

VC500-CMS-Q470E VC500-CMS-W480E VC500-CMS-H420E



10th Gen Intel® Processors
In-vehicle System

KEY FEATURES



High Performance CPU

10th Gen Intel® Xeon/Core™/Pentium/Celeron Processors



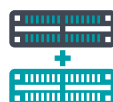
PoE or 10G Fiber ports

4 x PoE ports at 15.4W or
2 x 10G SFP+ ports



Wide Range Power Input

9~50Vdc power input with power ignition management



Multiple Expansions

1 miniPCIe and 4 M.2 slots

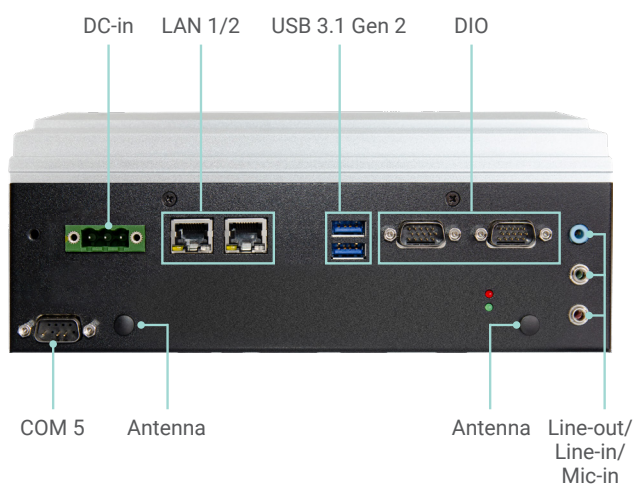


Dual SIM for single modem

