



Design
For
Innovation

2019

Industrial Motherboards & Embedded SBCs

DFI's Innovative Embedded Boards
for Intelligent Applications



DFI's Innovative Embedded Boards for Intelligent Applications

DFI's 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



KU553

Form Factor	Processor	Platform	Model	Index
1.8"	Intel Atom® E3900	Atom	ALF51	P6-P7
2.5"	Intel Atom® E3900	Atom	AL051, AL053	
	Intel® Pentium®/Celeron® N3000	Atom	BW051	
3.5"	Freescall i.MX6 Series	ARM	FS051, FS053	P7-P8
	7th Gen Intel® Core™	ULT	KU551, KU553	
	6th Gen Intel® Core™	ULT	SU551	
	4th Gen Intel® Core™	ULT	HU551/HU553	
	Intel Atom® E3900	Atom	AL551, AL553	P8
	Intel® Pentium®/Celeron® N3000	Atom	BW551	
	Intel Atom® E3800	Atom	BT551/BT553	
4"	AMD® Embedded G-Series	AMD	OT951	P8
	6th Gen Intel® Core™	ULT	SU251/SU253	
	Intel Atom® E3800	Atom	BT253, BT259	

Mini-ITX



KU171/173

AL170

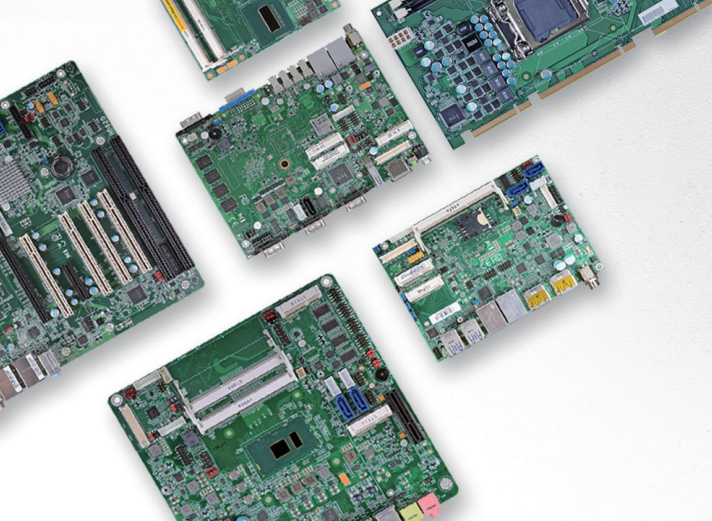
Processor	Platform	Chipset	Model	Index
8th Gen Intel® Core™	Desktop	Q370/C246/H310	CS101-Q370/C246/H310, CS100-Q370/C246/H310	P9
7th Gen Intel® Core™	Desktop	-	KD171, KD175	P10
	ULT	-	KU171/KU173	
6th Gen Intel® Core™	Desktop	Q170	SD100-Q170, SD101/SD103-Q170	
	ULT	H110	SD170, SD100-H110, SD101/SD103-H110	P11
4th Gen Intel® Core™	ULT	-	SU171/SU173	
	Desktop	H81	HD100-H81	
	Desktop	H81	HD101-H81, HD171/HD173-H81	
3rd Gen Intel® Core™	Mobile	QM87	HM100-QM87, HM101/HM103-QM87	P11
	Mobile	HM86	HM100-HM86, HM101/HM103-HM86	
	ULT	-	HU101/HU103, HU171/HU173	
2nd Gen Intel® Core™	Mobile	QM77	CR100-CRM	P12-P13
	Mobile	HM76	CR101-D	
	Desktop	Q67	SB100-NRM	
Intel Atom® E3900	Atom	-	AL102, AL170, AL171/AL173	P12-P13
Intel® Pentium®/Celeron® N3000	Atom	-	BW171/BW173	
Intel Atom® E3800	Atom	-	BT100, BT101/BT103, BT160/BT161	
2nd Gen AMD® Embedded R-Series	AMD	A77E	BE170, BE171/BE173	P13
AMD® Embedded G-Series SoC	AMD	-	KB160, KB161	
AMD® Embedded R-Series	AMD	A70M	CM100-C	
AMD® Ryzen Embedded V1000/ R1000 Series	AMD	-	GH171	

microATX



CS331-Q370

Processor	Platform	Chipset	Model	Index
8th Gen Intel® Core™	Desktop	Q370	CS332-Q370, CS331-Q370, CS330-Q370	P14-P15
		H310	CS332-H310, CS330-H310	
		C246	CS331-C246	
7th Gen Intel® Core™	Workstation	C236	KD331-C236	P16
	Desktop	Q170	KD331-Q170, KD330-Q170, KD300-Q170	
		H110	KD330-H110, KD300-H110	
6th Gen Intel® Core™	Workstation	C236	SD331-C236	P16
	Desktop	Q170	SD331-Q170, SD330-Q170	
		H110	SD330-H110	
4th Gen Intel® Core™	Workstation	C226	DL310-C226	P17
	Desktop	Q87	HD310-Q87, HD330-Q87	
		H81	HD330-H81, HD332-H81	



ATX



CS630-Q370

Processor	Platform	Chipset	Model	Index
Intel Xeon	Server-Grade	C622	PL610-C622	P18
		C602J/C604	RL830-C604/C602	
		C621	PR610-C621	
AMD EPYC3000	AMD	-	EP600	P19
8th Gen Intel® Core™	Desktop	Q370	CS632-Q370, CS631-Q370, CS630-Q370	
		H310	CS630-H310	
7th Gen Intel® Core™	Workstation	C246	CS631-C246, CS632-C246	P19-20
	Workstation	C236	KD632-C236, KD631-C236	
	Desktop	Q170	KD632-Q170, KD631-Q170, KD600-Q170	
6th Gen Intel® Core™	Workstation	H110	KD600-H110	P19-20
		C236	SD631-C236	
	Desktop	Q170	SD631-Q170	
4th Gen Intel® Core™	Workstation	H110	SD630-H110	P21
		C226	DL631-C226	
	Desktop	Q87	HD631-Q87	
		H81	HD620/HD630-H81, HD632-H81, HD636-H81CS	

Peripherals



EXT-RS232

Type	Model	Index
Proprietary Expansion Modules	EXT-DP, SDVO-LVDS	P22
	EXT-RS232, EXT-RS485, MPE-CAN2, MPE-EXTB, MPE-EXTF, MPE-SATA	
DC to DC Converters	X102-DC12, X102-DC24, X102-DC30, X103-DC36	
Riser Cards	RISER-2PE4, RISER-PE16, X100-2P1M, X100-3PE2	
	H300-2E, H300-2P1E, H300-3P1M	

DFI Industrial Chassis



ES520 For 3.5" SBC



DT122 For Mini-ITX



WM343 For microATX



RM641 For microATX/ATX

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

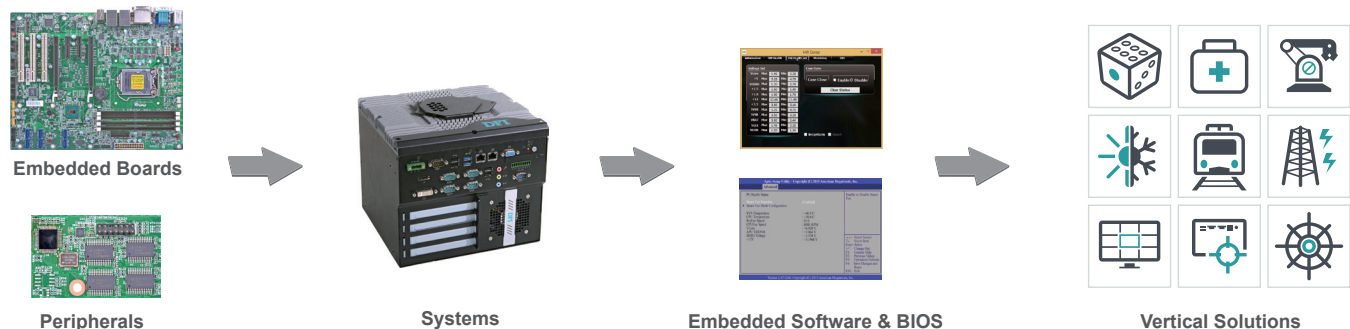


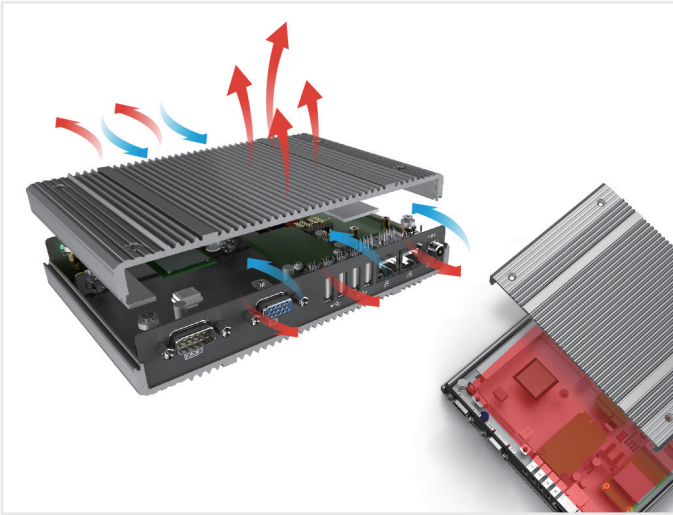
Embedded Total Solution

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



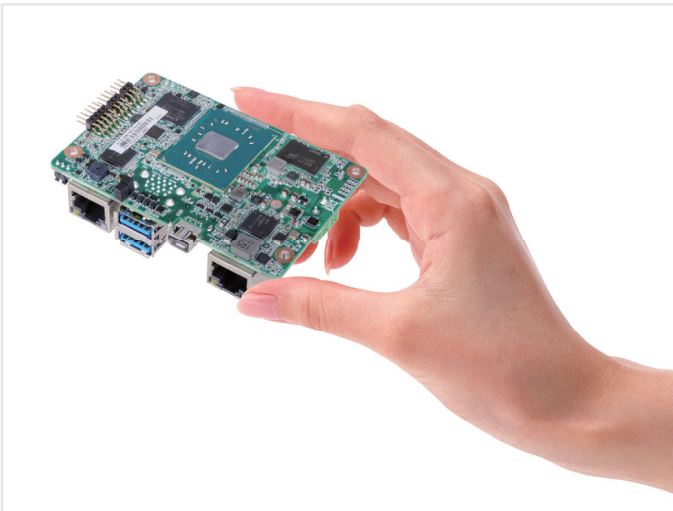
DFI Provides a Total Solution Designed for Your Embedded Applications





