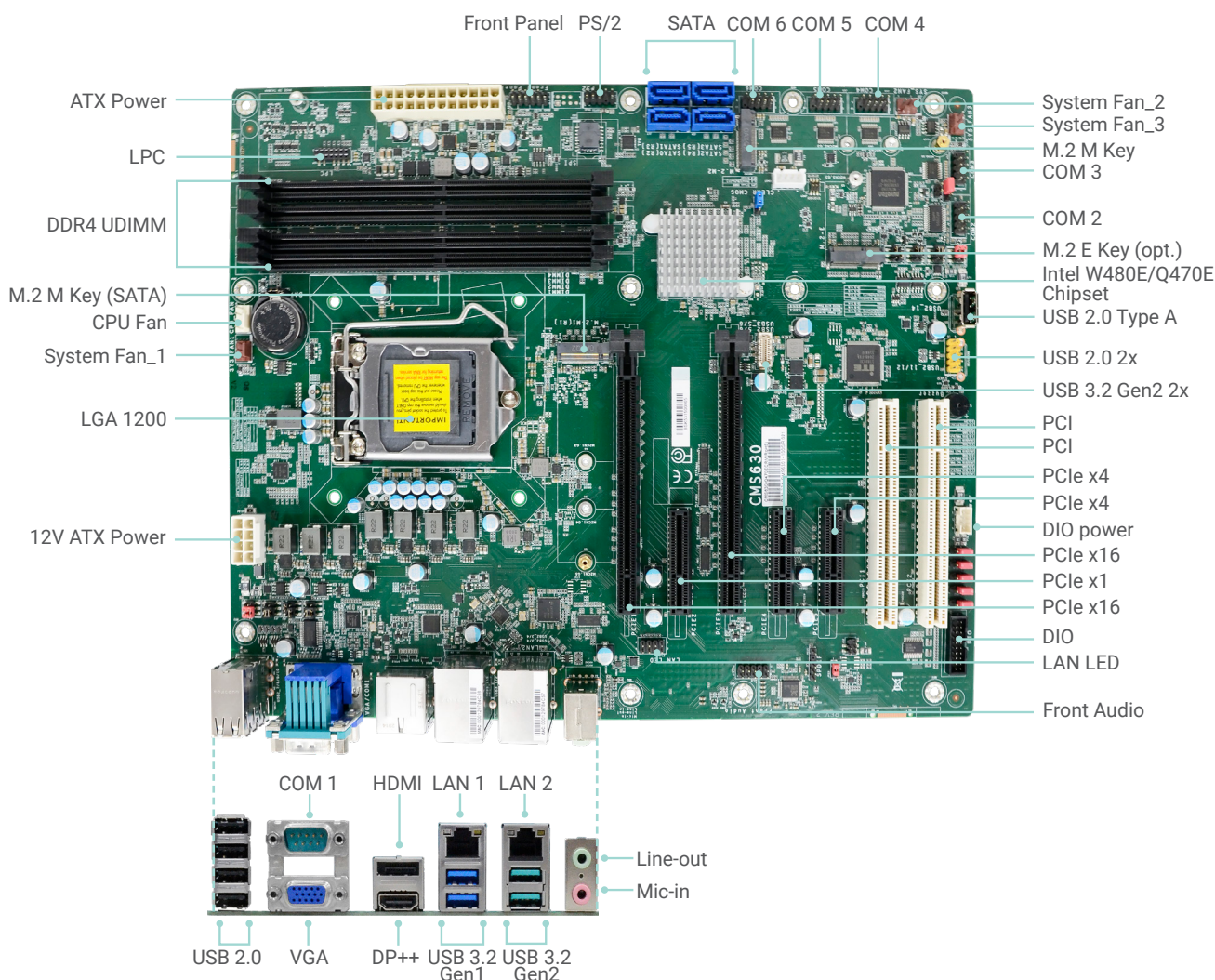


# CMS630-W480E/Q470E

10th Gen Intel® Core™  
Desktop  
ATX



Top View

## KEY FEATURES



### DDR4

4 DDR4 UDIMM up to 128GB



### 4K High Resolution

Supports 4K/ 2K resolution



