



Desire
For
Innovation

2021

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



GHF51



CS551

Form Factor	Processor	Platform	Model	Index
1.8"	Intel Atom® E3900	Atom	ALF51	P6
	AMD® Embedded R1000 Series	AMD	GHF51	
2.5"	8th/9th Gen Intel® Core™	ULT	WL051, WL053	P7
	Freescall i.MX8M Series	ARM	M8M051	
	Intel Atom® E3900	Atom	AL05P, AL051, AL053	P8
	Intel® Pentium®/Celeron® N3000	Atom	BW051	
	Freescall i.MX6 Series	ARM	FS051, FS053	
	8th/9th Gen Intel® Core™	Desktop	CS551	
3.5"	8th Gen Intel® Core™	ULT	WL551	P8
	7th Gen Intel® Core™	ULT	KU551, KU553	
	6th Gen Intel® Core™	ULT	SU551	
	Intel Atom® x6000 SoC	Atom	EHL553	
	AMD® Embedded V1000/R1000 Series	AMD	GH551	P9
	Intel Atom® E3900	Atom	AL551, AL553	
	Intel® Pentium®/Celeron® N3000	Atom	BW551	
	Intel Atom® E3800	Atom	BT551/BT553	
	6th Gen Intel® Core™	ULT	SU251/SU253, SU256-SCM	P10
	Intel Atom® E3900	Atom	AL253	
	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	P11

Mini-ITX



WL171/WL173



EHL171/EHL173

Processor	Platform	Chipset	Model	Index
11th Gen Intel® Core™	Mobile	-	TGU171/TGU173	P12
10th Gen Intel® Core™	Workstation	W480E	CMS101-W480E/CMS103-W480E, CMS100-W480E	
	Desktop	Q470E	CMS100-Q470E CMS101-Q470E/CMS103-Q470E	P13
8th/9th Gen Intel® Core™	Workstation	C246	CS103-C246, CS101-C246, CS100-C246, CS170-C246	P13
	Desktop	Q370	CS103-Q370, CS170-Q370, CS181-Q370	P14
		H310	CS101-Q370, CS100-Q370, CS103-H310, CS101-H310, CS100-H310, CS170-H310, CS181-H310	
8th Gen Intel® Core™	ULT	-	WL171/WL173	P15
7th Gen Intel® Core™	ULT	-	KU171/KU173	
6th/7th Gen Intel® Core™	Desktop	Q170/H110	KD171	
	Desktop	Q170	SD100-Q170, SD101/SD103-Q170, SD106-Q170	P16
		H110	SD170, SD100-H110, SD101/SD103-H110	
Intel Atom® x6000 SoC	ULT	-	SU171/SU173	
	Atom	-	EHL171/EHL173	P16
	Atom	-	AL102, AL170, AL171/AL173	
Intel Atom® E3900	Atom	-	BT100, BT101/BT103, BT160/BT161	P17
Intel Atom® E3800	Atom	-	BW171/BW173	
Intel® Pentium®/Celeron® N3000	Atom	-	RNO171	
AMD® Ryzen Embedded V2000	AMD	-	GH171	P17
AMD® Ryzen Embedded V1000/R1000 Series	AMD	-	GH171	



microATX



CMS310

Processor	Platform	Chipset	Model	Index
10th Gen Intel® Core™	Workstation	W480E	CMS310-W480E, CMS311-W480E	P18
	Desktop	Q470E	CMS330-Q470E, CMS311-Q470E	
		H420E	CMS330-H420E	P19
8th/9th Gen Intel® Core™	Workstation	C246	CS350-C246, CS331-C246, CS332-C246	
	Desktop	Q370	CS350-Q370, CS332-Q370, CS331-Q370,	
		H310	CS330-Q370	P20
6th/7th Gen Intel® Core™	Workstation	C236	KD331-C236, SD331-C236	
	Desktop	Q170	KD331-Q170, KD330-Q170, KD300-Q170,	P21
		H110	SD331-Q170	
			KD330-H110, KD300-H110, SD330-H110	

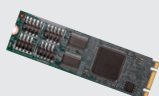
EATX/ATX



SO630

Processor	Platform	Chipset	Model	Index
Intel Xeon	Server-Grade	C621A	ICX610-C621A, ICX810	P22
		C622	PR811-C622, PR810-C622	
		C621	PL610-C622	P23
AMD EPYC3000	AMD	-	PR610-C621, PR611-C621	
10th Gen Intel® Core™	Workstation	W480E	CMS630-W480E	P24
	Desktop	Q470E	CMS631-Q470E, CMS630-Q470E	
		H420E	CMS631-H420E	P25
8th/9th Gen Intel® Core™	Workstation	C246	CS650-C246, CS631-C246, CS632-C246	
	Desktop	Q370	CS650-Q370, CS632-Q370, CS631-Q370,	
		H310	CS630-Q370	P26
6th/7th Gen Intel® Core™	Workstation	C236	CS620-H310, CS630-H310	
	Desktop	Q170	KD632-C236, KD631-C236, SD631-C236	P27
		H110	KD632-Q170, KD631-Q170, KD600-Q170,	P28
			SD631-Q170	
			KD600-H110, SD630-H110, KD630-H110	

Peripherals



M.2-COM4

Processor	Model	Index
Proprietary Expansion Modules	EXT-DP, SDVO-LVDS, MPE-CAN2	P30~P31
	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, M.2-COM4, M.2-SATA2, EXT-100GbE, SEM-2500/2510, GM901	
	DC to DC Converters	
Riser Cards	X102-DC12, X102-DC24, X102-DC30, X103-DC36	
	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



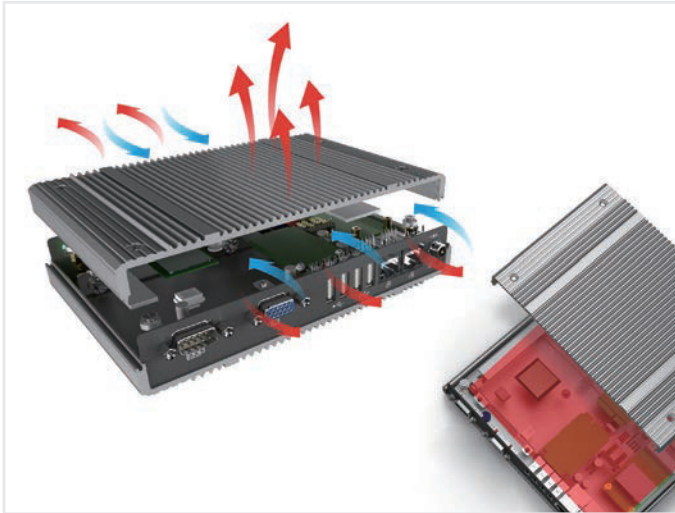
Embedded Total Solution

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



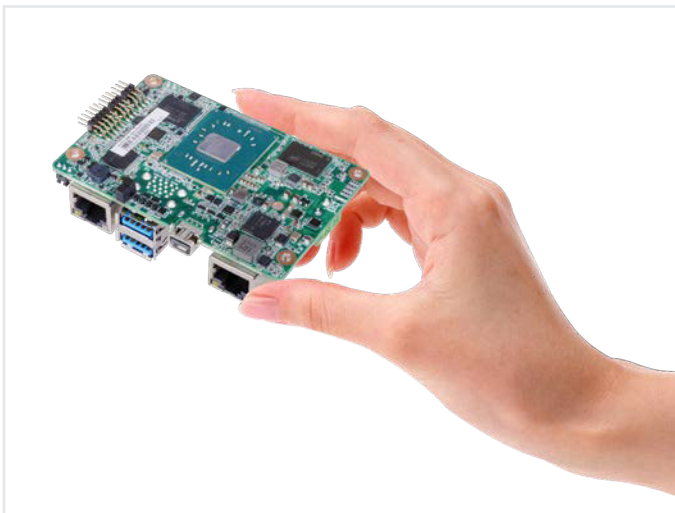
We Provides a Total Solution Designed for Your Embedded Applications





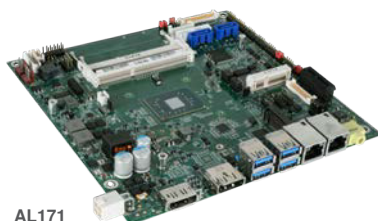
Easy System Integration

- 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

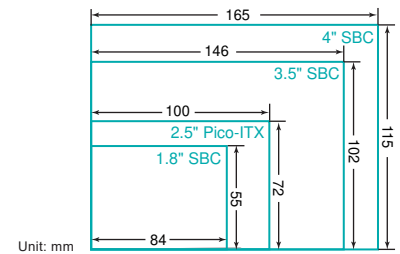
Embedded SBCs

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.



1.8"



AMD

1.8"



Atom

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 3.6GHz(Turbo)	1.3~1.8GHz
	TDP	up to 12W	6W~9.5W
	Cache	2MB	2MB
	Chipset	N/A	-
Memory	BIOS	AMI SPI 64Mbit	Insyde SPI 128Mbit
	Technology	up to DDR4 2400 MHz	Single Channel LPDDR4 2400MHz
	Max. Capacity	8GB	4GB
Graphics	Socket	-	-
	Connector	AMD Vega GPU with up to 3 computing units.	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 x Intel® I211AT PCIe (10/100/1000Mbps) / 1 x Intel® I210IT PCIe (10/100/1000Mbps)	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	-	-
	Internal I/O	-	-
Internal I/O	Serial	-	1 RS-232/422/485
	USB	-	1 USB 2.0
	Display	-	-
	Audio	-	-
	SATA	-	-
	DIO	8-bit DIO	8-bit DIO
	LPC	-	-
TPM / iAMT	SMBus	1	1
	TPM / iAMT	fTPM 2.0	fTPM 2.0
Power		12 VDC	12V DC
Operating Temperature		0 to 60°C/ -20 to 70°C	0~60°C/-20~70°C/-40~85°C

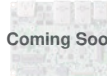
2.5"



ULT

2.5"

Coming Soon



ULT

2.5"



ARM

Model Name		WL051	WL053	M8M051
Platform		ULT	ULT	i.MX 8M
System	Processor	8th Gen Intel® Core	8th Gen Intel® Core	NXP i.MX 8M Quad/Dual Cortex-A53
	Socket	BGA1528	BGA1528	-
	Max. Speed	2.0~4.4GHz	1.7~4.0GHz	Up to 1.5GHz
	TDP	15W	15W	-
	Cache	2M~8M	2M~8M	-
	Chipset	-	-	-
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	-
	Technology	Single Channel DDR4 up to 2400MHz	Single Channel DDR4 up to 2400MHz	Single Channel LPDDR4 up to 3200 MHz
	Max. Capacity	32GB	32GB	2GB/4GB Memory Down
	Socket	1 SODIMM	1 SODIMM	-
Graphics	Connector	1 DP++/HDMI, 1 eDP	1 DP++/HDMI	1 x HDMI/LVDS
	PCIe, PCI	-	-	-
Expansion	Mini PCIe/M.2	1 M.2 E key 2230, 2 M.2 B key 3042/2242	1 M.2 E key 2230, 2 M.2 B key 3042/2242	1 M.2 B key 3042/2242
	SIM	-	-	1 Nano SIM
Audio	Audio Codec	Realtek ALC262	-	SGTL5000
Ethernet	Controller	1 Intel® I219V/LM, 1 Intel® I211AT/I210IT	1 Intel® I219V/I219LM	1 Atheros AR8035 Ethernet
	Ethernet (GbE)	2	1	1
Rear I/O	Serial	-	-	1 RS485
	USB	2 USB3.1 Gen2	2 USB3.1 Gen2	1 Micro USB 2.0, 2 USB3.1 Gen1
	Display	1 COMBO port (DP++/HDMI)	1 COMBO port (DP++/HDMI)	1 HDMI
	Audio	-	-	-
	PS/2	-	-	-
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485, 1 RS232
Internal I/O	USB	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	1 eDP	-	1 LVDS
	Audio	1 Audio (Line-out/Mic-in)	-	1 Audio (Line-out/Mic-in)
	SATA	-	-	1 eMMC up to 64GB
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
TPM / iAMT	SMBus	1	1	1 CANBus 2.0
	TPM / iAMT	fTPM 2.0	fTPM 2.0	-
Power		12V DC-in	9-36V DC-in	12V DC-in
Operating Temperature		-5~65°C/-30 ~ 80°C	-5~65°C/-30 to 80°C	-5~65°C/-30 ~ 80°C

2.5"



Atom

2.5"



Atom

2.5"



Atom

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	1.1~1.6GHz	1.1~1.6GHz	1.1~1.6GHz
	TDP	6~9.5W	6~12W	6~12W
	Cache	2M	2M	2M
	Chipset	-	-	-
Memory	BIOS	Insyde SPI 128Mbit (supports UEFI boot only)	Insyde SPI 128Mbit (supports UEFI boot only)	Insyde SPI 64Mbit
	Technology	Single Channel LPDDR4 2400MHz	Single Channel DDR3L 1866MHz	Single Channel DDR3L 1866MHz
	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	-	-	-
	Serial	1 RS-232/422/485	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
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
TPM / iAMT	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		0~60°C/-20~70°C	0~60°C/-20~70°C/-40~85°C	0~60°C/-40~85°C

2.5"



Atom

2.5"



ARM

2.5"



ARM

Model Name		BW051	FS051	FS053
Platform		Atom	ARM	ARM
System	Processor	Intel® Pentium®/Celeron® N3000	Freescall i.MX6 Series	Freescall i.MX6 Series
	Socket	BGA 1170	-	-
	Max. Speed	1.04~2.56GHz	1.0GHz	1.0GHz
	TDP	4W/5W/6W	-	-
	Cache	2M	-	-
	Chipset	-	-	-
	BIOS	Insyde SPI 64Mbit	-	4MB NOR Flash
Memory	Technology	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1600/1866MHz
	Max. Capacity	8GB	1GB/2GB/4GB	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
Expansion	PCIe, PCI	-	-	-
	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, 1 LAN7500
Rear I/O	Ethernet (GbE)	1	1	2
	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	1 x RS-232, 1 RS-232/422/485
	USB	2 USB 2.0	2 USB 2.0	2 USB 2.0
	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.)