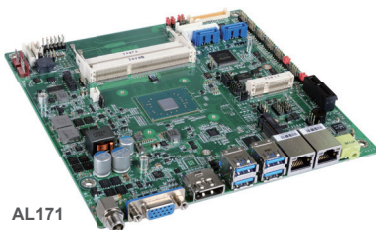
Easy System Integration

- 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 DFI 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



AL171

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

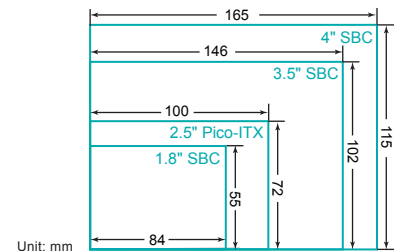
Embedded SBCs

Ultra-Small & Low-Power Solutions



Features

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



Model Name		ALF51	AL053	AL051	BW051
Platform		Atom	Atom	Atom	Atom
System	Processor	Intel Atom® E3900	Intel Atom® E3900	Intel Atom® E3900	Intel® Pentium®/Celeron® N3000
	Socket	BGA 1296	BGA 1296	BGA 1296	BGA 1170
	Max. Speed	1.3~1.8GHz	1.1~2.4GHz	1.1~2.4GHz	2.24~2.56GHz
	TDP	6.5W/9.5W	6.5W/9.5W/12W	6W/9.5W/12W	4W/5W/6W
	Cache	2M	2M	2M	2M
	Chipset	-	-	-	-
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 64Mbit	Insyde SPI 64Mbit	Insyde SPI 64Mbit
	Technology	Single Channel LPDDR4 2400MHz	Single Channel DDR3L 1867MHz	Single Channel DDR3L 1867MHz	Single Channel DDR3L 1600MHz
	Max. Capacity	4GB	8GB	8GB	8GB
Graphics	Connector	1 Mini DP++	1 Mini DP++, 1 LVDS	1 Mini DP++, 1 VGA, 1 LVDS	1 VGA*/HDMI, 1 LVDS
	PCIe, PCI	-	-	-	-
Expansion	Mini PCIe	1 Mini PCIe	1 Mini PCIe, 1 M.2 B key	1 Mini PCIe, 1 M.2 B key	1 Mini PCIe, 1 mSATA, 1 E I/O(opt.)
	SIM	-	-	-	-
Audio	Audio Codec	-	Realtek ALC262	Realtek ALC262	Realtek ALC888
Ethernet	Controller	2 Intel® I211AT, 2 Intel® I210IT	1 Intel® I211AT, 1 Intel® I210IT	2 Intel® I211AT, 2 Intel® I210IT	1 Intel® I211
	Ethernet (GbE)	2	1	2	1
Rear I/O	Serial	-	-	-	-
	USB	2 USB 3.0	2 USB 3.0	2 USB 3.0	2 USB 3.0
	Display	1 Mini DP++	1 Mini DP++	1 Mini DP++, 1 VGA, 1 LVDS	1 VGA*/HDMI
	Audio	-	-	-	-
	PS/2	-	-	-	-
Internal I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485, 1 RS-232
	USB	1 USB 2.0	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	-	1 LVDS, 1 LCD Power	1 LVDS	1 LVDS
	Audio	-	1 Audio (Mic-in/ Line-out)	1 Audio (Mic-in/ Line-out)	Mic-in, Line-out
	SATA	-	1 SATA 3.0	1 SATA 3.0	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	fTPM 2.0	TPM (opt.)
Power		12V DC	9-36V DC	12V DC	12V DC-in
Operating Temperature		0~60°C/-20~70°C/-40~85°C	0~70°C/-20~70°C/-40~85°C	0~60°C/-20~70°C/-40~85°C	0°C~60°C

*Populated by default

**Supports LPC EXT-RS232/RS485 module



Model Name		FS051	FS053	SU551
Platform		ARM	ARM	ULT
System	Processor	Freescall i.MX6 Series	Freescall i.MX6 Series	6th Gen Intel® Core™
	Socket	-	-	BGA 1356
	Max. Speed	1.0GHz	1.0GHz	2.0~3.4GHz
	TDP	-	-	15W
	Cache	-	-	2M/3M/4M
	Chipset	-	-	-
Memory	Technology	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1600MHz	Insyde SPI 128Mbit
	Max. Capacity	1GB/2GB	1GB/2GB	8GB
	Socket	SDRAM Memory down	SDRAM Memory down	1 SODIMM
Graphics	Connector	1 HDMI, 1 LVDS	1 HDMI, 1 LVDS	1 VGA, 1 LVDS, 1 DP++
	PCIe, PCI	-	-	-
Expansion	Mini PCIe	1 Mini PCIe	1 Mini PCIe	2 Mini PCIe
	SIM	1 SD, 1 SIM (opt.)	1 SD	1(opt.)
Audio	Audio Codec	-	-	Realtek ALC888
Ethernet	Controller	1 ATHEROS AR8033	1 ATHEROS AR8033	1 Intel® I210, 1 Intel® I219
Rear I/O	Ethernet (GbE)	1	2	2
	Serial	1 RS-485	1 RS-485	-
	USB	2 USB 2.0	2 USB 2.0	4 USB 3.0
	Display	1 HDMI	1 HDMI	1 VGA, 1 DP++
	Audio	-	-	-
	PS/2	-	-	-
Internal I/O	Serial	1 RS-232/422/485, 1 RS-232	1 RS-232/422/485	2 RS-232/422/485, 2 RS-232
	USB	2 USB 2.0, 1 USB 2.0 OTG	1 USB 2.0, 1 USB 2.0 OTG	2 USB 2.0
	Display	1 LVDS	1 LVDS	1 LVDS
	Audio	-	-	Mic-in, Line-out
	SATA	1 SATA 2.0(Quad processor only)	1 SATA 2.0(Quad processor only)	2 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	-	-
	SMBus	1 CANBus	-	1
TPM / iAMT		-	-	-
Power		5V DC-in	9~36V DC-in	12V DC-in
Operating Temperature		0~60°C/-20~70°C (opt.)	0~60°C/-20~70°C (opt.)	0°C~60°C



Model Name		AL551	AL553	KU551	KU553
Platform		Atom	Atom	ULT	ULT
System	Processor	Intel Atom® E3900	Intel Atom® E3900	7th Gen Intel® Core™	7th Gen Intel® Core™
	Socket	BGA 1296	BGA 1296	BGA 1356	BGA 1356
	Max. Speed	1.1~2.5GHz	1.1~2.5GHz	2.2~3.9GHz	2.2~3.9GHz
	TDP	6.5W/9.5W/12W	6.5W/9.5W/12W	15W	15W
	Cache	2M	2M	2M/3M/4M	2M/3M/4M
	Chipset	-	-	-	-
Memory	Technology	Single Channel DDR3L 1866MHz	Single Channel DDR3L 1866MHz	Single Channel DDR4 1866/2133MHz	Single Channel DDR4 1866/2133MHz
	Max. Capacity	8GB	8GB	16GB	16GB
	Socket	1 SODIMM	1 SODIMM	1 SODIMM	1 SODIMM
Graphics	Connector	1 VGA, 1 LVDS, 1 DP++	1 VGA, 1 LVDS, HDMI	1 VGA/DDI, 1 LVDS/eDP, 1 DP++/DDI	1 VGA, 1 LVDS/eDP, 1 DP++
	PCIe, PCI	-	-	-	-
Expansion	Mini PCIe	1 Mini PCIe, 1 M.2 B key, 1 E I/O(opt.)	1 Mini PCIe, 2 M.2 (M key, B key)	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.)
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	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT/1 Intel® I210IT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	-	-	-
	USB	2 USB 3.1 Gen1, 2 USB 2.0, 1 USB Gen1 Type C OTG(opt.)	2 USB 3.0, 2 USB 2.0	4 USB 3.0	4 USB 3.0
	Display	1 VGA, 1 DP++, 1 LVDS	1 VGA, 1 LVDS, HDMI	1 VGA, 1 DP++	1 VGA, 1 DP++
	Audio	-	-	-	-
	PS/2	-	-	-	-
Internal I/O	Serial	2 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 LCD Power	1 LVDS, 1 LCD Power	1 LVDS	1 LVDS
	Audio	Audio (Mic-in/Line-out), Speaker Out(opt.)	Audio (Mic-in/Line-out)	Audio (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 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		fTPM2.0*/dTPM 2.0(opt.)	fTPM2.0	fTPM, TPM2.0	fTPM2.0
Power		12V DC-in	9~36V DC-in	12V DC-in	9~36V DC-in
Operating Temperature		0°C~60°C/-20°C~70°C/-40~85°C	0°C~60°C/-20°C~70°C/-40°Cto 85°C	0~60°C/-20~70°C (opt.)	0°C~60°C/-20~70°C (opt.)

