

Industrial Motherboards & Embedded SBCs

Our Innovative Embedded Boards
for Intelligent Applications

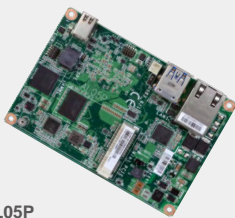


Our Innovative Embedded Boards for Intelligent Applications

Our embedded boards (ranging from ultra-small Pico-ITX to full-function ATX motherboards) provide service to a broad range of embedded applications based on cutting-edge platforms and technologies

Embedded SBCs & Industrial Motherboards Product Overview

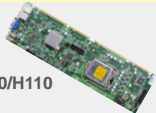
Embedded SBCs



AL05P

Form Factor	Processor	Platform	Model	Index
1.8"	Intel Atom® E3900	Atom	ALF51	P6
	AMD® Embedded R1000 Series	AMD	GHF51	
2.5"	Intel Atom® E3900	Atom	AL05P, AL051, AL053	P7
	Intel® Pentium®/Celeron® N3000	Atom	BW051	
	Freescalar i.MX6 Series	ARM	FS051, FS053	
3.5"	8th/9th Gen Intel® Core™	Desktop	CS551	P8
	7th Gen Intel® Core™	ULT	KU551, KU553	
	6th Gen Intel® Core™	ULT	SU551	
	4th Gen Intel® Core™	ULT	HU551/HU553	
	Intel Atom® E3900	Atom	AL551, AL553	
	AMD® Embedded V1000/R1000 Series	AMD	GH551	
	Intel® Pentium®/Celeron® N3000	Atom	BW551	
4"	Intel Atom® E3800	Atom	BT551/BT553	P9
	6th Gen Intel® Core™	ULT	SU251/SU253	
	Intel Atom® E3800	Atom	BT253, BT259	

PICMG 1.3



PIC-Q170/H110

Processor	Platform	Chipset	Model	Index
6th/7th Gen Intel® Core™	Desktop	Q170/H110	PIC-Q170/H110	P10

Mini-ITX



WL171/WL173



AL170

Processor	Platform	Chipset	Model	Index
8th/9th Gen Intel® Core™	Desktop	Q370/C246/H310	CS103-Q370/C246/H310, CS100-Q370/C246/H310	P11-12
8th Gen Intel® Core™	ULT	-	WL171/WL173	P12-13
7th Gen Intel® Core™	ULT	-	KU171/KU173	
6th/7th Gen Intel® Core™	Desktop	-	KD171	
	Desktop	Q170	SD100-Q170, SD101/SD103-Q170	
		H110	SD170, SD100-H110, SD101/SD103-H110	
	ULT	-	SU171/SU173	
4th Gen Intel® Core™	Desktop	H81	HD100-H81, HD101-H81, HD171/HD173-H81	P13-14
	Mobile	QM87	HM100-QM87, HM101/HM103-QM87	
		HM86	HM100-HM86, HM101/HM103-HM86	
	ULT	-	HU101/HU103, HU171/HU173	
Intel Atom® E3900	Atom	-	AL102, AL170, AL171/AL173	P15
Intel Atom® E3800	Atom	-	BT100, BT101/BT103, BT160/BT161	P16
Intel® Pentium®/Celeron® N3000	Atom	-	BW171/BW173	
2nd Gen AMD® Embedded R-Series	AMD	A77E	BE170, BE171/BE173	
AMD® Embedded G-Series SoC	AMD	-	KB161	
AMD® Ryzen Embedded V1000/R1000 Series	AMD	-	GH171	



microATX

CS332-Q370

Processor	Platform	Chipset	Model	Index
10th Gen Intel® Core™	Workstation	W480	CMS310-W480	P17
	Desktop	Q470	CMS310-Q470	
8th/9th Gen Intel® Core™	Workstation	C246	CS350-C246, CS331-C246, CS332-C246	P18
		Desktop	Q370	
			H310	
6th/7th Gen Intel® Core™	Workstation	C236	KD331-C236, SD331-C236	P19-20
	Desktop	Q170	KD331-Q170, KD330-Q170, KD300-Q170, SD331-Q170, SD330-Q170	
		H110	KD330-H110, KD300-H110, SD330-H110	
4th Gen Intel® Core™	Workstation	C226	DL310-C226	
	Desktop	Q87	HD310-Q87, HD330-Q87	
		H81	HD330-H81, HD332-H81	

EATX/ATX

CS650-C246

Processor	Platform	Chipset	Model	Index
Intel Xeon	Server-Grade	C622	PR811-C622, PR810-C622, PL610-C622	P21-22
		C621	PR611-C621	
			PR610-C621	
AMD EPYC3000	AMD	-	SO630	
8th/9th Gen Intel® Core™	Workstation	C246	CS636-C246, CS650-C246, CS631-C246, CS632-C246	P22-23
	Desktop	Q370	CS636-Q370, CS650-Q370, CS632-Q370, CS631-Q370, CS630-Q370	
		H310	CS620-H310, CS630-H310	
6th/7th Gen Intel® Core™	Workstation	C236	KD632-C236, KD631-C236, SD631-C236	P24-25
	Desktop	Q170	KD632-Q170, KD631-Q170, KD600-Q170, SD631-Q170	
		H110	KD600-H110, SD630-H110	
4th Gen Intel® Core™	Workstation	C226	DL631-C226	
	Desktop	Q87	HD631-Q87	
		H81	HD620-H81, HD630-H81, HD632-H81, HD636-H81CS	

Peripherals

EXT-RS232

Type	Model	Index
Proprietary Expansion Modules	EXT-DP, SDVO-LVDS, MPE-CAN2	P27
	EXT-RS232, EXT-RS485, MPE-CAN2, MPE-EXTB, MPE-EXTF, MPE-SATA, MPE-SIM2, M.2-1LAN/2LAN, M.2-1PSE/2PSE, MPE-M2M/M2E	
DC to DC Converters	X102-DC12, X102-DC24, X102-DC30, X103-DC36	
Riser Cards	RISER-2PE4, RISER-PE16, X100-2P1M, X100-3PE2, H300-2E, H300-2P1E, H300-3P1M	

DFI Industrial Chassis



Rugged Design

- Industrial-rated components with high MTBF over 100,000 hrs
- Extended operating temperatures
- High ESD protection for I/O ports
- Signal integrity measurement
- Wide range power design
- 100% Japanese-made solid capacitor
- Power hot plug protection for DC-in type SBC and Industrial Motherboards



Software Integration

- Embedded BIOS and OS customization services
- Windows licensing offerings
- Android, Linux distribution (Yocto/Ubuntu/CentOS/Debian)
- Embedded API
(Hardware Monitor, SMBus, I²C, Brightness Control, GPIO, Watchdog)
- Remote management utility



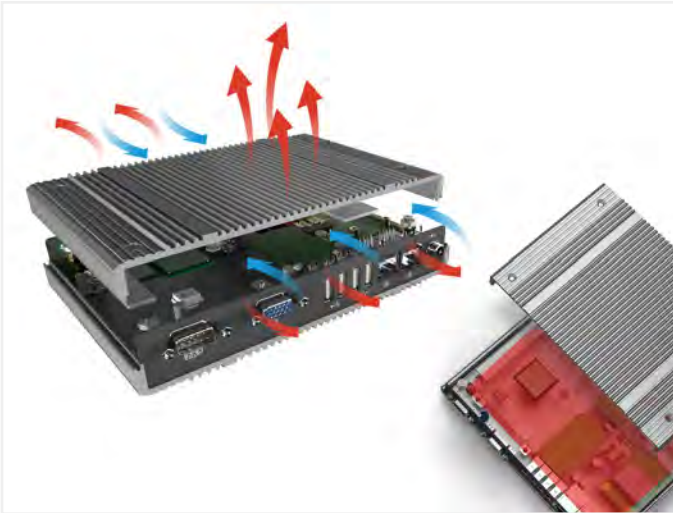
Embedded Total Solution

- Express customization service: 30 days (NRE cost: project based)
- Strict revision control
- Long product life cycle support
- High volume OEM/ODM production capabilities



We Provides a Total Solution Designed for Your Embedded Applications





Easy System Integration

- Optional peripheral: DC power module, Wi-Fi, Cellular, GPS module
- Optimized low profile thermal solution: fanless for ULT and Atom based platform
- Optional heatspreader for 4", 3.5", Pico-ITX SBC with efficient thermal dissipation
- Unified mechanical design for rear I/O location, screw hole, and connector type



The Smallest Our 1.8" SBC

- 1.8" small form factor fits space-limited applications
- All-in-one 100% readiness standalone SBC
- Ultra low power Fanless embedded SBC
- Perfectly fits gateway application with a few I/O requirements



Thin Mini-ITX

- Thinner than general Mini-ITX, and only 25mm in height
- Equipped with a variety of I/O connectivity
- Features mSATA, Mini PCIe, LVDS and built-in DC power connector
- Designed for slim panel PCs, POS systems, portable medical devices, and All-in-One systems

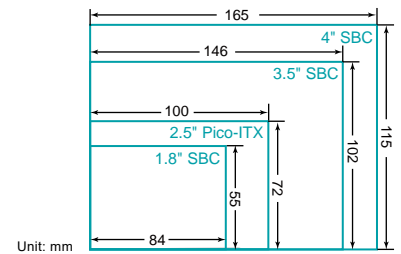
Embedded SBCs

Ultra-Small & Low-Power Solutions



Features

Our single board computers (SBC) support low power consumption and fanless design with rich I/O connectivity in a small size. In addition, we provide a wide range of form factors covering from: 1.8" SBC (84mm x 55mm), 2.5" Pico-ITX (100 x 72 mm), 3.5" SBC (146 x 102 mm), to 4" SBC (165 x 115 mm) in order to target space-limited embedded applications like POS, KIOSK, digital signage, and surveillance.



Model Name		GHF51	ALF51
Platform		AMD R-Series	Atom
System	Processor	AMD® Ryzen™ Embedded R1000 Series	Intel Atom® E3900
	Socket	FP5	BGA 1296
	Max. Speed	up to 2.8GHz(Turbo)	1.3~1.8GHz
	TDP	up to 10W	6.5W/9.5W
	Cache	4MB	2M
	Chipset	N/A	-
Memory	BIOS	AMI BIOS APTIO5	Insyde SPI 128Mbit
	Technology	up to DDR4 3200 MHz	Single Channel LPDDR4 2400MHz
	Max. Capacity	4GB	4GB
Graphics	Socket	Memory down	-
	Connector	-	1 Mini DP++
Expansion	PCIe, PCI	-	-
	Mini PCIe/M.2	1 Full-size Mini PCIe	1 Mini PCIe
	SIM	-	-
Audio	Audio Codec	-	-
Ethernet	Controller	1 Intel® I211AT	2 Intel® I211AT, 2 Intel® I210IT
	Ethernet (GbE)	1	2
Rear I/O	Serial	-	-
	USB	1 USB 3.1 Gen 2 (Type C)	2 USB 3.1 Gen1
	Display	2 Micro HDMI, HDMI 1.4	1 Mini DP++
	Audio	-	-
	PS/2	-	-
	Serial	-	1 RS-232/422/485
Internal I/O	USB	-	1 USB 2.0
	Display	-	-
	Audio	-	-
	SATA	-	-
	DIO	8-bit DIO	8-bit DIO
	LPC	-	-
TPM / iAMT	1	1	
Power	fTPM 2.0	fTPM 2.0	
Operating Temperature	12 VDC	12V DC	
	0°C~60°C	0~60°C/-20~70°C/-40~85°C	