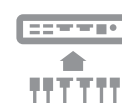
### Triple Displays

VGA + DP++ + HDMI



### Multiple Expansion

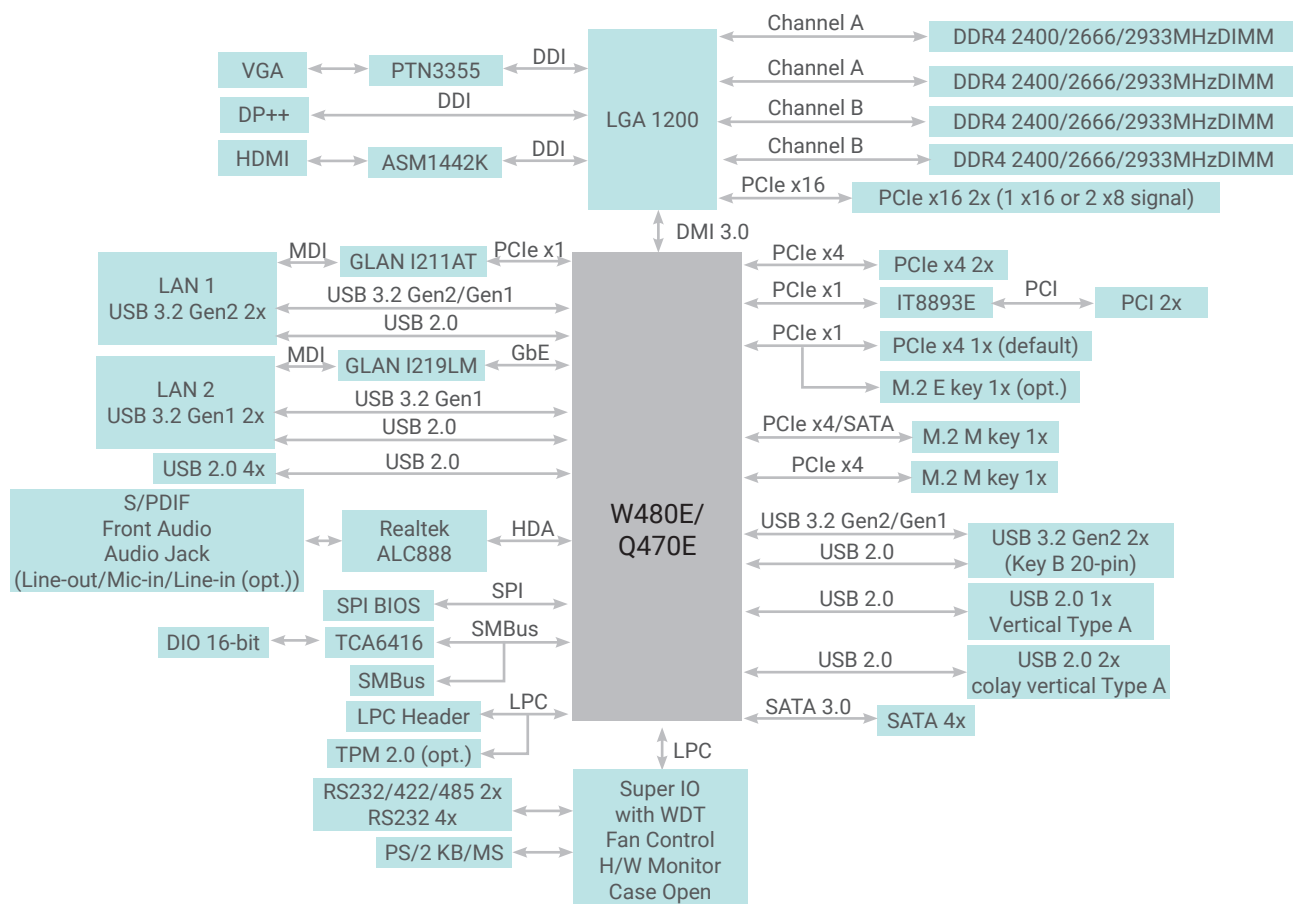
1 PCIe x16(1 x16 signal or 2 x8 signal),  
2 PCIe x4, 1 PCIe x1,  
2 PCI, 2 M.2 M key



