



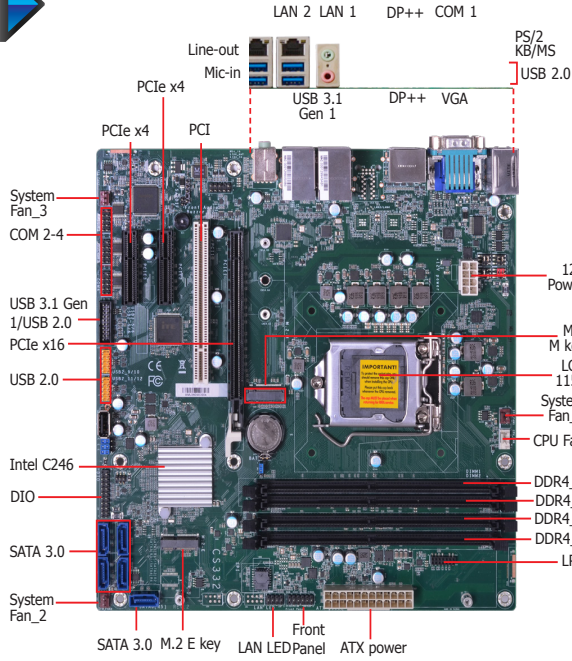
**9th/8th Gen Intel® Core™ Processor
microATX**



CS332-C246

Desktop

C246

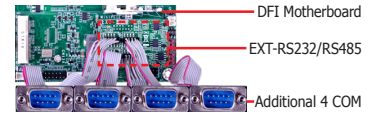


Features

- 4 DDR4 DIMM up to 128GB
- Dual display ports: VGA + DP++ + DP++ Supports triple independent displays
- DP++ resolution up to 4096x2160 @ 60Hz
VGA resolution up to 1920x1200 @ 60Hz
- Multiple expansion: 1 PCIe x16, 2 PCIe x4, 1 PCI, 1 M.2 M key (support Optane Memory), 1 x M.2 E key
- Rich I/O: Up to 4 GbE (2 default), 4 COM, 6 USB 3.1 Gen 1, 7 USB 2.0



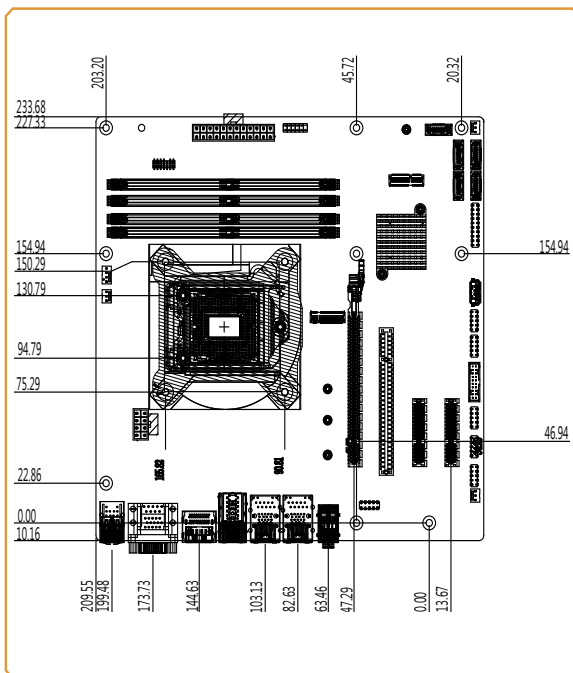
2 Extension Modules for Additional 4 COM Ports (via the LPC connector)



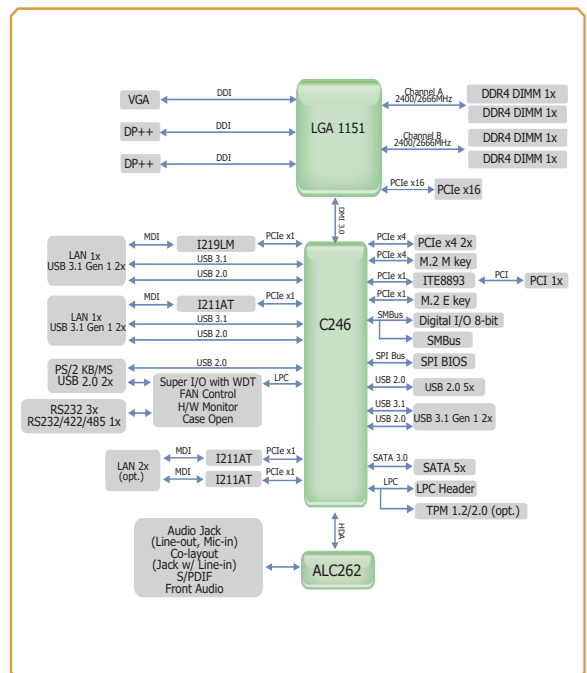
Ordering Information

Model Name	P/N	Memory	GbE	RS-232/422/485	RS-232	USB 3.1 Gen 1	USB 2.0	Power	Thermal	Temp.
CS332-C246	770-CS3321-000G	4 DIMM	2	1	3	6	7	ATX	Active	0 to 60°C