*Populated by default

**Supports LPC EXT-RS232/RS485 module



Model Name		BT551/BT553	BW551	HU551/HU553	OT951
Platform		Atom	Atom	ULT	AMD G-Series
System	Processor	Intel Atom® E3800	Intel® Pentium®/Celeron® N3000	4th Gen Intel® Core™	AMD® Embedded G-Series
	Socket	BGA 1170	BGA 1170	BGA 1168	FT1 413
	Max. Speed	1.46~2.42GHz	2.24~2.56GHz	1.6~3.3GHz	1.0~1.65GHz
	TDP	5W/7W/10W	4W/5W/6W	15W	9W/18W
	Cache	0.5M/1M/2M	2M	2M/3M/4M	2x 512KB
	Chipset	-	-	-	AMD® A50M
Memory	BIOS	Insyde SPI 64Mbit	Insyde SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR3L 1066/1333MHz	Single Channel DDR3L 1600MHz	Single Channel DDR3L 1333/1600MHz	Single Channel DDR3 1066/1333MHz
	Max. Capacity	2GB/4GB	8GB	8GB	8GB
Graphics	Socket	Memory down	1 SODIMM	1 SODIMM	1 SODIMM
	Connector	1 VGA, 1 LVDS, 1 DP	1 VGA, 1 LVDS, 1 DP++	1 LVDS, 2 DP*/2 HDMI	1 VGA, 1 LVDS, 1 HDMI
Expansion	PCIe, PCI	-	-	-	-
	Mini PCIe	1 Mini PCIe	1 Mini PCIe, 1 mSATA	2 Mini PCIe	1 Mini PCIe
	SIM	-	1(opt.)	1	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC886
Ethernet	Controller	2 Intel® I210	2 Intel® I211	1 Intel® I210, 1 Intel® I218	2 Realtek RTL8111DL
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	-	-	-
	USB	1 USB 3.0, 1 USB 2.0	4 USB 3.0	4 USB 3.0	2 USB 2.0
	Display	1 VGA, 1 DP	1 VGA, 1 DP++	2 DP*/2 HDMI	1 VGA, 1 HDMI
	Audio	-	-	-	-
	PS/2	-	-	-	-
Internal I/O	Serial	1 RS-485, 2 RS-232	2 RS-232/422/485, 2 RS-232	1 RS-485, 2 RS-232	2 RS-232/422/485
	USB	4 USB 2.0	2 USB 2.0	2 USB 2.0	2 USB 2.0
	Display	1 LVDS	1 LVDS	1 LVDS	1 LVDS
	Audio	Front Audio	Mic-in, Line-out	Front Audio	Front Audio
	SATA	1 SATA 2.0	1 SATA 3.0	2 SATA 3.0 (RAID)	1 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	-	-	-
	SMBus	1	1	1	-
TPM / iAMT		TPM (opt.)	TPM (opt.)	TPM (opt.), iAMT 9.5	TPM (opt.)
Power		12V/15~36V DC-in	12V DC-in	12V/15~36V DC-in	12V DC-in
Operating Temperature		0°C~60°C/-20°C~70°C/-40°C~85°C	0°C~60°C	0°C~60°C	0°C~60°C



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

*Populated by default

**Supports LPC EXT-RS232/RS485 module

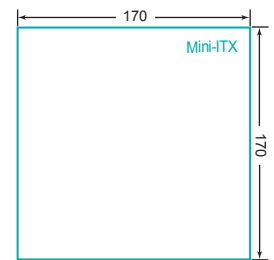
Mini-ITX

Compact & High-Performance Solutions



Features

DFI's 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



Coming Soon

Thin Mini-ITX



Thin Mini-ITX



Thin Mini-ITX

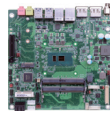


Thin Mini-ITX

6th/7th/8th Gen Intel Core

Model Name		CS101-Q370/C246/H310	CS100-Q370/C246/H310	KD171	KD175
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	8th Gen Intel® Core™	8th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	-	-	2.3~3.8GHz	2.3~3.8GHz
	TDP	80W	80W	35W/51W/54W	35W/51W/54W
	Cache	-	-	3M/4M/6M/8M	3M/6M/8M
Memory	Chipset	Intel® Q370/C246/H310	Intel® Q370/C246/H310	Intel® Q170/H110	Intel® H110
	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2666MHz	Dual Channel DDR4 2400/2666MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400 MHz
Graphics	Max. Capacity	32GB	32GB	32GB	32GB
	Socket	2 SODIMM	2 SODIMM	2 UDIMM	2 UDIMM
Expansion	Connector	1 LVDS*/eDP (opt.), 2 DP++, 1 HDMI	1 VGA, 1 LVDS, 2 DP++	2 Full Size DP++, 1 HDMI 1.4 (opt.)	2 Full Size DP++, 1 HDMI 1.4 (opt.)
	PCIe, PCI	1 PCIe x4 (Gen 3)	1 PCIe x16 (Gen 3)	1 PCIe x16 (Gen 3)	1 PCIe x16 (Gen 3), 1 PCIe x1 (Golden Finger)
	Mini PCIe	Q370/C246: 1 Full-size Mini PCIe, 1 M.2 M key, 1 M.2 E key H310: 1 mSATA, 1 M.2 E key	Q370/C246: 1 Full-size Mini PCIe, H310: 1 mSATA	-	-
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek Audio Codec with 5.1 Channel Support	Realtek Audio Codec with 5.1 Channel Support
Ethernet	Controller	Q370: 1 Intel® I210AT, 1 Intel® I219LM H310: 1 Intel® I210AT, 1 Intel® I219V	Q370: 1 Intel® I210AT, 1 Intel® I219LM H310/C246: 1 Intel® I210AT, 1 Intel® I219V	2 Realtek Ethernet LAN Controller	2 Realtek Ethernet LAN Controller
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	1 RS-232	1 RS-232, 1 RS-485	1 RS-232, 1 RS-485
	USB	Q370/C246: 4 USB 3.1 Gen2 H310: 4 USB 3.1 Gen1	Q370/C246: 2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 4 USB 2.0 H310: 4 USB 3.1 Gen1, 4 USB 2.0	2 USB 3.0, 2 USB 2.0	2 USB 3.0, 2 USB 2.0
	Display	2 DP++, 1 HDMI	1 VGA, 1 DP++	2 Full Size DP++, 1 HDMI 1.4 (opt.)	2 Full Size DP++, 1 HDMI 1.4 (opt.)
	Audio	-	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in, Line-out	Line-in, Mic-in, Line-out
Internal I/O	PS/2	-	-	-	-
	Serial	2 RS-232/422/485, 2 RS-232	1 RS-232	4 RS-232	-
	USB	4 USB 2.0	-	1 Vertical USB 3.0, 4 USB 2.0	1 Vertical USB 3.0
	Display	1 LVDS/eDP (opt.)	1 LVDS, 1 LCD Power	-	-
	Audio	Front Audio	S/PDIF	-	-
	SATA	2 SATA 3.0 (RAID)	3 SATA 3.0 (RAID)	2 SATA 3.0	1 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	-	-
TPM / iAMT	LPC**	1	1	-	-
	SMBus	1	1	-	-
Power		TPM 2.0 (opt.)	TPM 2.0 (opt.)	TPM 1.2/2.0(opt.)	TPM 1.2/2.0 (opt.)
Operating Temperature		12V DC-in 0°C~60°C	24-pin ATX 0°C~60°C	12V DC 0°C~60°C	12V DC 0°C~60°C

6th/7th Gen Intel Core



Thin Mini-ITX

ULT



Thin Mini-ITX

ULT



Coming Soon

H110



Thin Mini-ITX

Q170

Model Name		KU171/KU173	SU171/SU173	SD170	SD101/SD103-Q170
Platform		ULT	ULT	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	BGA 1356	LGA 1151	LGA 1151
	Max. Speed	2.2~3.9GHz	2.0~3.4GHz	2.4~4.0GHz	2.4~4.0GHz
	TDP	15W	15W	35W/47W/65W	35W/47W/65W
	Cache	2M/3M/4M	2M/3M/4M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	-	-	Intel® H110	Intel® Q170
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3L 1600MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	32GB	16GB	32GB	32GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 LVDS*/eDP, 2 DP++	1 LVDS*/eDP, 1 HDMI*/DP, 1 DP++	1 VGA, 1 HDMI, 1 DP++	1 LVDS, 1 DVI, 1 HDMI*/DP
	Expansion	1 Full size Mini PCIe, 1 M.2 M key	1 Full size Mini PCIe, 2 Mini PCIe	1 Full size Mini PCIe, 1 M.2 M key	2 Mini PCIe
Audio	PCIe, PCI	1 PCIe x4	1 PCIe x4	1 PCIe x16	1 PCIe x4
	Mini PCIe	-	1(opt.)	1	-
	SIM	-	-	-	-
Ethernet	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM	4 Intel® I210AT, Intel® I211AT(opt.)	1 Intel® I210AT, 1 Intel® I219LM
	Rear I/O	Ethernet (GbE)	2	4	2
Internal I/O	Serial	-	-	1 RS-232/422/485	-
	USB	4 USB 3.0	4 USB 3.0	2 USB 3.0	4 USB 3.0
	Display	2 DP++	1 HDMI*/DP, 1 DP++	1 VGA, 1 HDMI, 1 DP++	1 DVI, 1 HDMI*/DP
	Audio	1 Line-out, 1 Mic-in	Mic-in, Line-out	-	-
	PS/2	-	-	-	-
	Serial	1 RS-232/422/485, 1 RS-232	2 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 3 RS-232
Internal I/O	USB	4 USB 2.0	4 USB 2.0 / 2 USB 2.0 + 1 Vertical USB 2.0 (type A) (opt.)	2 USB 3.0, 4 USB 2.0, 1 Vertical USB2.0	4 USB 2.0
	Display	1 LVDS*/eDP, 1 LCD/Inverter Power	1 LVDS*/eDP, 1 LCD/Inverter Power	-	1 LVDS, 1 LCD/Inverter Power
	Audio	S/PDIF	S/PDIF	Front Audio	1 Audio (Line-out/Mic-in), S/PDIF
	SATA	2 SATA 3.0 (RAID), 2 SATA Power	2 SATA 3.0 (RAID)	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	1 (opt.)
TPM / iAMT	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power		12V/9~36V DC-in	12V/15~36V DC-in	24-pin ATX	12V /15~36V DC-in
Operating Temperature		0~60°C / -20~70°C	0°C~60°C / -20~70°C	0°C~60°C	0°C~60°C



