

Computer On Modules

Coming Soon

Coming Soon

Coming Soon

Model Name		SOM-C350	SOM-D580	SOM-E780
Form Factor		COM-HPC Size C	COM-HPC Size D	COM-HPC Size E
Pin-out Type		COM-HPC Client	COM-HPC Server	COM-HPC Server (Proprietary)
Processor System	CPU	Intel® next generation desktop CPU (socket)	Intel® next generation Xeon® D HCC CPU	AMD EPYC 7003 CPU (socket)
	Base Frequency	TBD	2.1-1.8GHz	3.0-2.0GHz
	Processor Core	16/12/6/4/2	20/16/12/8/4	64/32/24/16
	LLC	30/25/18/12/6/4MB	30/25/20/15MB	256/128MB
	CPU TDP	65/35W	118/100/80/77/65W	225/180/155W
	Chipset	Intel® next generation desktop PCH	-	-
Memory	Technology	DDR5 4800	DDR4 3200	DDR4 3200
	ECC Support	ECC and non-ECC	ECC and non-ECC	ECC and non-ECC
	Max. Capacity	128GB	512GB	512GB
	Socket	4 x 262P SODIMM	4 x 288P LRDIMM	4 x 288P LRDIMM
Graphics	Controller	Intel® UHD Graphics 770	-	-
	Max. Frequency	TBD	-	-
	eDP	1	-	-
	DDI (HDMI/DVI/DisplayPort)	3	-	-
	Multiple Displays	Quad-Display	-	-
Expansion	PCIe x16	1 (Gen5)	2 (Gen4)	4 (Gen4)
	PCIe x8	-	2 (Gen3)	1 (Gen4)
	PCIe x4	-	-	1 (Gen4)
	PCIe x1	16 Gen4 + 10 Gen3	-	2 (Gen4)
	PCIe_BMC	1 (optional)	1	1
	eSPI	1	1	N/A; Support LPC
Serial Bus	SMBus	1	1	1
	I2C Bus	2	2	2
	IPMB	-	1	1
Ethernet	Controller	2 x Intel® I225	Intel® I225	Intel® I225
	GbE Speed	2.5G	2.5G	2.5G
	25Gb Ethernet	-	4 x 25Gb or 8 x 10Gb	-
I/O	SATA	2	2	2
	USB 3.2 Gen 2x2 (20Gbps)	4	-	-
	USB 3.2 Gen 2 (10Gbps)	-	-	-
	USB 3.2 Gen 1 (5Gbps)	-	4	4
	USB 2.0	8	4	4
	Audio	Soundwire/HD Audio	-	-
	BOOT_SPI	1	1	1
	GP_SPI	-	-	-
	GPIO	12	12	12
	Watchdog	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	-	-	-
	TPM	TPM2.0	TPM2.0	TPM2.0
	Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin
Supply Voltage		Vin: 11.4-12.6V VSB: 4.75-5.25V	Vin: 11.4-12.6V VSB: 4.75-5.25V	Vin: 11.4-12.6V VSB: 4.75-5.25V
Power Consumption Max.		TBD	TBD	TBD
Power Consumption Idle		TBD	TBD	TBD
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60° C (32 ~ 140° F)
	Extended Temp.(Optional)	-	-40 ~ 85 °C (-40 ~ 185 °F)	-
Mechanical	Dimensions	160 x 120 mm (6.30" x 4.72")	160 x 160 mm (6.30" x 6.30")	200 x 160 mm (7.87" x 6.30")

Note: "-" : means Not Applicable (N/A)