Model Name		AL05P	AL053	AL051
Platform		Atom	Atom	Atom
System	Processor	Intel Atom® E3900	Intel Atom® E3900	Intel Atom® E3900
	Socket	BGA 1296	BGA 1296	BGA 1296
	Max. Speed	1.1~2.4GHz	1.1~2.4GHz	1.1~2.4GHz
	TDP	6.5W/9.5W/12W	6.5W/9.5W/12W	6W/9.5W/12W
	Cache	2M	2M	2M
	Chipset	-	-	-
	BIOS	Insyde SPI 64Mbit	Insyde SPI 64Mbit	Insyde SPI 64Mbit
Memory	Technology	Single Channel LPDDR4 2400MHz	Single Channel DDR3L 1867MHz	Single Channel DDR3L 1867MHz
	Max. Capacity	4GB	8GB	8GB
	Socket	-	1 SODIMM	1 SODIMM
Graphics	Connector	1 Mini DP++	1 Mini DP++, 1 LVDS	1 Mini DP++, 1 VGA, 1 LVDS
	PCIe, PCI	-	-	-
Expansion	Mini PCIe/M.2	1 Mini PCIe	1 Mini PCIe, 1 M.2 B key	1 Mini PCIe, 1 M.2 B key
	SIM	-	-	-
Audio	Audio Codec	-	Realtek ALC262	Realtek ALC262
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I210IT	1 Intel® I211AT, 1 Intel® I210IT	2 Intel® I211AT, 2 Intel® I210IT
	Ethernet (GbE)	1	1	2
Rear I/O	Serial	-	-	-
	USB	2 USB3.1 Gen1	2 USB 3.1 Gen1	2 USB 3.1 Gen1
	Display	1 Mini DP++	1 Mini DP++	1 Mini DP++, 1 VGA, 1 LVDS
	Audio	-	-	-
	PS/2	-	-	-
	Internal I/O	Serial	1 RS-232/422/485	1 RS-232/422/485
Internal I/O	USB	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	-	1 LVDS, 1 LCD Power	1 LVDS
	Audio	-	1 Audio (Mic-in/ Line-out)	1 Audio (Mic-in/ Line-out)
	SATA	-	1 SATA 3.0	1 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
	SMBus	1	1	1
	TPM / iAMT	fTPM 2.0	fTPM 2.0	fTPM 2.0
Power	48VDC PoE	9-36V DC	12V DC	
Operating Temperature	0~70°C/-20~70°C	0~70°C/-20~70°C/-40~85°C	0~60°C/-20~70°C/-40~85°C	



Model Name		BW051	FS051	FS053
Platform		Atom	ARM	ARM
System	Processor	Intel® Pentium®/Celeron® N3000	Freescale i.MX6 Series	Freescale i.MX6 Series
	Socket	BGA 1170	-	-
	Max. Speed	2.24~2.56GHz	1.0GHz	1.0GHz
	TDP	4W/5W/6W	-	-
	Cache	2M	-	-
	Chipset	-	-	-
	BIOS	Insyde SPI 64Mbit	-	-
Memory	Technology	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1600MHz
	Max. Capacity	8GB	1GB/2GB	1GB/2GB
	Socket	1 SODIMM	SDRAM Memory down	SDRAM Memory down
Graphics	Connector	1 VGA*/HDMI, 1 LVDS	1 HDMI, 1 LVDS	1 HDMI, 1 LVDS
	PCIe, PCI	-	-	-
Expansion	Mini PCIe/M.2	1 Mini PCIe, 1 mSATA, 1 E I/O(opt.)	1 Mini PCIe	1 Mini PCIe
	SIM	-	1 SD, 1 SIM (opt.)	1 SD
	Audio	Audio Codec	Realtek ALC888	-
Ethernet	Controller	1 Intel® I211	1 Atheros AR8033	1 Atheros AR8033
	Ethernet (GbE)	1	1	2
Rear I/O	Serial	-	1 RS-485	1 RS-485
	USB	2 USB 3.1 Gen1	2 USB 2.0	2 USB 2.0
	Display	1 VGA*/HDMI	1 HDMI	1 HDMI
	Audio	-	-	-
	PS/2	-	-	-
	Internal I/O	Serial	1 RS-232/422/485, 1 RS-232	1 RS-232/422/485, 1 RS-232
Internal I/O	USB	2 USB 2.0	2 USB 2.0, 1 USB 2.0 OTG	1 USB 2.0, 1 USB 2.0 OTG
	Display	1 LVDS	1 LVDS	1 LVDS
	Audio	Mic-in, Line-out	-	-
	SATA	1 SATA 3.0	1 SATA 2.0(Quad processor only)	1 SATA 2.0(Quad processor only)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
	SMBus	1	1 CANBus	-
	TPM / iAMT	TPM (opt.)	-	-
Power	12V DC-in	5V DC-in	9~36V DC-in	
Operating Temperature	0°C~60°C	0~60°C/-20~70°C (opt.)	0~60°C/-20~70°C (opt.)	



Model Name		GH551	CS551	KU551	KU553
Platform		AMD R-Series	Desktop	ULT	ULT
System	Processor	AMD® Ryzen™ Embedded V1000/R1000 Series	8th/9th Gen Intel® Core™	7th Gen Intel® Core™	7th Gen Intel® Core™
	Socket	FP5	LGA 1151	BGA 1356	BGA 1356
	Max. Speed	up to 3.6GHz(Turbo)	2.1~4.0GHz	2.2~3.9GHz	2.2~3.9GHz
	TDP	up to 15W	35W/25W	15W	15W
	Cache	4MB	2M/4M/6M/9M/12M	2M/3M/4M	2M/3M/4M
	Chipset	N/A	Intel® Q370/C246/H310	-	-
Memory	BIOS	AMI BIOS APTIO5	AMI SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	up to DDR4 2400 MHz	Single Channel DDR4 2666MHz	Single Channel DDR4 1866/2133MHz	Single Channel DDR4 1866/2133MHz
	Max. Capacity	16GB	32GB	16GB	16GB
Graphics	Socket	1 DIMM	1 SODIMM	1 SODIMM	1 SODIMM
	Connector	-	2 DP(+), 1 LVDS	1 VGA/DDI, 1 LVDS/eDP, 1 DP++/DDI	1 VGA, 1 LVDS/eDP, 1 DP++
Expansion	PCIe, PCI	-	-	-	-
	Mini PCIe/M.2	1 Full-size Mini PCIe, 1 M.2 M key	1 Full size Mini PCIe, 1 M.2 M key 2280	1 Mini PCIe, 1 M.2 B key, 1 E I/O(opt.)	1 Full-size Mini PCIe, 2 M.2 (B key, E key)
Audio	SIM	1	1(opt.)	-	1(opt.)
	Audio Codec	Realtek ALC262	Realtek ALC262	Realtek ALC888	Realtek ALC888
Ethernet	Controller	3 Intel® I211AT	1 Intel® I211AT, 1 Intel® I210IT	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT/1 Intel® I210IT, 1 Intel® I219LM
	Ethernet (GbE)	3	2	2	2
Rear I/O	Serial	-	-	-	-
	USB	2 USB 3.1 Gen2, 1 USB 2.0	4 USB3.1 Gen2	4 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	4 DP++	2 DP++	1 VGA, 1 DP++	1 VGA, 1 DP++
	Audio	-	-	-	-
	PS/2	-	-	-	-
	Serial	1	1 RS-232/422/485	2 RS-232/422/485	1 RS-232/422/485
Internal I/O	USB	2 USB2.0	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	1 LVDS (optional)	1 LVDS	1 LVDS	1 LVDS
	Audio	1	1 Audio (Line-out/Mic-in)	1 Audio (Mic-in/Line-out)	Mic-in, Line-out
	SATA	1 SATA3	1 SATA 3.0	1 SATA 3.0, 1 SATA Power	1 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-	-
TPM / iAMT	SMBus	1	1	1	1
	TPM / iAMT	TPM 2.0(opt.)	fTPM 2.0	fTPM, TPM2.0	fTPM2.0
Power	12 VDC	12V DC-in	12V DC-in	9~36V DC-in	
Operating Temperature	-5°C~65°C	-5~65°C/-30~80°C	0~60°C/-20~70°C (opt.)	0°C~60°C/-20~70°C (opt.)	



Model Name		SU551	HU551/HU553	AL551	AL553
Platform		ULT	ULT	Atom	Atom
System	Processor	6th Gen Intel® Core™	4th Gen Intel® Core™	Intel Atom® E3900	Intel Atom® E3900
	Socket	BGA 1356	BGA 1168	BGA 1296	BGA 1296
	Max. Speed	2.0~3.4GHz	1.6~3.3GHz	1.1~2.5GHz	1.1~2.5GHz
	TDP	15W	15W	6.5W/9.5W/12W	6.5W/9.5W/12W
	Cache	2M/3M/4M	2M/3M/4M	2M	2M
	Chipset	-	-	-	-
Memory	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1333/1600MHz	Single Channel DDR3L 1866MHz	Single Channel DDR3L 1866MHz
	Max. Capacity	8GB	8GB	8GB	8GB
Graphics	Socket	1 SODIMM	1 SODIMM	1 SODIMM	1 SODIMM
	Connector	1 VGA, 1 LVDS, 1 DP++	1 LVDS, 2 DP*/2 HDMI	1 VGA, 1 LVDS, 1 DP++	1 VGA, 1 LVDS, HDMI
Expansion	PCIe, PCI	-	-	-	-
	Mini PCIe/M.2	2 Mini PCIe	2 Mini PCIe	1 Mini PCIe, 1 M.2 B key, 1 E I/O(opt.)	1 Mini PCIe, 2 M.2 (M key, B key)
Audio	SIM	1(opt.)	1	-	-
	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC262	Realtek ALC262
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	1 Intel® I210, 1 Intel® I218	2 Intel® I211AT, 2 Intel® I210IT	2 Intel® I211AT, 2 Intel® I210IT
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	-	-	-	-
	USB	4 USB 3.1 Gen1	4 USB 3.1 Gen1	2 USB 3.1 Gen1, 2 USB 2.0, 1 USB Gen1 Type C OTG(opt.)	2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DP++	2 DP*/2 HDMI	1 VGA, 1 DP++, 1 LVDS	1 VGA, 1 LVDS, HDMI
	Audio	-	-	-	-
	PS/2	-	-	-	-
	Serial	2 RS-232/422/485, 2 RS-232	1 RS-485, 2 RS-232	2 RS-232/422/485	1 RS-232/422/485
Internal I/O	USB	2 USB 2.0	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	1 LVDS	1 LVDS	1 LVDS, 1 LCD Power	1 LVDS, 1 LCD Power
	Audio	Mic-in, Line-out	Front Audio	Audio (Mic-in/Line-out), Speaker Out(opt.)	Audio (Mic-in/Line-out)
	SATA	2 SATA 3.0	2 SATA 3.0 (RAID)	1 SATA 3.0, 1 SATA Power	1 SATA 3.0, 1 SATA Power
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-	-
TPM / iAMT	SMBus	1	1	1	1
	TPM / iAMT	-	TPM (opt.), iAMT 9.5	fTPM2.0*/dTPM 2.0(opt.)	fTPM2.0
Power	12V DC-in	12V/15~36V DC-in	12V DC-in	9~36V DC-in	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C/-20°C~70°C/-40~85°C	0°C~60°C/-20°C~70°C/-40°Cto 85°C	



Model Name	BT551/BT553		BW551	
Platform	Atom		Atom	
System	Processor	Intel Atom® E3800	Intel® Pentium®/Celeron® N3000	
	Socket	BGA 1170	BGA 1170	
	Max. Speed	1.46~2.42GHz	2.24~2.56GHz	
	TDP	5W/7W/10W	4W/5W/6W	
	Cache	0.5M/1M/2M	2M	
	Chipset	-	-	
	BIOS	Insyde SPI 64Mbit	Insyde SPI 64Mbit	
Memory	Technology	Dual Channel DDR3L 1066/1333MHz	Single Channel DDR3L 1600MHz	
	Max. Capacity	2GB/4GB	8GB	
	Socket	Memory down	1 SODIMM	
Graphics	Connector	1 VGA, 1 LVDS, 1 DP	1 VGA, 1 LVDS, 1 DP++	
	PCIe, PCI	-	-	
Expansion	Mini PCIe/M.2	1 Mini PCIe	1 Mini PCIe, 1 mSATA	
	SIM	-	1(opt.)	
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	
Ethernet	Controller	2 Intel® I210	2 Intel® I211	
	Ethernet (GbE)	2	2	
	Serial	-	-	
	USB	1 USB 3.1 Gen1, 1 USB 2.0	4 USB 3.1 Gen1	
	Display	1 VGA, 1 DP	1 VGA, 1 DP++	
	Audio	-	-	
	PS/2	-	-	
Internal I/O	Serial	1 RS-485, 2 RS-232	2 RS-232/422/485, 2 RS-232	
	USB	4 USB 2.0	2 USB 2.0	
	Display	1 LVDS	1 LVDS	
	Audio	Front Audio	Mic-in, Line-out	
	SATA	1 SATA 2.0	1 SATA 3.0	
	DIO	8-bit DIO	8-bit DIO	
	LPC	-	-	
	SMBus	1	1	
TPM / iAMT	TPM (opt.)		TPM (opt.)	
Power	12V/15~36V DC-in		12V DC-in	
Operating Temperature	0°C~60°C/-20°C~70°C/40°C~85°C		0°C~60°C	