H110



Q170



Thin Mini-ITX

H110



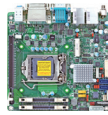
H81

4th/6th/7th Gen Intel Core

Model Name		SD100-H110	SD100-Q170	SD101/SD103-H110	HD100-H81
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1150
	Max. Speed	2.4~4.0GHz	2.4~4.0GHz	2.4~4.0GHz	2.2~4.0GHz
	TDP	35W/47W/65W	35W/47W/65W	35W/47W/65W	35W/45W/53W/54W/65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® H110	Intel® Q170	Intel® H110	Intel® H81
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	32GB	32GB	32GB	16GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 VGA, 1 DVI, 1 LVDS, 1 DP++	1 VGA, 1 DVI, 1 LVDS, 1 DP++	1 LVDS, 1 DVI, 1 HDMI*/DP	1 DVI, 1 HDMI, 1 LVDS
	Expansion	1 PCIe x16	1 PCIe x16	1 PCIe x4	1 PCIe x16
Audio	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe, 1 mSATA	1 Mini PCIe
	SIM	-	-	-	-
Ethernet	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC886
	Controller	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I210, 1 Intel® I217
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	1 RS-232	1 RS-232	-	2 RS-232
	USB	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0	2 USB 3.0, 4 USB 2.0
	Display	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++	1 DVI, 1 HDMI*/DP	1 DVI, 1 HDMI
	Audio	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out	-	Mic-in, Line-in, Line-out
	PS/2	1	1	-	1
Internal I/O	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	-
	USB	2 USB 2.0	4 USB 2.0	4 USB 2.0	2 USB 2.0
	Display	1 LVDS, 1 LCD Power	1 LVDS, 1 LCD Power	1 LVDS, 1 LCD Power	1 LVDS
	Audio	S/PDIF	S/PDIF	1 Audio (Line-out/Mic-in), S/PDIF	Front Audio, S/PDIF
	SATA	3 SATA 3.0	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
TPM / iAMT	LPC**	1	1	1 (opt.)	-
	SMBus	1	1	1	-
Power		TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Operating Temperature		24-pin ATX	24-pin ATX	12V (SD101)/15~36V (SD103) DC-in	24-pin ATX
		0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C

*SD series support 7th Gen Intel® Core™ Processors (available upon request)

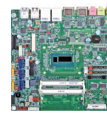
4th Gen Intel Core



H81



H81



Thin Mini-ITX
ULT



Thin Mini-ITX
ULT

Model Name		HD101-H81	HD171/HD173-H81	HU101/HU103	HU171/HU173
Platform		Desktop	Desktop	ULT	ULT
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1150	LGA 1150	BGA 1168	BGA 1168
	Max. Speed	2.2~3.3GHz	2.2~3.3GHz	1.6~3.3GHz	1.6~3.3GHz
	TDP	35W/45W	35W/45W	15W	15W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M	2M/3M/4M
	Chipset	Intel® H81	Intel® H81	-	-
Memory	BIOS	AMI SPI 32Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz
	Max. Capacity	16GB	16GB	16GB	16GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 DVI, 1 HDMI, 1 LVDS	1 VGA, 1 DVI, 1 DP	1 LVDS*/eDP, 2 HDMI	1 LVDS*/VGA/eDP, 1 HDMI, 1 DP
Expansion	PCIe, PCI	1 PCIe x16	1 PCIe x16	1 PCIe x1	1 PCIe x1
	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe	2 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC886	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I218	1 Intel® I210, 1 Intel® I218
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	2 RS-232	1 RS-232	-	-
	USB	2 USB 3.0, 2 USB 2.0	2 USB 3.0, 2 USB 2.0	2 USB 3.0, 2 USB 2.0	4 USB 3.0
	Display	1 DVI, 1 HDMI	1 VGA, 1 DVI, 1 DP	2 HDMI	1 HDMI, 1 DP
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	PS/2	-	optional	-	-
	Serial	-	1 RS-422/485, 2 RS-232	2 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 3 RS-232
Internal I/O	USB	4 USB 2.0	5 USB 2.0	4*/6 USB 2.0, 2 USB 3.0	6 USB 2.0
	Display	1 LVDS	-	1 LVDS*/eDP	1 LVDS*/VGA/eDP
	Audio	Front Audio, S/PDIF	Front Audio	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0	2 SATA 3.0	3 SATA 3.0 (RAID)	3 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	-	-	-
	SMBus	-	-	1	1
TPM / iAMT		TPM (opt.)	TPM (opt.)	TPM (opt.), iAMT 9.5	TPM (opt.), iAMT 9.5
Power		12V DC-in	12V/19~24V DC-in	12V/19~24V DC-in	12V/19~24V DC-in
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C

2nd/3rd/4th Gen Intel Core



QM87



QM87



QM77



HM76

Model Name		HM100-QM87/HM86	HM101/HM103-QM87/HM86	CR100-CRM	CR101-D
Platform		Mobile	Mobile	Mobile	Mobile
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™	2nd/3rd Gen Intel® Core™	2nd/3rd Gen Intel® Core™
	Socket	BGA 1364	BGA 1364	G2 988B	G2 988B
	Max. Speed	2.4~3.4GHz(QM87) / 1.5~3.3GHz(HM86)	1.6~3.4GHz(QM87) / 1.5~2.7GHz(HM86)	1.6~3.3GHz	1.6~3.3GHz
	TDP	37W/47W(QM87) / 25W/37W(HM86)	25W/37W/47W(QM87) / 25W/37W(HM86)	35W/45W	35W/45W
	Cache	3M/6M(QM87) / 2M/3M(HM86)	3M/6M(QM87) / 2M/3M(HM86)	2M/3M/6M	2M/3M/6M
	Chipset	Intel® QM87 / HM86	Intel® QM87/HM86	Intel® QM77	Intel® HM76
Memory	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR3L 1333/1600MHz	Dual Channel DDR3L 1333/1600MHz	Dual DDR3/DDR3L 1066/1333/1600MHz	Dual DDR3/DDR3L 1066/1333/1600MHz
	Max. Capacity	16GB	16GB	16GB	16GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 LVDS, 1 DVI, 1 HDMI, 1 DP	1 LVDS, 1 DVI, 1 HDMI, 1 DP	1 LVDS, 2 DVI, 1 HDMI	1 LVDS, 1 DVI, 1 HDMI
Expansion	PCIe, PCI	1 PCIe x16	1 PCIe x16	1 PCIe x16, 2 DFI Extension Bus	1 PCIe x16
	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC886	Realtek ALC886	Realtek ALC886	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Intel® I217	1 Intel® I210, 1 Intel® I217	1 Intel® 82579, 1 Intel® 82574	2 Realtek RTL8111DL
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	2 RS-232	2 RS-232	1 RS-232/422/485	1 RS-232/422/485
	USB	2 USB 3.0, 2 USB 2.0	2 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0
	Display	1 DVI, 1 HDMI	1 DVI, 1 HDMI	2 DVI, 1 HDMI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	-	-	1	-
	Serial	-	-	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485
Internal I/O	USB	4 USB 2.0	4 USB 2.0	4 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 DP	1 LVDS, 1 DP	1 LVDS	1 LVDS
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0 (RAID)	2 SATA 3.0 (RAID)(QM87) / 2 SATA 3.0(HM86)	2 SATA 3.0, 2 SATA 2.0 (RAID)	2 SATA 3.0, 2 SATA 2.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	-
	LPC**	-	-	-	-
	SMBus	-	-	-	-
TPM / iAMT		TPM (opt.), iAMT 9.0 (QM87 only)	TPM (opt.), iAMT 9.0 (QM87 only)	TPM (opt.), iAMT 8.0	-
Power		24-pin ATX	12V/19~24V DC-in	24-pin ATX	4-pin 12V Power
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

2nd/3rd Gen Intel Core
Intel Atom E3900



Q67



QM67



Atom



Thin Mini-ITX

Atom

Model Name		SB100-NRM	HR100-CRM	AL102	AL170
Platform		Desktop	Mobile	Atom	Atom
System	Processor	2nd/3rd Gen Intel® Core™	2nd/3rd Gen Intel® Core™	Intel Atom® E3900	Intel Atom® E3900
	Socket	LGA 1155	G2 988B	BGA 1296	BGA 1296
	Max. Speed	2.9~3.9GHz	1.6~3.3GHz	1.1~2.4GHz	1.1~2.5GHz
	TDP	55W/65W/77W/95W	35W/45W	6W/9.5W/12W	6.5W/9.5W/12W
	Cache	3M/6M/8M	2M/3M/6M	2M	2M
	Chipset	Intel® Q67	Intel® QM67	-	-
Memory	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR3 1066/1333/1600MHz	Dual DDR3 1066/1333/1600MHz	Dual Channel DDR3L 1867MHz	Dual Channel DDR3L 1867MHz
	Max. Capacity	16GB	16GB	8GB	8GB
Graphics	Connector	1 VGA, 1 DVI	1 VGA, 1 LVDS, 1 DVI	1 VGA, 1 HDMI, 1 LVDS/eDP(opt.)	1 VGA, 1 DP++, 1 LVDS/ eDP
	PCIe, PCI	1 PCIe x16	1 PCIe x16, 2 DFI Extension Bus	-	1 PCIe x1
Expansion	Mini PCIe	-	-	1 Mini PCIe (opt.), 1 M.2 (M key, E key)	1 Mini PCIe, 1 M.2 (M key)
	SIM	-	-	1 (opt.)	1
Audio	Audio Codec	Realtek ALC262	Realtek ALC262	Realtek ALC269	Realtek ALC262
Ethernet	Controller	1 Intel® 82579, 1 Intel® 82574	1 Intel® 82579, 1 Realtek RTL8111DL	2 Realtek RTL8111H-CG	2 Intel® I210IT, Intel® I211AT (opt.)
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	2 RS-232/422/485	2 RS-232/422/485	2 RS-232, RS422/485 (opt.)	2 RS-232/422/485
	USB	4 USB 2.0	4 USB 2.0	4 USB 3.0	4 USB 3.0
	Display	1 VGA, 1 DVI	1 VGA, 1 DVI	1 VGA, 1 HDMI	1 VGA/DP++, 1 DP++
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Line-out	Mic-in, Line-out, Line-in
	PS/2	2	2	-	-
Internal I/O	Serial	2 RS-232	4 RS-232	4 RS-232 (opt.)	4 RS-232
	USB	4 USB 2.0	4 USB 2.0	4 USB 2.0, 1 USB 2.0/Vertical USB 2.0 (opt.)	6 USB 2.0
	Display	-	1 LVDS	1 LVDS, 1 LCD Power, 1 eDP (opt.)	LVDS
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Mic-in, Line-out	Front Audio, S/PDIF
	SATA	2 SATA 3.0, 2 SATA 2.0 (RAID)	2 SATA 3.0, 2 SATA 2.0 (RAID)	1 SATA 3.0	2 SATA 3.0
	DIO	8-bit DIO	8 bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	-	1	1
TPM / iAMT		TPM (opt.), iAMT 8.0	TPM (opt.), iAMT 7.0	TPM 2.0 (opt.)	TPM (opt.)
Power		24-pin ATX	24-pin ATX	12V DC	ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~50°C	0°C~60°C/-40°C~85°C



Thin Mini-ITX

Atom



Thin Mini-ITX

Atom



Atom



Thin Mini-ITX

Atom

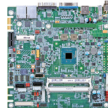
Intel Atom E3800/E3900
Intel Pentium/Celeron N3000

