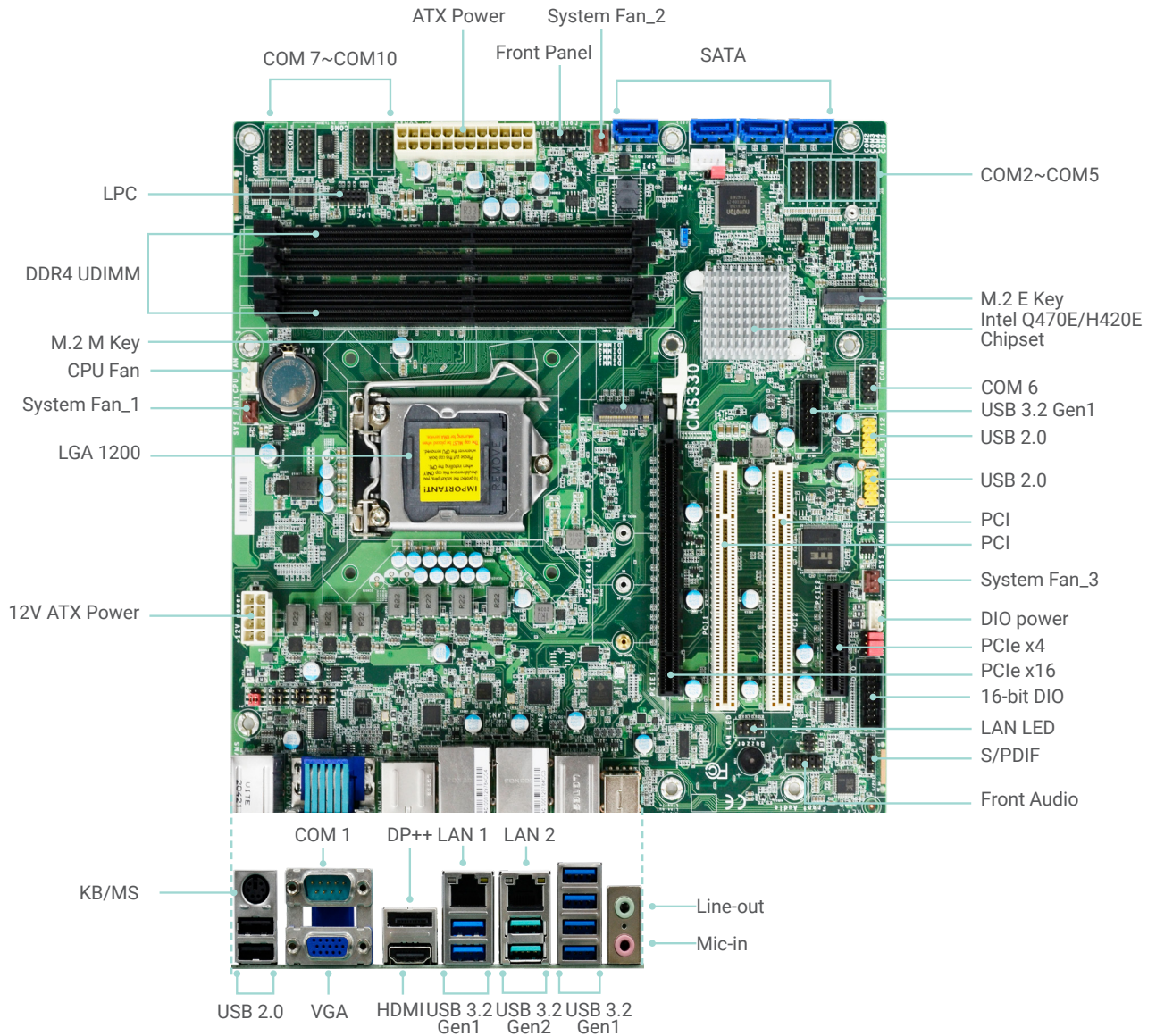


# CMS330-Q470E/H420E

10th Gen Intel® Core™  
Desktop  
microATX



Top View

\*The photo above refers to CMS330-Q470E.