Model Name	SU251/SU253		BT253		BT259	
Platform	ULT		Atom		Atom	
System	Processor	6th Gen Intel® Core™	Intel Atom® E3800		Intel Atom® E3800	
	Socket	BGA 1356	BGA 1170		BGA 1170	
	Max. Speed	2.0~3.4GHz	1.33~2.41GHz		1.91GHz~2.41GHz	
	TDP	15W	4.3W/6W/10W		10W	
	Cache	2M/3M/4M	1M/2M		2M	
	Chipset	-	-		-	
	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit		AMI SPI 64Mbit	
Memory	Technology	Dual Channel DDR4 2133MHz	Single Channel DDR3L 1066/1333MHz		Single Channel DDR3L 1333MHz	
	Max. Capacity	4GB/8GB	2GB/4GB		2GB/4GB	
	Socket	Memory down	Memory down (ECC/non-ECC)		Memory down	
Graphics	Connector	1 VGA, 1 LVDS*/eDP, 1 DP+*/HDMI	1 LVDS, 1 VGA*/DVI, 1 HDMI		1 VGA, 1 DVI-I (opt.)	
	PCIe, PCI	-	-		-	
Expansion	Mini PCIe/M.2	2 Mini PCIe	2 Mini PCIe, 1 mSATA		2 Mini PCIe	
	SIM	-	1		-	
Audio	Audio Codec	Realtek ALC888	Realtek ALC888		-	
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	2 Intel® I210		4 Intel® I210	
	Ethernet (GbE)	2	2		4	
	Serial	2 RS-232/422/485 (Front), 2 RS-232 (1 Front, 1 Rear)	4 RS-232/422/485 (3 Front, 1 Rear)		3 RS232/422/485	
	USB	4 USB 3.1 Gen1 (Rear)	1 USB 3.1 Gen1 (Front), 4 USB 2.0 (Rear)		4 USB 2.0, 1 USB 3.1 Gen1	
	Display	1 VGA (Front), 1 DP+*/HDMI(Rear)	1 HDMI (Front), 1 VGA* / 1 DVI (Rear)		1 VGA, 1 DVI-I (opt.)	
	Audio	-	Line-out (opt.) (Rear)		-	
	PS/2	-	-		-	
Internal I/O	Serial	2 RS-232	2 RS-232		-	
	USB	2 USB 2.0	1 USB 2.0		1 USB 2.0	
	Display	1 LVDS	1 LVDS		-	
	Audio	Front Audio	Mic-in		-	
	SATA	2 SATA 3.0	1 SATA 2.0		1 SATA 2.0, 1 SATA Power	
	DIO	8-bit DIO	-		8-bit DIO	
	LPC	-	-		1	
	SMBus	1	-		1	
TPM / iAMT	-		TPM (opt.)		TPM (opt.)	
Power	12V/15~36V DC-in		16~24V DC-in		16~24VDC-in	
Operating Temperature	0°C~60°C		-20°C~85°C, 0°C~85°C, 0°C~60°C		0°C~60°C	

*Populated by default

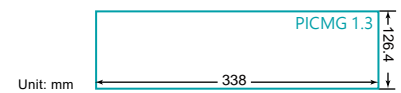
PICMG 1.3

Multiple I/O & Easy Expandable Solutions



Features

Our PICMG 1.3 boards are built with versatile I/O ports and plenty of backplanes to achieve flexibility and expansion capability. With comprehensive backplane and high performance boards, we can offer a great solution for expandable industrial application.



6th/7th Gen Intel Core

PICMG 1.3



Q170 H110

Model Name		PIC-Q170/H110
Platform		Desktop
System	Processor	6th/7th Gen Intel® Core™
	Socket	LGA 1151
	Max. Speed	2.4-4.0GHz
	TDP	65W
	Cache	2-8M
	Chipset	Intel® Q170/H110
Memory	BIOS	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	32GB
Graphics	Socket	2 SODIMM
	Connector	1 VGA, 1 DVI-D
Expansion	PCIe, PCI	1 PCIe x16 (Gen3), 4 PCIe x1 (Gen3), 4 PCI
	Mini PCIe/M.2	1 M.2 M key 2280 (Q170 only)
	SIM	-
Audio	Audio Codec	-
Ethernet	Controller	Q170: 1 Intel® I211AT, 1 Intel® I219LM H110: 1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	2
Rear I/O	Serial	-
	USB	2 USB3.1 Gen1
	Display	1 VGA, 1 DVI-D
	Audio	-
	PS/2	-
	Serial	2 RS-232/422/485, 2 RS-232
Internal I/O	USB	2 USB3.1 Gen1, 6 USB 2.0
	Display	-
	Audio	-
	SATA	4 SATA 3.0 (RAID)
	DIO	8-bit DIO
	LPC	1
	SMBus	1
TPM / iAMT		TPM 2.0 (opt.)
Power		24-pin ATX
Operating Temperature		0-60°C

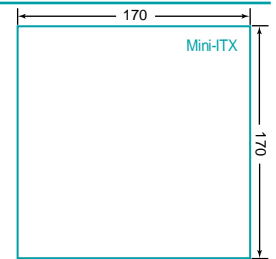
Mini-ITX

Compact & High-Performance Solutions



Features

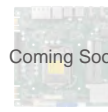
Our embedded Mini-ITX motherboard is designed with a variety of I/O connectors, passive cooling option, and DC input features in a small form factor measuring to only 170 x 170 mm. This compact and highly integrated platform delivers low power consumption of less than 100 Watts and provides the reserved expansion slot; which makes it an ideal solution for the computing-intensive markets such as POS, gaming, and digital signage, etc.



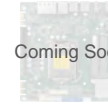
Thin Mini-ITX



Thin Mini-ITX
ULT



Coming Soon Thin Mini-ITX
Q370
C246



Coming Soon Thin Mini-ITX
H310

8th/9th Gen Intel Core

Model Name		WL171/WL173	CS103-Q370/C246	CS103-H310
Platform		ULT	Desktop	Desktop
System	Processor	8th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	BGA 1528	LGA 1151	LGA 1151
	Max. Speed	2.0~4.4GHz	-	-
	TDP	15W	65W	65W
	Cache	2~8M	-	-
	Chipset	-	Intel® Q370/C246	Intel® H310
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Technology	Dual Channel DDR4 2400MHz	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2666MHz
	Max. Capacity	32GB	32GB	32GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 HDMI/DP++, 1 DP++, 1 LVDS/V by One(opt.)	2 DP++, 1 LVDS	2 DP++, 1 LVDS
Expansion	PCIe, PCI	1 PCIe x4 (Gen3)	1 PCIe x4 (Gen3)	1 PCIe x4 (Gen3)
	Mini PCIe/M.2	1 M.2 M key 2280, 1 M.2 E key	1 M.2 M key 2280, 1 M.2 E key	1 M.2 M key 2280, 1 M.2 E key
Audio	SIM	-	-	-
Ethernet	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
	Controller	1 Intel® I219LM, 1 Intel® I210AT, 1 Intel® I210IT(opt.)	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	-	-	-
	USB	4 USB 3.1 Gen2	4 USB 3.1 Gen2	4 USB 3.1 Gen1
	Display	1 HDMI/DP++(opt.), 1 DP++	2 DP++	2 DP++
	Audio	1 Line-out, 1 Mic-in	-	-
	PS/2	-	-	-
Internal I/O	Serial	1 RS-232/422/485, 1 RS-232	2 RS-232/422/485, 2 RS-232	2 RS-232/422/485, 2 RS-232
	USB	4 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	1 LVDS/V by One(opt.)	1 LVDS	1 LVDS
	Audio	Front Audio	Front Audio	Front Audio
	SATA	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1
SMBus	1	1	1	
TPM / iAMT	TPM 2.0 (opt.)	TPM 2.0 (opt.)	TPM 2.0 (opt.)	
Power	12V/9~36V DC-in	9-36V DC-in	9-36V DC-in	
Operating Temperature	-5~65°C/-30~80°C	-5~65°C	-5~65°C	



Thin Mini-ITX
Q370
C246



Thin Mini-ITX
H310



8th/9th Gen Intel Core

Model Name		CS101-Q370/C246	CS101-H310	CS100-Q370/C246/H310
Platform		Desktop	Desktop	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	-	-	-
	TDP	80W	80W	80W
	Cache	-	-	-
	Chipset	Intel® Q370/C246	Intel® H310	Intel® Q370/C246/H310
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2400/2666MHz
	Max. Capacity	64 GB	64 GB	Q370/C246: 128GB / H310: 64GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 LVDS*/eDP (opt.), 2 DP++, 1 HDMI	1 LVDS*/eDP (opt.), 2 DP++, 1 HDMI	1 VGA, 1 LVDS, 2 DP++
	PCIe, PCI	1 PCIe x4 (Gen 3)	1 PCIe x4 (Gen 3)	1 PCIe x16 (Gen 3)
Expansion	Mini PCIe/M.2	1 Full-size Mini PCIe, 1 M.2 M key, 1 M.2 E key	1 mSATA, 1 M.2 E key, M.2 M key	Q370/C246: 1 Full-size Mini PCIe H310: 1 mSATA
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219V	Q370: 1 Intel® I210AT, 1 Intel® I219LM H310/C246: 1 Intel® I210AT, 1 Intel® I219V
	Ethernet (GbE)	2	2	2
Rear I/O	Serial	-	-	1 RS-232
	USB	4 USB 3.1 Gen2	4 USB 3.1 Gen1	Q370/C246: 2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 4 USB 2.0 H310: 4 USB 3.1 Gen1, 4 USB 2.0
	Display	2 DP++, 1 HDMI	2 DP++, 1 HDMI	1 VGA, 1 DP++
	Audio	-	-	Mic-in, Line-in (opt.), Line-out
	PS/2	-	-	-
	Serial	2 RS-232/422/485, 2 RS-232	2 RS-232/422/485, 2 RS-232	1 RS-232
	USB	4 USB 2.0	4 USB 2.0	-
Internal I/O	Display	1 LVDS*/eDP (opt.)	1 LVDS*/eDP (opt.)	1 LVDS, 1 LCD Power
	Audio	Front Audio	Front Audio	S/PDIF
	SATA	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)	3 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1
	SMBus	1	1	1
	TPM / iAMT	TPM 2.0 (opt.)	TPM 2.0 (opt.)	TPM 2.0 (opt.)
Power	12V DC-in	12V DC-in	24-pin ATX	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	