3.5"

C246
Q370
H310

3.5"



ULT

3.5"



ULT

3.5"



ULT

Model Name		CS551	WL551	KU551	KU553
Platform		Desktop	ULT	ULT	ULT
System	Processor	8th/9th Gen Intel® Core™	8th Gen Intel® Core	7th Gen Intel® Core™	7th Gen Intel® Core™
	Socket	LGA 1151	BGA1528	BGA 1356	BGA 1356
	Max. Speed	2.1~4.0GHz	1.7~4.0GHz	2.2~3.9GHz	2.2~3.9GHz
	TDP	35W/25W	15W	15W	15W
	Cache	2M/4M/6M/9M/12M	2M~8M	2M/3M/4M	2M/3M/4M
	Chipset	Intel® Q370/C246/H310	-	-	-
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Single Channel DDR4 2666MHz	Single Channel DDR4 up to 2400MHz	Single Channel DDR4 1866/2133MHz	Single Channel DDR4 1866/2133MHz
	Max. Capacity	32GB	32GB	16GB	16GB
	Socket	1 SODIMM	1 SODIMM	1 SODIMM	1 SODIMM
Graphics	Connector	2 DP(+), 1 LVDS	1 DP++/HDMI, 1 LVDS/eDP (opt.)	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 2280	1 M.2 M key 2280/2242 (support Innodisk InnoAge™ SSD), 1 M.2 E key 2230, 1 M.2 B key 3042/2242	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)
	SIM	1(opt.)	1 Nano SIM (opt.)	-	1(opt.)
Audio	Audio Codec	Realtek ALC262	Realtek ALC262	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I210IT	3 Intel® I211AT/Intel® I210IT	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT/1 Intel® I210IT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	3	2	2
	Serial	-	-	-	-
	USB	4 USB3.1 Gen2	4 USB3.1 Gen2	4 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	2 DP++	1 COMBO port (DP++/HDMI)	1 VGA, 1 DP++	1 VGA, 1 DP++
	Audio	-	-	-	-
	PS/2	-	-	-	-
Internal I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	2 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 2.0	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	1 LVDS	1 LVDS/eDP	1 LVDS	1 LVDS
	Audio	1 Audio (Line-out/Mic-in)	1 Audio (Line-out/Mic-in)	1 Audio (Mic-in/Line-out)	Mic-in, Line-out
	SATA	1 SATA 3.0	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	-	-	-	-
	SMBus	1	1	1	1
TPM / iAMT		fTPM 2.0	fTPM 2.0 (default)/dTPM2.0 (opt.)	fTPM, TPM2.0	fTPM2.0
Power		12V DC-in	12V DC-in	12V DC-in	9~36V DC-in
Operating Temperature		-5~65°C/-30~80°C	-5~65°C/-20~80°C	0~60°C/-20~70°C (opt.)	0°C~60°C/-20~70°C (opt.)

3.5"



ULT

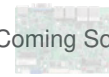
3.5"



AMD

3.5"

Coming Soon



Atom

Model Name		SU551	GH551	EHL553
Platform		ULT	AMD R-Series	Atom
System	Processor	6th Gen Intel® Core™	AMD® Ryzen™ Embedded V1000/ R1000 Series	Intel® Atom x6000 SoC
	Socket	BGA 1356	FP5	BGA 1493
	Max. Speed	2.0~3.4GHz	up to 3.6GHz(Turbo)	1.2~3.0GHz
	TDP	15W	up to 15W	up to 12W
	Cache	2M/3M/4M	4MB	2M~8M
	Chipset	-	-	-
	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit	AMI SPI 128Mbit
Memory	Technology	Single Channel DDR3L 1600MHz	up to DDR4 2400 MHz	Single Channel DDR4 up to 3200MHz
	Max. Capacity	8GB	16GB	32GB
	Socket	1 SODIMM	1 SODIMM	1 SODIMM
Graphics	Connector	1 VGA, 1 LVDS, 1 DP++	-	1 DP++/HDMI, 1 eDP
	PCIe, PCI	-	-	-
Expansion	Mini PCIe/M.2	2 Mini PCIe	1 Full-size Mini PCIe, 1 M.2 M key	3 M.2 (M key, B key, E Key)
	SIM	1(opt.)	1 Nano SIM (opt.)	1 Nano SIM (opt.)
Audio	Audio Codec	Realtek ALC888	Realtek ALC262	Realtek ALC262
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	3 Intel® I211AT	3 Intel® I211AT/Intel® I210IT
Rear I/O	Ethernet (GbE)	2	3	3
	Serial	-	-	-
	USB	4 USB 3.1 Gen1	2 USB 3.1 Gen2, 1 USB 2.0	4 USB3.1 Gen2
	Display	1 VGA, 1 DP++	4 DP++	1 COMBO port (DP++/HDMI)
	Audio	-	-	-
	PS/2	-	-	-
Internal I/O	Serial	2 RS-232/422/485, 2 RS-232	1 x RS-232/422/485 (2.0mm pitch)	1 RS-232/422/485
	USB	2 USB 2.0	1 USB2.0	2 USB 2.0
	Display	1 LVDS	1 LVDS (optional)	1 eDP
	Audio	Mic-in, Line-out	Mic-in, Line-out, Speaker out	1 Audio (Line-out/Mic-in)
	SATA	2 SATA 3.0	1 SATA3, 1 SATA Power	1 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-
	SMBus	1	1	1
TPM / iAMT		only Core i7/i5 supports iAMT)	fTPM 2.0 (default)/dTPM2.0 (opt.)	fTPM 2.0 (default)/dTPM2.0 (opt.)
Power		12V DC-in	12 VDC	9~36VDC-in
Operating Temperature		0°C~60°C	-5~65°C/-30 ~ 80°C	-5~65°C/-40 ~ 85°C

3.5"



Atom

3.5"



Atom

3.5"



Atom

3.5"



Atom

Model Name		AL553	AL551	BW551	BT551/BT553
Platform		Atom	Atom	Atom	Atom
System	Processor	Intel Atom® E3900	Intel Atom® E3900	Intel® Pentium®/Celeron® N3000	Intel Atom® E3800
	Socket	BGA 1296	BGA 1296	BGA 1170	BGA 1170
	Max. Speed	1.1~2.5GHz	1.1~2.5GHz	2.24~2.56GHz	1.46~2.42GHz
	TDP	6.5W/9.5W/12W	6.5W/9.5W/12W	4W/5W/6W	5W/7W/10W
	Cache	2M	2M	2M	0.5M/1M/2M
	Chipset	-	-	-	-
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 64Mbit	Insyde SPI 64Mbit
Memory	Technology	Single Channel DDR3L 1866MHz	Single Channel DDR3L 1866MHz	Single Channel DDR3L 1600MHz	Dual Channel DDR3L 1066/1333MHz
	Max. Capacity	8GB	8GB	8GB	2GB/4GB
	Socket	1 SODIMM	1 SODIMM	1 SODIMM	Memory down
Graphics	Connector	1 VGA, 1 LVDS, HDMI	1 VGA, 1 LVDS, 1 DP++	1 VGA, 1 LVDS, 1 DP++	1 VGA, 1 LVDS, 1 DP
	PCIe, PCI	-	-	-	-
Expansion	Mini PCIe/M.2	1 Mini PCIe, 2 M.2 (M key, B key)	1 Mini PCIe, 1 M.2 B key, 1 E I/O(opt.)	1 Mini PCIe, 1 mSATA	1 Mini PCIe
	SIM	-	-	1(opt.)	-
Audio	Audio Codec	Realtek ALC262	Realtek ALC262	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I211AT, 2 Intel® I210IT	2 Intel® I211AT, 2 Intel® I210IT	2 Intel® I211	2 Intel® I210
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	-	-	-
	USB	2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0, 1 USB Gen1 Type C OTG(opt.)	4 USB 3.0	1 USB 3.1 Gen1, 1 USB 2.0
	Display	1 VGA, 1 LVDS, HDMI	1 VGA, 1 DP++, 1 LVDS	1 VGA, 1 DP++	1 VGA, 1 DP
	Audio	-	-	-	-
	PS/2	-	-	-	-
Internal I/O	Serial	1 RS-232/422/485	2 RS-232/422/485	2 RS-232/422/485, 2 RS-232	1 RS-485, 2 RS-232
	USB	2 USB 2.0	2 USB 2.0	2 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 LCD Power	1 LVDS, 1 LCD Power	1 LVDS	1 LVDS
	Audio	Audio (Mic-in/Line-out)	Audio (Mic-in/Line-out), Speaker Out(opt.)	Mic-in, Line-out	Mic-in, Line-out
	SATA	1 SATA 3.0, 1 SATA Power	1 SATA 3.0, 1 SATA Power	1 SATA 3.0	1 SATA 2.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	-	-	-	-
	SMBus	1	1	1	1
TPM / iAMT		fTPM2.0	fTPM2.0/dTPM 2.0(opt.)	TPM (opt.)	TPM (opt.)
Power		9~36V DC-in	12V DC-in	12V DC-in	12V DC (BT551) / 15~36V (BT553)
Operating Temperature		0°C~60°C/-20°C~70°C/-40°Cto 85°C	0°C~60°C/-20°C~70°C/-40~85°C	0°C~60°C	0°C~60°C/-20°C~70°C/-40°C~85°C

*Populated by default

4"



ULT

4"



ULT

Model Name		SU251/SU253	SU256-SCM
Platform		ULT	ULT
System	Processor	6th Gen Intel® Core™	6th Gen Intel® Core™
	Socket	BGA 1356	BGA 1356
	Max. Speed	2.0~3.4GHz	2.3~3.9GHz
	TDP	15W	15W
	Cache	2M/3M/4M	3M/4M
	Chipset	-	-
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133MHz	Dual Channel DDR4 2400MHz
	Max. Capacity	4GB/8GB	4GB/8GB
	Socket	Memory down	Memory down
Graphics	Connector	1 VGA, 1 LVDS*/eDP, 1 DP++*/HDMI	1 HDMI
Expansion	PCIe, PCI	-	-
	Mini PCIe/M.2	2 Mini PCIe	1 Mini PCIe
	SIM	-	-
Audio	Audio Codec	Realtek ALC888	-
Ethernet	Controller	1 Intel® I210, 1 Intel® I219	3 Intel® I210, 1 Intel® I219
Rear I/O	Ethernet (GbE)	2	4
	Serial	2 RS-232/422/485 (Front), 2 RS-232 (1 Front, 1 Rear)	-
	USB	4 USB 3.1 Gen1 (Rear)	4 USB 3.0
	Display	1 VGA (Front), 1 DP++*/HDMI(Rear)	1 HDMI
	Audio	-	-
	PS/2	-	-
	-	-	-
Internal I/O	Serial	2 RS-232	-
	USB	2 USB 2.0	2 USB 3.0
	Display	1 LVDS	-
	Audio	Front Audio	-
	SATA	2 SATA 3.0	1 mSATA, 1 SATA 3.0
	DIO	8-bit DIO	-
	LPC	-	1
	SMBus	1	1
TPM / iAMT		-	TPM 2.0 (option)
Power		12V/15~36V DC-in	Wide Range 15~36V
Operating Temperature		0°C~60°C	-20 to 70°C