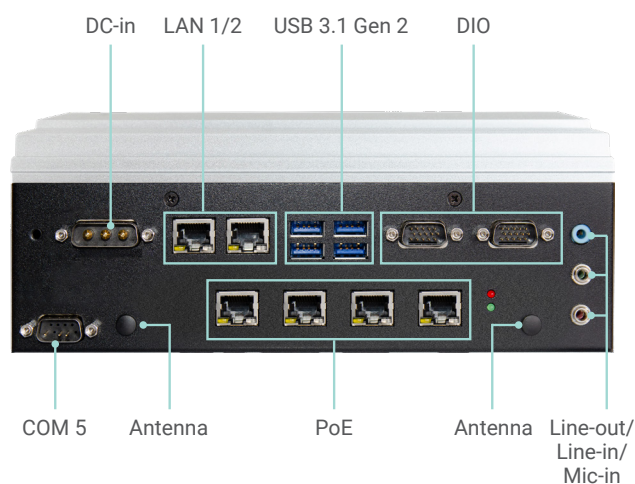
Two SIM cards for 5G/LTE module



PANEL

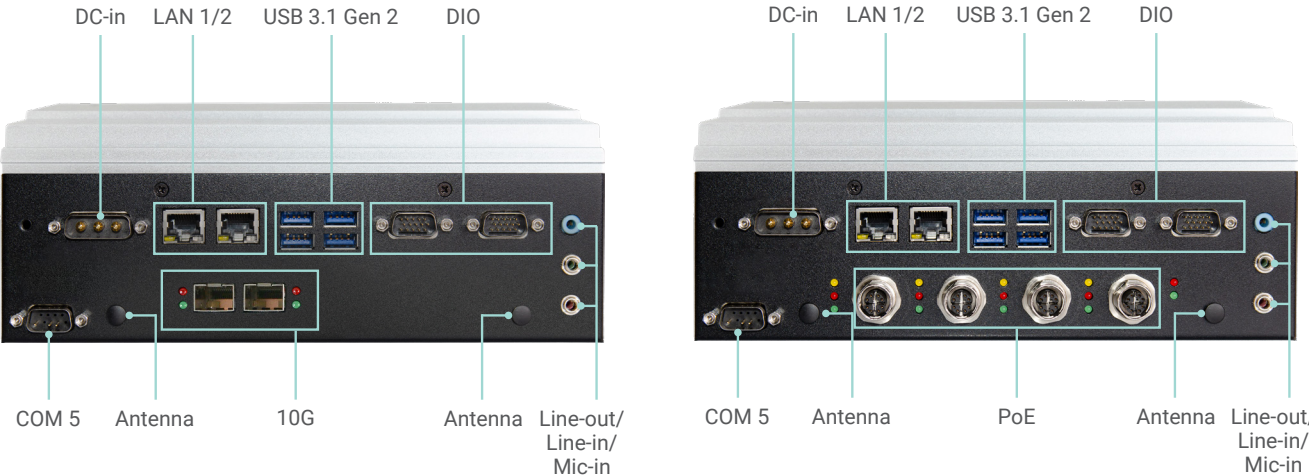


Front View
(w/o PoE)



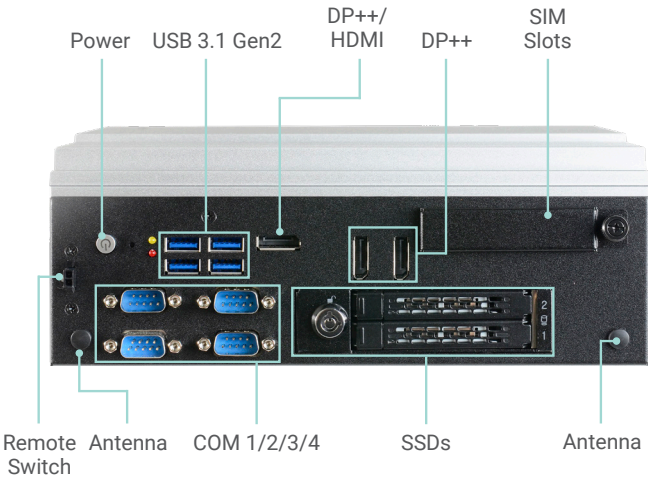
Front View
(4PoE)

PANEL



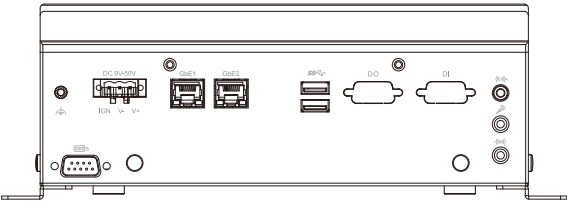
Front View
(10G)

Front View
(4PoEM12)

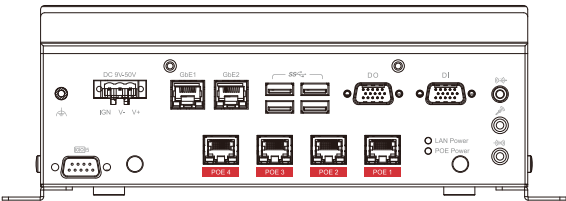


Rear View

DIMENSIONS

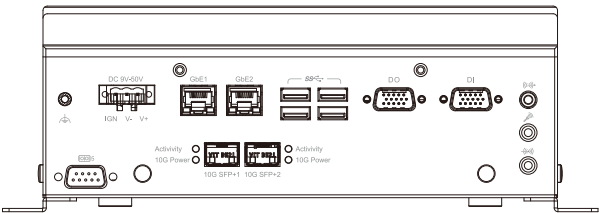


Front View
(w/o PoE)

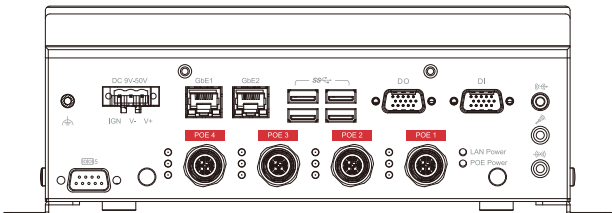


Front View
(4PoE)