Thin Mini-ITX
KD171



Thin Mini-ITX
ULT



Thin Mini-ITX
SD170



Thin Mini-ITX
Q170

6th/7th Gen Intel Core

Model Name		KD171	KU171/KU173	SD170	SD101/SD103-Q170
Platform		Desktop	ULT	Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	BGA 1356	LGA 1151	LGA 1151
	Max. Speed	2.3~3.8GHz	2.2~3.9GHz	2.4~4.0GHz	2.4~4.0GHz
	TDP	35W/51W/54W	15W	35W/47W/65W	35W/47W/65W
	Cache	3M/4M/6M/8M	2M/3M/4M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® Q170/H110	-	Intel® H110	Intel® Q170
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	32GB	32GB	32GB	32GB
	Socket	2 UDIMM	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	2 Full Size DP++, 1 HDMI 1.4 (opt.)	1 LVDS*/eDP, 2 DP++	1 VGA, 1 HDMI, 1 DP++	1 LVDS, 1 DVI, 1 HDMI*/DP
	PCIe, PCI	1 PCIe x16 (Gen 3)	1 PCIe x4	1 PCIe x16	1 PCIe x4
Expansion	Mini PCIe	-	1 Full size Mini PCIe, 1 M.2 M key	1 Full size Mini PCIe, 1 M.2 M key	2 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek Audio Codec with 5.1 Channel Support	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Realtek Ethernet LAN Controller	1 Intel® I210AT, 1 Intel® I219LM	4 Intel® I210AT, Intel® I211AT(opt.)	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	4	2
Rear I/O	Serial	1 RS-232, 1 RS-485	-	1 RS-232/422/485	-
	USB	2 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1	2 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	2 Full Size DP++, 1 HDMI 1.4 (opt.)	2 DP++	1 VGA, 1 HDMI, 1 DP++	1 DVI, 1 HDMI*/DP
	Audio	Mic-in, Line-in, Line-out	1 Line-out, 1 Mic-in	-	-
	PS/2	-	-	-	-
	Serial	4 RS-232	1 RS-232/422/485, 1 RS-232	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 3 RS-232
	USB	1 Vertical USB 3.1 Gen1, 4 USB 2.0	4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0, 1 Vertical USB2.0	4 USB 2.0
Internal I/O	Display	-	1 LVDS*/eDP, 1 LCD/Inverter Power	-	1 LVDS, 1 LCD/Inverter Power
	Audio	-	S/PDIF	Front Audio	1 Audio (Line-out/Mic-in), S/PDIF
	SATA	2 SATA 3.0	2 SATA 3.0 (RAID), 2 SATA Power	2 SATA 3.0	2 SATA 3.0 (RAID)
	DIO	-	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	1	1	1 (opt.)
	SMBus	-	1	1	1
	TPM / iAMT	TPM 1.2/2.0(opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power	12V DC	12V/9~36V DC-in	24-pin ATX	12V /15~36V DC-in	
Operating Temperature	0°C~60°C	0~60°C / -20~70°C	0°C~60°C	0°C~60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

6th/7th Gen Intel Core



Thin Mini-ITX
H110



H110



Q170

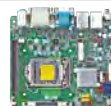


Thin Mini-ITX
ULT

Model Name		SD101/SD103-H110	SD100-H110	SD100-Q170	SU171/SU173
Platform		Desktop	Desktop	Desktop	ULT
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	BGA 1356
	Max. Speed	2.4~4.0GHz	2.4~4.0GHz	2.4~4.0GHz	2.0~3.4GHz
	TDP	35W/47W/65W	35W/47W/65W	35W/47W/65W	15W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M
	Chipset	Intel® H110	Intel® H110	Intel® Q170	-
BIOS		Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3L 1600MHz
	Max. Capacity	32GB	32GB	32GB	16GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 LVDS, 1 DVI, 1 HDMI*/DP	1 VGA, 1 DVI, 1 LVDS, 1 DP++	1 VGA, 1 DVI, 1 LVDS, 1 DP++	1 LVDS*/eDP, 1 HDMI*/DP, 1 DP++
	PCIe, PCI	1 PCIe x4	1 PCIe x4	1 PCIe x4	1 PCIe x4
Expansion	Mini PCIe	1 Mini PCIe, 1 mSATA	1 Mini PCIe	1 Mini PCIe	1 Full size Mini PCIe, 2 Mini PCIe
	SIM	-	-	-	1(opt.)
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	1 RS-232	1 RS-232	-
	USB	4 USB 3.1 Gen1	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1
	Display	1 DVI, 1 HDMI*/DP	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++	1 HDMI*/DP, 1 DP++
	Audio	-	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-out
	PS/2	-	1	1	-
Internal I/O	Serial	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232	2 RS-232/422/485, 2 RS-232
	USB	4 USB 2.0	2 USB 2.0	4 USB 2.0	4 USB 2.0 / 2 USB 2.0, 1 Vertical USB 2.0 (type A) (opt.)
	Display	1 LVDS, 1 LCD Power	1 LVDS, 1 LCD Power	1 LVDS, 1 LCD Power	1 LVDS*/eDP, 1 LCD/Inverter Power
	Audio	1 Audio (Line-out/Mic-in), S/PDIF	S/PDIF	S/PDIF	S/PDIF
	SATA	2 SATA 3.0	3 SATA 3.0	3 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1 (opt.)	1	1	1
	SMBus	1	1	1	1
TPM / iAMT	TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)	
Power	12V (SD101)/15~36V (SD103) DC-in	24-pin ATX	24-pin ATX	12V/15~36V DC-in	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C / -20~70°C	



H81



H81



H81



Thin Mini-ITX
ULT

4th Gen Intel Core

Model Name		HD100-H81	HD101-H81	HD171/HD173-H81	HU101/HU103
Platform		Desktop	Desktop	Desktop	ULT
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1150	LGA 1150	LGA 1150	BGA 1168
	Max. Speed	2.2~4.0GHz	2.2~3.3GHz	2.2~3.3GHz	1.6~3.3GHz
	TDP	35W/45W/53W/54W/65W	35W/45W	35W/45W	15W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M
	Chipset	Intel® H81	Intel® H81	Intel® H81	-
BIOS		AMI SPI 64Mbit	AMI SPI 32Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz
	Max. Capacity	16GB	16GB	16GB	16GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 DVI, 1 HDMI, 1 LVDS	1 DVI, 1 HDMI, 1 LVDS	1 VGA, 1 DVI, 1 DP	1 LVDS*/eDP, 2 HDMI
	PCIe, PCI	1 PCIe x16	1 PCIe x16	1 PCIe x16	1 PCIe x1
Expansion	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC886	Realtek ALC886	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I218
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	2 RS-232	2 RS-232	1 RS-232	-
	USB	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 DVI, 1 HDMI	1 DVI, 1 HDMI	1 VGA, 1 DVI, 1 DP	2 HDMI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-out
	PS/2	1	-	optional	-
Internal I/O	Serial	-	-	1 RS-422/485, 2 RS-232	2 RS-232/422/485, 2 RS-232
	USB	2 USB 2.0	4 USB 2.0	5 USB 2.0	4*/6 USB 2.0, 2 USB 3.1 Gen1
	Display	1 LVDS	1 LVDS	-	1 LVDS*/eDP
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio	Front Audio, S/PDIF
	SATA	2 SATA 3.0	2 SATA 3.0	2 SATA 3.0	3 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-	-
	SMBus	-	-	-	1
TPM / iAMT	TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.), iAMT 9.5	
Power	24-pin ATX	12V DC-in	12V/19~24V DC-in	12V/19~24V DC-in	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module



Thin Mini-ITX
ULT



QM87



HM86

4th Gen Intel Core

Model Name		HU171/HU173	HM100-QM87	HM100-HM86
Platform		ULT	Mobile	Mobile
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	BGA 1168	BGA 1364	BGA 1364
	Max. Speed	1.6~3.3GHz	2.4~3.4GHz	1.5~3.3GHz
	TDP	15W	37W/47W	25W/37W
	Cache	2M/3M/4M	3M/6M	2M/3M
	Chipset	-	Intel® QM87	Intel® HM86
BIOS		AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3L 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz
	Max. Capacity	16GB	16GB	16GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 LVDS*/VGA/eDP, 1 HDMI, 1 DP	1 LVDS, 1 DVI, 1 HDMI, 1 DP	1 LVDS, 1 DVI, 1 HDMI, 1 DP
Expansion	PCIe, PCI	1 PCIe x1	1 PCIe x16	1 PCIe x16
	Mini PCIe	2 Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC886	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I218	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	-	2 RS-232	2 RS-232
	USB	4 USB 3.1 Gen1	2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 HDMI, 1 DP	1 DVI, 1 HDMI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	-	-	-
Internal I/O	Serial	1 RS-232/422/485, 3 RS-232	-	-
	USB	6 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	1 LVDS*/VGA/eDP	1 LVDS, 1 DP	1 LVDS, 1 DP
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	3 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
SMBus	1	-	-	
TPM / iAMT		TPM (opt.), iAMT 9.5	TPM (opt.), iAMT 9.0	TPM (opt.)
Power		12V/19~24V DC-in	24-pin ATX	24-pin ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C



QM87



HM86

4th Gen Intel Core

Model Name		HM101/HM103-QM87	HM101/HM103-HM86
Platform		Mobile	Mobile
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	BGA 1364	BGA 1364
	Max. Speed	1.6~3.4GHz	1.5~2.7GHz
	TDP	25W/37W/47W	25W/37W
	Cache	3M/6M	2M/3M
	Chipset	Intel® QM87	Intel® HM86
BIOS		AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3L 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz
	Max. Capacity	16GB	16GB
	Socket	2 SODIMM	2 SODIMM
Graphics	Connector	1 LVDS, 1 DVI, 1 HDMI, 1 DP	1 LVDS, 1 DVI, 1 HDMI, 1 DP
Expansion	PCIe, PCI	1 PCIe x16	1 PCIe x16
	Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-	-
Audio	Audio Codec	Realtek ALC886	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217
Rear I/O	Ethernet (GbE)	2	2
	Serial	2 RS-232	2 RS-232
	USB	2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 DVI, 1 HDMI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	-	-
Internal I/O	Serial	-	-
	USB	4 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 DP	1 LVDS, 1 DP
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0 (RAID)	2 SATA 3.0
	DIO	8-bit DIO	8-bit DIO
	LPC	-	-
SMBus	-	-	
TPM / iAMT		TPM (opt.), iAMT 9.0	TPM (opt.)
Power		12V/19~24V DC-in	12V/19~24V DC-in
Operating Temperature		0°C~60°C	0°C~60°C

Intel Atom E3900



Atom



Thin Mini-ITX
Atom



Thin Mini-ITX
Atom

Model Name		AL102	AL170	AL171/AL173
Platform		Atom	Atom	Atom
System	Processor	Intel Atom® E3900	Intel Atom® E3900	Intel Atom® E3900
	Socket	BGA 1296	BGA 1296	BGA 1296
	Max. Speed	1.1~2.4GHz	1.1~2.5GHz	1.1~2.5GHz
	TDP	6W/9.5W/12W	6.5W/9.5W/12W	6W/9W/12W
	Cache	2M	2M	2M
	Chipset	-	-	-
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR3L 1867MHz	Dual Channel DDR3L 1867MHz	Dual DDR3L 1867MHz
	Max. Capacity	8GB	8GB	8GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 VGA, 1 HDMI, 1 LVDS/eDP(opt.)	1 VGA, 1 DP++, 1 LVDS/ eDP	1 VGA*/DP++, 1 HDMI*/DP++, 1 LVDS*/eDP
Expansion	PCIe, PCI	-	1 PCIe x1	1 PCIe x1
	Mini PCIe	1 Mini PCIe (opt.), 1 M.2 M key/E key	1 Mini PCIe, 1 M.2 M key	1 Mini PCIe, 1 M.2 B key
	SIM	1 (opt.)	1	-
Audio	Audio Codec	Realtek ALC269	Realtek ALC262	Realtek ALC262
Ethernet	Controller	2 Realtek RTL8111H-CG	2 Intel® I210IT, Intel® I211AT (opt.)	2 Intel® I210IT or 2 Intel® I211AT
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	2 RS-232, RS422/485 (opt.)	2 RS-232/422/485	-
	USB	4 USB 3.1 Gen1	4 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	1 VGA, 1 HDMI	1 VGA*/DP++, 1 DP++	1 VGA*/DP++, 1 HDMI*/DP++
	Audio	Line-out	Mic-in, Line-out, Line-in	Line-out
	PS/2	-	-	-
	Serial	4 RS-232 (opt.)	4 RS-232	2 RS-232/422/485, 4 RS-232
Internal I/O	USB	4 USB 2.0, 1 USB 2.0/Vertical USB 2.0 (opt.)	6 USB 2.0	4 USB 2.0, 1 USB 2.0/Vertical USB 2.0 type A (opt.)
	Display	1 LVDS, 1 LCD Power, 1 eDP (opt.)	LVDS	1 LVDS, 1 LCD Power, 1 eDP
	Audio	Mic-in, Line-out	Front Audio, S/PDIF	1 Audio (Line-out/Mic-in), S/PDIF
	SATA	1 SATA 3.0	2 SATA 3.0	2 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8 bit DIO
	LPC	1	1	1
	SMBus	1	1	1
	TPM / iAMT	TPM 2.0 (opt.)	TPM (opt.)	TPM (opt.)
Power	12V DC	ATX	12V (AL171)/15~36V (AL173) DC-in	
Operating Temperature	0°C~50°C	0°C~60°C/-40°C~85°C	0°C~60°C/-40°C~85°C	