4"



Atom

4"



Atom

4"



Atom

Model Name		AL253	BT253	BT259
Platform		Atom	Atom	Atom
System	Processor	Intel Atom® E3900 Series	Intel Atom® E3800	Intel Atom® E3800
	Socket	BGA1296	BGA 1170	BGA 1170
	Max. Speed	1.8~2.5GHz	1.33~2.41GHz	1.91GHz~2.41GHz
	TDP	6W/9.5W/12W	4.3W/6W/10W	10W
	Cache	2M	1M/2M	2M
	Chipset	-	-	-
	BIOS	AMI SPI 128Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
Memory	Technology	Single Channel DDR3L	Single Channel DDR3L 1066/1333MHz	Single Channel DDR3L 1333MHz
	Max. Capacity	2G/4G/8G DDR3L memory onboard	2GB/4GB	2GB/4GB
	Socket	1 SODIMM	Memory down (ECC/non-ECC)	Memory down
Graphics	Connector	1 DP++/HDMI, 1 VGA/DP	1 LVDS, 1 VGA*/DVI , 1 HDMI	1 VGA, 1 DVI-I (opt.)
Expansion	PCIe, PCI	1 Mini PCIe, 1 mSATA	-	-
	Mini PCIe/M.2	1 M.2 E key 2230	2 Mini PCIe, 1 mSATA	2 Mini PCIe
	SIM	1 (opt.)	1	-
Audio	Audio Codec	Realtek ALC262-VC2-GR	Realtek ALC888	-
Ethernet	Controller	4 Intel® I211AT/I210IT	2 Intel® I210	4 Intel® I210
Rear I/O	Ethernet (GbE)	Up to 4	2	4
	Serial	4 RS-232/422/485	4 RS-232/422/485 (3 Front, 1 Rear)	3 RS232/422/485
	USB	Up to 4 USB 3.0	1 USB 3.1 Gen1 (Front), 4 USB 2.0 (Rear)	4 USB 2.0, 1 USB 3.1 Gen1
	Display	1 COMBO port (DP++/HDMI), 1 VGA/DP	1 HDMI (Front), 1 VGA* / 1 DVI (Rear)	1 VGA, 1 DVI-I (opt.)
	Audio	-	Line-out (opt.) (Rear)	-
	Serial	-	2 RS-232	-
	-	-	-	-
Internal I/O	Serial	-	2 RS-232	-
	USB	2 USB 2.0	1 USB 2.0	1 USB 2.0
	Display	-	1 LVDS	-
	Audio	-	Mic-in	-
	SATA	1 SATA 3.0, 1 8G/16G/32G/64G (opt.)	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		fTPM 2.0	TPM (opt.)	TPM (opt.)
Power		9~36V DC-in	16~24V DC-in	16~24VDC-in
Operating Temperature		-20 ~ 60°C/-40 ~ 70°C	-20°C~85°C, 0°C~85°C, 0°C~60°C	0°C~60°C

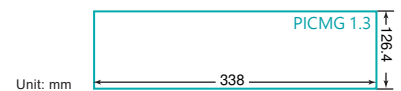
PICMG 1.3

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



H110
Q170

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

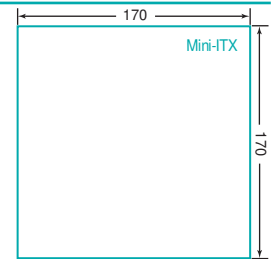
Mini-ITX

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

Unit: mm

11th/10th Gen Intel Core

Coming Soon

ULT

Coming Soon

W480E

Coming Soon

W480E

Coming Soon

Q470E

Model Name		TGU171/TGU173	CMS101-W480E/CMS103-W480E	CMS100-W480E	CMS100-Q470E
Platform		ULT	Workstation	Workstation	Desktop
System	Processor	11th Gen Intel® Core	10th Gen Intel® Core	10th Gen Intel® Core	10th Gen Intel® Core
	Socket	BGA 1499	LGA 1200	LGA 1200	LGA 1200
	Max. Speed	1.5~4.4GHz	up to 4.7GHz	up to 4.7GHz	up to 4.7GHz
	TDP	12W/15W/28W	65W	65W	65W
	Cache	4M~12M	-	-	-
	Chipset	-	Intel® W480E	Intel® W480E	Intel® Q470E
Memory		Indyde SPI 256Mbit	-	-	-
Memory	Technology	Dual Channel DDR4 3200MHz	Single Channel DDR4 2933MHz	Single Channel DDR4 2933MHz	Single Channel DDR4 2933MHz
	Max. Capacity	64GB	64GB	64GB	64GB
	Socket	2 SODIMM	1 SODIMM	1 SODIMM	1 SODIMM
Graphics	Connector	1 LVDS, 1 eDP, 1 DP++/HDMI, 1 USB 4.0	1 LVDS/eDP	1 LVDS/eDP	1 LVDS/eDP
	PCle, PCI	1 PCIe x4 (PCIe Gen 3 x4)	1 PCIe x16	1 PCIe x16	1 PCIe x16
Expansion	Mini PCIe/M.2	1 M.2 M key 2242/2280, 1 M.2 B key 2242/3042/3052, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 B key 3042, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 B key 3042, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 B key 3042, 1 M.2 E key 2230
	SIM	1 Nano-SIM	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I211AT/I210IT, 1 Intel® I225LM/I225IT (AMT and vPro)	1 Intel® I211AT, 1 Intel® I225LM, 1 Intel® I219	1 Intel® I211AT, 1 Intel® I225LM, 1 Intel® I219	1 Intel® I211AT, 1 Intel® I225LM, 1 Intel® I219
	Ethernet (GbE)	3	3	3	3
Rear I/O	Serial	-	-	-	-
	USB	4 USB3.1 Gen2, 1 USB 4.0 Type C	4 USB3.1 Gen2	4 USB3.1 Gen2	4 USB3.1 Gen2
	Display	2 DP++/HDMI	2 DP++/HDMI	2 DP++/HDMI	2 DP++/HDMI
	Audio	-	-	-	-
Internal I/O	Serial	2 RS-232/422/485, 2 RS232	2 RS-232/422/485, 2 RS232	2 RS-232/422/485, 2 RS232	2 RS-232/422/485, 2 RS232
	USB	4 USB 2.0	4 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 eDP	1 LVDS/eDP	1 LVDS/eDP	1 LVDS/eDP
	Audio	Front Audio	1 Audio (Line-out/Mic-in)	1 Audio (Line-out/Mic-in)	1 Audio (Line-out/Mic-in)
	SATA	2 SATA 3.0	2 SATA 3.0	2 SATA 3.0	2 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		dTPM 2.0/TPM(opt.) TGU171: 12V DC-in, TGU173: 9~36V DC-in	dTPM 2.0/TPM CMS101: 12V DC-in, CMS103: 15~36V DC-in	dTPM 2.0/TPM	dTPM 2.0/TPM
Power		-	-	ATX	ATX
Operating Temperature		-5 ~ 65°C / -40 ~ 85°C	-5 ~ 65°C	-5 ~ 65°C	-5 ~ 65°C

10th/8th/9th Gen Intel Core

Coming Soon

Q470E

Thin Mini-ITX



C246

Thin Mini-ITX



C246

Thin Mini-ITX



C246

Model Name		CMS101-Q470E/CMS103-Q470E	CS170-C246	CS103-C246	CS101-C246
Platform		Desktop	Workstation	Workstation	Workstation
System	Processor	10th Gen Intel® Core	8th/9th Gen Intel® Core	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1200	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	up to 4.7GHz	3.1~5.0GHz	-	-
	TDP	65W	35W/54W/58W/65W/85W/95W	65W	80W
	Cache	-	2M~8M	-	-
	Chipset	Intel® Q470E	Intel® C246	Intel® C246	Intel® C246
Memory	BIOS	-	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Technology	Single Channel DDR4 2933MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2666MHz
	Max. Capacity	64GB	32GB	32GB	32GB
Graphics	Socket	1 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 LVDS/eDP	Triple Display: LVDS + VGA + DP++, LVDS + DP++ + DP++, VGA + DP++ + DP++	2 DP++, 1 LVDS	1 LVDS*/eDP (opt.), 2 DP++, 1 HDMI
Expansion	PCIe, PCI	1 PCIe x16	1 PCIe x16 (Gen 3)	1 PCIe x4 (Gen3)	1 PCIe x4 (Gen 3)
	Mini PCIe/M.2	1 M.2 M key 2280, 1 M.2 B key 3042, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 E key	1 Full-size Mini PCIe, 1 M.2 M key, 1 M.2 E key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I225LM, 1 Intel® I219	1 Intel® I219V PHY, 1 Intel® I210AT PCIe	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	3	2	2	2
	Serial	-	2 RS-232	-	-
	USB	4 USB3.1 Gen2	2 USB3.1 Gen2, 4 USB3.1 Gen1	4 USB 3.1 Gen2	4 USB 3.1 Gen2
	Display	2 DP++/HDMI	1 VGA, 2 DP++	2 DP++	2 DP++, 1 HDMI
	Audio	-	1 Audio (Line-out/Mic-in/Line-in)	-	-
Internal I/O	Serial	2 RS-232/422/485, 2 RS232	-	2 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
	Display	1 LVDS/eDP	1 LVDS	1 LVDS	1 LVDS/eDP (opt.)
	Audio	1 Audio (Line-out/Mic-in)	Front Audio	Front Audio	Front Audio
	SATA	2 SATA 3.0	2 SATA 3.0	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
TPM / iAMT	SMBus	1	1	1	1
	TPM / iAMT	dTPM 2.0/iTPM	dTPM2.0 (opt.)	dTPM 2.0	dTPM 2.0
Power		CMS101: 12V DC-in, CMS103: 15~36V DC-in	ATX	9~36V DC-in	Single 12V +/-5% DC
Operating Temperature		-5 ~ 65°C	-10~70°C	-10~70°C	0~60°C

8th/9th Gen Intel Core



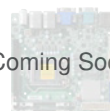
C246

Thin Mini-ITX



Q370

Thin Mini-ITX



Q370

Thin Mini-ITX



Q370

Coming Soon

Model Name		CS100-C246	CS170-Q370	CS181-Q370	CS103-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	LGA 1151	LGA 1151
	Max. Speed	-	3.1~5.0GHz	3.1~4.6GHz	-
	TDP	80W	35W/54W/58W/65W/85W/95W	35W/54W/58W/65W	65W
	Cache	-	2M~8M	2M~8M	-
	Chipset	Intel® C246	Intel® Q370	Intel® Q370	Intel® Q370
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Technology	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2666MHz
	Max. Capacity	32GB	32GB	64GB	32GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 VGA, 1 LVDS, 2 DP++	Triple Display: LVDS + VGA + DP++, LVDS + DP++ + DP++, VGA + DP++ + DP++	1 eDP, 1 DP++/HDMI, 4 DP	2 DP++
Expansion	PCIe, PCI	1 PCIe x16 (Gen 3)	1 PCIe x16 (Gen 3)	1 MXM Type-A/B/B+	1 PCIe x4 (Gen3)
	Mini PCIe/M.2	1 Full-size Mini PCIe	1 M.2 M key 2280, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 B key 3042/3052, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 E key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888S-VD2-GR	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I219V PHY, 1 Intel® I210AT PCIe	1 Intel® I219LM PHY, 3 Intel® I211AT PCIe	1 Intel® I211AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2	4	2
	Serial	1 RS-232	2 RS-232	-	-
	USB	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 4 USB 2.0	2 USB3.1 Gen2, 4 USB3.1 Gen1	4 USB3.1 Gen2, 2 USB 2.0	4 USB 3.1 Gen2
	Display	1 VGA, 1 DP++	1 VGA, 2 DP++	1 DP++/HDMI	2 DP++
	Audio	Mic-in, Line-in (opt.), Line-out	1 Audio (Line-out/Mic-in/Line-in)	-	-
Internal I/O	PS/2	-	-	-	-
	Serial	1 RS-232	-	2 RS232	-
	USB	-	2 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 LCD Power	1 LVDS / 1 LCD Power	1 eDP	1 LVDS
	Audio	S/PDIF	Front Audio	Front Audio	Front Audio
	SATA	3 SATA 3.0 (RAID)	2 SATA 3.0	2 SATA 3.0	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
TPM / iAMT	LPC	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT		dTPM2.0 (available upon request)	dTPM2.0 (opt.)	dTPM2.0	dTPM 2.0
Power		ATX	ATX	19V DC-in	9~36V DC-in
Operating Temperature		0~60°C	-5~65°C	-5~65°C	-10~70°C