Model Name		AL171/AL173	BW171/BW173	BT100	BT101/BT103
Platform		Atom	Atom	Atom	Atom
System	Processor	Intel Atom® E3900	Intel® Pentium®/Celeron® N3000	Intel Atom® E3800	Intel Atom® E3800
	Socket	BGA 1296	BGA 1170	BGA 1170	BGA 1170
	Max. Speed	1.1~2.5GHz	1.04~2.56GHz	1.46~2.42GHz	1.33~2.42GHz
	TDP	6W/9W/12W	4W/5W/6W	5W/10W	5W/6W/7W/10W
	Cache	2M	2M	0.5M/2M	0.5M/1M/2M
	Chipset	-	-	-	-
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual DDR3L 1867MHz	Dual Channel DDR3L 1600MHz	Single/Dual DDR3L 1066/1333MHz	Single/Dual DDR3L 1066/1333MHz
	Max. Capacity	8GB	8GB	4GB/8GB	4GB/8GB
Graphics	Connector	2 SODIMM	2 SODIMM	1 or 2 SODIMM	1 or 2 SODIMM
	Socket	1 VGA*/DP++, 1 HDMI*/DP++, 1 LVDS*/eDP	1 VGA, 1 LVDS, 1 DP++*/eDP	1 VGA, 1 LVDS, 1 DVI	1 LVDS, 1 DVI
Expansion	PCIe, PCI	1 PCIe x1	1 PCIe x1	1 PCIe x4	1 PCIe x1
	Mini PCIe	1 Mini PCIe, 1 M.2 B key	1 Mini PCIe, 1 mSATA	1 Mini PCIe	1 Mini PCIe
Audio	SIM	-	1(opt.)	-	1
	Audio Codec	Realtek ALC262	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	2 Intel® I210IT or 2 Intel® I211AT	2 Intel® I211	2 Intel® I210	2 Intel® I210
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	-	-	1 RS-232/422/485, 1 RS-232	-
	USB	4 USB 3.0	2 USB 3.0, 2 USB 2.0	1 USB 3.0, 3 USB 2.0	1 USB 3.0, 2 USB 2.0
	Display	1 VGA*/DP++, 1 HDMI*/DP++	1 VGA, 1 DP++	1 VGA, 1 DVI	1 DVI
	Audio	Line-out	Line-out	Mic-in, Line-out	Line-out
	PS/2	-	-	-	-
Internal I/O	Serial	2 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232	1 RS-232/422/485, 3 RS-232
	USB	4 USB 2.0, 1 USB 2.0/Vertical USB 2.0 type A (opt.)	2 USB 3.0, 3 USB 2.0, 1 Vertical USB 2.0	3 USB 2.0	4 USB 2.0
	Display	1 LVDS, 1 LCD Power, 1 eDP	1 LVDS, 1 eDP (opt.)	1 LVDS	1 LVDS
	Audio	1 Audio (Line-out/Mic-in), S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0	2 SATA 3.0	2 SATA 2.0	2 SATA 2.0
	DIO	8 bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	-	-
TPM / iAMT		1	1	1 (opt.)	1
Power		TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Operating Temperature		12V (AL171)/15~36V (AL173) DC-in	12V/15~36V DC-in	24-pin ATX	12V/19~24V DC-in
		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

**Supports LPC EXT-RS232/RS485 module

Intel Atom E3800
AMD Ryzen Embedded V1000/R1000
2nd Gen AMD R-Series



Thin Mini-ITX
Atom



AMD



AMD

Model Name		BT160/BT161	GH171	BE170
Platform		Atom	AMD Ryzen Embedded Series	AMD R-Series
System	Processor	Intel Atom® E3800	AMD® Ryzen™ Embedded V1000/R1000 Series	2nd Gen AMD® Embedded R-Series
	Socket	BGA 1170	-	FP3 BGA
	Max. Speed	1.46~2.42GHz	2.0~3.8GHz	2.2~3.6GHz
	TDP	7W/10W	12W/25W/35W/54W	17W/35W
	Cache	1M/2M	1M/2M	1M/4M
	Chipset	-	-	AMD® A77E
Memory	BIOS	AMI SPI 64Mbit	AMI BIOS	AMI SPI 64Mbit
	Technology	Dual Channel DDR3L 1066/1333MHz	Dual Channel DDR4 up to 3200MHz	Dual Channel DDR3/DDR3L 1600/1866/2133MHz
	Max. Capacity	8GB	32GB	16GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	1 VGA, 1 LVDS	4 DP++	4 DP
Expansion	PCIe, PCI	1 PCIe x1, 1 DFI Extension Bus	1 PCIe x16 (x8 signal), (x4 signal with R1000)	1 PCIe x16
	Mini PCIe / M.2	1 Mini PCIe	1 M.2 M Key (x2 signal with R1000)	1 Mini PCIe
	SIM	-	-	-
Audio	Audio Codec	-	Realtek Audio Codec with 5.1 Channel Support	Realtek ALC888
Ethernet	Controller	2 Intel® I210	2 Realtek Ethernet LAN Controller	1 Intel® I210, 1 Realtek RTL8111EP
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	1 RS-232	1 RS-232/422/485, 1 RS-232	-
	USB	1 USB 3.0, 1 USB 2.0	2 USB 3.0, 2 USB 2.0	4 USB 3.0
	Display	1 VGA	4 DP++ (V1000), 3 DP++ (R1000)	4 DP
	Audio	-	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	-	-	-
Internal I/O	Serial	1 RS-232/422/485, 2 RS-232	4 RS-232	1 RS-232/422/485, 3 RS-232
	USB	3 USB 2.0	4 USB 2.0, 1 Vertical Type A USB 3.0 (V1000), 1 Vertical Type A USB 2.0 (R1000)	5 USB 2.0
	Display	1 LVDS	-	-
	Audio	-	1 S/PDIF, 1 Audio (Mic-in/Line-out)	Front Audio, S/PDIF
	SATA	2 SATA 2.0	2 SATA 3.0, 2 SATA Power	4 SATA 3.0
	DIO	8-bit DIO	-	8-bit DIO
	LPC**	-	-	-
	SMBus	-	-	1
TPM / iAMT		TPM (opt.)	TPM1.2/2.0	TPM (opt.)
Power		24-pin ATX (BT160)/12V DC-in (BT161)	12V DC	24-pin ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C



AMD



Thin Mini-ITX
AMD



Thin Mini-ITX
AMD



AMD

AMD G-Series SoC
AMD R-Series

Model Name		BE171/BE173	KB160	KB161	CM100-C
Platform		AMD R-Series	AMD G-Series	AMD G-Series	AMD R-Series
System	Processor	2nd Gen AMD® Embedded R-Series	AMD® Embedded G-Series SoC	AMD® Embedded G-Series SoC	AMD® Embedded R-Series
	Socket	FP3 BGA	FT3 BGA	FT3 BGA	FS1r2 PGA
	Max. Speed	2.2~3.6GHz	1.0~2.0GHz	1.0~2.0GHz	1.9~2.7GHz
	TDP	17W/35W	9W/15W/25W	9W/15W/25W	35W
	Cache	1M/4M	1M/2M	1M/2M	1M/4M
	Chipset	AMD® A77E	-	-	AMD® A70M
Memory	BIOS	AMI SPI 64Mbit	AMI SPI 32Mbit	AMI SPI 32Mbit	AMI SPI 32Mbit
	Technology	Dual Channel DDR3/DDR3L 1600/1866/2133MHz	Single Channel DDR3/DDR3L 1066/1333/1600MHz	Single Channel DDR3/DDR3L 1066/1333/1600MHz	Dual Channel DDR3 1600MHz
	Max. Capacity	16GB	8GB	8GB	16GB
Graphics	Socket	2 SODIMM	2 SODIMM	2 SODIMM	2 SODIMM
	Connector	4 DP	1 VGA, 1 LVDS, 1 DP	1 VGA, 1 LVDS, 1 DP	2 DVI, 1 HDMI
Expansion	PCIe, PCI	1 PCIe x16	1 PCIe x4, 1 DFI Extension Bus	1 PCIe x4, 1 DFI Extension Bus	1 PCIe x16, 2 DFI Extension Bus
	Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe	1 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	-	-	Realtek ALC886
Ethernet	Controller	1 Intel® I210, 1 Realtek RTL8111EP	2 Intel® I210	2 Intel® I210	2 Intel® 82574
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	-	-	-	1 RS-232
	USB	4 USB 3.0	2 USB 3.0, 2 USB 2.0	2 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0
	Display	4 DP	1 VGA, 1 DP	1 VGA, 1 DP	2 DVI, 1 HDMI
	Audio	Mic-in, Line-in, Line-out	-	-	Mic-in, Line-in, Line-out
	PS/2	-	-	-	1
Internal I/O	Serial	1 RS-232/422/485, 3 RS-232	1 RS-485, 3 RS-232	1 RS-485, 3 RS-232	2 RS-232/422/485, 3 RS-232
	USB	5 USB 2.0	2 USB 2.0	2 USB 2.0	4 USB 2.0
	Display	-	1 LVDS	1 LVDS	-
	Audio	Front Audio, S/PDIF	-	-	Front Audio, S/PDIF
	SATA	4 SATA 3.0	2 SATA 3.0	2 SATA 3.0	4 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	-	-	-
	SMBus	1	-	-	-
TPM / iAMT		TPM (opt.)	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power		12V/19~24V DC-in	24-pin ATX	12V	24-pin ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C	

*Populated by default

**Supports LPC EXT-RS232/RS485 module

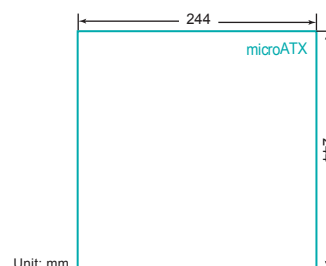
microATX

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. DFI's 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.