Thin Mini-ITX
Atom



Atom



Thin Mini-ITX
Atom

Intel Atom E3800

Model Name		BT160/BT161	BT100	BT101/BT103
Platform		Atom	Atom	Atom
System	Processor	Intel Atom® E3800	Intel Atom® E3800	Intel Atom® E3800
	Socket	BGA 1170	BGA 1170	BGA 1170
	Max. Speed	1.46~2.42GHz	1.46~2.42GHz	1.33~2.42GHz
	TDP	7W/10W	5W/10W	5W/6W/7W/10W
	Cache	1M/2M	0.5M/2M	0.5M/1M/2M
	Chipset	-	-	-
	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3L 1066/1333MHz	Single/Dual DDR3L 1066/1333MHz	Single/Dual DDR3L 1066/1333MHz
	Max. Capacity	8GB	4GB/8GB	4GB/8GB
	Socket	2 SODIMM	1 or 2 SODIMM	1 or 2 SODIMM
Graphics	Connector	1 VGA, 1 LVDS	1 VGA, 1 LVDS, 1 DVI	1 LVDS, 1 DVI
Expansion	PCIe, PCI	1 PCIe x1, 1 DFI Extension Bus	1 PCIe x4	1 PCIe x1
	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-	-	1
Audio	Audio Codec	-	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I210	2 Intel® I210	2 Intel® I210
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	1 RS-232	1 RS-232/422/485, 1 RS-232	-
	USB	1 USB 3.1 Gen1, 1 USB 2.0	1 USB 3.1 Gen1, 3 USB 2.0	1 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA	1 VGA, 1 DVI	1 DVI
	Audio	-	Mic-in, Line-out	Line-out
	PS/2	-	-	-
	Serial	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232
Internal I/O	USB	3 USB 2.0	3 USB 2.0	4 USB 2.0
	Display	1 LVDS	1 LVDS	1 LVDS
	Audio	-	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 2.0	2 SATA 2.0	2 SATA 2.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
	SMBus	-	1 (opt.)	1
	TPM / iAMT	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power	24-pin ATX (BT160)/12V DC-in (BT161)	24-pin ATX	12V/19~24V DC-in	
Operating Temperature	0°C~60°C	0°C~60°C, -20°C~70°C, -40°C~85°C	0°C~60°C, -20°C~70°C, -40°C~85°C	

*Populated by default

Intel Pentium/Celeron N3000
2nd Gen AMD R-Series



Thin Mini-ITX
Atom



AMD



AMD

Model Name		BW171/BW173	BE171/BE173	BE170
Platform		Atom	AMD R-Series	AMD R-Series
System	Processor	Intel® Pentium®/Celeron® N3000	2nd Gen AMD® Embedded R-Series	2nd Gen AMD® Embedded R-Series
	Socket	BGA 1170	FP3 BGA	FP3 BGA
	Max. Speed	1.04~2.56GHz	2.2~3.6GHz	2.2~3.6GHz
	TDP	4W/5W/6W	17W/35W	17W/35W
	Cache	2M	1M/4M	1M/4M
	Chipset	-	AMD® A77E	AMD® A77E
BIOS		Insyde SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3L 1600MHz	Dual Channel DDR3/DDR3L 1600/1866/2133MHz	Dual Channel DDR3/DDR3L 1600/1866/2133MHz
	Max. Capacity	8GB	16GB	16GB
	Socket	2 SODIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 VGA, 1 LVDS, 1 DP++*eDP	4 DP	4 DP
	PCIe, PCI	1 PCIe x1	1 PCIe x16	1 PCIe x16
Expansion	Mini PCIe / M.2	1 Mini PCIe, 1 mSATA	1 Mini PCIe	1 Mini PCIe
	SIM	1(opt.)	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I211	1 Intel® I210, 1 Realtek RTL8111EP	1 Intel® I210, 1 Realtek RTL8111EP
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	-	-	-
	USB	2 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	1 VGA, 1 DP++	4 DP	4 DP
	Audio	Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	-	-	-
Internal I/O	Serial	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232
	USB	2 USB 3.1 Gen1, 3 USB 2.0, 1 Vertical USB 2.0	5 USB 2.0	5 USB 2.0
	Display	1 LVDS, 1 eDP (opt.)	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0	4 SATA 3.0	4 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	-	-
	SMBus	1	1	1
TPM / iAMT	TPM (opt.)	TPM (opt.)	TPM (opt.)	
Power	12V/15~36V DC-in	12V/19~24V DC-in	24-pin ATX	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	



AMD



Thin Mini-ITX
AMD

Ryzen Embedded V1000/R1000
AMD G-Series SoC

Model Name		GH171	KB161
Platform		AMD R-Series	AMD G-Series
System	Processor	AMD® Ryzen™ Embedded V1000/R1000 Series	AMD® Embedded G-Series SoC
	Socket	-	FT3 BGA
	Max. Speed	2.0~3.8GHz	1.0~2.0GHz
	TDP	12W/25W/35W/54W	9W/15W/25W
	Cache	1M/2M	1M/2M
	Chipset	-	-
BIOS		AMI BIOS	AMI SPI 32Mbit
Memory	Technology	Dual Channel DDR4 up to 3200MHz	Single Channel DDR3/DDR3L 1066/1333/1600MHz
	Max. Capacity	32GB	8GB
	Socket	2 SODIMM	2 SODIMM
Graphics	Connector	4 DP++	1 VGA, 1 LVDS, 1 DP
	PCIe, PCI	1 PCIe x16 (x8 signal), (x4 signal with R1000)	1 PCIe x4, 1 DFI Extension Bus
Expansion	Mini PCIe	1 M.2 M Key (x2 signal with R1000)	1 Mini PCIe
	SIM	-	-
Audio	Audio Codec	Realtek Audio Codec with 5.1 Channel Support	-
Ethernet	Controller	2 Realtek Ethernet LAN Controller	2 Intel® I210
Rear I/O	Ethernet (GbE)	2	2
	Serial	1 RS-232/422/485, 1 RS-232	-
	USB	2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0
	Display	4 DP++ (V1000), 3 DP++ (R1000)	1 VGA, 1 DP
	Audio	Mic-in, Line-in, Line-out	-
	PS/2	-	-
Internal I/O	Serial	4 RS-232	1 RS-485, 3 RS-232
	USB	4 USB 2.0, 1 Vertical Type A USB 3.1 Gen1 (V1000), 1 Vertical Type A USB 2.0 (R1000)	2 USB 2.0
	Display	-	1 LVDS
	Audio	1 S/PDIF, 1 Audio (Mic-in/Line-out)	-
	SATA	2 SATA 3.0, 2 SATA Power	2 SATA 3.0
	DIO	-	8-bit DIO
	LPC	-	-
SMBus	-	-	
TPM / iAMT	TPM 1.2/2.0	TPM (opt.)	
Power	12V DC	12V	
Operating Temperature	0°C~60°C	0°C~60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

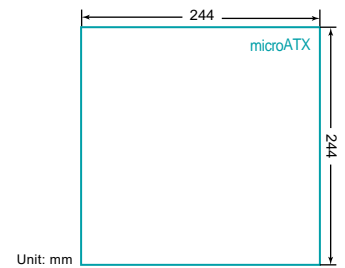
microATX

Cost-Effective & Scalable Solutions

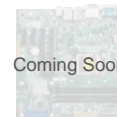


Features

microATX (μ ATX) motherboards (measuring 244 x 244 mm) offer high performance and cost efficiency with a smaller footprint when compared to ATX. our microATX boards are equipped with up to 4 expansion slots (combination of PCI and PCI Express) and rich I/O ports that are ideally suited for space/cost sensitive applications such as medical, industrial automation, and surveillance applications.



W480



Q470

10th Gen Intel Core

Model Name		CMS310-W480	CMS310-Q470
Platform		Workstation	Desktop
System	Processor	10th Gen Intel® Core	10th Gen Intel® Core
	Socket	LGA1200	LGA1200
	Max. Speed	TBC	TBC
	TDP	TBC	TBC
	Cache	TBC	TBC
	Chipset	Intel® W480	Intel® Q470
Memory	BIOS	TBC	TBC
	Technology	TBC	TBC
	Max. Capacity	128GB	128GB
Graphics	Socket	4 DIMM (ECC/non-ECC)	4 DIMM
	Connector	1 VGA, 2 DP++	1 VGA, 2 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4
	Mini PCIe / M.2	1 M.2 M key, 1 M.2 E key	1 M.2 M key, 1 M.2 E key
	SIM	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	TBC	TBC
	Ethernet (GbE)	TBC	TBC
Rear I/O	Serial	-	-
	USB	2 USB3.1 Gen2, 4 USB3.1 Gen1	2 USB3.1 Gen2, 4 USB3.1 Gen1
	Display	1 VGA, 2 DP++	1 VGA, 2 DP++
	Audio	Line-out, Mic-in, Line-in(Opt.)	Line-out, Mic-in, Line-in(Opt.)
	PS/2	-	-
	Serial	2 RS-232/422/485, 2 RS-232	2 RS-232/422/485, 2 RS-232
Internal I/O	USB	2 USB3.1 Gen2, 4 USB2.0	2 USB3.1 Gen2, 4 USB2.0
	Display	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA3.0 (RAID)	4 SATA3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO
	LPC	1	1
	SMBus	1	1
	TPM / iAMT	TPM (Opt.), iAMT (Xeon/Core i5/i7/i9 only)	TPM (Opt.), iAMT (Core i5/i7/i9 only)
Power	ATX	ATX	
Operating Temperature	-5°C ~ 65°C	-5°C ~ 65°C	

8th/9th Gen Intel Core



C246



Q370



C246



Q370

Model Name		CS350-C246	CS350-Q370	CS332-C246	CS332-Q370
Platform		Workstation	Desktop	Workstation	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9–5.0 GHz	2.9–5.0 GHz	2.9–4.7 GHz	2.9–4.7 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® C246	Intel® Q370	Intel® C246	Intel® Q370
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128GB	128GB	128 GB	128GB
	Socket	4 DIMM (ECC/non-ECC)	4 DIMM	4 DIMM (ECC/non-ECC)	4 DIMM
Graphics	Connector	1 DVI-D, 2 DP++	1 DVI-D, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	1 PCIe x16, 2 PCIe x4, 1 PCI,	1 PCIe x16, 2 PCIe x4, 1 PCI,
	Mini PCIe / M.2	1 M key, 1 M.2 E key	1 M key, 1 M.2 E key	1 M.2 M key, 1 M.2 E key	1 M.2 M key, 1 M.2 E key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC262	Realtek ALC262
Rear I/O	Ethernet	Controller: 1 Intel® I211AT, 1 Intel® I219LM	Controller: 1 Intel® I211AT, 1 Intel® I219LM	Controller: 1 Intel® I211AT, 1 Intel® I219V up to 4	Controller: 1 Intel® I211AT, 1 Intel® I219LM up to 4
	Ethernet (GbE)	2	2	up to 4	up to 4
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen 1, 2 USB 2.0	4 USB 3.1 Gen 1, 2 USB 2.0
	Display	1 DVI-D, 2 DP++	1 DVI-D, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
	Audio	Line-out, Mic-in, Line-in(Opt.)	Line-out, Mic-in, Line-in(Opt.)	Line-out, Mic-in, Line-in(Opt.)	Line-out, Mic-in, Line-in(Opt.)
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232	3 RS-232	3 RS-232
	USB	2 USB 3.1 Gen2, 4 USB 2.0	2 USB 3.1 Gen2, 4 USB 2.0	2 USB 3.1 Gen 1, 4 USB 2.0, 1 USB 2.0 vertical Type A	2 USB 3.1 Gen 1, 4 USB 2.0, 1 USB 2.0 vertical Type A
	Display	-	-	-	-
Internal I/O	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (Opt.), iAMT 12.0 (Xeon/Core i5/i7 only)	TPM (Opt.), iAMT 12.0 (Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
	Power	ATX	ATX	ATX	ATX
Operating Temperature	-5°C ~ 65°C	-5°C ~ 65°C	-5°C ~ 65°C	-5°C ~ 65°C	