## KEY FEATURES



### DDR4

Q470E: 4 DDR4 UDIMM up to 128GB  
H420E: 2 DDR4 UDIMM up to 64GB



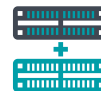
### 4K High Resolution

Supports 4K/ 2K resolution



### Multiple Displays

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



### Multiple Expansion

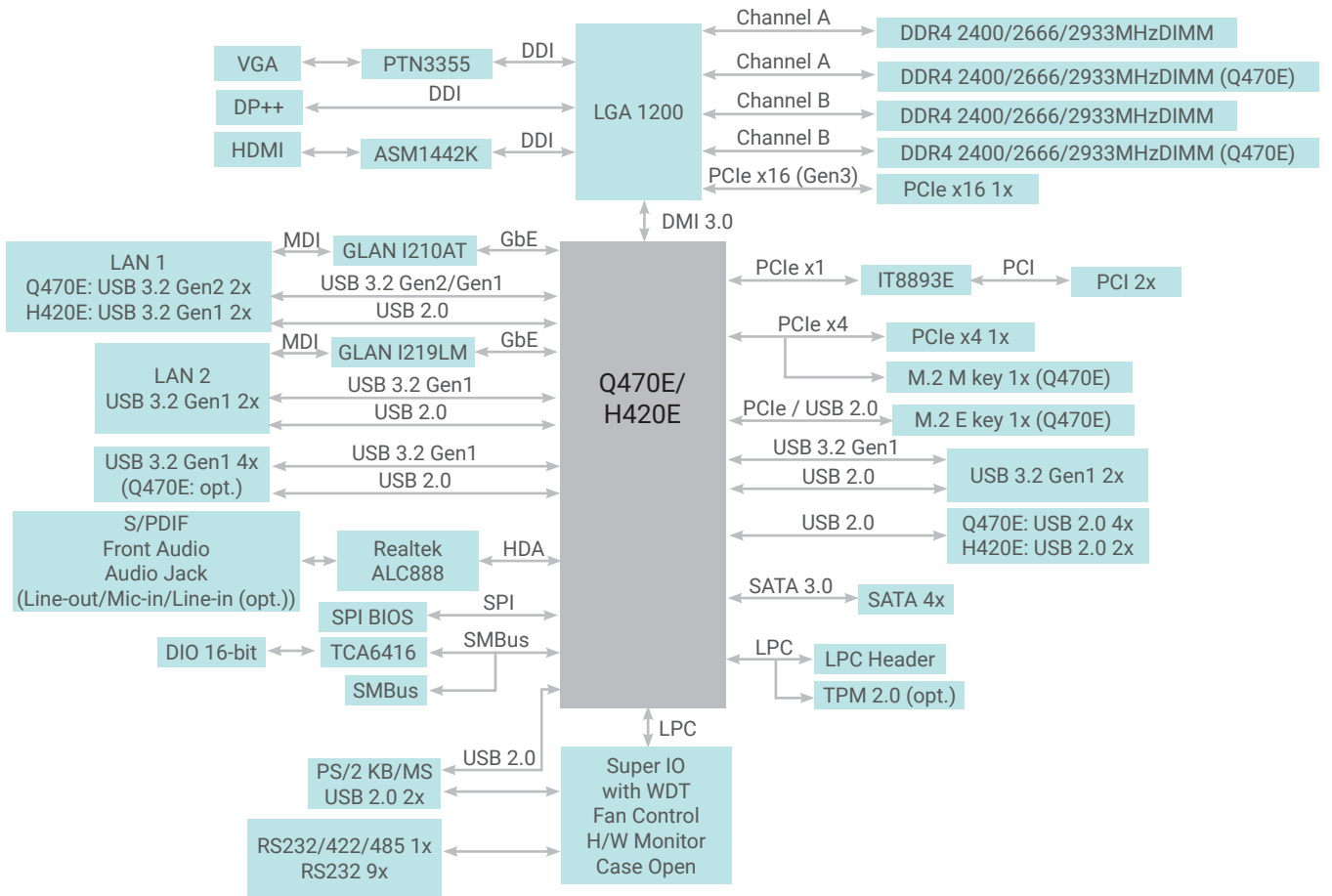
1 PCIe x16, 1 PCIe x4, 2 PCI, M.2 M & E key (Q470E)