*Populated by default

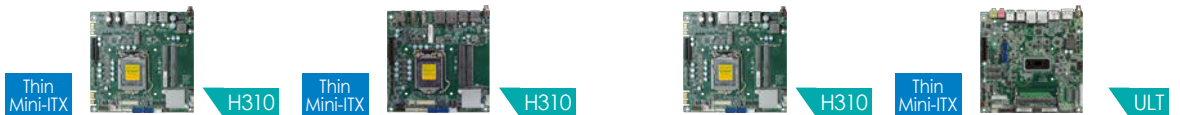
**Supports LPC EXT-RS232/RS485 module

8th/9th Gen Intel Core



Model Name		CS101-Q370	CS100-Q370	CS181-H310	CS170-H310
Platform		Desktop	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	LGA 1151	LGA 1151
	Max. Speed	-	-	3.1~4.6GHz	3.1~5.0GHz
	TDP	80W	80W	35W/54W/58W/65W	35W/54W/58W/65W/85W/95W
	Cache	-	-	2M~8M	2M~8M
	Chipset	Intel® Q370	Intel® Q370	Intel® H310	Intel® H310
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Technology	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2400/2666MHz
	Max. Capacity	32GB	32GB	64GB	32GB
Graphics	Connector	1 LVDS*/eDP (opt.), 2 DP++, 1 HDMI	1 VGA, 1 LVDS, 2 DP++	1 eDP/LVDS, 1 DP++/HDMI, 4 DP	Triple Display: LVDS + VGA + DP++, LVDS + DP++ + DP++, VGA + DP++ + DP++
	PCIe, PCI	1 PCIe x4 (Gen 3)	1 PCIe x16 (Gen 3)	1 MXM Type-A/B/B+	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 Full-size Mini PCIe	1 M.2 M key 2280, 1 M.2 B key 3042/3052, 1 M.2 E key 2230	1 M.2 M key 2280, 1 M.2 E key 2230
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I219LM PHY, 3 Intel® I211AT PCIe	1 Intel® I219V PHY, 1 Intel® I210AT PCIe
Rear I/O	Ethernet (GbE)	2	2	4	2
	Serial	-	1 RS-232	-	2 RS-232
	USB	4 USB 3.1 Gen2	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 4 USB 2.0	4 USB3.1 Gen2, 2 USB 2.0	2 USB3.1 Gen2, 4 USB3.1 Gen1
	Display	2 DP++, 1 HDMI	1 VGA, 1 DP++	1 DP++/HDMI	1 VGA, 2 DP++
	Audio	-	Mic-in, Line-in (opt.), Line-out	-	1 Audio (Line-out/Mic-in/Line-in)
Internal I/O	Serial	2 RS-232/422/485, 2 RS-232	1 RS-232	2 RS232	-
	USB	4 USB 2.0	-	2 USB 2.0	2 USB 2.0
	Display	1 LVDS/eDP (opt.)	1 LVDS, 1 LCD Power	1 eDP/LVDS	1 LVDS / 1 LCD Power
	Audio	Front Audio	S/PDIF	Front Audio	Front Audio
	SATA	2 SATA 3.0 (RAID)	3 SATA 3.0 (RAID)	2 SATA 3.0	2 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		dTPM 2.0	dTPM2.0 (available upon request)	dTPM2.0	dTPM2.0 (opt.)
Power		Single 12V +/-5% DC	ATX	19V DC-in	ATX
Operating Temperature		0~60°C	0~60°C	-5~65°C	-5~65°C

8th/9th Gen Intel Core



Model Name		CS103-H310	CS101-H310	CS100-H310	WL171/WL173
Platform		Desktop	Desktop	Desktop	ULT
System	Processor	8th/9th Gen Intel® Core	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™	8th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	BGA 1528
	Max. Speed	3.1~4.6GHz	-	-	2.0~4.4GHz
	TDP	35W/54W/58W/65W	80W	80W	15W
	Cache	2M~8M	-	-	2~8M
	Chipset	Intel® H310	Intel® H310	Intel® H310	-
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Technology	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2400MHz
	Max. Capacity	32GB	32GB	64GB	32GB
Graphics	Connector	2 DP++, 1 LVDS	1 LVDS*/eDP (opt.), 2 DP++, 1 HDMI	1 VGA, 1 LVDS, 2 DP++	1 x LVDS/eDP (opt.) 2 x DP++/HDMI (Auto-detecting)
	PCIe, PCI	1 PCIe x4 (Gen 3)	1 PCIe x4 (Gen 3)	1 PCIe x16 (Gen 3)	1 PCIe x4 (Gen3)
Expansion	Mini PCIe/M.2	1 M.2 M key 2280, 1 M.2 E key 2230	1 Full-size Mini PCIe, 1 M.2 M key, 1 M.2 E key	1 mSATA	1 M.2 M key 2280, 1 M.2 E key 2230
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219V	1 Intel® I210AT, 1 Intel® I219V	1 Intel® I219LM, 1 Intel® I210AT
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	-	1 RS-232	-
	USB	4 USB3.1 Gen1	4 USB 3.1 Gen2	4 USB 3.1 Gen1, 4 USB 2.0	4 USB 3.1 Gen2
	Display	2 DP++	2 DP++, 1 HDMI	1 VGA, 1 DP++	2 x DP++/HDMI
	Audio	1 x Front Audio (2.0mm pitch)	-	Mic-in, Line-in (opt.), Line-out	1 Line-out, 1 Mic-in
Internal I/O	PS/2	-	-	-	-
	Serial	2 RS-232/422/485, 2 RS232	2 RS-232/422/485, 2 RS-232	1 RS-232	1 RS-232/422/485, 1 RS-232
	USB	4 USB 2.0	4 USB 2.0	-	4 USB 2.0
	Display	-	1 LVDS/eDP (opt.)	1 LVDS, 1 LCD Power	1 LVDS
	Audio	-	Front Audio	S/PDIF	Front Audio
	SATA	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)	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	1	1	1
TPM / iAMT	SMBus	1	1	1	1
	dTPM 2.0	dTPM 2.0	dTPM 2.0	TPM 2.0 (opt.)	dTPM 2.0
Power		9~36V DC-in	Single 12V +/-5% DC	24-pin ATX	12V/9~36V DC-in
Operating Temperature		-10~70°C	0~60°C	0°C~60°C	-5~65°C/-20~70°C

*Populated by default

**Supports LPC EXT-RS232/RS485 module

6th/7th Gen Intel Core

Thin
Mini-ITX



ULT

Thin
Mini-ITX



Thin
Mini-ITX



Q170

Thin
Mini-ITX



Q170

Model Name		KU171/KU173	KD171	SD106-Q170	SD101/SD103-Q170
Platform		ULT	Desktop	Desktop	Desktop
System	Processor	7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	BGA 1356	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.2~3.9GHz	2.3~3.8GHz	2.4~4.0GHz	2.4~4.0GHz
	TDP	15W	35W/51W/54W	35W/47W/65W	35W/47W/65W
	Cache	2M/3M/4M	3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	-	Intel® Q170/H110	Intel® Q170	Intel® Q170
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	32GB	32GB	32GB	32GB
	Socket	2 SODIMM	2 UDIMM	2 SODIMM	2 SODIMM
Graphics	Connector	1 LVDS*/eDP, 2 DP++	2 Full Size DP++, 1 HDMI 1.4 (opt.)	1 eDP, 1 LVDS, 1 DP++	1 LVDS, 1 DVI, 1 HDMI*/DP
	PCIe, PCI	1 PCIe x4	1 PCIe x16 (Gen 3)	1 PCIe x16	1 PCIe x4
Expansion	Mini PCIe	1 Full size Mini PCIe, 1 M.2 M key	-	2 Mini PCIe	2 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	2 Realtek Ethernet LAN Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	-	1 RS-232, 1 RS-485	-	-
	USB	4 USB 3.1 Gen1	2 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.0	4 USB 3.1 Gen1
	Display	2 DP++	2 Full Size DP++, 1 HDMI 1.4 (opt.)	1 DP++	1 DVI, 1 HDMI*/DP
	Audio	1 Line-out, 1 Mic-in	Mic-in, Line-in, Line-out	-	-
Internal I/O	Serial	1 RS-232/422/485, 1 RS-232	4 RS-232	2 RS-232	1 RS-232/422/485, 3 RS-232
	USB	4 USB 2.0	1 Vertical USB 3.1 Gen1, 4 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	1 LVDS*/eDP, 1 LCD/Inverter Power	-	1 LVDS, 1 eDP	1 LVDS, 1 LCD/Inverter Power
	Audio	S/PDIF	-	1 Audio (Line-out/Mic-in), 1 Speaker	1 Audio (Line-out/Mic-in), S/PDIF
	SATA	2 SATA 3.0 (RAID), 2 SATA Power	2 SATA 3.0	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	-	-	8-bit DIO
	LPC**	1	-	-	1 (opt.)
	SMBus	1	-	1	1
	TPM / iAMT	TPM (opt.)	Infineon TPM 2.0 (opt.)	TPM2.0 (opt.)	TPM (opt.)
	Power	12V/9~36V DC-in	12V DC	15~36V DC-in	12V /15~36V DC-in
Operating Temperature		0~60°C / -20~70°C	0°C~60°C	0°C~60°C	0°C~60°C

6th/7th Gen Intel Core



H110
Q170



H110

Thin
Mini-ITX



H110

Thin
Mini-ITX



ULT

Model Name		SD100-Q170/H110	SD170	SD101/SD103-H110	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® Q170/H110	Intel® H110	Intel® H110	-
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	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 VGA, 1 DVI, 1 LVDS, 1 DP++	1 VGA, 1 HDMI, 1 DP++	1 LVDS, 1 DVI, 1 HDMI*/DP	1 LVDS*/eDP, 1 HDMI*/DP, 1 DP++
	PCIe, PCI	1 PCIe x16	1 PCIe x16	1 PCIe x4	1 PCIe x4
Expansion	Mini PCIe	1 Mini PCIe	1 Full size Mini PCIe, 1 M.2 M key	1 Mini PCIe, 1 mSATA	1 Full size Mini PCIe, 2 Mini PCIe
	SIM	-	1	-	1(opt.)
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	Q170: 1 Intel® I210AT, 1 Intel® I219LM / H110: 1 Intel® I211AT, 1 Intel® I219V	4 Intel® I210AT, Intel® I211AT(opt.)	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	4	2	2
Rear I/O	Serial	1 RS-232	1 RS-232/422/485	-	-
	USB	4 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen1	4 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 HDMI, 1 DP++	1 DVI, 1 HDMI*/DP	1 HDMI*/DP, 1 DP++
	Audio	Mic-in, Line-in (opt.), Line-out	-	-	Mic-in, Line-out
Internal I/O	PS/2	1	-	-	-
	Serial	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 3 RS-232	2 RS-232/422/485, 2 RS-232
	USB	Q170: 4 USB 2.0 / H110: 2 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0, 1 Vertical USB2.0	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*/eDP, 1 LCD/Inverter Power
	Audio	S/PDIF	Front Audio	1 Audio (Line-out/Mic-in), S/PDIF	S/PDIF
	SATA	3 SATA 3.0 (RAID)	2 SATA 3.0	2 SATA 3.0	2 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1 (opt.)	1
TPM / iAMT	SMBus	1	1	1	1
	TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power		24-pin ATX	24-pin ATX	12V (SD101)/15~36V (SD103) DC-in	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