8th Gen Intel Core



Coming Soon

Q370



Coming Soon

H310



Q370



C246

Model Name		CS332-Q370	CS332-H310	CS331-Q370	CS331-C246
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	8th Gen Intel® Core™	8th Gen Intel® Core™	8th Gen Intel® Core™	8th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9~4.7 GHz	2.9~4.7 GHz	2.9~4.7 GHz	2.9~4.7 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® Q370	Intel® H310	Intel® Q370	Intel® C246
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	64GB	32GB	64GB	64GB
Graphics	Socket	4 DIMM	2 DIMM	4 DIMM	4 DIMM (ECC/Non ECC)
	Connector	Intel® HD Gen 9 Graphics	Intel® HD Gen 9 Graphics	Intel® HD Gen 9 Graphics	Intel® HD Gen 9 Graphics
Expansion	PCIe, PCI	TBD	TBD	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	TBD	TBD	1 mini PCIe, 1 M.2 M key	1 mini PCIe, 1 M.2 M key
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC887	Realtek ALC887	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	TBD	TBD	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 2 USB 2.0	2 USB 3.1 Gen 2, 2 USB 3.1 Gen 1, 2 USB 2.0
	Display	TBD	TBD	1 HDMI, 1 DVI-D, 1 DP++	1 HDMI, 1 DVI-D, 1 DP++
	Audio	TBD	TBD	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out
	PS/2	TBD	TBD	1	1
	Serial	TBD	TBD	1 RS-232/422/485, 2 RS-232	1 RS-232/422/485, 2 RS-232
Internal I/O	USB	TBD	TBD	2 USB 3.1 Gen 2, 4 USB 2.0	2 USB 3.1 Gen 2, 4 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	TBD	TBD	5 SATA 3.0	6 SATA 3.0
	DIO	1	1	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
TPM / iAMT	SMBus	1	1	-	-
	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)	TPM (opt.) / iAMT (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

*Populated by default

**Supports LPC EXT-RS232/RS485 module

6th/7th/8th Gen Intel Core



Q370



H310



Q170



H110

Model Name		CS330-Q370	CS330-H310	KD300-Q170	KD300-H110
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	8th Gen Intel® Core™	8th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9~4.7 GHz	2.9~4.7 GHz	2.6~4.2GHz	2.6~4.2GHz
	TDP	Max. 95W	Max. 95W	Max. 65W	Max. 65W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/3M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® Q370	Intel® H310	Intel® Q170	Intel® H110
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz
	Max. Capacity	64GB	32GB	64GB	32GB
Graphics	Socket	4 DIMM	2 DIMM	4 DIMM	2 DIMM
	Connector	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 2 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI	4 PCI	4 PCI
Expansion	Mini PCIe / M.2	1 Full-sized Mini PCIe	-	1 M.2 M key	-
	SIM	-	-	-	-
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® 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 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 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++
	Audio	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
Internal I/O	USB	2 USB 3.1 Gen 1, 4 USB 2.0	4 USB 2.0	2 USB 3.0, 4 USB 2.0, 1 vertical USB 2.0(opt.)	4 USB 2.0, 1 vertical USB 2.0(opt.)
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0	4 SATA 3.0 (RAID)	4 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM 1.2/2.0 (opt.)
Power		ATX	ATX	ATX	ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C



C236



Q170



Q170



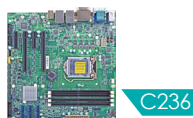
H110

6th/7th Gen Intel Core

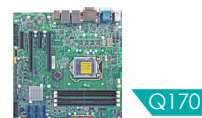
Model Name		KD331-C236	KD331-Q170	KD330-Q170	KD330-H110
Platform		Desktop	Desktop	Desktop	Desktop
System	Processor	Intel® Xeon®/6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2GHz	2.6~4.2GHz	2.6~4.2GHz	3.4~4.2GHz
	TDP	Max. 95W	Max. 95W	Max. 65W	Max. 65W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® C236	Intel® Q170	Intel® Q170	Intel® H110
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz
	Max. Capacity	64GB	64GB	64GB	32GB
Graphics	Socket	2 DIMM (ECC/Non-ECC)	4 DIMM	4 DIMM	2 DIMM
	Connector	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++
	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4	1 PCIe x16, 1 PCIe x4, 1 PCI	1 PCIe x16, 1 PCIe x4, 1 PCI
Expansion	Mini PCIe / M.2	1 M.2 M key	1 M.2 M key	1 Full-size Mini PCIe	-
	SIM	-	-	-	-
	Audio	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	3 Intel® I211AT, 1 Intel® I219LM	3 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V
	Ethernet (GbE)	4	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 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0
	Display	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++	1 DVI-D, 1 VGA, 1 DP++
	Audio	-	-	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)
	PS/2	1	1	1	1
	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, up to 8 RS-232	1 RS-232/422/485, up to 8 RS-232
Internal I/O	USB	2 USB 3.0, 4 USB 2.0	2 USB 3.0, 4 USB 2.0	2 USB 3.0, 4 USB 2.0	4 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	S/PDIF	S/PDIF
	SATA	5 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	4 SATA 3.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
	SMBus	1	1	1	1
	TPM / iAMT	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM2.0/1.2 (opt.)
Power		ATX	ATX	ATX	ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C	0°C~60°C

**Supports LPC EXT-RS232/RS485 module

6th/7th Gen Intel Core



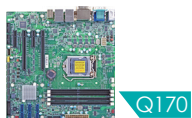
C236



Q170

Model Name		SD331-C236	SD331-Q170
Platform		Workstation	Desktop
System	Processor	Intel® Xeon®/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. 65W	Max. 65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® C236	Intel® Q170
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	64GB	64GB
Graphics	Socket	4 DIMM (ECC/Non-ECC)	4 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	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4
	Mini PCIe	-	-
	SIM	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 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 3.0, 2 USB 2.0	4 USB 3.0, 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	Mic-in, Line-in (opt.), Line-out
	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 3.0, 4 USB 2.0	4 USB 3.0, 2 USB 2.0+ 1 Vertical USB 2.0 (type A)
	Display	-	-
	Audio	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF
	SATA	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO
	LPC**	1	1
	SMBus	1	1
TPM / iAMT		TPM (opt.) / iAMT (Xeon/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



Q170



H110

Model Name		SD330-Q170	SD330-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. 65W	Max. 65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® Q170	Intel® H110
Memory	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz
	Max. Capacity	64GB	32GB
Graphics	Socket	4 DIMM	2 DIMM
	Connector	1 VGA, 1 LVDS, 1 DVI-D, 1 DP++	1 VGA, 1 LVDS, 1 DVI-D, 1 DP++
Expansion	PCIe, PCI	1 PCIe x16, 1 PCIe x4, 2 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe	1 Full-sized Mini PCIe	-
	SIM	1	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V
Rear I/O	Ethernet (GbE)	2	2
	Serial	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 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	Mic-in, Line-in (opt.), Line-out
	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 3.0, 4 USB 2.0	2 USB 2.0, 1 Vertical USB 2.0 (type A)
	Display	-	-
	Audio	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0
	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

*Populated by default

**Supports LPC EXT-RS232/RS485 module

4th Gen Intel Core



H81



Q87

Model Name		HD332-H81	HD330-Q87
Platform		Desktop	Desktop
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1150	LGA 1150
	Max. Speed	2.2~4.0GHz	2.2~4.0GHz
	TDP	35W/45W/53W/54W/65W	35W/45W/53W/54W/65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® H81	Intel® Q87
Memory	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz
	Max. Capacity	16GB	32GB
Graphics	Socket	2 DIMM	4 DIMM
	Connector	1 VGA, 1 VGA/DVI	1 DVI, 1 HDMI
Expansion	PCIe, PCI	1 PCIe x16, 2 PCIe x1, 1 PCI	1 PCIe x16, 1 PCIe x4, 2 PCI
	Mini PCIe	-	1 Mini PCIe
	SIM	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC886
Ethernet	Controller	2 Intel® 82574* / Intel® I210	1 Intel® I210, 1 Intel® I217
Rear I/O	Ethernet (GbE)	2	2
	Serial	2 RS-232	2 RS-232/422/485
	USB	4 USB 3.0, 2 USB 2.0	2 USB 3.0, 4 USB 2.0
	Display	1 VGA, 1 VGA/DVI	1 DVI, 1 HDMI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1
Internal I/O	Serial	1 RS-232/422/485, 7 RS-232	4 RS-232
	USB	5*/6 USB 2.0	6 USB 2.0
	Display	-	-
	Audio	-	Front Audio, S/PDIF
	SATA	2 SATA 3.0, 2 SATA 2.0	2 SATA 3.0, 1 SATA 2.0 (RAID)
	DIO	-	8-bit DIO
	LPC**	-	-
TPM / iAMT	SMBus	-	-
	TPM (opt.)	TPM (opt.)	TPM (opt.)
Power		24-pin ATX	24-pin ATX
Operating Temperature		0°C~60°C	0°C~60°C

4th Gen Intel Core



C226



Q87



H81

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

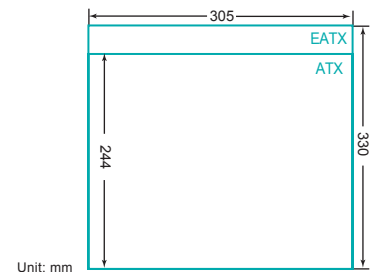
ATX

Fast Computing & Highly Reliable Solutions



Features

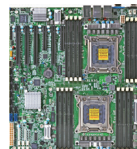
DFI's EATX/ATX embedded motherboards feature a high computing capability, rich I/O connectivity, high integration, and expansibility which support up to 7 expansion slots (ATX). The form factors of EATX/ATX boards are 330 x 305 mm for EATX and 305 x 244 mm for ATX, making both motherboards an ideal solution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