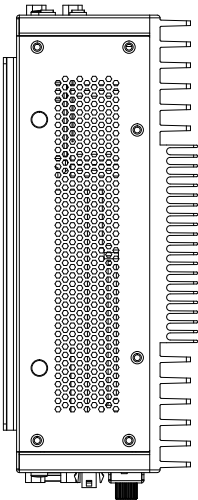
DIMENSIONS



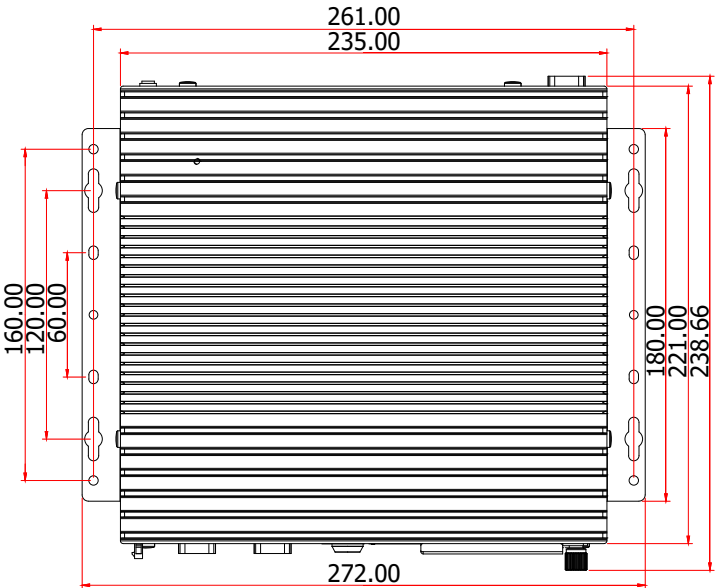
Front View
(10 G)



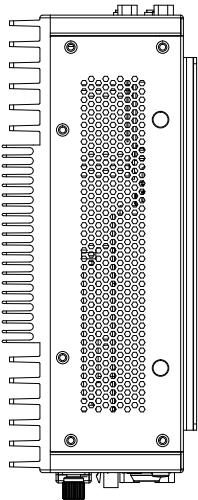
Front View
(4 PoEM12)