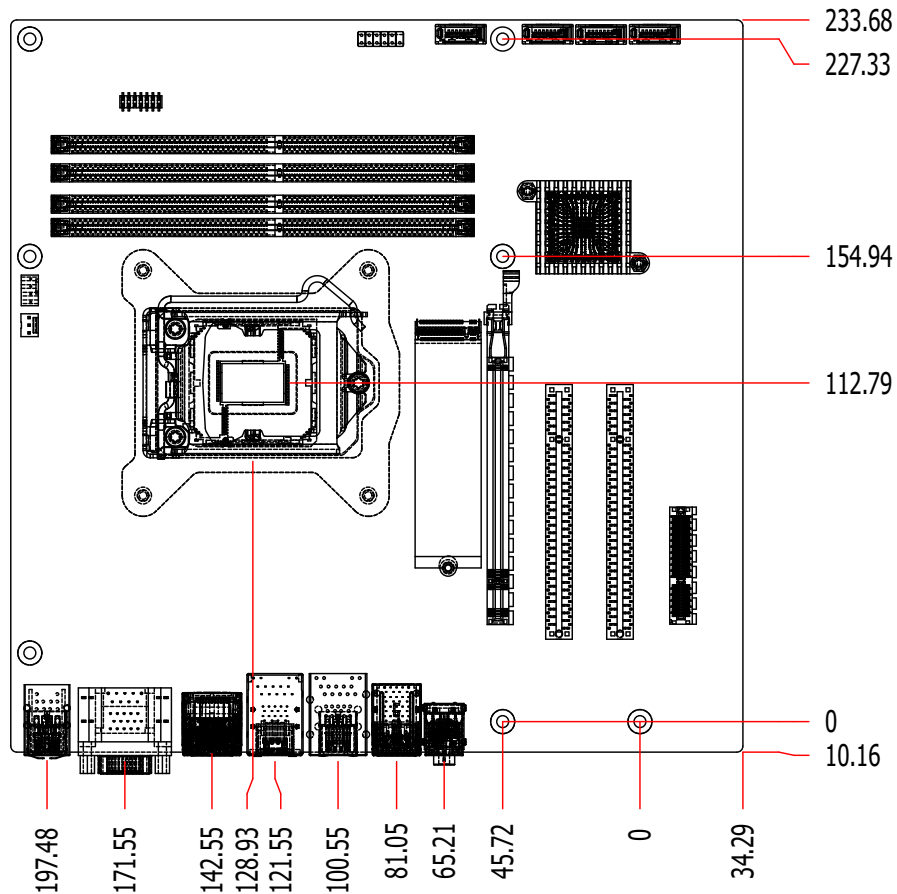
### Rich I/O

2 GbE, 10 COM, 4 SATA, Q470E: up to 16 USB  
H420E: up to 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, 6M Cache, 3.8 GHz); 65W Intel® Core™ i3-10100TE (4 Cores, 6M Cache, 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	<b>Q470E:</b> Four 288-pin Non-ECC UDIMM up to 128GB <b>H420E:</b> Two 288-pin Non-ECC UDIMM up to 64GB Dual Channel DDR4 2400/2666/2933MHz	
	BIOS	AMI 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++	DP++: resolution up to 4096x2160 @ 60Hz
		1 x HDMI 1.4b	HDMI: resolution up to 4096x2160 @ 24Hz
Multiple Displays	<b>Q470E:</b> VGA + DP++ + HDMI <b>H420E:</b> VGA + DP++ / VGA + HDMI / DP++ + HDMI		
EXPANSION	Interface	1 x PCIe x16 (Gen 3)	
		1 x PCIe x4 (Gen 3)	
		2 x PCI	
		<b>Q470E:</b> 1 x M.2 2242/2260/2280 M key (PCIe Gen3 x4 NVMe/SATA/Intel® Optane Memory and intel RST support) 1 x M.2 2230 E key (USB 2.0/PCIe) <b>H420E:</b> N/A	
AUDIO	Audio Codec	Realtek ALC888	
ETHERNET	Controller	1 x Intel® I210AT PCIe (10/100/1000Mbps) 1 x Intel® I219LM PHY with iAMT12.0 (10/100/1000Mbps) <b>(Q470E:</b> Core i9/ i7/i5 supports iAMT, <b>H420E:</b> N/A)	
REAR I/O	Ethernet	2 x GbE (RJ-45)	
	Serial	1 x RS-232/422/485 (RS-232 w/ power) (DB-9)	
	USB	2 x USB 3.2 ( <b>Q470E:</b> Gen2; <b>H420E:</b> Gen1)	
		2 x USB 3.2 Gen1 ( <b>Q470E:</b> Up to 6 x USB 3.2 Gen1, MOQ required)	
		2 x USB 2.0	
	Display	1 x VGA 1 x DP++ 1 x HDMI	
	PS/2	1 x PS/2 (mini-DIN-6)	
Audio	1 x Line-out 1 x Mic-in	1 x Line-in (opt., MOQ required)	
INTERNAL I/O	Serial	9 x RS-232 (2.54mm pitch)	
	USB	2 x USB 3.2 Gen 1	
		<b>Q470E:</b> 4 x USB 2.0 (2.54mm pitch, Colay vertical Type A, opt.: MOQ required) <b>H420E:</b> 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	4 x SATA 3.0 (up to 6Gb/s, SATA 3) ( <b>Q470E:</b> RAID 0/1/5/10, <b>H420E:</b> N/A)	
	DIO	1 x 16-bit DIO	
	LPC	1 x LPC	
	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)	
POWER	Type	ATX	
	Connector	8-pin ATX 12V power	
		24-pin ATX power	
	Consumption	Typical: i9-10900K: 3.3V @ 0.36A (1.19W); 5V @ 1.02A (5.1W); 12V @ 3.8A (45.6W) Max.: i9-10900K: 3.3V @ 0.38A (1.25W); 5V @ 1.82A (9.1W); 12V @ 15.64A (187.68W)	
RTC Battery	CR2032 Coin Cell		