8th/9th Gen Intel Core



Q370



C246



Q370



H310

Model Name		CS331-Q370	CS331-C246	CS330-Q370	CS330-H310
Platform		Desktop	Workstation	Desktop	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9–4.7 GHz	2.9–4.7 GHz	2.9–4.7 GHz	2.9–4.7 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® Q370	Intel® C246	Intel® Q370	Intel® H310
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128GB	128GB	128 GB	64 GB
	Socket	4 DIMM	4 DIMM (ECC/Non ECC)	4 DIMM	2 DIMM
Graphics	Connector	1 HDMI, 1 DVI-D, 1 DP++	1 HDMI, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	1 PCIe x16, 1 PCIe x4, 2 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe / M.2	1 mini PCIe, 1 M.2 M key	1 mini PCIe, 1 M.2 M key	1 Full-sized Mini PCIe	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Rear I/O	Ethernet	Controller: 1 Intel® I211AT, 1 Intel® I219LM	Controller: 1 Intel® I211AT, 1 Intel® I219LM	Controller: 1 Intel® I211AT, 1 Intel® I219LM	Controller: 1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	2	2	2	2
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 2 USB 2.0	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 2 USB 2.0	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 2 USB 2.0	4 USB 3.1 Gen 1, 2 USB 2.0
	Display	1 HDMI, 1 DVI-D, 1 DP++	1 HDMI, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	Audio	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen 2, 4 USB 2.0	2 USB 3.1 Gen 2, 4 USB 2.0	2 USB 3.1 Gen 1, 4 USB 2.0	4 USB 2.0
	Display	-	-	-	-
Internal I/O	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	5 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	4 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)	
Power	ATX	ATX	ATX	ATX	
Operating Temperature	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C	

6th/7th Gen Intel Core



Q170



H110



C236



Q170

Model Name		KD300-Q170	KD300-H110	KD331-C236	KD331-Q170
Platform		Desktop	Desktop	Workstation	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	Intel® Xeon®/6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2GHz	2.6~4.2GHz	2.6~4.2GHz	2.6~4.2GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® Q170	Intel® H110	Intel® C236	Intel® Q170
BIOS		Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz
	Max. Capacity	64GB	32GB	64GB	64GB
	Socket	4 DIMM	2 DIMM	2 DIMM (ECC/Non-ECC)	4 DIMM
Graphics	Connector	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++
	PCIe, PCI	4 PCI	4 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4
Expansion	Mini PCIe / M.2	1 M.2 M key	-	1 M.2 M key	1 M.2 M key
	SIM	-	-	-	-
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	3 Intel® I211AT, 1 Intel® I219LM	3 Intel® I211AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	4	4
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++
	Audio	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)	-	-
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen1, 4 USB 2.0, 1 vertical USB 2.0(opt.)	4 USB 2.0, 1 vertical USB 2.0(opt.)	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0
Internal I/O	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
Power	ATX	ATX	ATX	ATX	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C	



Q170



H110



C236



Q170

6th/7th Gen Intel Core

Model Name		KD330-Q170	KD330-H110	SD331-C236	SD331-Q170
Platform		Desktop	Desktop	Workstation	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	Intel® Xeon®/6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2GHz	3.4~4.2GHz	2.6~4.2GHz	2.6~4.2GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® Q170	Intel® H110	Intel® C236	Intel® Q170
BIOS		Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	64GB	32GB	64GB	64GB
	Socket	4 DIMM	2 DIMM	4 DIMM (ECC/Non-ECC)	4 DIMM
Graphics	Connector	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 1 PCI	1 PCIe x16, 1 PCIe x4, 1 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4
Expansion	Mini PCIe / M.2	1 Full-size Mini PCIe	-	-	-
	SIM	-	-	-	-
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	Audio	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, up to 8 RS-232	1 RS-232/422/485, up to 8 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen1, 4 USB 2.0	4 USB 2.0	4 USB 3.1 Gen1, 4 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0+ 1 Vertical USB 2.0 (type A)
Internal I/O	Display	-	-	-	-
	Audio	S/PDIF	S/PDIF	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Core i5/i7 only)	TPM2.0/1.2 (opt.)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
Power	ATX	ATX	ATX	ATX	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

4th/6th/7th Gen Intel Core



Q170



H110



H81



Q87

Model Name		SD330-Q170	SD330-H110	HD332-H81	HD330-Q87
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1150	LGA 1150
	Max. Speed	2.6–4.2GHz	2.6–4.2GHz	2.2–4.0GHz	2.2–4.0GHz
	TDP	Max. 95W	Max. 95W	35W/45W/53W/54W/65W	35W/45W/53W/54W/65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® Q170	Intel® H110	Intel® H81	Intel® Q87
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	64GB	32GB	16GB	32GB
Graphics	Socket	4 DIMM	2 DIMM	2 DIMM	4 DIMM
	Connector	1 VGA, 1 LVDS, 1 DVI-D, 1 DP++	1 VGA, 1 LVDS, 1 DVI-D, 1 DP++	1 VGA, 1 VGA/DVI	1 DVI, 1 HDMI
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 2 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI	1 PCIe x16, 2 PCIe x1, 1 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe / M.2	1 Full-sized Mini PCIe	-	-	1 Mini PCIe
Audio	SIM	1	-	-	-
	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC886
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	2 Intel® 82574* / Intel® I210	1 Intel® I210, 1 Intel® I217
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	2 RS-232	2 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 VGA/DVI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 7 RS-232	4 RS-232
Internal I/O	USB	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 2.0, 1 Vertical USB 2.0 (type A)	5/6 USB 2.0	6 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF	-	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0	2 SATA 3.0, 2 SATA 2.0	2 SATA 3.0, 1 SATA 2.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	-	8-bit DIO
	LPC**	1	1	-	-
	SMBus	1	1	-	-
TPM / iAMT	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)	TPM (opt.)	TPM (opt.)	
Power	ATX	ATX	24-pin ATX	24-pin ATX	
Operating Temperature	0°C–60°C	0°C–60°C	0°C–60°C	0°C–60°C	



C226



Q87



H81

4th Gen Intel Core

Model Name		DL310-C226	HD310-Q87	HD330-H81
Platform		Workstation	Desktop	Desktop
System	Processor	Intel® Xeon®/4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1150	LGA 1150	LGA 1150
	Max. Speed	2.2–3.9GHz	2.2–4.0GHz	2.2–4.0GHz
	TDP	35W/45W/53W/54W/65W/95W	35W/45W/53W/54W/65W	35W/45W/53W/54W/65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® C226	Intel® Q87	Intel® H81
Memory	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	32GB	32GB	16GB
Graphics	Socket	4 DIMM (ECC)	4 DIMM	2 DIMM
	Connector	1 DVI, 1 HDMI	1 DVI, 1 HDMI	1 DVI, 1 HDMI
Expansion	PCIe, PCI	2 PCIe x16, 1 PCIe x4, 1 PCIe x1	2 PCIe x16, 1 PCIe x4, 1 PCIe x1	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe / M.2	-	-	1 Mini PCIe
Audio	SIM	-	-	-
	Audio Codec	Realtek ALC886	Realtek ALC886	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217
	Ethernet (GbE)	2	2	2
Rear I/O	Serial	2 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0
	Display	1 DVI, 1 HDMI	1 DVI, 1 HDMI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1	1
	Serial	4 RS-232	4 RS-232	4 RS-232
Internal I/O	USB	6 USB 2.0	6 USB 2.0	2 USB 2.0
	Display	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)	2 SATA 3.0, 1 SATA 2.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
	SMBus	-	-	-
TPM / iAMT	TPM (opt.), iAMT9.0	TPM (opt.), iAMT9.0	TPM (opt.)	
Power	24-pin ATX	24-pin ATX	24-pin ATX	
Operating Temperature	0°C–60°C	0°C–60°C	0°C–60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

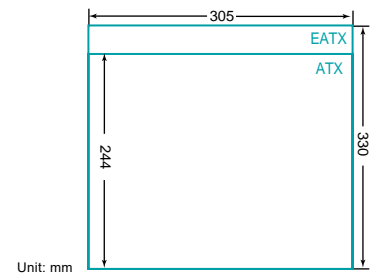
EATX/ATX

Fast Computing & Highly Reliable Solutions

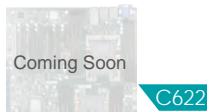


Features

Our EATX/ATX embedded motherboards feature a high computing capability, rich I/O connectivity, high integration, and expansibility which support up to 7 expansion slots (ATX). The form factors of EATX/ATX boards are 330 x 305 mm for EATX and 305 x 244 mm for ATX, making both motherboards an ideal solution for industrial automation, server, and transportation applications that require a 24/7 operation reliability.



Intel Xeon
EATX



Model Name		PR811-C622	PR810-C622
Platform		Server-Grade	Server-Grade
System	Processor	Intel Xeon Scalable Dual Processor	Intel Xeon Scalable Dual Processor
	Socket	Dual LGA3467	Dual LGA3467
	Max. Speed	up to 3.9GHz(Turbo)	up to 3.9GHz(Turbo)
	TDP	up to 150W	up to 150W
	Cache	up to 35.75MB	up to 35.75MB
	Chipset	Intel C622	Intel C622
Memory	BIOS	Insyde SPI	Insyde SPI
	Technology	up to DDR4 2933 MHz	up to DDR4 2933 MHz
	Max. Capacity	384GB	384GB
Graphics	Socket	12 RDIMM	12 RDIMM
	Connector	-	-
Expansion	PCIe, PCI	5 PCIe x16, 1 PCIe x8, 1 PCI	4 PCIe x16, 1 PCIe x8, 1 PCI
	Mini PCIe / M.2	1 M.2 M key	1 M.2 M key
	SIM	-	-
Audio	Audio Codec	ALC887	ALC887
Ethernet	Controller	Intel® x557, 2 Intel® I210AT	Intel® E810, Intel® x557, 2, Intel® I210AT
	Ethernet (GbE)	2 GbE, 2 10GbE	2 GbE, 2 10GbE, 1 100GbE, Module(opt.)
Rear I/O	Serial	1 RS-232	1 RS-232
	USB	4 USB3.1 Gen1	4 USB3.1 Gen1
	Display	VGA(opt.)	VGA(opt.)
	Audio	-	-
	PS/2	-	-
	Serial	1 RS-232	1 RS-232
Internal I/O	USB	2 USB3.1 Gen1, 2 USB2.0, 1 Vertical USB 2.0	2 USB3.1 Gen1, 2 USB2.0, 1 Vertical USB 2.0
	Display	-	-
	Audio	1	1
	SATA	8 SATA3	8 SATA3
	DIO	-	-
	LPC	1	1
	SMBus	1	1
TPM / iAMT	TPM2.0(opt.)	TPM2.0(opt.)	
Power	ATX	ATX	
Operating Temperature	0°C~40°C	0°C~40°C	