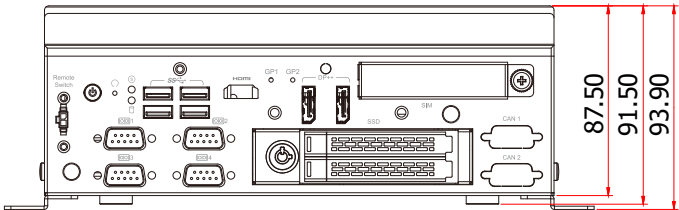
Right View



Top View



Left View



Rear View

SPECIFICATION

Model Name		VC500-CMS-Q470E / VC500-CMS-W480E	VC500-CMS-H420E
SYSTEM	Processor	10th Gen Intel® Xeon/Core™/Pentium/Celeron Processors, LGA 1200 Socket Q470E/ W480E: - Intel® Xeon-1270TE (8 Cores, 16M Cache, up to 2.0/4.4 GHz); 35W - Intel® Core™ i9-10900TE (10 Cores, 20M Cache, up to 1.8/4.5 GHz); 35W - Intel® Core™ i7-10700TE (8 Cores, 16M Cache, up to 2.0/4.4 GHz); 35W - Intel® Core™ i5-10500TE (6 Cores, 12M Cache, up to 2.3/3.7 GHz); 35W - Intel® Core™ i3-10100TE (4 Cores, 6M Cache, to 2.3/3.6 GHz); 35W H420E: - Intel® Core™ i3-10100TE (4 Cores, 6M Cache, to 2.3/3.6 GHz); 35W - Intel® Pentium® G6400TE (2 Cores, 4M Cache, 3.2 GHz); 35W - Intel® Celeron® G5900TE (2 Cores, 2M Cache, 3.0 GHz)	
	Chipset	Intel® Q470E/W480E Chipset	Intel® H420E Chipset
	Memory	Dual SO-DIMM slots (horizontal type) Dual Channel DDR4 2933/2666/2400/2133 SDRAM, up to 64GB ECC support for Xeon-1270TE processor only	Dual SO-DIMM slots (horizontal type) Dual Channel DDR4 2933/2666/2400/2133 SDRAM, up to 64GB ECC support for Xeon-1270TE processor only
	BIOS	AMI SPI 256Mbit	AMI SPI 256Mbit
	Controller	Intel® UHD Graphics 630 (processor integrated)	Intel® UHD Graphics 630 (processor integrated)
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: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9	OpenGL 4.5, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9
	Display	Support DP++/DP 1.4 Resolution up to 4096x2304 @60Hz for DP 1 x HDMI with lock hole 2 x DP ports with lock hole	Support DP++/DP 1.4 Resolution up to 4096x2304 @60Hz for DP 1 x HDMI with lock hole 2 x DP ports with lock hole
	Triple Displays	1 HDMI + 2 DP++	1 HDMI + 2 DP++
	External	2 x swappable 2.5" SATA drive bays with lock on rear panel Supports RAID 0/1	2 x swappable 2.5" SATA drive bays with lock on rear panel Supports RAID 0/1
STORAGE	Internal	1 x M.2 2280 M Key slot, supports 2280 devices PCIe x4 & SATA signal, support boot up function	1 x M.2 2280 M Key slot, supports 2280 devices PCIe x4 & SATA signal, support boot up function
	Audio Codec	Realtek ALC888	Realtek ALC888
AUDIO	Interface	1 x Mic-in and 1 x Line-in	1 x Mic-in and 1 x Line-in
ETHERNET	Controller	1 x Intel® i219LM with iAMT11.0 support (Core i7/i5 only) 1 x Intel® i210IT	1 x Intel® i219LM with iAMT11.0 support (Core i7/i5 only) 1 x Intel® i210IT
	Indicators	1 x Storage Activity (Red) 1 x Power Status (Yellow) 2 x Programmable general purpose (Green, Blue)	1 x Storage Activity (Red) 1 x Power Status (Yellow) 2 x Programmable general purpose (Green, Blue)
LED	Ethernet	2 x RJ45 GbE ports	2 x RJ45 GbE ports
	PoE / 10G	4 x 802.11af PoE ports at RJ45 or M12 X-coded connectors, max 15.4W (PSE side) or 2 x 10G fiber ports at SFP+ cage based on Intel X710-BM2 Ethernet controller	N/A
	Serial	1 x DB-9 RS232 ports (COM 5)	1 x DB-9 RS232 ports (COM 5)
	USB	4 x USB 3.1 Gen2	2 x USB 3.1 Gen2
	DIO	2 x Isolated DIO port by 2 x DB-15 female connectors Supports 8bit DI & 8 bit DO with 2KV isolation	N/A
	Audio	1 x Line-out, 1 x Mic-in and 1 x Line-in with 3.5mm audio jacks	1 x Line-out, 1 x Mic-in and 1 x Line-in with 3.5mm audio jacks
	Antenna	2 x antenna holes	2 x antenna holes
	DC in	3 pin terminal block connector	3 pin terminal block connector
	OOB	Optional RJ45 port for OOB management	Optional RJ45 port for OOB management
	Serial	4 x DB-9 RS232/422/485 ports by BIOS selection (COM 1/2/3/4)	4 x DB-9 RS232/422/485 ports by BIOS selection (COM 1/2/3/4)
	USB	4 x USB 3.1 Gen2	4 x USB 3.1 Gen2
FRONT I/O	Display	2 x DP++ ports 1 x HDMI port	2 x DP++ ports 1 x HDMI port
	Antenna	2 x antenna holes	2 x antenna holes
	SIM slot	3 x accessible SIM slots with cover bracket	3 x accessible SIM slots with cover bracket
	CAN bus	2 x DB-9 ports for CAN bus (optional)	2 x DB-9 ports for CAN bus (optional)
	Remote Switch	2-pin remote switch	2-pin remote switch
	Power Button	1 x Power button	1 x Power button
	Reset Button	1 x Reset button	1 x Reset button
	Antenna	2 x antenna holes on right side 2 x antenna holes on left side	2 x antenna holes on right side 2 x antenna holes on left side
	Antenna	2 x antenna holes on right side 2 x antenna holes on left side	2 x antenna holes on right side 2 x antenna holes on left side
	Antenna	2 x antenna holes on right side 2 x antenna holes on left side	2 x antenna holes on right side 2 x antenna holes on left side
	Antenna	2 x antenna holes on right side 2 x antenna holes on left side	2 x antenna holes on right side 2 x antenna holes on left side
REAR I/O	Serial	4 x DB-9 RS232/422/485 ports by BIOS selection (COM 1/2/3/4)	4 x DB-9 RS232/422/485 ports by BIOS selection (COM 1/2/3/4)
	USB	4 x USB 3.1 Gen2	4 x USB 3.1 Gen2
SIDE I/O	Display	2 x DP++ ports 1 x HDMI port	2 x DP++ ports 1 x HDMI port
	Antenna	2 x antenna holes	2 x antenna holes