Intel Xeon
AMD EPYC3000



C622



EATX

C602J/
C604



Coming Soon

C621



Coming Soon

Model Name		PL610-C622	RL830-C604/C602	PR610-C621	EP600
Platform		Server-Grade	Server-Grade	Server-Grade	Server-Grade
System	Processor	Intel® Xeon® Scalable Processor	Intel® Xeon® E5-2600 v2	Intel® Xeon® Scalable Processor	AMD EPYC3000
	Socket	LGA3647	LGA 2011 (2 sockets)	LGA 3647	BGA
	Max. Speed	TBD	2.0~3.6GHz	TBD	Max. 3.0Ghz
	TDP	Max. 145W	50W/70W/80W/95W/115W	Max. 165W	Max. 105W
	Cache	Max 27.5M	15M/20M/25M	TBD	Max. 32MB L3 cache
	Chipset	Intel® C622	Intel® C602J/C604	Intel® C621	-
Memory	BIOS	Insyde SPI 128Mbit	AMI SPI 128Mbit	Insyde	-
	Technology	Single Channel DDR4 1600/1866/2133/2400/2666MHz	Quad DDR3 800/1066/1333/1600MHz	Single Channel DDR4 1600/1866/2133/2400/2666MHz	8 DDR4 2666MHz
	Max. Capacity	192GB	512GB	192GB	UDIMM up to 128GB; RDIMM up to 256GB
Graphics	Socket	6 RDIMM	16 DIMM (ECC/Non-ECC)	6 RDIMM	DDR4
	Connector	1 VGA	1 VGA	VGA (with SEM2510/2500)	-
Expansion	PCIe, PCI	2 PCIe x16, 1 PCIe x8, 2 PCIe x4	4 PCIe x16, 2 PCIe x8	2 PCIe x16, 2PCIe x8, 1 PCI	3 PCIe x16, 1 PCIe x8 (x16 slot), 1 PCI
	Mini PCIe / M.2	1 M.2 M key	-	1 M.2 (SATA/PCIe x4 NVMe)	1 mSATA
Audio	SIM	-	-	-	-
	Audio Codec	-	-	ALC887	-
Ethernet	Controller	GbE: i350-AM2, 10GbE: CS4227, IPMI: RTL8211F	1 Intel® 82580	2 Intel® I210AT	2 Realtek GbE
	Ethernet (GbE)	2 GbE, 1 IPMI LAN, 1 Fiber 10G	4	2	2
Rear I/O	Serial	-	1 RS-232	2	2
	USB	2 USB 2.0	4 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	3 USB 3.0, 3 USB 2.0
	Display	1 VGA	1 VGA	1 VGA	-
	Audio	-	-	Mic-in, Line-in (opt.), Line-out	-
	PS/2	1	-	-	-
	Serial	1 RS-232	1 RS-232	-	-
Internal I/O	USB	2 USB 3.0, 2 USB 2.0, 1 Vertical USB 2.0	4 USB 2.0	2 USB 3.1 Gen1, 2 USB 2.0, 1 Vertical USB 2.0	1 Vertical USB 2.0
	Display	-	-	-	-
	Audio	-	-	-	-
	SATA	6 SATA 3.0	2 SATA 3.0, 4/8 SATA 2.0 (RAID)	6 SATA 3.0	5
	DIO	-	-	-	-
	LPC**	-	-	-	-
SMBus		1	-	1	-
TPM / iAMT		TPM 2.0 (opt.)	TPM (opt.)	TPM 2.0 (opt.)	-
Power		ATX	ATX	ATX	ATX
Operating Temperature		0°C~60°C	0°C~50°C	0°C~60°C	0°C~60°C



Coming Soon

Q370



Coming Soon

C246



Q370



C246

8th Gen Intel Core

Model Name		CS632-Q370	CS632-C246	CS631-Q370	CS631-C246
Platform		Desktop	Workstation	Desktop	Desktop
System	Processor	8th Gen Intel® Core™	Intel® Xeon®/8th Gen Intel® Core™	8th Gen Intel® Core™	8th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.9~4.7 GHz	2.9~4.7 GHz	2.9~4.7 GHz	2.9~4.7 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M	2M/4M/6M/9M/12M
	Chipset	Intel® Q370	Intel® C246	Intel® Q370	Intel® C246
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	64GB	64GB	64GB	64GB
Graphics	Socket	4 DIMM	4 DIMM	4 DIMM	4 DIMM
	Connector	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI	2 PCIe x16, 3 x PCIe x4, 1 PCIe x1, 1 PCI	2 PCIe x16, 3 x PCIe x4, 1 PCIe x1, 1 PCI
	Mini PCIe / M.2	1 mini PCIe, 1 M.2 M key	1 mini PCIe, 1 M.2 M key	2 Full-sized Mini PCIe, 1 M.2 M key	2 Full-sized Mini PCIe, 1 M.2 M key
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC887	Realtek ALC887	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I219LM, 1 Intel® I211AT
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0	2 USB 3.1 Gen2, 2 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++	1 VGA, 2 DP++
	Audio	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)
	PS/2	1	1	1	1
Internal I/O	Serial	5 RS-232	5 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.1 Gen2, 4 USB 2.0, 1 USB 2.0 vertical Type A	2 USB 3.1 Gen2, 4 USB 2.0, 1 USB 2.0 vertical Type A	2 USB3.1 Gen1, 4 USB 2.0	2 USB3.1 Gen1, 4 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID)	4 SATA 3.0 (RAID)	5 SATA3.0 (RAID)	5 SATA3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT		TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (Xeon/Core i5/i7 only)	TPM (opt.) / iAMT (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



H310



Q370



Q170



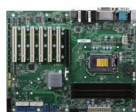
C236

6th/7th/8th Gen Intel Core

Model Name		CS630-H310	CS630-Q370	KD632-Q170	KD632-C236
Platform		Desktop	Desktop	Desktop	Workstation
System	Processor	8th Gen Intel® Core™	8th Gen Intel® Core™	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	2.6~4.2 GHz	2.6~4.2 GHz
	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/6M/8M
	Chipset	Intel® H310	Intel® Q370	Intel® Q170	Intel® C236
Memory	BIOS	AMI SPI 128Mbit	AMI SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
	Technology	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2400/2666 MHz	Dual Channel DDR4 2133/2400MHz	Dual Channel DDR4 2133/2400MHz
	Max. Capacity	32GB	64GB	64GB	64GB
Graphics	Socket	2 DIMM	4 DIMM	4 DIMM	4 DIMM (ECC/Non ECC)
	Connector	1 VGA, DVI, 1 DP++	1 VGA, DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++
Expansion	PCIe, PCI	5 PCI, 1 PCIe x16, 1 PCIe x4	5 PCI, 1 PCIe x16, 1 PCIe x4	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI	2 PCIe x16 (1 x16 or 2 x8), 3 PCIe x4, 2 PCI
	Mini PCIe / M.2	-	1 mPCIe, 1 M.2 M key	1 M.2 M key, 1 Mini PCIe	1 M.2 M key, 1 Mini PCIe
	SIM	-	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219V, 1 Intel® I211AT	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I211AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219LM
Rear I/O	Ethernet (GbE)	2	2	2	2
	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB3.1 Gen 1, 2 USB2.0	4 USB3.1 Gen 1, 2 USB2.0	4 USB 3.1 Gen1, 2 USB 2.0	4 USB 3.1 Gen1, 2 USB 2.0
	Display	1 VGA, DVI, 1 DP++	1 VGA, DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++	1 VGA, 1 DVI, 1 DP++
	Audio	Mic-in, Line-out, Line-in (opt.)	Mic-in, Line-out, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)	Line-out, Mic-in, Line-in (opt.)
	PS/2	1	1	1	1
Internal I/O	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	4 USB 2.0	2 USB3.1 Gen2, 4 USB2.0	2 USB 3.1 Gen1, 4 USB 2.0 + 1 Vertical USB 2.0 (type A)	2 USB 3.1 Gen1, 4 USB 2.0 + 1 Vertical USB 2.0 (type A)
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA3.0	5 SATA3.0 (RAID)	5 SATA 3.0 (RAID)	5 SATA 3.0 (RAID)
	DIO	8-bit DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	1	1	1	1
	SMBus	1	1	1	1
TPM / iAMT		TPM 1.2/2.0 (opt.)	TPM (opt.) / iAMT (Core i5/i7 only)	TPM (opt.) / iAMT (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

**Supports LPC EXT-RS232/RS485 module

6th/7th Gen Intel Core



Q170



H110



C236

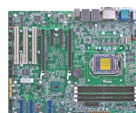


Q170

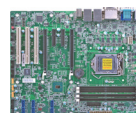
Model Name		KD600-Q170	KD600-H110	KD631-C236	KD631-Q170
Platform		Desktop	Desktop	Workstation	Desktop
System	Processor	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 95W	Max. 95W	Max. 95W	Max. 95W
	Cache	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M	2M/3M/6M/8M
	Chipset	Intel® Q170	Intel® H110	Intel® C236	Intel® Q170
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 2133/2400 MHz	Dual Channel DDR4 2133/2400 MHz
	Max. Capacity	64GB	32GB	64GB	64GB
	Socket	4 DIMM	2 DIMM	4 DIMM (ECC/Non-ECC)	4 DIMM
Graphics	Connector	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI
Expansion	PCIe, PCI	6 PCI, 1 PCIe16	6 PCI, 1 PCIe16	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 Mini PCIe	-	1 M.2 M key	1 M.2 M key
	SIM	-	-	-	-
Audio	Audio Codec	RealtekALC888	RealtekALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I219LM, 1 Intel® I211AT	1 Intel® I219V, 1 Intel® I211AT	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM
	Ethernet (GbE)	2	2	2	2
Rear I/O	Serial	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485	1 RS-232/422/485
	USB	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 DP++	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI
	Audio	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.), Line-out
	PS/2	1	1	1	1
Internal I/O	Serial	1 RS-232/422/485, 8 RS-232	1 RS-232/422/485, 8 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.0, 4 USB 2.0	4 USB 2.0	2 USB 3.0, 6 USB 2.0	2 USB 3.0, 6 USB 2.0
	Display	-	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	4 SATA 3.0 (RAID), 1 mSATA	4 SATA 3.0 (RAID), 1 mSATA	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 (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