AMD EPYC3000
Intel Xeon



Coming Soon
AMD



Coming Soon
C622

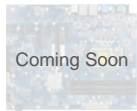


Coming Soon
C621



Coming Soon
C621

Model Name		SO630	PL610-C622	PR611-C621	PR610-C621
Platform		Server-Grade	Server-Grade	Server-Grade	Server-Grade
System	Processor	AMD® EPYC 3000 series	Intel® Xeon® Scalable Processor	Intel® Xeon® Scalable Processor	Intel® Xeon® Scalable Processor
	Socket	BGA	LGA 3647	LGA 3647	LGA 3647
	Max. Speed	up to 3.0GHz	TBD	up to 3.9GHz(Turbo)	TBD
	TDP	Max. 100W	Max. 145W	Max. 150W	Max. 165W
	Cache	Max. 32MB	Max 27.5M	Max. 35.75MB	TBD
	Chipset	-	Intel® C622	Intel® C621	Intel® C621
	BIOS	Insyde SPI	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	DDR4 2666 MHz	Single Channel DDR4 1600/1866/2133/2400/2666MHz	Single Channel DDR4 Max. 2933 MHz	Single Channel DDR4 1600/1866/2133/2400/2666MHz
	Max. Capacity	256GB	192GB	192GB	192GB
	Socket	8 RDIMM/UDIMM	6 RDIMM	6 RDIMM	6 RDIMM
Graphics	Connector	-	1 VGA	-	VGA (with SEM2510/2500)
Expansion	PCIe, PCI	3 PCIe x16, 3 PCIe x8, 1 PCI	2 PCIe x16, 1 PCIe x8, 2 PCIe x4	3 PCIe x16, 3 PCIe x8	2 PCIe x16, 2PCIe x8, 1 PCI
	Mini PCIe / M.2	2 M.2 M key	1 M.2 M key	1 M.2 M key, 1 M.2 E key	1 M.2 M key
	SIM	-	-	-	-
Audio	Audio Codec	-	-	ALC887	ALC887
Ethernet	Controller	2 Intel® I210AT	GbE: i350-AM2, 10GbE: CS4227, IPMI: RTL8211F	2 Intel® I210AT	2 Intel® I210AT
Rear I/O	Ethernet (GbE)	2	2 GbE, 1 IPMI LAN, 1 Fiber 10G	2	2
	Serial	1 RS-232/422/485, 1 RS-232	-	1 RS-232	2 RS-232
	USB	6 USB3.1 Gen1	2 USB 2.0	4 USB3.1 Gen1, 2 USB2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	-	1 VGA	VGA (opt.)	1 VGA
	Audio	-	-	-	Mic-in, Line-in (opt.), Line-out
	PS/2	-	1	-	-
	Serial	-	1 RS-232	-	-
Internal I/O	USB	2 USB3.1 Gen1	2 USB 3.1 Gen1, 2 USB 2.0, 1 Vertical USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0, 1 Vertical USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0, 1 Vertical USB 2.0
	Display	-	-	-	-
	Audio	-	-	1	-
	SATA	5 SATA 3.0	6 SATA 3.0	6 SATA 3.0	6 SATA 3.0
	DIO	-	-	-	-
	LPC	-	-	-	-
	SMBus	-	1	1	1
TPM / iAMT	TPM2.0(opt.)	TPM 2.0 (opt.)	TPM2.0(opt.)	TPM 2.0 (opt.)	
Power	ATX	ATX	ATX	ATX	
Operating Temperature	-5°C~65°C	0°C~60°C	-5°C~65°C	0°C~60°C	



Coming Soon
C246



Coming Soon
Q370



Coming Soon
H310



Coming Soon
Q370

8th/9th Gen Intel Core

Model Name		CS636-C246	CS636-Q370	CS620-H310	CS650-Q370
Platform		Workstation	Desktop	Desktop	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA1151	LGA 1151
	Max. Speed	2.9~5.0 GHz	2.9~5.0 GHz	2.9~5.0 GHz	2.9~5.0 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M/16M
	Chipset	Intel® C246	Intel® Q370	Intel® H310	Intel® Q370
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128GB	128GB	64GB	128GB
	Socket	4 DIMM (ECC/non-ECC)	4 DIMM	2 DIMM	4 DIMM
Graphics	Connector	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 1 DVI-I, 1 DP++	1 VGA, 2 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCIe x1	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCIe x1	1 PCIe x16, 1 PCIe x4, 4 PCI, 2 ISA	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 1 PCIe x1, 1 PCI
	Mini PCIe / M.2	1 M.2 M key, 1 M.2 E key	1 M.2 M key, 1 M.2 E key	1 mSATA	1 mini PCIe, 1 M.2 M key
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC887	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I211AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	1 RS-232/422/485, 1RS-232	1 RS-232/422/485, 1RS-232	1 RS232/422/485	1 RS-232/422/485
	USB	4 USB 3.1 Gen2, 2 USB 3.1 Gen1	4 USB 3.1 Gen2, 2 USB 3.1 Gen 1	4 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 1 DVI-I, 1 DP++	1 VGA, 2 DP++
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	-	-	1	1
	Serial	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
Internal I/O	USB	2 USB 3.1, Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0	4 USB2.0	2 USB 3.1 Gen1, 4 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	4 SATA3.0 (1 share with mSATA)	4 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT	TPM (Opt.), iAMT 12.0 (Xeon/Core i5/i7 only)	TPM (Opt.), iAMT 12.0 (Core i5/i7 only)	TPM (Opt.),	TPM (Opt.), iAMT 12.0 (Core i5/i7 only)	
Power	ATX	ATX	ATX	ATX	
Operating Temperature	0°C ~ 60°C	0°C ~ 60°C	-5°C ~ 65°C	-5°C ~ 65°C	

8th/9th Gen Intel Core



C246



Q370



C246



Q370

Model Name		CS650-C246	CS632-Q370	CS632-C246	CS631-Q370
Platform		Workstation	Desktop	Workstation	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9–5.0 GHz	2.9–4.7 GHz	2.9–4.7 GHz	2.9–4.7 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® C246	Intel® Q370	Intel® C246	Intel® Q370
BIOS		AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128GB	128 GB	128 GB	128 GB
	Socket	4 DIMM (ECC/non-ECC)	4 DIMM	4 DIMM (ECC/non-ECC)	4 DIMM
Graphics	Connector	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 1 PCIe x1, 1 PCI	1 PCIe x16 (2 x8 as opt.), 3 PCIe x4, 2 PCI	1 PCIe x16 (2 x8 as opt.), 3 PCIe x4, 2 PCI	2 PCIe x16 (1 x16 or 2 x8), 3 x PCIe x4, 1 PCIe x1, 1 PCI
	Mini PCIe / M.2 SIM	1 mini PCIe, 1 M.2 M key	1 mini PCIe, 1 M.2 M key	1 mini PCIe, 1 M.2 M key	2 Mini PCIe, 1 M.2 M key
Audio	Audio Codec	Realtek ALC888	Realtek ALC887	Realtek ALC887	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I219LM, 1 Intel® I211AT
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1	1	1
Internal I/O	Serial	1 RS-232/422/485, 4 RS-232	5 RS-232	5 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen2, 4 USB 2.0, 1 USB 2.0 vertical Type A	2 USB 3.1 Gen2, 4 USB 2.0, 1 USB 2.0 vertical Type A	2 USB3.1 Gen1, 4 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	5 SATA3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
SMBus	1	1	1	1	
TPM / iAMT	TPM (Opt.), iAMT 12.0 (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	
Power	ATX	ATX	ATX	ATX	
Operating Temperature	-5°C ~ 65°C	0°C ~ 60°C	0°C ~ 60°C	0°C~60°C	



C246



H310



Q370

8th/9th Gen Intel Core

Model Name		CS631-C246	CS630-H310	CS630-Q370
Platform		Workstation	Desktop	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9–4.7 GHz	2.9–4.7 GHz	2.9–4.7 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® C246	Intel® H310	Intel® Q370
BIOS		AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128 GB	64 GB	128 GB
	Socket	4 DIMM (ECC/non-ECC)	2 DIMM	4 DIMM
Graphics	Connector	1 VGA, 2 DP++	1 VGA, DVI, 1 DP++	1 VGA, DVI, 1 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 3 x PCIe x4, 1 PCIe x1, 1 PCI	5 PCI, 1 PCIe x16, 1 PCIe x4	5 PCI, 1 PCIe x16, 1 PCIe x4
	Mini PCIe / M.2 SIM	2 Mini PCIe, 1 M.2 M key	-	1 mPCIe, 1 M.2 M key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I219V, 1 Intel® I211AT	1 Intel® I219LM, 1 Intel® I211AT
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0	4 USB3.1 Gen 1, 2 USB2.0	4 USB3.1 Gen 1, 2 USB2.0
	Display	1 VGA, 2 DP++	1 VGA, DVI, 1 DP++	1 VGA, DVI, 1 DP++
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1	1
Internal I/O	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB3.1 Gen1, 4 USB 2.0	4 USB 2.0	2 USB3.1 Gen2, 4 USB2.0
	Display	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	5 SATA3.0 (RAID)	4 SATA3.0	5 SATA3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1
SMBus	1	1	1	
TPM / iAMT	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM 1.2/2.0 (opt.)	TPM (opt.) / iAMT (Core i5/i7 only)	
Power	ATX	ATX	ATX	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	

6th/7th Gen Intel Core



Q170



C236



Q170



H110

Model Name		KD632-Q170	KD632-C236	KD600-Q170	KD600-H110
Platform		Desktop	Workstation	Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	Intel® Xeon®/6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® Q170	Intel® C236	Intel® Q170	Intel® H110
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 2133/2400 MHz
	Max. Capacity	64GB	64GB	64GB	32GB
	Socket	4 DIMM	4 DIMM (ECC/Non ECC)	4 DIMM	2 DIMM
Graphics	Connector	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI	6 PCI, 1 PCIe16	6 PCI, 1 PCIe16
	Mini PCIe / M.2	1 M.2 M key, 1 Mini PCIe	1 M.2 M key, 1 Mini PCIe	1 Mini PCIe	-
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	RealtekALC888	RealtekALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I219V, 1 Intel® I211AT
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 8 RS-232	1 RS-232/422/485, 8 RS-232
	USB	2 USB 3.1 Gen1, 4 USB 2.0, 1 Vertical USB 2.0 (type A)	2 USB 3.1 Gen1, 4 USB 2.0, 1 Vertical USB 2.0 (type A)	2 USB 3.1 Gen1, 4 USB 2.0	4 USB 2.0
Internal I/O	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	5 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)	4 SATA 3.0 (RAID), 1 mSATA	4 SATA 3.0 (RAID), 1 mSATA
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)
Power	ATX	ATX	ATX	ATX	
Operating Temperature	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C	



C236



Q170



C236



Q170

6th/7th Gen Intel Core

Model Name		KD631-C236	KD631-Q170	SD631-C236	SD631-Q170
Platform		Workstation	Desktop	Workstation	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	Intel® Xeon™/6th/7th Gen Intel® Core™	Intel® Xeon™/6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® C236	Intel® Q170	Intel® C236	Intel® Q170
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	64GB	64GB	64GB	64GB
	Socket	4 DIMM (ECC/Non-ECC)	4 DIMM	4 DIMM (ECC/Non ECC)	4 DIMM
Graphics	Connector	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI
	Mini PCIe	1 M.2 M key	1 M.2 M key	-	-
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen1, 6 USB 2.0	2 USB 3.1 Gen1, 6 USB 2.0	2 USB 3.1 Gen1, 6 USB 2.0	2 USB 3.1 Gen1, 6 USB 2.0
Internal I/O	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF
	SATA	5 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
Power	ATX	ATX	ATX	ATX	
Operating Temperature	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