SPECIFICATION

Model Name		VC500-CMS-Q470E / VC500-CMS-W480E	VC500-CMS-H420E
INTERNAL I/O	Serial	1 x 2x5 pin block header for RS232	1 x 2x5 pin block header for RS232
	Mini PCIe slot	1 x mini PCIe slot with SIM holer on faceplate Supports WiFi/BT/LTE or CAN bus module	1 x mini PCIe slot with SIM holer on faceplate Supports WiFi/BT/LTE or CAN bus module
	M.2 Slot	Total 3 x M.2 slots 1 x 2230 E-key slot (PCIe x1 & USB2.0) 1 x 3042/3052 B-key (USB3.0 & PCIe x1) with dual SIM slots on faceplate 1 x 2280 M-Key-slot (PCIe gen3 x4 & SATA) supporting Intel® Optane memory (Both of the M10 and H10) and NVMe	Total 3 x M.2 slots 1 x 2230 E-key slot (PCIe x1 & USB2.0) 1 x 3042/3052 B-key (USB3.0 only) with dual SIM slots on faceplate 1 x 2280 M-Key-slot (SATA only)
COOLING	FAN	Passive cooling	Passive cooling
HARDWARE MONITOR	Gravity Sensor	Support 3-axis femto accelerometer User-selectable $\pm 2g/\pm 4g/\pm 8g/\pm 16g$ scale Supports 6D/4D orientation detection, Free-fall detection, Motion detection and leap-to-wake and return-to-sleep	Support 3-axis femto accelerometer User-selectable $\pm 2g/\pm 4g/\pm 8g/\pm 16g$ scale Supports 6D/4D orientation detection, Free-fall detection, Motion detection and leap-to-wake and return-to-sleep
SECURITY	TPM	Supports dTPM2.0 by default (disabled by BIOS setting) Optional fTPM2.0 supported	N/A
POWER	Type	3pin 3W3 connector	3pin terminal block
	Supply	Wide Range 9~50VDC with power management (on/off delay) and ignition	Wide Range 9~50VDC with power management (on/off delay) and ignition
OS SUPPORT	Microsoft	Windows 11 IoT Enterprise LTSC SW Windows 10 IoT Enterprise RS5	Windows 11 IoT Enterprise LTSC SW Windows 10 IoT Enterprise RS5
	Linux	Ubuntu Linux 20.04	Ubuntu Linux 20.04
MECHANISM	Construction	Metal + Aluminum	Metal + Aluminum
	Mounting	Wall mount	Wall mount
	Dimensions (W x H x D)	235mmx 87.5mmx 221mm (mounting bracket excluded)	235mmx 87.5mmx 221mm (mounting bracket excluded)
	Weight	5.5 kg	5.5 kg
	Color	Black and Silver	Black and Silver
ENVIRONMENT	Operating Temperature	-20°C to 70°C without turbo boost and throttling is expected	-20°C to 70°C without turbo boost and throttling is expected
	Storage Temperature	-40°C to 85°C	-40°C to 85°C
	Relative Humidity	10% to 95% (non-condensing)	10% to 95% (non-condensing)
STANDARDS AND CERTIFICATIONS	Shock	MIL-STD-810G Method 516.6, Procedure 1, OP:10G 11ms, Non-OP: 40G 11ms (Tested by SSD, HDD is not support)	MIL-STD-810G Method 516.6, Procedure 1, OP:10G 11ms, Non-OP: 40G 11ms (Tested by SSD, HDD is not support)
	Vibration	MIL-STD-810G Method 514.6C-3, Category 4 Composite wheeled vehicle Table 514.6C-VI	MIL-STD-810G Method 514.6C-3, Category 4 Composite wheeled vehicle Table 514.6C-VI
	Certification	FCC, E-Mark (E24), CE, RoHS, UKCA	FCC, E-Mark (E24), CE, RoHS, UKCA