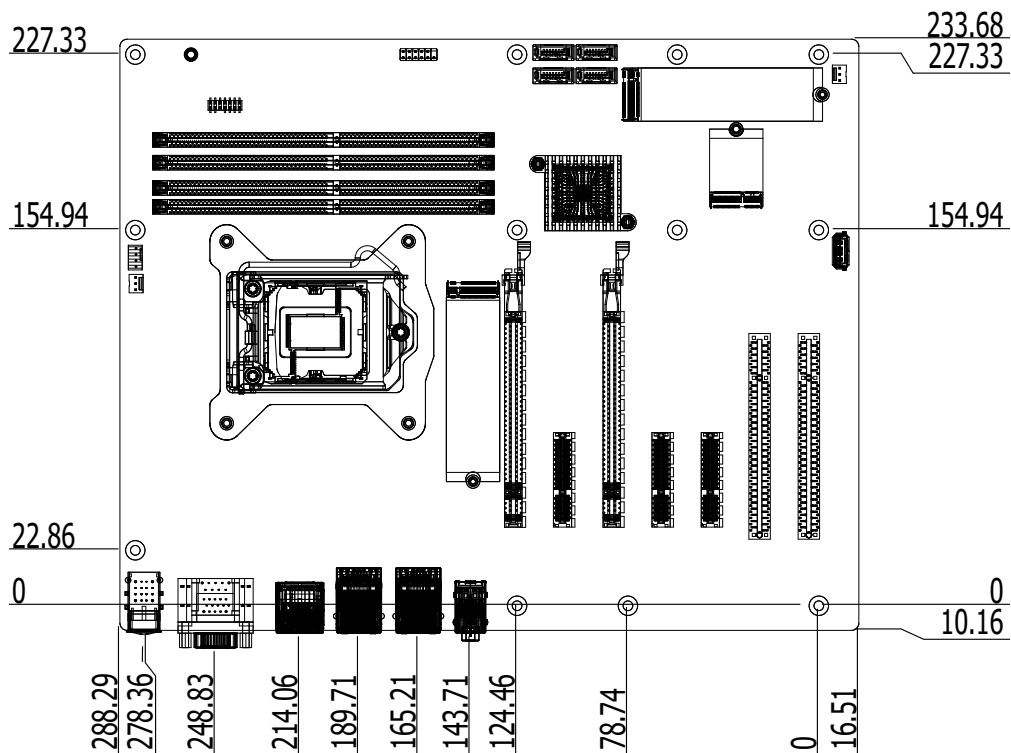
### Rich I/O

2 Intel GbE, 4 USB 3.2 Gen2, 2 USB 3.2 Gen1, 6 USB 2.0

## BLOCK DIAGRAM



## MECHANICAL DRAWING



## SPECIFICATION

|                |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |
|----------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| SYSTEM         | Processor         | 10th Generation Intel® LGA 1200 Socket Processors, TDP support up to 125W<br>Intel® Xeon® W-1290E (10 Cores, 20M Cache, up to 4.8 GHz); 95W (ECC support on W480E SKU only)<br>Intel® Xeon® W-1290TE (10 Cores, 20M Cache, up to 4.5 GHz); 35W (ECC support on W480E SKU only)<br>Intel® Xeon® W-1270E (8 Cores, 16M Cache, up to 4.8 GHz); 80W (ECC support on W480E SKU only)<br>Intel® Xeon® W-1270TE (8 Cores, 16M Cache, up to 4.4 GHz); 35W (ECC support on W480E SKU only)<br>Intel® Xeon® W-1250E (6 Cores, 12M Cache, up to 4.7 GHz); 80W (ECC support on W480E SKU only)<br>Intel® Xeon® W-1250TE (6 Cores, 12M Cache, up to 3.8 GHz); 35W (ECC support on W480E SKU only)<br>Intel® Core™ i9-10900E (10 Cores, 20M Cache, up to 4.7 GHz); 65W<br>Intel® Core™ i9-10900TE (10 Cores, 20M Cache, up to 4.5 GHz); 35W<br>Intel® Core™ i7-10700E (8 Cores, 16M Cache, up to 4.5 GHz); 65W<br>Intel® Core™ i7-10700TE (8 Cores, 16M Cache, up to 4.4 GHz); 35W<br>Intel® Core™ i5-10500E (6 Cores, 12M Cache, up to 4.2 GHz); 65W<br>Intel® Core™ i5-10500TE (6 Cores, 12M Cache, up to 3.7 GHz); 35W<br>Intel® Core™ i3-10100E (4 Cores, 6M Cache, 3.8 GHz); 65W (ECC support on SKU W480E only)<br>Intel® Core™ i3-10100TE (4 Cores, 6M Cache, to 3.6 GHz); 35W (ECC support on SKU W480E only)<br>Intel® Pentium® G6400E (2 Cores, 4M Cache, 3.8 GHz); 58W (Not support on W480E SKU)<br>Intel® Celeron® G5900E (2 Cores, 2M Cache, 3.2 GHz); 58W (Not support on W480E SKU)<br>Intel® Celeron® G5900TE (2 Cores, 2M Cache, 3.0 GHz); 35W (Not support on W480E SKU) |                                         |
|                | Chipset           | Intel® W480E/Q470E Chipset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |
|                | Memory            | Four 288-pin Non-ECC UDIMM up to 128GB (Core™ i5/i7 only support non-ECC)<br>Dual Channel DDR4 2400/2666/2933MHz (ECC support: W480E only)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |
|                | BIOS              | Insyde SPI 128Mbit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                         |
|                |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |
| GRAPHICS       | Controller        | Intel® HD Gen 9 Graphics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                         |
|                | Feature           | OpenGL 4.5, DirectX 12, OpenCL 2.1<br>HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9<br>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 |
| EXPANSION      | Triple Displays   | VGA + DP++ + HDMI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                         |