Intel Atom x6000 Soc / E3900



Atom

Thin
Mini-ITX



Atom

Thin
Mini-ITX



Atom

Model Name		EHL171/EHL173	AL102	AL170
Platform		Atom	Atom	Atom
System	Processor	Intel® Atom x6000 SoC	Intel Atom® E3900	Intel Atom® E3900
	Socket	BGA 1493	BGA 1296	BGA 1296
	Max. Speed	1.2~3.0GHz	1.1~2.4GHz	1.1~2.5GHz
	TDP	6W/6.5W/9W/10W/12W	6W/9.5W/12W	6.5W/9.5W/12W
	Cache	1M~2M	2M	2M
	Chipset	-	-	-
Memory	BIOS	AMI SPI 256Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 up to 3200MHz	Dual Channel DDR3L 1867MHz	Dual Channel DDR3L 1867MHz
	Max. Capacity	32GB (In-band ECC)	8GB	8GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 LVDS/eDP, 1 DP++/VGA, 1 HDMI/DP++	1 VGA, 1 HDMI, 1 LVDS/eDP(opt.)	1 VGA, 1 DP++, 1 LVDS/ eDP
Expansion	PCIe, PCI	1 PCIe x4 (PCIe x2)	-	1 PCIe x1
	Mini PCIe	1 M.2 B key connected to Nano SIM, 1 M.2 E key 2230	1 Mini PCIe (opt.), 1 M.2 M key/E key	1 Mini PCIe, 1 M.2 M key
Audio	SIM	1 Nano-SIM	1 (opt.)	1
	Audio Codec	Realtek ALC262	Realtek ALC269	Realtek ALC262
Ethernet	Controller	-40~85°C: 2 Intel® GPY215, -5 to 65°C: 2 Intel® GPY211	2 Realtek RTL8111H-CG	2 Intel® I210IT, Intel® I211AT (opt.)
	Ethernet (GbE)	2 x 2.5GbE	2	2
Rear I/O	Serial	-	2 RS-232, RS422/485 (opt.)	2 RS-232/422/485
	USB	4 USB3.1 Gen2	4 USB 3.1 Gen1	4 USB 3.1 Gen1
	Display	1 DP++/HDMI, 1 DP++/VGA	1 VGA, 1 HDMI	1 VGA/DP++, 1 DP++
	Audio	1 Line-out	Line-out	Mic-in, Line-out, Line-in
Internal I/O	Serial	2 RS-232/422/485, 4 RS232	4 RS-232 (opt.)	4 RS-232
	USB	4 USB 2.0 or 2 USB 2.0 + 1 Vertical USB 2.0 Type A	4 USB 2.0, 1 USB 2.0/Vertical USB 2.0 (opt.)	6 USB 2.0
	Display	1 LVDS/eDP, 1 LCD Power	1 LVDS, 1 LCD Power, 1 eDP (opt.)	LVDS
	Audio	1 Audio (Line-out/Mic-in), 1 S/PDIF	Mic-in, Line-out	Front Audio, S/PDIF
	SATA	2 SATA 3.0	1 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		dTPM2.0 (opt.)	TPM 2.0 (opt.)	TPM (opt.)
Power		EHL171: 12V DC-in, EHL73: 9~36V DC-in	12V DC	ATX
Operating Temperature		-5 ~ 65°C / -40 ~ 85°C	0°C~50°C	0°C~60°C/-40°C~85°C

Intel Atom E3900/ E3800

Thin
Mini-ITX



Atom

Thin
Mini-ITX

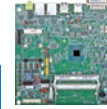


Atom



Atom

Thin
Mini-ITX



Atom

Model Name		AL171/AL173	BT160/BT161	BT100	BT101/BT103
Platform		Atom	Atom	Atom	Atom
System	Processor	Intel Atom® E3900	Intel Atom® E3800	Intel Atom® E3800	Intel Atom® E3800
	Socket	BGA 1296	BGA 1170	BGA 1170	BGA 1170
	Max. Speed	1.1~2.5GHz	1.46~2.42GHz	1.46~2.42GHz	1.33~2.42GHz
	TDP	6W/9W/12W	7W/10W	5W/10W	5W/6W/7W/10W
	Cache	2M	1M/2M	0.5M/2M	0.5M/1M/2M
	Chipset	-	-	-	-
Memory	BIOS	Insyde SPI 128Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual DDR3L 1867MHz	Dual Channel DDR3L 1066/1333MHz	Single/Dual DDR3L 1066/1333MHz	Single/Dual DDR3L 1066/1333MHz
	Max. Capacity	8GB	8GB	4GB/8GB	4GB/8GB
Graphics	Socket	2 SODIMM	2 SODIMM	1 or 2 SODIMM	1 or 2 SODIMM
	Connector	1 VGA*/DP++, 1 HDMI*/DP++, 1 LVDS*/eDP	1 VGA, 1 LVDS	1 VGA, 1 LVDS, 1 DVI	1 LVDS, 1 DVI
Expansion	PCIe, PCI	1 PCIe x1	1 PCIe x1, 1 DFI Extension Bus	1 PCIe x4	1 PCIe x1
	Mini PCIe	1 Mini PCIe, 1 M.2 B key	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe
Audio	SIM	-	-	-	1
	Audio Codec	Realtek ALC262	-	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I210IT or 2 Intel® I211AT	2 Intel® I210	2 Intel® I210	2 Intel® I210
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	-	1 RS-232	1 RS-232/422/485, 1 RS-232	-
	USB	4 USB 3.1 Gen1	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*/DP++, 1 HDMI*/DP++	1 VGA	1 VGA, 1 DVI	1 DVI
	Audio	Line-out	-	Mic-in, Line-out	Line-out
Internal I/O	Serial	2 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232
	USB	4 USB 2.0, 1 USB 2.0 / Vertical USB 2.0 type A (opt.)	3 USB 2.0	3 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 LCD Power, 1 eDP	1 LVDS	1 LVDS	1 LVDS
	Audio	1 Audio (Line-out/Mic-in), S/PDIF	-	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0	2 SATA 2.0	2 SATA 2.0	2 SATA 2.0
	DIO	8 bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	-	-	-
	SMBus	1	-	1 (opt.)	1
TPM / iAMT		TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power		12V (AL171)/15~36V (AL173) DC-in	24-pin ATX (BT160)/12V DC-in (BT161)	24-pin ATX	12V/19~24V DC-in
Operating Temperature		0°C~60°C/-40°C~85°C	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,
Atom

Thin Mini-ITX



Atom

Model Name		BW171/BW173
Platform		Atom
System	Processor	Intel® Pentium®/Celeron® N3000
	Socket	BGA 1170
	Max. Speed	1.04~2.56GHz
	TDP	4W/5W6W
	Cache	2M
	Chipset	-
Memory	BIOS	Insyde SPI 64Mbit
	Technology	Dual Channel DDR3L 1600MHz
	Max. Capacity	8GB
Graphics	Socket	2 SODIMM
	Connector	1 VGA, 1 LVDS, 1 DP++*/eDP
Expansion	PCIe, PCI	1 PCIe x1
	Mini PCIe / M.2	1 Mini PCIe, 1 mSATA
Audio	SIM	1(opt.)
	Audio Codec	Realtek ALC888
Ethernet	Controller	2 Intel® I211
	Ethernet (GbE)	2
Rear I/O	Serial	-
	USB	2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DP++
	Audio	Line-out
Internal I/O	Serial	1 RS-232/422/485, 3 RS-232
	USB	2 USB 3.1 Gen1, 3 USB 2.0, 1 Vertical USB 2.0
	Display	1 LVDS, 1 eDP (opt.)
	Audio	Front Audio, S/PDIF
	SATA	2 SATA 3.0
	DIO	8-bit DIO
	LPC**	1
	SMBus	1
TPM / iAMT		TPM (opt.)
Power		12V/15~36V DC-in
Operating Temperature		0°C~60°C

Ryzen Embedded
V2000/V1000/
R1000

Coming Soon

AMD



AMD

Model Name		RNO171	GH171
Platform		Mobile	AMD R-Series
System	Processor	AMD® Ryzen™ Embedded V2000 Series	AMD® Ryzen™ Embedded V1000/R1000 Series
	Socket	FP6	-
	Max. Speed	1.7~4.15GHz	2.0~3.8GHz
	TDP	15W/45W	12W/25W/35W/54W
	Cache	3M~4M	1M/2M
	Chipset	-	-
Memory	BIOS	AMI SPI 256Mbit	AMI BIOS
	Technology	Dual Channel DDR4 3200MHz	Dual Channel DDR4 up to 3200MHz
	Max. Capacity	64GB	32GB
Graphics	Socket	2 SODIMM	2 SODIMM
	Connector	4 DP++	4 DP++
Expansion	PCIe, PCI	1 PCIe x16 (PCIe x8 lanes)	1 PCIe x16 (x8 signal), (x4 signal with R1000)
	Mini PCIe/M.2	1 M.2 M key 2280	1 M.2 M Key (x2 signal with R1000)
Audio	SIM	-	-
	Audio Codec	Realtek ALC888	Realtek Audio Codec with 5.1 Channel Support
Ethernet	Controller	2 Realtek® RTL8111HN/RTL8119	2 Realtek Ethernet LAN Controller
	Ethernet (GbE)	2	2
Rear I/O	Serial	1 RS-232/422/485, 1 RS232	1 RS-232/422/485, 1 RS-232
	USB	2 USB3.1 Gen1, 2 USB2"	2 USB 3.1 Gen1, 2 USB 2.0
	Display	4 DP++	4 DP++ (V1000), 3 DP++ (R1000)
	Audio	1 Audio (Line-out/Mic-in, Speaker-out)	Mic-in, Line-in, Line-out
Internal I/O	Serial	4 RS232	4 RS-232
	USB	4 USB2, 1 USB2 vertical type A	4 USB 2.0, 1 Vertical Type A USB 3.1 Gen1 (V1000), 1 Vertical Type A USB 2.0 (R1000)
	Display	-	-
	Audio	1 Audio (Line-out/Mic-in), 1 S/PDIF	1 S/PDIF, 1 Audio (Mic-in/Line-out)
	SATA	2 SATA 3.0	2 SATA 3.0, 2 SATA Power
	DIO	-	-
	LPC	1	-
SMBus		-	-
TPM / iAMT		dTPM 2.0	TPM1.2/2.0
Power		12V DC-in	12V DC
Operating Temperature		-5 ~ 65°C	0°C~60°C

*Populated by default

**Supports LPC EXT-RS232/RS485 module

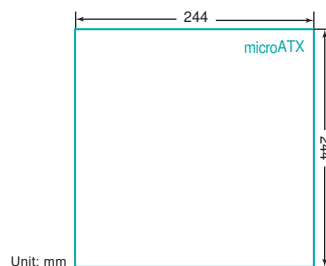
microATX

Cost-Effective & Scalable Solutions



Features

microATX (μATX) 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.