Computer On Modules

NEW



Model Name		SOM-5993	SOM-5962	SOM-9590	SOM-5992
Form Factor		COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic
Pin-out Type		COM R3.0 Type 7	COM R3.0 Type 7	COM R3.0 Type 7	COM R3.0 Type 7
Processor System	CPU	Intel® next generation Xeon® D LCC CPU	Intel® Atom Processor C3000 Series	Intel® Xeon Processor D-1539	Intel® Xeon Processor D-1500 Series
	Base Frequency	2.3-1.6GHz	2.2-1.5GHz	1.6GHz	2.2-1.3GHz
	Processor Core	10/8/4	16/12/8/4/2	8	16/12/8/6/4/2
	LLC	15/12/6MB	16/12/8/4MB	12MB	24/12/9/6/3MB
	CPU TDP	69/59/52/50/39W	31/25/17/16/11.5/8.5W	35W	45/35/25W
	Chipset	-	-	-	-
Memory	Technology	DDR4 2933	DDR4 2400/2133/1866	DDR4 2133	DDR4 2400/2133/1866
	ECC Support	ECC and non-ECC	ECC and non-ECC	ECC	ECC and non-ECC
	Max. Capacity	128GB	128GB	32GB	128GB
	Socket	4 x 260P SODIMM	4 x 260P SODIMM	-	4 x 260P SODIMM
Graphics	Controller	-	-	-	-
	Max. Frequency	-	-	-	-
	VGA	-	-	-	-
	LCD (TTL/LVDS/eDP)	-	-	-	-
	DDI (HDMI/DVI/DisplayPort)	-	-	-	-
	Multiple Displays	-	-	-	-
Expansion	PCIe x16	1 (Gen4)	-	1	1
	PCIe x8	1 (Gen3)	Up to 2 (depends on SKU)	1	1
	PCIe x4	2 (Gen3)	1	-	-
	PCIe x1	-	-	7 (max. 8 if remove GbE)	7 (max. 8 if remove GbE)
	LPC	1	1	1	1
Serial Bus	SMBus	1	1	1	1
	I2C Bus	1	1	1	1
	CAN Bus	Optional	-	-	-
Ethernet	Controller	Intel® I210	Intel® I210	Intel® I210	Intel® I210
	GbE Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	4	4 (10G/2.5G by SKU)	2	2
I/O	SATA	2	2	2	2
	USB 3.2 Gen 2 (10Gbps)	-	-	-	-
	USB 3.2 Gen 1 (5Gbps)	4	4	4	4
	USB 2.0	4	4	4	4
	Audio	-	-	-	-
	SPI Bus	1	1	1	1
	GPIO	8	8	8	8
	SDIO (GPIO pin shared)	-	-	-	-
	Watchdog	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	-	eMMC	SATA SSD	-
	TPM	TPM2.0	TPM2.0	TPM2.0	TPM2.0
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
	Supply Voltage	Vin: 8.55-12.6V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V
	Power Consumption Max.	TBD	32.6W	45.56W	55.5W
	Power Consumption Idle	TBD	11.8W	12.75W	13.77W
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp.(Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	125 mm x 95 mm (4.92" x 3.74")	125 x 95 mm (4.92" x 3.74")	125 x 95 mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")

Note: "-" : means Not Applicable (N/A)

Computer On Modules

NEW


Model Name		SOM-5883	SOM-5899	SOM-5898	SOM-5897	SOM-5871
Form Factor		COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic
Pin-out Type		COM R3.0 Type 6	COM R3.0 Type 6	COM R2.1 Type 6	COM R2.1 Type 6	COM R3.0 Type 6
Processor System	CPU	Intel® 11th Gen. H Series (Tiger Lake-H)	Intel® 9th/8th Gen. Core i7/i5/i3/Xeon/Celeron	Intel® 7th Gen. Core i7/i5/i3/ Xeon	Intel® 6th Gen. Core i7/i5/i3/ Xeon/Celeron	AMD Ryzen™ V1000
	Base Frequency	2.6-1.5GHz	3.0-1.6GHz	3.0-2.1 GHz	2.8-1.9GHz	3.35-2.0GHz
	Processor Core	8/6/4/2	6/4/2	4/2	4/2	4/2
	LLC	24/12/8MB	12/9/8/6/2MB	8/6/3MB	8/6/3/2MB	2/1MB
	CPU TDP	45/35/25W	45/35/25W	45/35/25W	45/35/25W	35-54/12-25W
	Chipset	Intel® QM580E/RM590E	Intel® CM246/QM370/HM370	Intel® QM175/CM238	Intel® QM170/CM236	-
Memory	Technology	DDR4 3200	DDR4 2666/2400/2133	DDR4 2400/2133	DDR4 2133/1866	DDR4 3200/2400
	ECC Support	ECC and non-ECC	ECC (Xeon only)	ECC (Xeon only)	ECC (Xeon only)	ECC and non-ECC
	Max. Capacity	128GB	96GB	32GB	32GB	32GB
	Socket	4 x 260P SODIMM	3 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM
Graphics	Controller	Intel® Iris® Xe Graphics	Intel® UHD Graphics 610/630/P630	Intel® HD Graphics 630/P630	Intel® HD Graphics 510/530/P530/P580	AMD Vega GPU
	Max. Frequency	1350-1250MHz	1.15GHz	1GHz-350MHz	1.05GHz-950MHz	1.3-1.0GHz
	VGA	1	1	1	1	1
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)
	DDI (HDMI/DVI/DisplayPort)	3	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA
Multiple Displays	Quad-Display	Triple-Display	Triple-Display	Triple-Display	Quad-Display	
Expansion	PCIe x16	1 (Gen4)	1	1	1	-
	PCIe x8	-	-	-	-	1
	PCIe x4	-	-	-	-	-
	PCIe x1	8 (Gen3)	8	8	8	6
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	Optional	Optional	-	-	Optional
Ethernet	Controller	Intel® I225	Intel® I219LM	Intel® I219LM	Intel® I219LM	Intel® I210
	GbE Speed	2.5G	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	4	4	4	4	2
	USB 3.2 Gen 2 (10Gbps)	4	4	-	-	-
	USB 3.2 Gen 1 (5Gbps)	-	-	4	4	3
	USB 2.0	8	8	8	8	8
	Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	Optional	-	-	-
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	NVMe SSD	-	-	-	-
TPM	TPM2.0	TPM2.0	TPM2.0	Optional	TPM2.0	
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
	Supply Voltage	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V
	Power Consumption Max.	TBD	44.63W	48.1W	43.3W	67.12 W
	Power Consumption Idle	TBD	6.89W	6.77W	5.23W	15 W
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp.(Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (only on V1404)
Mechanical	Dimensions	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")