## SPECIFICATION

OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit
	Linux	Linux Ubuntu 20.04
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	<b>Q470E:</b> 504,615 hrs @ 25°C; 283,232 hrs @ 45°C ; 176,865 hrs @ 60°C ; 128,658 hrs @ 70°C <b>H420E:</b> 534,071 hrs @ 25°C; 303,942 hrs @ 45°C ; 191,219 hrs @ 60°C ; 139,612 hrs @ 70°C Calculation Model: Telcordia Issue 4 Environment: GB, GC - Ground Benign, Controlled	
MECHANISM	Dimensions	micro ATX Form Factor
		244mm (9.6") x 244mm (9.6")
	Height	PCB: 1.6mm Top Side: 33mm; Bottom Side: 3mm
CERTIFICATIONS	Certifications	CE, FCC Class B, UKCA

## ORDERING INFORMATION

Model Name	P/N	Description
CMS330-H420EC	770-CMS3301-000G	2 DDR4 UDIMM, 2 LAN, 1 RS-232/422/485, 6 USB 3.2 Gen1, 4 USB 2.0, Power: 24-pin ATX/8-pin ATX 12V, Active thermal (with fan), -5 to 65°C
CMS330-Q470ECRM	770-CMS3301-100G	4 DDR4 UDIMM, 2 LAN, 1 RS-232/422/485, 2 USB 3.2 Gen2, 8 USB 3.2 Gen1, 6 USB 2.0, Power: 24-pin ATX/8-pin ATX 12V, Active thermal (with fan), -5 to 65°C
CMS330-H420EC	770-CMS3301-200G	2 DDR4 UDIMM, 2 LAN, w/ TPM 2.0, 1 RS-232/422/485, 6 USB 3.2 Gen1, 4 USB 2.0, Power: 24-pin ATX/8-pin ATX 12V, Active thermal (with fan), -5 to 65°C
CMS330-Q470ECRM	770-CMS3301-300G	4 DDR4 UDIMM, 2 LAN, w/ TPM 2.0, 1 RS-232/422/485, 2 USB 3.2 Gen2, 8 USB 3.2 Gen1, 6 USB 2.0, Power: 24-pin ATX/8-pin ATX 12V, Active thermal (with fan), -5 to 65°C

## PACKING LIST

1 CMS330 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	A49-CMS330-100G

## OPTIONAL ITEMS

USB 2.0 port cable (Length: 350/398mm)	A81-001066-016G
USB 3.1 Gen1 port cable (Length: 320mm)	A81-001052-023G
USB 3.2 Gen2 port cable (Length: 350mm)	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: 37.3mm)	A71-101107-000G
Thermal solution (For 65W, Height: 74.47mm)	A71-101158-000G
Thermal solution (For 95W, Height: 77.2mm)	761-103001-000G
DP to HDMI Dongle	612-D2H13M-000G
I/O shield (opt. for 4 x USB 2.0)	A49-CMS330-000G
M.2-COM4 (M.2 serial port module)	770-M2COM1-000G
M.2-2LAN (M.2 LAN port module)	770-M22LN1-000G
M.2-2PSE (M.2 PSE module)	770-M22PS1-000G