10th Gen Intel Core

Coming Soon

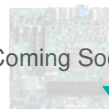


W480E



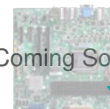
W480E

Coming Soon



Q470E

Coming Soon



Q470E

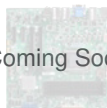
Model Name		CMS311-W480E	CMS310-W480E	CMS330-Q470E	CMS311-Q470E
System	Platform	Workstation	Workstation	Desktop	Desktop
	Processor	10th Gen Intel® Core	10th Gen Intel® Core	10th Gen Intel® Core	10th Gen Intel® Core
	Socket	LGA 1200	LGA 1200	LGA 1200	LGA 1200
	Max. Speed	3.0~5.3GHz	3.0~4.8GHz	3.0~5.3GHz	3.0~5.3GHz
	TDP	125W	125W	125W	125W
	Cache	2M~20M	2M~20M	2M~20M	2M~20M
	Chipset	W480E	W480E	Q470E	Q470E
Memory	BIOS	Insyde SPI 256Mbit	Insyde SPI 256Mbit	Insyde SPI 256Mbit	Insyde SPI 256Mbit
	Technology	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz
	Max. Capacity	128GB	128GB	128GB	128GB
Graphics	Socket	4 UDIMM (ECC/Non-ECC)	4 UDIMM (ECC/Non-ECC)	4 UDIMM	4 UDIMM (ECC/Non-ECC)
	Connector	1 DP++, 1 VGA, 1 HDMI	1 DP++, 1 VGA, 1 HDMI	1 VGA, 1 DP++, 1 HDMI	1 DP++, 1 VGA, 1 HDMI
Expansion	PCIe, PCI	2 PCIe x16 (1x16 or 2x8), 2 PCIe x4	2 PCIe x16 (1x16 or 2x8), 2 PCIe x4	1 PCIe x16, 1 PCIe x4, 2 PCI	2 PCIe x16 (1x16 or 2x8), 2 PCIe x4
	Mini PCIe / M.2	1 M.2 M key	1 M.2 M key, 1 M.2 E key	1 M.2 M key, 1 M.2 E key	1 M.2 M key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219LM, 1 Intel® I211AT, 1 Intel® x550-AT2	1 Intel® I219LM, 1 Intel® I211AT, 2 Intel® I211AT (opt.)	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I219LM, 1 Intel® I211AT, 1 Intel® x550-AT2
Rear I/O	Ethernet (GbE)	2 x 1GbE, 2 x 10GbE	2 (default)/4 (opt.)	2	2 x 1GbE, 2 x 10GbE
	Serial	-	-	1 RS-232/422/485	-
	USB	2 USB 3.2 Gen2, 4 USB 3.2 Gen1	2 USB 3.2 Gen 2, 4 USB 3.2 Gen 1	2 USB 3.2 Gen2, up to 6 USB 3.2 Gen1, 2 USB 2.0	2 USB 3.2 Gen2, 4 USB 3.2 Gen1
	Display	1 DP++, 1 VGA, 1 HDMI	1 DP++, 1 VGA, 1 HDMI	1 VGA, 1 DP++, 1 HDMI	1 DP++, 1 VGA, 1 HDMI
	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.)
Internal I/O	PS/2	-	-	1	-
	Serial	2 RS-232/422/485	2 RS-232, 2 RS-232	5 RS-232 (default)/Up to 9 RS-232 (opt.)	2 RS-232/422/485
	USB	2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 4 USB 2.0	2 USB 3.2 Gen 2, 4 USB 2.0	2 USB 3.2 Gen 1, 4 USB 2.0, USB 2.0 Vertical Type A	2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1, 4 USB 2.0
	Audio	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF
	SATA	5 SATA 3.0 (RAID 0/1/5/10)	4 SATA 3.0 (RAID 0/1/5/10)	4 SATA 3.0	5 SATA 3.0 (RAID 0/1/5/10)
	DIO	16-bit DIO	16-bit DIO	16-bit DIO	16-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT		Infinion TPM2.0 (opt.) / iAMT12.0 (Xeon/Core i5/i7/i9)	Infinion TPM2.0 (opt.) / iAMT12.0 (Xeon/Core i5/i7/i9)	Infinion TPM2.0 (opt.) / iAMT12.0 (Core i5/i7/i9)	Infinion TPM2.0 (opt.) / iAMT12.0 (Core i5/i7/i9)
Power		ATX	ATX	ATX	ATX
Operating Temperature		-5 ~ 65°C	-5 ~ 65°C	-5 ~ 65°C	-5 ~ 65°C

10th/8th/9th Gen Intel Core



Q470E

Coming Soon



H420E



C246



C246

Model Name		CMS310-Q470E	CMS330-H420E	CS350-C246	CS332-C246
Platform		Desktop	Desktop	Workstation	Workstation
System	Processor	10th Gen Intel® Core	10th Gen Intel® Core	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1200	LGA 1200	LGA 1151	LGA 1151
	Max. Speed	3.0~4.8GHz	3.0~5.3GHz	2.9~5.0 GHz	2.9~4.7 GHz
	TDP	125W	125W	Max. 95W	Max. 95W
	Cache	2M~20M	2M~20M	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M
	Chipset	Q470E	H420E	Intel® C246	Intel® C246
Memory	BIOS	Insyde SPI 256Mbit	Insyde SPI 256Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	Technology	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	128GB	128GB	128GB	128GB
Graphics	Socket	4 UDIMM (ECC/Non-ECC)	2 UDIMM	4 DIMM (ECC/non-ECC)	4 DIMM (ECC/non-ECC)
	Connector	1 DP++, 1 VGA, 1 HDMI	1 VGA, 1 DP++ / 1 VGA, 1 HDMI / 1 DP++, 1 HDMI	1 DVI-D, 2 DP++	1 VGA, 2 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1x16 or 2x8), 2 PCIe x4	1 PCIe x16, 1 PCIe x4, 2PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	1 PCIe x16, 2 PCIe x4, 1 PCI,
	Mini PCIe / M.2	1 M.2 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
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek AL262
Ethernet	Controller	1 Intel® I219LM, 1 Intel® I211AT, 2 Intel® I211AT (opt.)	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	2 (default)/4 (opt.)	2	2	up to 4
Rear I/O	Serial	-	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 3.2 Gen 2, 4 USB 3.2 Gen 1	4 USB 3.2 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
	Display	1 DP++, 1 VGA, 1 HDMI	1 VGA, 1 DP++, 1 HDMI	1 DVI-D, 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
	Internal I/O	2 RS-232, 2 RS-232	5 RS-232 (default)/Up to 9 RS-232 (opt.)	1 RS-232/422/485, 2 RS-232	3 RS-232
Internal I/O	USB	2 USB 3.2 Gen 2, 4 USB 2.0	2 USB 3.2 Gen 1, 2 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
	Audio	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID 0/1/5/10)	4 SATA 3.0	6 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)
	DIO	16-bit DIO	16-bit DIO	8-bit DIO	8-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT	PS/2	1	-	1	1
	TPM / iAMT	Infineon TPM2.0 (opt.) / iAMT12.0 (Core i5/i7/i9)	Infineon TPM2.0 (opt.)	TPM (Opt.), iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)
Power		ATX	ATX	ATX	ATX
Operating Temperature		-5 ~ 65°C	-5 ~ 65°C	-5°C ~ 65°C	-5°C ~ 65°C



C246



Q370



Q370



Q370

8th/9th Gen Intel Core

Model Name		CS331-C246	CS350-Q370	CS332-Q370	CS331-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	LGA 1151	LGA 1151
	Max. Speed	2.9~4.7 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	2M/4M/6M/9M/12M/16M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® C246	Intel® Q370	Intel® Q370	Intel® Q370
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit	AMI SPI 128Mbit
	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	128GB	128GB
Graphics	Socket	4 DIMM (ECC/Non ECC)	4 DIMM	4 DIMM	4 DIMM
	Connector	1 HDMI, 1 DVI-D, 1 DP++	1 DVI-D, 2 DP++	1 VGA, 2 DP++	1 HDMI, 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, 2 PCIe x4, 1 PCI,	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4
	Mini PCIe / M.2	1 mini PCIe, 1 M.2 M key	1 M key, 1 M.2 E key	1 M.2 M key, 1 M.2 E key	1 mini PCIe, 1 M.2 M key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC262	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	4	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	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 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	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 2 USB 2.0
	Display	1 HDMI, 1 DVI-D, 1 DP++	1 DVI-D, 2 DP++	1 VGA, 2 DP++	1 HDMI, 1 DVI-D, 1 DP++
	Audio	Mic-in, Line-in (opt.), Line-out	Line-out, Mic-in, Line-in (Opt.)	Line-out, Mic-in, Line-in (Opt.)	Mic-in, Line-in (opt.), Line-out
	PS/2	1	1	1	1
	Internal I/O	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232	3 RS-232	1 RS-232/422/485, 2 RS-232
Internal I/O	USB	2 USB 3.1 Gen 2, 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 2, 4 USB 2.0
	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
TPM / iAMT	PS/2	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (Opt.), iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
Power		ATX	ATX	ATX	ATX
Operating Temperature		0°C ~ 60°C	-5°C ~ 65°C	-5°C ~ 65°C	0°C ~ 60°C

9th/8th/6th/7th Gen Intel Core



Q370



H310



C236



C236

Model Name		CS330-Q370	CS330-H310	KD331-C236	SD331-C236
Platform		Desktop	Desktop	Workstation	Workstation
System	Processor	8th/9th Gen Intel® Core™	8th/9th 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	2.9~4.7 GHz	2.9~4.7 GHz	2.6~4.2GHz	2.6~4.2GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/3M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® Q370	Intel® H310	Intel® C236	Intel® C236
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	128 GB	64 GB	64GB	64GB
	Socket	4 DIMM	2 DIMM	2 DIMM (ECC/Non-ECC)	4 DIMM (ECC/Non-ECC)
Graphics	Connector	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 2 PCI	1 PCIe x16, 1 PCIe x4, 2 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 Full-sized Mini PCIe	-	1 M.2 M key	-
	SIM	-	-	-	-
Audio	Audio Codec	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	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	4	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	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	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 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
	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 Gen 1, 4 USB 2.0	4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0	4 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 (opt.), S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0	5 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)	TPM 1.2/2.0 (opt.)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/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

6th/7th Gen Intel Core



Q170



Q170



Q170



Q170

Model Name		KD300-Q170	KD331-Q170	KD330-Q170	SD330-Q170
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	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	2.6~4.2GHz	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/4M/6M/8M
	Chipset	Intel® Q170	Intel® Q170	Intel® Q170	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 1866/2133MHz
	Max. Capacity	64GB	64GB	64GB	64GB
	Socket	4 DIMM	4 DIMM	4 DIMM	4 DIMM
Graphics	Connector	1 VGA, 1 DVI-D, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 VGA, 1 LVDS, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	4 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	1 PCIe x16, 1 PCIe x4, 1 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe / M.2	1 M.2 M key	1 M.2 M key	1 Full-size Mini PCIe	1 Full-sized Mini PCIe
	Sim	-	-	-	1
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	3 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	4	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 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 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
	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, up to 8 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.)	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 4 USB 2.0
Internal I/O	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	S/PDIF	Front Audio (opt.), S/PDIF
	SATA	4 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	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 (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (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

6th/7th Gen Intel Core



Q170



H110

Model Name		SD331-Q170	KD300-H110
Platform		Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2GHz	2.6~4.2GHz
	TDP	Max. 95W	Max. 95W
	Cache	2M/3M/4M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® Q170	Intel® H110
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 2133/2400MHz
	Max. Capacity	64GB	32GB
Graphics	Socket	4 DIMM	2 DIMM
	Connector	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	4 PCI
	Mini PCIe / M.2	-	-
Audio	SIM	-	-
	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	2	2
Rear I/O	Serial	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
	Display	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	Audio	Mic-in, Line-in (opt.), Line-out	Line-out, Mic-in, Line-in (opt.)
	PS/2	1	1
Internal I/O	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	4 USB 3.1 Gen1, 2 USB 2.0+ 1 Vertical USB 2.0 (type A)	4 USB 2.0, 1 vertical USB 2.0(opt.)
	Display	-	-
	Audio	Front Audio (opt.), S/PDIF	Front Audio, S/PDIF
	SATA	6 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)
	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.)
Power		ATX	ATX
Operating Temperature		0°C~60°C	0°C~60°C

6th/7th Gen Intel Core



H110



H110

Model Name		KD330-H110	SD330-H110
Platform		Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151
	Max. Speed	3.4~4.2GHz	2.6~4.2GHz
	TDP	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® H110	Intel® H110
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	32GB	32GB
Graphics	Socket	2 DIMM	2 DIMM
	Connector	1 DVI-D, 1 VGA, 1 DP++	1 VGA, 1 LVDS, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 1 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe / M.2	-	-
Audio	SIM	-	-
	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	2	2
Rear I/O	Serial	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
	Display	1 DVI-D, 1 VGA, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	Audio	Line-out, Mic-in, Line-in (opt.)	Mic-in, Line-in (opt.), Line-out
	PS/2	1	1
Internal I/O	Serial	1 RS-232/422/485, up to 8 RS-232	1 RS-232/422/485, 4 RS-232
	USB	4 USB 2.0	2 USB 2.0, 1 Vertical USB 2.0 (type A)
	Display	-	-
	Audio	S/PDIF	Front Audio (opt.), S/PDIF
	SATA	4 SATA 3.0	4 SATA 3.0
	DIO	8-bit DIO	8-bit DIO
	LPC**	1	1
	SMBus	1	1
TPM / iAMT		TPM2.0/1.2 (opt.)	TPM 1.2/2.0 (opt.)
Power		ATX	ATX
Operating Temperature		0°C~60°C	0°C~60°C