ORDERING INFORMATION

Model Name	Part Number	CPU	Power connector	PCH	USB 3.1	DI	DO	POE	10G
VC500-CMS-POEM12-Q	750-VC50000-000G	-	3W3	Q470E	8	1	1	4 (M12)	-
VC500-CMS-10G-Q	750-VC50000-100G	-	3W3	Q470E	8	1	1	-	2
VC500-CMS-POE-Q	750-VC50000-210G	-	3W3	Q470E	8	1	1	4 (RJ45)	-
VC500-CMS-H	750-VC50000-310G	-	Terminal block	H420E	6	-	-	-	-
VC500-CMS-10G-W-X127	750-VC50000-600G	Xeon-1270TE	Terminal block	W480E	8	1	1	-	2
VC500-CMS-Q	750-VC50000-700G	-	Terminal block	Q470E	8	1	1	-	-

OPTIONAL ITEMS

Optional Items	Part Number	Description
2.5" SSD	785-S251TBG	2.5" SATA SSD, 1TB MLC, -40 to 85°C, RoHS
	785-S25512G	2.5" SATA SSD, 512GB MLC, -40 to 85°C, RoHS
	785-S25256G	2.5" SATA SSD, 256GB MLC, -40 to 85°C, RoHS
	785-S25128G	2.5" SATA SSD, 128GB MLC, -40 to 85°C, RoHS
M.2 SATA SSD	785-M2SATA64G	64GB, M.2 2280 SSD, SATA3 B+M Key, MLC, Wide Temp.
	785-M2SATA128G	128GB, M.2 2280 SSD, SATA3 B+M Key, MLC, Wide Temp.
	785-M2SATA256G	256GB, M.2 2280 SSD, SATA3 B+M Key, MLC, Wide Temp.
	785-M2SATA512G	512GB, M.2 2280 SSD, SATA3 B+M Key, 3D TLC, PE: 3K, 30u" -20~75°C
Memory	138-540002-121G	4GB DDR4 2666Mhz SO-DIMM, -40 to 85°C
	138-580004-104G	8GB DDR4 2666Mhz SO-DIMM 1Rx8 IND 1Gx8 CL19 1.2V
WiFi/BT module kit	761-AP1235-000G	WiFi/Bluetooth Module AP12356, antenna *2, 200mm SMA cables*2, Mini PCIe Bracket, screws
LTE module kit	761-RC3000-001G	Quectel EG25GGB CAT4 miniPCIe module, antenna*2, 300mm SMA cables*2
5G module kit	761-RC3000-100G	SIM8202G-M2 M.2 module, antenna*4, 184mm SMA cables *4
M12 Cable	A81-005038-054G	8-pin M12 X-coded to RJ45 PoE cable
CAN bus module	770-MPEC21-100G	MPE-CAN2 MiniPCIe Full CAN Module Card Assembly
Power Switch Cable	A81-004363-054G	3W3 to terminal block 2*4P/4.2mm, L=250 & 300mm with ignition switch button
	A81-006065-016G	Terminal Block 1*3P/5.0mm to DC Jack, L=100mm with ignition switch button
Power Adapter	671-133001-000G	330W, GST360A, Input: 85~264V, Output: 12V/27.5A, 220x95x46mm, L=1000mm, C8P, LV6, 62368-1, GST360A12-C8P(MEAN WELL)RoHS
	671-116005-000G	160W, GST160A24, Input:100~240V, Output:24V/6.67A, 175x72x35mm, L=1200mm, DC PLUG 5.5*2.5*7.5mm(Lockable), LV6, 62368-1, GST160A24-DFIA(MEAN WELL)RoHS

PACKING LIST

1 VC500-CMS system unit
1 Power connector
1 Mounting bracket
1 3W3 adaptor cable