|                | Interface         | 2 x PCIe x16 (Gen 3) (1 x16 signal or 2 x8 signal)<br>3 x PCIe x4 (Gen 3) (2 x4 signal and 1 x1 signal)<br>2 x PCI<br>1 x M.2 2242/2260/2280 M Key (PCIe Gen3 x4 NVMe/SATA/Intel® Optane Memory and intel RST support)<br>1 x M.2 2242/2260/2280 M Key (PCIe Gen3 x4 NVMe/Intel® Optane Memory and intel RST support)<br>1 x M.2 2230 E Key (USB 2.0/PCIe x1 shared with PCIe x1 slot, opt., MOQ required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                         |
|                |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |
|                |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |
|                |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                         |
| AUDIO          | Audio Codec       | Realtek ALC888                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         |
| ETHERNET       | Controller        | 1 x Intel® I211AT PCIe (10/100/1000Mbps)<br>1 x Intel® I219LM PHY with iAMT12.0 (10/100/1000Mbps) (only Xeon, 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               | 2 x USB 3.2 Gen2<br>2 x USB 3.2 Gen1<br>4 x USB 2.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |
|                | Display           | 1 x VGA<br>1 x DP++<br>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)<br>4 x RS-232 (2.54mm pitch)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                         |
|                | USB               | 2 x USB 3.2 Gen 2 (Key B 20-pin)<br>2 x USB 2.0 (2.54mm pitch, Colay vertical Type A, opt.: MOQ required)<br>1 x USB 2.0 Vertical Type A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                         |
|                | Audio             | 1 x Front Audio Header<br>1 x S/PDIF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                         |
|                | SATA              | 4 x SATA 3.0 (up to 6Gb/s, SATA 3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RAID 0/1/5/10                           |
|                | 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                         |
| POWER          | Type              | ATX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |
|                | Connector         | 8-pin ATX 12V power<br>24-pin ATX power                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                         |
|                | Consumption       | Typical: i9-10900K: 3.3V @ 0.17A (0.56W); 5V @ 0.74A (3.7W); 12V @ 0.41A (4.92W)<br>Max.: i9-10900K: 3.3V @ 0.21A (0.69W); 5V @ 1.73A (8.65W); 12V @ 12.48A (149.76W)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                         |
|                | RTC Battery       | CR2032 Coin Cell                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                         |