*Populated by default

**Supports LPC EXT-RS232/RS485 module

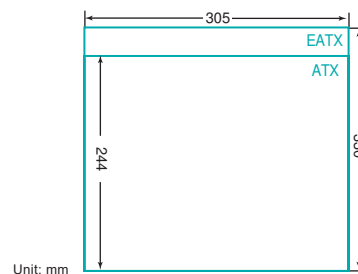
EATX/ ATX

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Intel Xeon
EATX

Coming Soon

C622



C622

Coming Soon

C621A

Model Name		PR811-C622	PR810-C622	ICX810
Platform		Server-Grade	Server-Grade	Server-Grade
System	Processor	Intel Xeon Scalable Dual Processor	Intel Xeon Scalable Dual Processor	3rd Gen Intel® Xeon® Scalable Family
	Socket	Dual LGA3467	Dual LGA3467	Dual LGA4189
	Max. Speed	up to 3.9GHz(Turbo)	up to 3.9GHz(Turbo)	-
	TDP	up to 150W	up to 150W	205W
	Cache	up to 35.75MB	up to 35.75MB	-
	Chipset	Intel C622	Intel C622	Intel® C621A
Memory	BIOS	Insyde SPI	Insyde SPI	Insyde SPI
	Technology	Single Channel DDR4 Max. 2933MHz	Single Channel DDR4 Max. 2933MHz	Single Channel DDR4 Max. 3200MHz
	Max. Capacity	384GB	384GB	1024GB
Graphics	Socket	12 ECC RDIMM	12 ECC RDIMM	16 ECC RDIMM
	Connector	1 VGA (with SEM2510/2500*)	1 VGA (with SEM2510/2500*)	1 VGA
Expansion	PCIe, PCI	5 PCIe x16, 1 PCIe x8, 1 PCI	4 PCIe x16, 1 PCIe x8, 1 PCI	6 PCIe x16 (Gen4)
	Mini PCIe / M.2	1 M.2 M key	1 M.2 M key	2 M.2 M key 2280,
Audio	SIM	-	-	-
	Audio Codec	ALC888S	ALC888S	Realtek ALC888S
Ethernet	Controller	Intel® x557, 2 Intel® I210AT	Intel® x557, 2, Intel® I210AT	2 Intel® I210AT, 2 Intel® X550-AT2, IPMI: RTL8211F
	Ethernet (GbE)	2 GbE, 2 10GbE	2 GbE, 2 10GbE, 1 100GbE Module*(opt.)	2 10GbE, 2 GbE, 1Dedicated IPMI LAN
Rear I/O	Serial	1 RS-232	1 RS-232	1 RS-232
	USB	4 USB3.1 Gen1	4 USB3.1 Gen1	4 USB3.1 Gen1, 2 USB 2.0
	Display	VGA(opt.)	VGA(opt.)	1 VGA
	Audio	-	-	-
	PS/2	-	-	-
Internal I/O	Serial	1 RS-232	1 RS-232	-
	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	2 USB3.1 Gen1, 2 USB2.0, 1 Vertical USB 2.0
	Display	-	-	-
	Audio	1	1	1
	SATA	8 SATA3	8 SATA3	8 SATA 3.0
	DIO	-	-	16-bit DIO
	LPC	1	1	1
	SMBus	1	1	1
TPM / iAMT		TPM2.0(opt.)	TPM2.0(opt.)	TPM2.0 (opt.)
Power		ATX	ATX	ATX
Operating Temperature		0°C~40°C	0°C~40°C	0~40°C

* SEM2510/2500: DFI proprietary peripheral for IPMI/VGA card.

* 100GbE Module: DFI proprietary peripheral for LAN Extension Module Card (EXT-100GbE)

Intel Xeon ATX

Coming Soon

C621A



C622



C621



C621

Model Name		ICX610-C621A	PL610-C622	PR611-C621	PR610-C621
Platform		Server-Grade	Server-Grade	Server-Grade	Server-Grade
System	Processor	3rd Gen Intel® Xeon® Scalable Family	Intel® Xeon® Scalable Processor	Intel® Xeon® Scalable Processor	Intel® Xeon® Scalable Processor
	Socket	LGA 4189	LGA 3647	LGA 3467	LGA 3647
	Max. Speed	--	up to 3.7GHz(Turbo)	up to 3.9GHz(Turbo)	TBD
	TDP	205W	Max. 145W	Max. 150W	Max. 165W
	Cache	-	Max 27.5M	Max. 35.75MB	TBD
	Chipset	Intel® C621A	Intel® C622	Intel® C621	Intel® C621
Memory	BIOS	Insyde SPI	Insyde SPI	Insyde SPI	Insyde SPI
	Technology	Single Channel DDR4 Max. 3200MHz	Single Channel DDR4 Max. 2666MHz	Single Channel DDR4 Max. 2933 MHz	Single Channel DDR4 Max. 2933 MHz
	Max. Capacity	512GB	192GB	192GB	192GB
Graphics	Socket	8 ECC RDIMM	6 ECC RDIMM	6 ECC RDIMM	6 ECC RDIMM
	Connector	1 VGA	1 VGA	1 VGA	VGA (with SEM2510/2500)
Expansion	PCIe, PCI	3 PCIe x16 (Gen4), 2 PCIe x8 (Gen4)	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	1 M.2 M key 2280	1 M.2 M key	1 M.2 M key, 1 M.2 E key	1 M.2 M key
Audio	Audio Codec	Realtek ALC888S	-	ALC888S	ALC888S
Ethernet	Controller	2 Intel® I210AT, 2 Intel® X550-AT2, IPMI: RTL8211F	GbE: i350-AM2, 10GbE: CS4227, IPMI: RTL8211F	2 Intel® I210AT	2 Intel® I210AT
Rear I/O	Ethernet (GbE)	2 10GbE, 2 GbE, 1Dedicated IPMI LAN	2 GbE, 1 IPMI LAN, 1 Fiber 10G	2 GbE	2 GbE
	Serial	1 RS-232	-	1 RS-232	-
	USB	4 USB3.1 Gen1, 2 USB 2.0	2 USB 2.0	4 USB3.1 Gen1, 2 USB2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA	1 VGA	1 VGA	1 VGA (opt.)
	Audio	-	-	-	-
	PS/2	-	1	-	-
Internal I/O	Serial	-	1 RS-232	-	2 RS-232
	USB	2 USB3.1 Gen1, 2 USB2.0, 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	1 USB 3.1 Gen1, 2 USB 2.0, 1 Vertical USB 2.0
	Display	-	-	-	-
	Audio	1	-	1	-
	SATA	6 SATA 3.0	6 SATA 3.0	6 SATA 3.0	6 SATA 3.0
	LPC	1	-	-	-
SMBus		1	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 to 65°C	0°C~60°C	-5°C~65°C	0°C~60°C



AMD EPYC3000

AMD

Model Name		SO630
Platform		Server-Grade
System	Processor	AMD® EPYC 3000 series
	Socket	BGA
	Max. Speed	up to 3.0GHz
	TDP	Max. 100W
	Cache	Max. 32MB
	Chipset	-
Memory	BIOS	Insyde SPI
	Technology	DDR4 2666 MHz
	Max. Capacity	256GB
Graphics	Socket	8 ECC RDIMM/UDIMM
	Connector	-
Expansion	PCIe, PCI	3 PCIe x16, 3 PCIe x8, 1 PCI
	Mini PCIe / M.2	2 M.2 M key
Audio	Audio Codec	-
Ethernet	Controller	2 Intel® I210AT
Rear I/O	Ethernet (GbE)	2
	Serial	1 RS-232/422/485, 1 RS-232
	USB	6 USB3.1 Gen1
	Display	-
	Audio	-
	PS/2	-
Internal I/O	Serial	-
	USB	2 USB3.1 Gen1
	Display	-
	Audio	-
	SATA	5 SATA 3.0
	LPC	-
SMBus		-
TPM / iAMT		TPM2.0(opt.)
Power		ATX
Operating Temperature		-5°C~65°C

Xeon / 10th Gen Intel Core



W480E



Q470E



Q470E



H420E

Model Name		CMS630-W480E	CMS630-Q470E	CMS631-Q470E	CMS631-H420E
Platform		Workstation	Desktop	Desktop	Desktop
System	Processor	Xeon / 10th Gen Intel® Core	10th Gen Intel® Core	10th Gen Intel® Core	10th Gen Intel® Core
	Socket	LGA 1200	LGA 1200	LGA 1200	LGA 1200
	Max. Speed	3.0~5.3GHz	3.0~5.3GHz	3.0~5.3GHz	3.0~5.3GHz
	TDP	125W	125W	125W	125W
	Cache	2M~20M	2M~20M	2M~20M	2M~20M
	Chipset	Intel® W480E	Intel® Q470E	Intel® Q470E	Intel® H420E
Memory	BIOS	Insyde SPI 256Mbi	Insyde SPI 256Mbi	Insyde SPI 256Mbi	Insyde SPI 256Mbi
	Technology	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz	Dual Channel DDR4 2400/2666/2933MHz
	Max. Capacity	128GB	128GB	128GB	64GB
Graphics	Socket	4 UDIMM (ECC/Non-ECC)	4 UDIMM (Non-ECC)	4 UDIMM	2 UDIMM
	Connector	1 VGA, DP++, 1 HDMI	1 VGA, DP++, 1 HDMI	1 VGA, 1 DP++, 1 HDMI	1 VGA, 1 DP++, 1 HDMI
	PCIe, PCI	2 PCIe x16 (1x16 or 2x8), 3 PCIe x4, 2 PCI	2 PCIe x16 (1x16 or 2x8), 3 PCIe x4, 2 PCI	1 PCIe x16, 1 PCIe x4, 5 PCI	1 PCIe x16, 1 PCIe x4, 5 PCI
Expansion	Mini PCIe / M.2	2 M.2 M key, 1 M.2 E key	2 M.2 M key, 1 M.2 E key	Up to 2 M.2 M key, 1 M.2 E Key	1 M.2 M key
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM/I219V	1 Intel® I211AT, 1 Intel® I219LM/I219V
	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	2 USB3.2 Gen2, 2 USB3.2 Gen1, 4 USB 2.0	2 USB3.2 Gen2, 2 USB3.2 Gen1, 4 USB 2.0	2 USB3.2 Gen2, 2 USB3.2 Gen1, 2 USB 2.0	4 USB3.2 Gen1, 2 USB 2.0
	Display	1 VGA, DP++, 1 HDMI	1 VGA, DP++, 1 HDMI	1 VGA, DP++, 1 HDMI	1 VGA, DP++, 1 HDMI
	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.)
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	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.2 Gen 2, 2 USB 2.0, 1 USB 2.0 Type A	2 USB 3.2 Gen 2, 2 USB 2.0, 1 USB 2.0 Type A	2 USB 3.2 Gen 1, 4 USB 2.0, 1 USB 2.0 Type A	2 USB 3.2 Gen 1, 2 USB 2.0
	Audio	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF	1 Front Audio, 1 S/PDIF
	SATA	4 SATA 3.0 (RAID 0/1/5/10)	4 SATA 3.0 (RAID 0/1/5/10)	6 SATA 3.0 (RAID 0/1/5/10)	4 SATA 3.0
	DIO	16-bit DIO	16-bit DIO	16-bit DIO	16-bit DIO
	LPC	1	1	1	1
	SMBus	1	1	1	1
	PS/2	1	1	-	-
	TPM / iAMT	Infineon TPM2.0 (opt.) / iAMT 12.0 (Xeon/Core i5/i7/i9)	Infineon TPM2.0 (opt.) / iAMT 12.0 (Core i5/i7/i9)	Infineon TPM2.0 (opt.) / iAMT 12.0 (Core i5/i7/i9)	Infineon TPM2.0 (opt.)
	Power	ATX	ATX	ATX	ATX
Operating Temperature		-5 to 65°C	-5 to 65°C	-5 to 65°C	-5 to 65°C



C246



C246



C246

Xeon/8th/9th Gen Intel Core

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

8th/9th Gen
Intel Core



Q370



Q370

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

8th/9th Gen
Intel Core



Q370



Q370

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

*Populated by default

**Supports LPC EXT-RS232/RS485 module

8th/9th Gen Intel Core



H310



H310

Model Name		CS630-H310	CS620-H310
Platform		Desktop	Desktop
System	Processor	8th/9th Gen Intel® Core™	8th/9th Gen Intel® Core™
	Socket	LGA 1151	LGA1151
	Max. Speed	2.9~4.7 GHz	2.9~5.0 GHz
	TDP	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M/16M
	Chipset	Intel® H310	Intel® H310
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz
	Max. Capacity	64 GB	64GB
	Socket	2 DIMM	2 DIMM
Graphics	Connector	1 VGA, DVI, 1 DP++	1 VGA, 1 DVI-I, 1 DP++
Expansion	PCIe, PCI	5 PCI, 1 PCIe x16, 1 PCIe x4	1 PCIe x 16, 1 PCIe x 4, 4 PCI, 2 ISA
	Mini PCIe / M.2	-	1 mSATA
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219V, 1 Intel® I211AT	1 Intel® I211AT, 1 Intel® I219V
Rear I/O	Ethernet (GbE)	2	2
	Serial	1 RS-232/422/485	1 RS232/422/485
	USB	4 USB3.1 Gen 1, 2 USB2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, DVI, 1 DP++	1 VGA, 1 DVI-I, 1 DP++
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
Internal I/O	USB	4 USB 2.0	4 USB2.0
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA3.0	4 SATA3.0 (1 share with mSATA)
	DIO	8-bit DIO	8-bit DIO
	LPC	1	1
	SMBus	1	1
TPM / iAMT		TPM 1.2/2.0 (opt.)	TPM (Opt.),
Power		ATX	ATX
Operating Temperature		0°C~60°C	-5°C ~ 65°C