**Supports LPC EXT-RS232/RS485 module

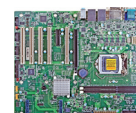
6th/7th Gen Intel Core



C236



Q170



H110

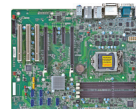
Model Name		SD631-C236	SD631-Q170	SD630-H110
Platform		Workstation	Desktop	Desktop
System	Processor	Intel® Xeon™/6th/7th Gen Intel® Core™	Intel® Xeon™/6th/7th Gen Intel® Core™	6th/7th Gen Intel® Core™
	Socket	LGA 1151	LGA 1151	LGA 1151
	Max. Speed	2.6~4.2 GHz	2.6~4.2 GHz	2.6~4.2 GHz
	TDP	Max. 65W	Max. 65W	Max. 65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® C236	Intel® Q170	Intel® H110
	BIOS	Insyde SPI 128Mbit	Insyde SPI 128Mbit	Insyde SPI 128Mbit
Memory	Technology	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR4 1866/2133MHz	Dual Channel DDR3L 1600MHz
	Max. Capacity	64GB	64GB	16GB
	Socket	4 DIMM (ECC/Non ECC)	4 DIMM	2 DIMM
Graphics	Connector	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI
Expansion	PCIe, PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI	2 PCIe x16 (1 x16 or 2 x8), 2 PCIe x4, 3 PCI	1 PCIe x16, 1 PCIe x4, 5 PCI
	Mini PCIe	-	-	-
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC888	Realtek ALC888	Realtek ALC888
Ethernet	Controller	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I210AT, 1 Intel® I219LM	1 Intel® I211AT, 1 Intel® I219V
	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	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0	4 USB 3.0, 2 USB 2.0
	Display	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI	1 VGA, 1 DVI-D, 1 HDMI
	Audio	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out	Mic-in, Line-in (opt.), Line-out
	PS/2	1	1	1
Internal I/O	Serial	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232	1 RS-232/422/485, 4 RS-232
	USB	2 USB 3.0, 6 USB 2.0	2 USB 3.0, 6 USB 2.0	4 USB 2.0
	Display	-	-	-
	Audio	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF	Front Audio (opt.), S/PDIF
	SATA	6 SATA 3.0 (RAID)	6 SATA 3.0 (RAID)	4 SATA 3.0
	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 (Core i5/i7 only)	TPM 2.0/1.2 (opt.)
Power		ATX	ATX	ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C

*SD series support 7th Gen Intel® Core™ Processors (available upon request)

4th Gen Intel Core



Q87



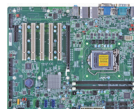
C226

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

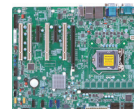
4th Gen Intel Core



H81



H81



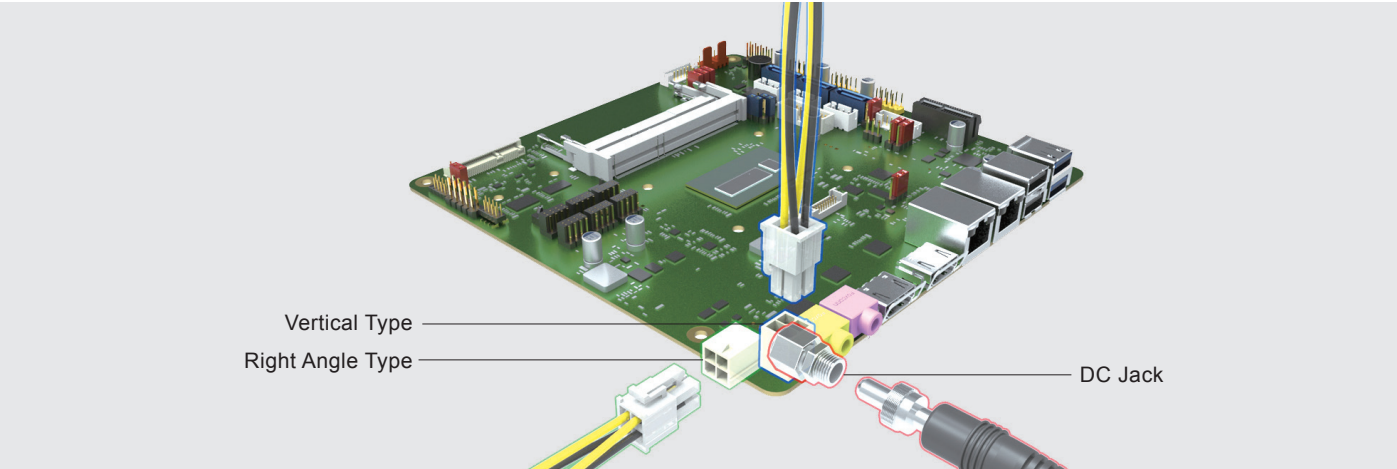
H81

Model Name		HD620/HD630-H81	HD632-H81	HD636-H81CS
Platform		Desktop	Desktop	Desktop
System	Processor	4th Gen Intel® Core™	4th Gen Intel® Core™	4th Gen Intel® Core™
	Socket	LGA 1150	LGA 1150	LGA 1150
	Max. Speed	2.2~4.0GHz	2.2~4.0GHz	2.2~4.0GHz
	TDP	35W/45W/53W/54W/65W	35W/45W/53W/54W/65W	35W/45W/53W/54W/65W
	Cache	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M	2M/3M/4M/6M/8M
	Chipset	Intel® H81	Intel® H81	Intel® H81
Memory	BIOS	AMI SPI 64Mbit	AMI SPI 64Mbit	AMI SPI 64Mbit
	Technology	Dual Channel DDR3 1333/1600MHz	Dual Channel DDR3 1333/1600MHz	Single Channel DDR3 1333/1600MHz
	Max. Capacity	16GB	16GB	8GB
Graphics	Socket	2 DIMM	2 DIMM	1 DIMM
	Connector	1 VGA, 1 DVI(HD620)/1 DVI, 1 HDMI(HD630)	1 VGA, 1 DVI	1 VGA, 1 HDMI
Expansion	PCIe, PCI	HD620: 1 PCIe x16, 1 PCIe x4, 4 PCI, 2 ISA HD630: 1 PCIe x16, 1 PCIe x4, 1 PCIe x1, 4 PCI	1 PCIe x16, 1 PCIe x4, 5 PCI	1 PCIe x16, 2 PCIe x4, 4 PCI
	Mini PCIe	1 Mini PCIe(HD630)	-	-
	SIM	-	-	-
Audio	Audio Codec	Realtek ALC886	Realtek ALC886	Realtek ALC888
Ethernet	Controller	HD620: 1 Intel® 82574, 1 Intel® I217 HD630: 1 Intel® I210, 1 Intel® I217	2 Intel® I210	2 Intel® 82574
Rear I/O	Ethernet (GbE)	2	2	2
	Serial	2 RS-232/422/485	2 RS-232	2 RS-232
	USB	2 USB 3.0, 4 USB 2.0	2 USB 3.0, 4 USB 2.0	2 USB 3.0, 2 USB 2.0
	Display	1 VGA, 1 DVI(HD620)/1 DVI, 1 HDMI(HD630)	1 VGA, 1 DVI	1 VGA, 1 HDMI
	Audio	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
	PS/2	1	1	2
Internal I/O	Serial	8 RS-232(HD620)/4 RS-232(HD630)	1 RS-422/485, 7 RS-232	1 RS-232/422/485, 5 RS-232
	USB	4 USB 2.0(HD620)/2 USB 2.0(HD630)	3 USB 2.0	5*/6 USB 2.0
	Display	-	-	-
	Audio	Front Audio, S/PDIF	Front Audio, S/PDIF	Front Audio, S/PDIF
	SATA	2 SATA 3.0, 2 SATA 2.0	2 SATA 3.0, 2 SATA 2.0	2 SATA 3.0, 2 SATA 2.0
	DIO	8-bit DIO	8-bit DIO	8-bit DIO
	LPC**	-	-	-
TPM / iAMT		TPM (opt.)	TPM (opt.)	TPM (opt.)
Power		24-pin ATX	24-pin ATX	24-pin ATX
Operating Temperature		0°C~60°C	0°C~60°C	0°C~60°C

*Populated by default

**Supports LPC EXT-RS232/RS485 module

Flexible Power Connector



DFI Applicable Boards:

Processor	Form Factor	Model
8th Gen Intel® Core™	Mini-ITX	CS101-Q370/C246/H310
7th Gen Intel® Core™	Mini-ITX	KD171, KD175, 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

DFI 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 DFI's newest platforms

DFI Applicable Boards:

Processor	Form Factor	Model
8th Gen Intel® Core™	ATX	CS632-Q370, CS632-C246, CS631-Q370, CS631-C246
	microATX	CS332-Q370, CS332-H310, CS331-Q370, CS331-C246, CS330-Q370, CS330-H310
	Mini-ITX	CS100-Q370/C246/H310
7th Gen Intel® Core™	ATX	KD632-Q170, KD632-C236, KD631-C236, KD631-Q170
	microATX	KD331-C236, KD331-Q170, KD300-Q170, KD300-H110
6th Gen Intel® Core™	ATX	SD631-C236, SD631-Q170, SD630-H110
	microATX	SD331-C236, SD331-Q170, SD330-Q170, SD330-H110
	Mini-ITX	SD170, SD100-Q170, SD101/SD103-Q170(opt.), SD100-H110, SD101/SD103-H110(opt.), SU171/SU173
Intel Atom® E3900	Mini-ITX	AL102, AL170, AL171/AL173
Intel® Pentium®/Celeron® N3000	Mini-ITX	BW171/BW173

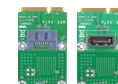
Peripherals

Providing Expansibility & High Flexibility



Proprietary Expansion Modules

Model Name	EXT-DP	SDVO-LVDS	MPE-CAN2
Chip	SN75DP130	Chrontel CH7308B	-
Ports	DP Connector LCD/Inverter Power Connector	LVDS LCD Panel Connector LCD/Inverter Power Connector	1 DB9 connector includes Dual CAN Bus and 1 J1708 ports
Interface	1 DP	1 SDVO	1 Mini PCIe/USB (opt.)
Dimensions	50 x 40 mm	45 x 38 mm	50.59mm x 30mm
Applicable Models	HU171/173, HU101/103, HM100/101/103-QM87/HM86	SB102-D, SB300-C, SB630-CRM, SB600-C, SB601-C	-



Model Name	EXT-RS232	EXT-RS485	MPE-EXTB	MPE-EXTF	MPE-SATA
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
Interface	1 LPC	1 LPC	1 Half-size Mini PCIe	1 Half-size Mini PCIe	1 mSATA
Dimensions	48 x 30 mm	48 x 30 mm	30 x 26.8 mm	30 x 26.8 mm	35 x 25 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		-	-	-



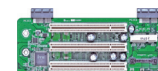
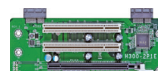
DC to DC Converters

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



Riser Cards

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



Model Name	H300-2E	H300-2P1E	H300-3P1M
Expansion Slots	2 PCIe x8	1 PCIe x16, 2 PCI	3 PCI, 1 Mini PCIe
Interface		2 DFI Proprietary Extension Bus	
Dimensions	170 x 37 mm	170 x 64 mm	170 x 64 mm
Applicable Models	CR100-CRM, HR100-CRM, CM100-C, BT161		

*Available upon project request & MOQ required



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