10900E (10 Cores, 20M Cache, up to 4.7 GHz); 65W Intel® Core™ i9-10900TE (10 Cores, 20M Cache, up to 4.5 GHz); 35W Intel® Core™ i7-10700E (8 Cores, 16M Cache, up to 4.5 GHz); 65W Intel® Core™ i7-10700TE (8 Cores, 16M Cache, up to 4.4 GHz); 35W Intel® Core™ i5-10500E (6 Cores, 12M Cache, up to 4.2 GHz); 65W Intel® Core™ i5-10500TE (6 Cores, 12M Cache, up to 3.7 GHz); 35W Intel® Core™ i3-10100E (4 Cores, 8M Cache, up to 3.8 GHz); 65W Intel® Core™ i3-10100TE (4 Cores, 8M Cache, up to 3.6 GHz); 35W Intel® Pentium® G6400E (2 Cores, 4M Cache, 3.8 GHz); 58W Intel® Pentium® G6400TE (2 Cores, 4M Cache, 3.2 GHz); 35W Intel® Celeron® G5900E (2 Cores, 2M Cache, 3.2 GHz); 58W Intel® Celeron® G5900TE (2 Cores, 2M Cache, 3.0 GHz); 35W		
	Chipset	Intel® Q470E/H420E Chipset		
	Memory	Q470E: Four 288-pin Non-ECC UDIMM up to 128GB		
		H420E: Two 288-pin Non-ECC UDIMM up to 64GB Dual Channel DDR4 2400/2666/2933MHz		
	BIOS	Insyde SPI 256Mbit		
Graphics	Controller	Intel® HD Gen 9 Graphics		
	Feature	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		
	Display	1 x VGA	VGA: resolution up to 1920x1200 @ 60Hz	
1 x DP++ 1 x HDMI 1.4b		DP++: resolution up to 4096x2160 @ 60Hz HDMI: resolution up to 4096x2160 @ 24Hz		
Multiple Displays	Q470E: VGA + DP++ + HDMI (Triple Display) H420E: VGA + DP++ / VGA + HDMI / DP++ + HDMI (Dual Display)			
Expansion	Interface	1 x PCIe x16 (Gen 3) 1 x PCIe x4 (Gen 3) 5 x PCI		
		Q470E: Up to 2 x M.2 2242/2260/2280 M key (PCIe Gen3 x4 NVMe/SATA/Intel® Optane Memory support, one port shared with PCIe x4 slot as option, MOQ required) 1 x M.2 E 2230 Key (PCIe Gen3 x2/USB 2.0)		
		H420E: 1 x M.2 M Key (PCIe x4 NVMe share with PCIe x4 slot, opt., MOQ required)		
Audio	Audio Codec	Realtek ALC888		
Ethernet	Controller	1 x Intel® I211AT PCIe (10/100/1000Mbps)		
		1 x Intel® I219LM/I219V with iAMT12.0 (10/100/1000Mbps) (only Q470E Core i9/ i7/i5 supports iAMT)		
Rear I/O	Ethernet	2 x GbE (RJ-45)		
	Serial	1 x RS-232/422/485 (RS-232 w/ power) (DB-9)		
	USB	Q470E:	H420E:	
		2 x USB 3.2 Gen2 2 x USB 3.2 Gen1 2 x USB 2.0	4 x USB 3.2 Gen1 2 x USB 2.0	
	Display	1 x VGA 1 x DP++ 1 x HDMI		
Audio	1 x Line-out 1 x Mic-in	1 x Line-in (opt., MOQ required)		
Internal I/O	Serial	1 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch) 4 x RS-232 (2.54mm pitch)		
	USB	Q470E: 2 x USB 3.2 Gen 1 4 x USB 2.0 (2.54mm pitch, colay vertical Type A, opt.: MOQ required) 1 x USB 2.0 vertical Type A		
		H420E: 2 x USB 3.2 Gen 1 2 x USB 2.0 (2.54mm pitch, colay vertical Type A, opt.: MOQ required)		
	Audio	1 x Front Audio Header 1 x S/PDIF		
	SATA	Q470E: 6 x SATA 3.0 (up to 6Gb/s)	RAID 0/1/5/10	
		H420E: 4 x SATA 3.0 (up to 6Gb/s)		
	PS/2	1 x PS/2 (mini-DIN-6)		
	LPC	1 x LPC	Supports LPC EXT-RS232/RS485 module	
	DIO	1 x 16-bit DIO		
SMBus	1 x SMBus			
Watchdog Timer	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds		
Security	TPM	Infineon TPM2.0 (opt., MOQ required)		

<b>Power</b>	<b>Type</b>	ATX
	<b>Connector</b>	8-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 10 IoT Enterprise 64-bit
	<b>Linux</b>	Linux Ubuntu 20.04
<b>Environment</b>	<b>Temperature</b>	Operating: -5 to 65°C Storage: -40 to 85°C
		<b>Humidity</b>
	<b>MTBF</b>	TBD
<b>Mechanism</b>	<b>Dimensions</b>	ATX Form Factor 305mm (12") x 244mm (9.6")
		<b>Height</b>
	<b>Certifications</b>	<b>Certifications</b>

## PACKING LIST

1 CMS631 motherboard	
1 COM port cables (Length: 300mm, 2 x COM ports)	A81-015026-023G
1 Serial ATA data cable (Length: 500mm)	332-553001-005G
1 I/O shield	TBD

## OPTIONAL ITEMS

USB 2.0 port cable (Length: 350/398mm)	A81-001066-016G
USB 3.1 Gen1 port cable (Length: 320mm)	A81-001052-023G
COM port cable (Length: 300mm, 2 x COM ports)	A81-015026-023G
Serial ATA data cable (Length: 500mm, W/LOCK)	332-553001-005G
Thermal solution (For 35W, Height: 37.3mm)	A71-101107-000G
Thermal solution (For 65W, Height: 72.8mm)	552-200049-000G
Thermal solution (For 95W/125W, Height: 69.3mm)	761-103001-000G
DP to HDMI Dongle	612-D2H13M-000G
EXT-RS232 (4 ports RS-232 LPC module)	770-EXTRS1-000G
EXT-RS485 (4 ports RS-485 LPC module)	770-EXTRS1-100G
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