C236



C236



C236

Xeon/6th/7th Gen Intel Core

Model Name		KD632-C236	KD631-C236	SD631-C236
Platform		Workstation	Workstation	Workstation
System	Processor	Intel® Xeon®/6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	Intel® Xeon™/6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® C236	Intel® C236	Intel® C236
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	64GB	64GB	64GB
	Socket	4 DIMM (ECC/Non ECC)	4 DIMM (ECC/Non-ECC)	4 DIMM (ECC/Non ECC)
Graphics	Connector	1 VGA, 1 DVI, 1 DP++	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), 3 PCIe x4, 2 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 / M.2	1 M.2 M key, 1 Mini PCIe	1 M.2 M key	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
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	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-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.)
	PS/2	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
Internal I/O	USB	2 USB 3.1 Gen1, 4 USB 2.0, 1 Vertical USB 2.0 (type A)	2 USB 3.1 Gen1, 6 USB 2.0	2 USB 3.1 Gen1, 6 USB 2.0
	Display	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio (opt.), S/PDIF
	SATA	5 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)	6 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 (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)
Power		ATX	ATX	ATX
Operating Temperature		0°C ~ 60°C	0°C~60°C	0°C~60°C

*Populated by default

**Supports LPC EXT-RS232/RS485 module

6th/7th Gen Intel Core



Q170



Q170

Model Name		KD632-Q170	KD631-Q170
Platform		Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® Q170	Intel® Q170
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400 MHz
	Max. Capacity	64GB	64GB
Graphics	Socket	4 DIMM	4 DIMM
	Connector	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI-D, 1 HDMI
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI
	Mini PCIe	1 M.2 M key, 1 Mini PCIe	1 M.2 M key
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2
	Serial	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
	Display	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI-D, 1 HDMI
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1
Internal I/O	Serial	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 (type A)	2 USB 3.1 Gen1, 6 USB 2.0
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	5 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO
	LPC**	1	1
TPM / iAMT		TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
Power		ATX	ATX
Operating Temperature		0°C ~ 60°C	0°C~60°C

Xeon/6th/7th Gen Intel Core



Q170



Q170

Model Name		KD600-Q170	SD631-Q170
Platform		Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	Intel® Xeon™/6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® Q170	Intel® Q170
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	64GB	64GB
Graphics	Socket	4 DIMM	4 DIMM
	Connector	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 HDMI
Expansion	PCIe, PCI	6 PCI, 1 PCIe x16	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI
	Mini PCIe / M.2	1 Mini PCIe	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I210AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2
	Serial	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
	Display	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 HDMI
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1
Internal I/O	Serial	1 RS-232/422/485, 8 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.1 Gen1, 6 USB 2.0
	Display	-	-
	Audio	Front Audio, S/PDIF	Front Audio (opt.), S/PDIF
	SATA	4 SATA 3.0 (RAID), 1 mSATA	6 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO
TPM / iAMT		TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)
Power		ATX	ATX
Operating Temperature		0°C~60°C	0°C~60°C

6th/7th Gen Intel Core

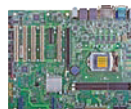


H110



H110

Model Name		KD630-H110	KD600-H110
Platform		Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151
	Max. Speed	2.6~4.5 GHz	2.6~4.2 GHz
	TDP	95W	Max. 95W
	Cache	2M~8M	2M/3M/6M/8M
	Chipset	Intel® H110	Intel® H110
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 up to 2666MHz	Dual Channel DDR4 2133/2400 MHz
	Max. Capacity	64GB	32GB
	Socket	2 UDIMM	2 DIMM
Graphics	Connector	Dual Display: 1 VGA, 1 DVI-I / 1 VGA, 1 HDMI / 1 DVI-I, 1 HDMI	1 VGA, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 5 PCI, 1 mSATA	6 PCI, 1 PCIe x16
	Mini PCIe	1 M.2 M key	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I219V, 1 Intel® I211AT
	Ethernet (GbE)	2	2
Rear I/O	Serial	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
	Display	1 VGA, 1 DVI, 1 HDMI	1 VGA, 1 DVI-D, 1 DP++
	Audio	Line-out/Mic-in/Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 8 RS-232
Internal I/O	USB	4 USB 2.0 / Up to 2 Vertical USB 2.0 Type A (opt.)	4 USB 2.0
	Display	-	-
	Audio	1 Audio, 1 S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0	4 SATA 3.0 (RAID), 1 mSATA
	DIO	8-bit DIO	8-bit DIO
	LPC**	1	1
	SMBus	1	1
TPM / iAMT		Infineon TPM 2.0/1.2 (opt.)	TPM 1.2/2.0 (opt.)
Power		ATX	ATX
Operating Temperature		-5 ~ 65°C	0°C~60°C

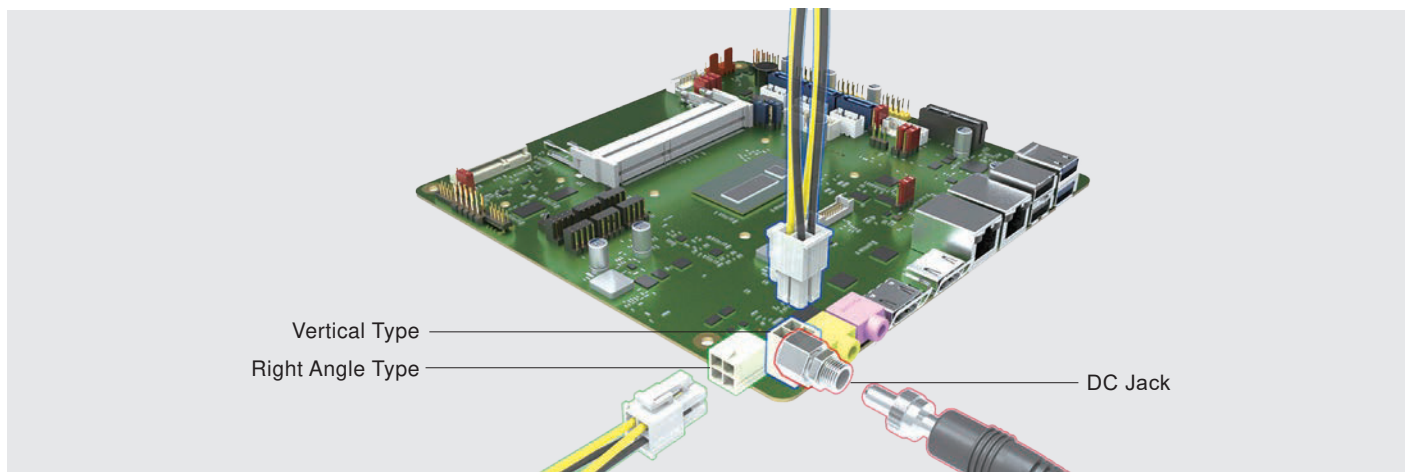


H110

6th/7th Gen Intel Core

Model Name		SD630-H110
Platform		Desktop
System	Processor	6th/7th Gen Intel® Core™
	Socket	LGA 1151
	Max. Speed	2.6~4.2 GHz
	TDP	Max. 95W
	Cache	2M/3M/4M/6M/8M
	Chipset	Intel® H110
	BIOS	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR3L 1600MHz
	Max. Capacity	16GB
	Socket	2 DIMM
Graphics	Connector	1 VGA, 1 DVI-D, 1 HDMI
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 5 PCI
Audio	Audio Codec	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	2
Rear I/O	Serial	1 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 HDMI
	Audio	Mic-in, Line-out, Line-in (opt.)
	PS/2	1
	Serial	1 RS-232/422/485, 4 RS-232
Internal I/O	USB	4 USB 2.0
	Audio	Front Audio (opt.), S/PDIF
	SATA	4 SATA 3.0
	DIO	8-bit DIO
	LPC**	1
	SMBus	1
TPM / iAMT		TPM 2.0/1.2 (opt.)
Power		ATX
Operating Temperature		0°C~60°C

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

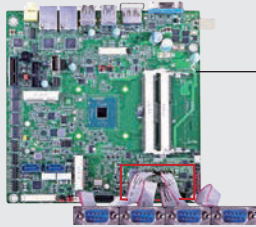
Our Proprietary LPC Modules



EXT-RS232



EXT-RS485



Proprietary Card

4 COM ports

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

Our Applicable Boards:

Processor	Form Factor	Model
3rd Intel Xeon Scalable	ATX	ICX610-C621A
10th Gen Intel® Core™	microATX	CMS310-W480E, CMS310-Q470E
9th/8th Gen Intel® Core™	ATX	CMS631-Q470E/H420E, CMS630-W480E/Q470E, 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, KD630-H110
	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, SD630-Q170
	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

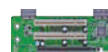


Proprietary I/O Cards



Model Name	EXT-100GbE	SEM-2500/2510
Chip	E810-CAM2	AST2500/2510
Mode	100GbE	SEM2500: IPMI & VGA SEM2510: VGA
Interface	DFI Proprietary	DFI Proprietary
Dimension	167.7mm x 68.9mm	69.6mm x 45mm
Applicable Models	PR810-C622	PR610-C621/ PR810-C622

Riser Cards



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		

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

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

Gaming I/O Board



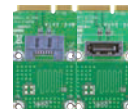
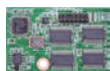
Proprietary Expansion Modules



Model Name	GM901
Expansion Slots/Ports	1 PCIe x1 Connector/ PCIe x1 36-pin connector (opt. ,PCIe x1 signal)
Digital I/O	32 ESD-protected Inputs/Output
Security	Intrusion detection x8
Dimension	170mm x 80mm
Features	5- year SRAM data retention 2-year Event log data retention
SW Support	Security API SDK, Logic processor SDK

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	-	-

Proprietary Expansion Modules



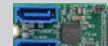
Model Name	EXT-RS232	EXT-RS485	MPE-EXTB	MPE-EXTF	MPE-SATA	MPE-SIM2
Chip	NCT5104	NCT5104	-	-	-	-
Expansion Slots/Ports	4 RS232 Serial Connector	4 RS485 Serial Connector	1 Full-size Mini PCIe	1 Full-size Mini PCIe	1 SATA Connector	2 SIM slots
Interface	1 LPC	1 LPC	1 Half-size Mini PCIe	1 Half-size Mini 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

M.2 Expansion Modules



Model Name	M.2-1LAN/2LAN	M.2-1PSE/2PSE	MPE-M2M/M2E	M.2-COM4	M.2-SATA2
Expansion Slots/Ports	1 RJ45 / 2 RJ45	1 RJ45 / 2 RJ45	1 M.2 M key/ 1 M.2 E key	RS232/RS422/RS485	2 x SATA 3.0
Interface	PCIe x1	PCIe x1	PCIe, SATA, USB (based on motherboard input)	PCIe x1	PCIe x1
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	M.2 B-M key (22 x 42 mm)	M.2 B-M key (22 x 42 mm)
Applicable Models	All our systems and boards with M.2 interface.				

High Speed Modules



EXT-100GbE

M.2-1LAN/2LAN

MPE-SIM2

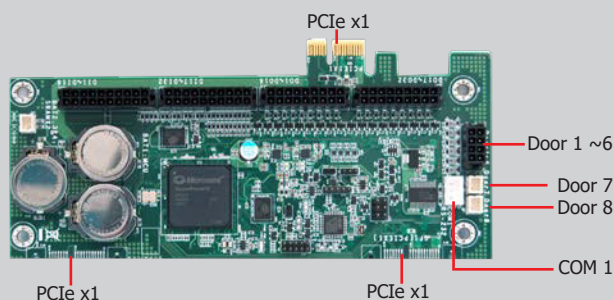
MPE-M2M/M2E

M.2-COM4

M.2-SATA2

Enjoy greater scalability in networking, storage, video or signal transmission with additional standard-compliant interfaces

Gaming I/O Board



GM901

Expand gaming ports and provide FPGA for API usage

Gaming IO

Intrusion switch inputs:
- 6 via 2x4 micro-fit connector
- 2 via 2-pin box headers

Digital IO

- 32 ESD-protected inputs
- 32 ESD-protected outputs

Security ROM

- 2 x SRAM (BGA type): 64K x16, 512K x16, 1M x16, 2M x16, 4M x16



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