|                |                |                                                                                                                                                         |
|----------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| OS SUPPORT     | Microsoft      | Windows 10 IoT Enterprise 64-bit<br>Windows Server 2019 (opt. only support Intel® i210)                                                                 |
|                | Linux          | Linux                                                                                                                                                   |
| ENVIRONMENT    | Temperature    | Operating: -5 to 65°C<br>Storage: -30 to 60°C with RTC Battery; -40 to 85°C without RTC Battery                                                         |
|                |                |                                                                                                                                                         |
|                | Humidity       | Operating: 5 to 95% RH<br>Storage: 5 to 95% RH                                                                                                          |
|                |                |                                                                                                                                                         |
| MECHANISM      | MTBF           | 492,929 hrs @ 25°C ; 274,924 hrs @ 45°C ; 171,243 hrs @ 60°C<br>Calculation Model: Telcordia Issue 4<br>Environment: GB, GC - Ground Benign, Controlled |
|                |                |                                                                                                                                                         |
|                | Dimensions     | ATX Form Factor<br>305mm (12") x 244mm (9.6")                                                                                                           |
|                |                |                                                                                                                                                         |
| CERTIFICATIONS | Certifications | CE, FCC Class B, RoHS, UKCA                                                                                                                             |
|                |                |                                                                                                                                                         |

## ORDERING INFORMATION

| Model Name      | P/N              | Memory  | GbE | RS-232/422/485 | USB 3.2 Gen2 | USB 3.2 Gen1 | USB 2.0 | TPM 2.0 | Power                        | Thermal | Temp.      |
|-----------------|------------------|---------|-----|----------------|--------------|--------------|---------|---------|------------------------------|---------|------------|
| CMS630-W480ECRM | 770-CMS6301-000G | 4 UDIMM | 2   | 2              | 4            | 2            | 6       | -       | 24-pin ATX/<br>8-pin ATX 12V | Active  | -5 to 65°C |
| CMS630-Q470ECRM | 770-CMS6301-100G | 4 UDIMM | 2   | 2              | 4            | 2            | 6       | -       | 24-pin ATX/<br>8-pin ATX 12V | Active  | -5 to 65°C |
| CMS630-W480ECRM | 770-CMS6301-200G | 4 UDIMM | 2   | 2              | 4            | 2            | 6       | 1       | 24-pin ATX/<br>8-pin ATX 12V | Active  | -5 to 65°C |
| CMS630-Q470ECRM | 770-CMS6301-300G | 4 UDIMM | 2   | 2              | 4            | 2            | 6       | 1       | 24-pin ATX/<br>8-pin ATX 12V | Active  | -5 to 65°C |

## PACKING LIST

|                                                  |                 |
|--------------------------------------------------|-----------------|
| 1 CMS630 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-CMS630-000G |
| 1 M.2 screw/standoff                             | A32-112016-041G |

## OPTIONAL ITEMS

|                                               |                 |
|-----------------------------------------------|-----------------|
| USB 2.0 port cable (Length: 350/398mm)        | A81-001066-016G |
| 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 |
| Thermal solution (For 35W, Height: 37.3mm)    | A71-101107-000G |
| Thermal solution (For 65W, Height: 72.8mm)    | 552-200049-000G |
| Thermal solution (For 95W, Height: 69.3mm)    | 761-103001-000G |
| DP to HDMI Dongle                             | 612-D2H13M-000G |
| PS2 KB/MS Cable (Length: 400mm)               | 332-353016-009G |
| 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-M22PS1-000G |