4th/6th/7th Gen Intel Core



H110



Q87



C226



H81

Model Name	SD630-H110	HD631-Q87	DL631-C226	HD620-H81
Platform	Desktop	Desktop	Workstation	Desktop
System	Processor	6th/7th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1151	LGA 1150	LGA 1150
	Max. Speed	2.6~4.2 GHz	2.2~4.0GHz	2.2~3.9GHz
	TDP	Max. 95W	35W/45W/53W/54W/65W	35W/45W/53W/54W/54W/65W/95W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® H110	Intel® Q87	Intel® C226
	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3L 1600MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	16GB	32GB	32GB
	Socket	2 DIMM	4 DIMM	4 DIMM (ECC)
Graphics	Connector	1 VGA, 1 DVI-D, 1 HDMI	1 DVI, 1 HDMI	1 DVI, 1 HDMI
	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 5 PCI	1 PCIe x16, 2 PCIe x4, 3 PCI	2 PCIe x16, 2 PCIe x4, 3 PCI
Expansion	Mini PCIe	-	-	-
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC886	Realtek ALC886
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	1 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 HDMI	1 DVI, 1 HDMI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	4 RS-232	4 RS-232
Internal I/O	USB	4 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	-	-	-
	Audio	Front Audio (opt.), S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	-	-
	SMBus	1	-	-
TPM / iAMT	TPM 2.0/1.2 (opt.)	TPM (opt.), iAMT9.0	TPM (opt.), iAMT9.0	
Power	ATX	24-pin ATX	24-pin ATX	
Operating Temperature	0°C~60°C	0°C~60°C	0°C~60°C	



H81



H81



H81

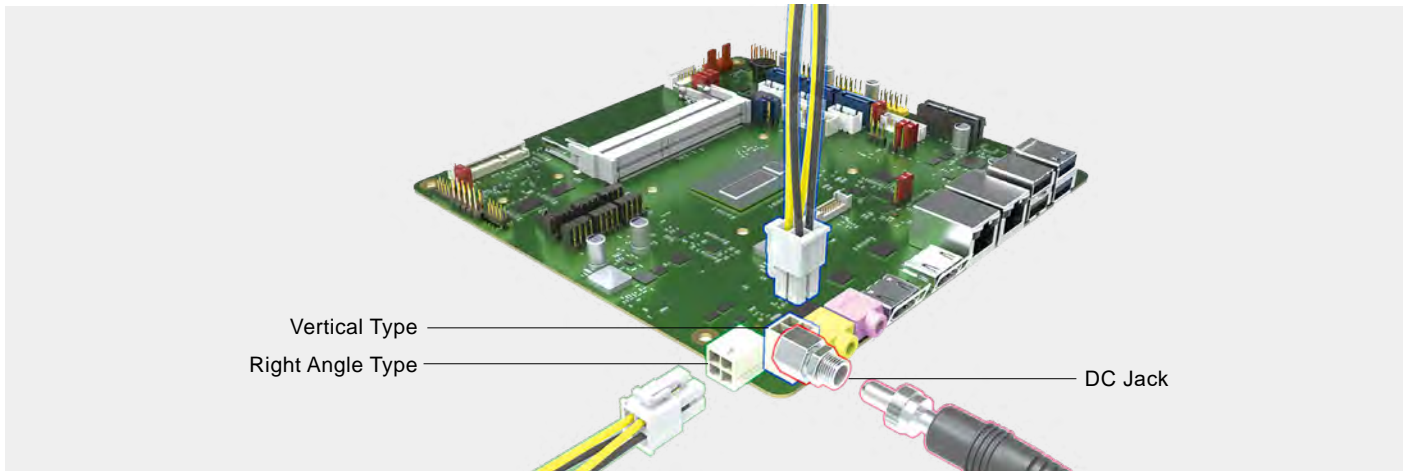
4th Gen Intel Core

Model Name	HD630-H81	HD632-H81	HD636-H81CS
Platform	Desktop	Desktop	Desktop
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1150	LGA 1150
	Max. Speed	2.2~4.0GHz	2.2~4.0GHz
	TDP	35W/45W/53W/54W/65W	35W/45W/53W/54W/65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® H81	Intel® H81
	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	16GB	16GB
	Socket	2 DIMM	2 DIMM
Graphics	Connector	1 DVI, 1 HDMI	1 VGA, 1 DVI
	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 1 PCIe x1, 4 PCI	1 PCIe x16, 1 PCIe x4, 5 PCI
Expansion	Mini PCIe	1 Mini PCIe(HD630)	-
	SIM	-	-
Audio	Audio Codec	Realtek ALC886	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	2 Intel® I210
Rear I/O	Ethernet (GbE)	2	2
	Serial	2 RS-232/422/485	2 RS-232
	USB	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0
	Display	1 DVI, 1 HDMI	1 VGA, 1 DVI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1
	Serial	4 RS-232	1 RS-422/485, 7 RS-232
Internal I/O	USB	2 USB 2.0	3 USB 2.0
	Display	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0, 2 SATA 2.0	2 SATA 3.0, 2 SATA 2.0
	DIO	8-bit DIO	8-bit DIO
	LPC	-	-
	SMBus	-	-
TPM / iAMT	TPM (opt.)	TPM (opt.)	
Power	24-pin ATX	24-pin ATX	
Operating Temperature	0°C~60°C	0°C~60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

Flexible Power Connector



Our Applicable Boards:

Processor	Form Factor	Model
9th/8th Gen Intel® Core™	Mini-ITX	WL171/WL173, CS103-Q370/C246/H310, CS101-Q370/C246/H310
7th Gen Intel® Core™	Mini-ITX	KD171, KU171/173
	SBC	KU551, KU553
6th Gen Intel® Core™	Mini-ITX	SD101/SD103-Q170, SD101/SD103-H110, SU171/SU173
	SBC	SU551
Intel Atom® E3900	Mini-ITX	AL102, AL170, AL171/AL173
	SBC	AL551, AL553
Intel® Pentium®/Celeron® N3000	Mini-ITX	BW171/BW173
	SBC	BW551, BW051
AMD® Ryzen™ Embedded V1000/R1000 Series	Mini-ITX	GH171

Our Proprietary LPC Modules

- Two proprietary cards for expanding extra 4 COM ports via a LPC interface
- Provides flexibility and system integration on our newest platforms

Our Applicable Boards:

Processor	Form Factor	Model
10th Gen Intel® Core™	microATX	CMS310-W480, CMS310-Q470
9th/8th Gen Intel® Core™	EATX	PR811-C622, PR810-C622
	ATX	CS620-H310, CS650-C246, CS650-Q370, CS632-C246, CS632-Q370, CS631-C246, CS631-Q370
	microATX	CS332-Q370, CS332-H310, CS331-Q370, CS331-C246, CS330-Q370, CS330-H310
	Mini-ITX	WL171/WL173, CS103-Q370/C246, CS103-H310, CS101-Q370/C246, CS101-H310, CS100-Q370/C246/H310
7th Gen Intel® Core™	ATX	KD632-Q170, KD632-C236, KD631-C236, KD631-Q170
	microATX	KD331-C236, KD331-Q170, KD300-Q170, KD300-H110
	PICMG 1.3	PIC-Q170/H110
6th Gen Intel® Core™	ATX	SD631-C236, SD631-Q170, SD630-H110
	microATX	SD331-C236, SD331-Q170, SD330-Q170, SD330-H110
	Mini-ITX	SD170, SD100-Q170, SD101/SD103-Q170(opt.), SD100-H110, SD101/SD103-H110(opt.), SU171/SU173
Intel Atom® E3900	Mini-ITX	AL102, AL170, AL171/AL173
Intel® Pentium®/Celeron® N3000	Mini-ITX	BW171/BW173

Peripherals

Providing Expansibility & High Flexibility



Proprietary Expansion Modules



Model Name	EXT-DP	SDVO-LVDS	MPE-CAN2
Chip	SN75DP130	Chrontel CH7308B	-
Ports	DP Connector LCD/Inverter Power Connector	LVDS LCD Panel Connector LCD/Inverter Power Connector	1 DB9 connector includes Dual CAN Bus and 1 J1708 ports
Interface	1 DP	1 SDVO	1 Mini PCIe/USB (opt.)
Dimensions	50 x 40 mm	45 x 38 mm	50.59mm x 30mm
Applicable Models	HU171/173, HU101/103, HM100/101/103-QM87/HM86	-	-

Model Name	M.2-1LAN/2LAN	M.2-1PSE/2PSE	MPE-M2M/M2E
Expansion Slots/Ports	1 RJ45/ 2 RJ45	1 RJ45/ 2 RJ45	1 M.2 M key/ 1 M.2 E key
Interface	PCIe x1	PCIe x1	PCIe, SATA, USB (based on motherboard input)
Form Factor	M.2 B-M key (22 x 42 mm)	M.2 B-M key (22 x 42 mm)	Mini PCIe for both full and half sizes
Applicable Models	All our systems and boards with M.2 interface.		



Model Name	EXT-RS232	EXT-RS485	MPE-EXTB	MPE-EXTF	MPE-SATA	MPE-SIM2
Chip	NCT5104	NCT5104	-	-	-	-
Expansion Slots/Ports	4 RS232 Serial Connector	4 RS485 Serial Connector	1 Full-size Mini PCIe	1 Full-size Mini PCIe	1 SATA Connector	2 SIM slots
Interface	1 LPC	1 LPC	1 Half-size Mini PCIe	1 Half-size Mini PCIe	1 mSATA	Mini PCIe (USB 3.1 Gen 1/ USB 2.0, PCIe)
Dimensions	48 x 30 mm	48 x 30 mm	30 x 26.8 mm	30 x 26.8 mm	35 x 25 mm	61.45 x 30 mm
Applicable Models	SD631-C236/Q170, SD630-H110, SD331-C236/Q170, SD331-Q170/H110, SD101/SD103-Q170/H110, SD100-Q170/H110, SU171/SU173, BW171/BW173, WL171/WL173, CS100-Q370/C246/H310			-	-	ALF51, AL551, AL553

DC to DC Converters

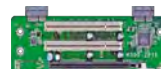


Model Name	X102-DC12				X102-DC24		X102-DC30		X103-DC36
Input Voltage	11.4V~12.6V				20.4V~25.2V		6V~30V		9V~36V
Output Voltage	Output Voltage	Output Current	Power Output	Test Result 125.9W	Output Voltage	Output Current (maximum)	Output Voltage	Output Current (maximum)	12V/24V
	+3.3V	5A	16.5W		+3.3V ±5%	5.0A	+3.3V ±5%	6.0A	
	+5V	5A	25W		+5V ±5%	8.0A	+5V ±5%	6.0A	
	5VSB	2A	10W		5VSB ±5%	2.0A	5VSB ±5%	1.5A	
	+12V	6A	72W		+12V ±5%	6.0A	+12V ±5%	5A	
	-12V	0.2A	2.4W	-12V ±10%	0.2A	-12V ±10%	0.15A		
Maximum Output	130W				140W		120W		70W
Ports	DC 12V Jack 4-pin ATX +12V Power Connector 20-pin ATX Power Connector				3-pin DC-in Connector 4-pin ATX 12V Power Connector 20-pin ATX Power Connector 4-pin FDD Power Connector		3-pin DC-in Connector 4-pin ATX 12V Power Connector 20-pin ATX Power Connector 4-pin FDD Power Connector		DC-in Jack(default)/ 4-pin Power Connector
Dimensions	146 x 50 mm				146 x 50 mm		146 x 50 mm		146 x 55 mm

Riser Cards



Model Name	RISER-2PE4	RISER-PE16	X100-2P1M	X100-3PE2
Expansion Slots	2 PCIe x4	1 PCIe x16	2 PCI, 1 Mini PCIe	1 PCIe x1, 1 PCI, 1 Mini PCIe
Interface	1 PCIe x8	1 PCIe x16	1 PCIe x1	1 PCIe x1
Dimensions	170 x 52.7 mm	137.1 x 31.3 mm	170 x 52.7 mm	170 x 52.7 mm
Applicable Models	-		BT161	



Model Name	H300-2E	H300-2P1E	H300-3P1M
Expansion Slots	2 PCIe x8	1 PCIe x16, 2 PCI	3 PCI, 1 Mini PCIe
Interface		2 Proprietary Extension Bus	
Dimensions	170 x 37 mm	170 x 64 mm	170 x 64 mm
Applicable Models	BT161, CS103-Q370/C246, CS103-H310		

*Available upon project request & MOQ required



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