Mechanical Drawing



Block Diagram





Specifications

SYSTEM	Processor	8th Generation Intel® Core™ /Pentium®/Celeron® LGA 1151 Socket Processors: Intel® Xeon® E-2176G (6 Cores, 12M Cache, up to 4.7 GHz); 80W Intel® Xeon® E-2124G (4 Cores, 8M Cache, up to 4.5 GHz); 71W Intel® Core™ i7-8700K (6 Cores, 12M Cache, up to 4.7 GHz); 95W Intel® Core™ i7-8700 (6 Cores, 12M Cache, up to 4.6 GHz); 65W Intel® Core™ i7-8700T (6 Cores, 12M Cache, up to 4.0 GHz); 35W Intel® Core™ i5-8500 (6 Cores, 9M Cache, up to 4.1 GHz); 65W Intel® Core™ i5-8500T (6 Cores, 9M Cache, up to 3.5 GHz); 35W Intel® Core™ i3-8100 (4 Cores, 6M Cache, 3.6 GHz); 65W Intel® Core™ i3-8100T (4 Cores, 6M Cache, 3.1 GHz); 35W Intel® Pentium® G5400 (2 Cores, 4M Cache, 3.7 GHz); 58W Intel® Pentium® G5400T (2 Cores, 4M Cache, 3.1 GHz); 35W Intel® Celeron® G4900 (2 Cores, 2M Cache, 3.1 GHz); 54W Intel® Celeron® G4900T (2 Cores, 2M Cache, 2.9 GHz); 35W	9th Generation Intel® Core™ LGA 1151 Socket Processors: Intel® Xeon® E-2278GEL (8 Cores, 16M Cache, up to 3.9 GHz); 35W Intel® Xeon® E-2226GE (6 Cores, 12M Cache, up to 4.6 GHz); 80W Intel® Core™ i7-9700TE (8 Cores, 12M Cache, up to 3.8 GHz); 35W Intel® Core™ i5-9500E (6 Cores, 9M Cache, up to 4.2 GHz); 65W Intel® Core™ i5-9500TE (6 Cores, 9M Cache, up to 3.6 GHz); 35W Intel® Core™ i3-9100E (4 Cores, 6M Cache, 3.7 GHz); 65W Intel® Core™ i3-9100TE (4 Cores, 6M Cache, 3.2 GHz); 35W
	Chipset	Intel® C246 Chipset	
	Memory	Four 288-pin DIMM up to 128GB Dual Channel DDR4 2400/2666 MHz (ECC/non ECC support)	
	BIOS	AMI SPI 128Mbit	
GRAPHICS	Controller	Intel® HD Gen 9 Graphics	
	Feature	OpenGL 5.0, 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 2 x DP++ VGA: resolution up to 1920x1200 @ 60Hz DP++: resolution up to 4096x2106 @ 60Hz	
	Triple Displays	VGA + DP++ + DP++	
EXPANSION	Interface	1 x PCIe x16 (Gen 3) 2 x PCIe x4 (Gen 3) 1 x PCI 1 x M.2 2242/2280 M key (PCIe Gen3 x 4 NVMe/Intel Optane Memory Support) 1 x M.2 2230 E key (PCIe x1/USB2.0)	
AUDIO	Audio Codec	Realtek ALC262-VC2	
ETHERNET	Controller	1 x Intel® i219LM PCIe (10/100/1000Mbps) (only Xeon, Core i7/i5 support iAMT) 1 x Intel® i211AT PCIe (10/100/1000Mbps) 2 x Intel® i211AT PCIe (10/100/1000Mbps) (opt. by request, MOQ required)	
REAR I/O	Ethernet	2 x GbE (RJ-45), 4 x GbE (RJ-45) (opt. by request, MOQ required)	
	USB	4 x USB 3.1 Gen 1 2 x USB 2.0	
	Serial	1 x RS-232/422/485 (RS-232 w/ power) (DB-9)	
	PS/2	1 x PS/2 (mini-DIN-6)	
	Display	1 x VGA 2 x DP++	
	Audio	1 x Line-out 1 x Line-in (colay, opt. by request, MOQ required) 1 x Mic-in	
INTERNAL I/O	Serial	3 x RS-232	
	USB	2 x USB 3.1 Gen 1 4 x USB 2.0 (2.54mm pitch) ,1 x USB 2.0 vertical Type A	
	Audio	1 x S/PDIF, 1 x Front Audio Header	
	SATA	5 x SATA 3.0 (up to 6Gb/s) RAID 0/1/5/10	
	DIO	1 x 8-bit DIO	
	LPC	1 x LPC (support LPC EXT-RS-232/485 module)	
	SMBus	1 x SMBus	
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 sec/min	
SECURITY	TPM	Infineon TPM 1.2/2.0 (Available Upon Request, MOQ required)	
POWER	Type	ATX	
	Connector	8-pin ATX 12V power 24-pin ATX power	
	Consumption	TBD	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT		Windows 10 IoT Enterprise 64-bit Linux	
ENVIRONMENT	Temperature	Operating: -5 to 65°C Storage: -30 to 60°C with RTC Battery; -40 to 85°C without RTC Battery	
	Humidity	Operating: 5 to 90% RH Storage: 5 to 90% RH	
	MTBF	TBD	
MECHANICAL	Dimensions	microATX form factor 244mm (9.6") x 244mm (9.6")	
	Height	PCB: TBD Top Side: TBD, Bottom Side: TBD	

Packing List

• 1 CS332-C246 motherboard	
• 1 Serial ATA data cable (W/LOCK, Length: 500mm)	332-553001-005G
• 1 I/O shield	A49-CS3311-000G
• 1 M.2 2242/2260/half mini PCIe standoff	A33-725019-090G
• 2 M.2 Screw	A32-112016-041G

Optional Items

• USB 2.0 port cable (Length: 350mm)	A81-001066-016G
• USB 3.1 Gen 1 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, Height: TBD)	761-103001-000G
• LPC EXT-RS232 module (4 x RS232 ports)	770-EXTRS1-000G
• LPC EXT-RS485 module (4 x RS485 ports)	770-EXTRS1-100G
• DP to HDMI dongle	612-D2H13M-000G
• Front Audio cable (Length: 300mm)	A81-022022-016G

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