Note: "-" : means Not Applicable (N/A)

Computer On Modules



Model Name		SOM-6883	SOM-6872	SOM-6882	SOM-6898	SOM-6897
Form Factor		COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact
Pin-out Type		COM R3.0 Type 6	COM R3.0 Type 6	COM R3.0 Type 6	COM R2.1 Type 6	COM R2.1 Type 6
Processor System	CPU	Intel® 11th Gen. U Series (Tiger Lake-UP3)	AMD Ryzen™ V2000	Intel® 8th Gen. Core i7/i5/i3/ Celeron	Intel® 7th Gen. Core i7/i5/i3/ Celeron	Intel® 6th Gen. Core i7/i5/i3/ Celeron
	Base Frequency	2.2-1.5GHz	3.0-1.7GHz	2.2-1.6GHz	2.8-2.2GHz	2.6-2.0GHz
	Processor Core	4/2	8/6	4/2	2	2
	LLC	12/8/6/4MB	8MB	8/6/4/2MB	4/3/2MB	4/3/2MB
	CPU TDP	28/15/12W	35-54/10-25W	15W	15W	15W
Chipset		-	-	-	-	-
Memory	Technology	DDR4 3200 (1CH on board)	DDR4 3200	DDR4 2400	DDR4 2133	DDR3L 1600
	ECC Support	IB ECC support by Specific CPU SKUs	ECC and non-ECC	-	-	-
	Max. Capacity	48GB	64GB	64GB	32GB	16GB
	Socket	1 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM	2 x 260P SODIMM	2 x 204P SODIMM
Graphics	Controller	Intel® Iris® Xe Graphics/ Intel® UHD Graphics	AMD Radeon Graphics Vega GPU	Intel® UHD Graphics 620/610	Intel® HD Graphics 620/610	Intel® HD Graphics 520/510
	Max. Frequency	1.35-1.25GHz	1.6GHz	1.15-1.0 GHz	1.15-0.9 GHz	1.15-0.9GHz
	VGA	1	1	1	1	1
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit
		eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)	eDP (optional)
	DDI (HDMI/DVI/ DisplayPort)	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA	2; up to 3 if remove VGA
Multiple Displays	Quad-Display	Quad-Display	Triple-Display	Triple-Display	Triple-Display	
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	1	-	-	-
	PCIe x4	1 (if remove NVMe)	-	-	-	-
	PCIe x1	5 (max. 6 if remove GbE)	8	8	8	8
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	Optional	Optional	-	-	-
Ethernet	Controller	Intel® I225	Intel® I210	Intel® I219LM	Intel® I219LM	Intel® I219LM
	GbE Speed	2.5G	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	2	2; up to 3 if remove PCIe x1	2; up to 3 if remove PCIe x1	2; up to 3 if remove PCIe x1
	USB 3.2 Gen 2 (10Gbps)	4	4	-	-	-
	USB 3.2 Gen 1 (5Gbps)	-	-	4	4	4
	USB 2.0	8	8	8	8	8
	Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	-	Optional	1	1
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	NVMe SSD	-	eMMC	eMMC	-
	TPM	TPM2.0	TPM2.0	TPM2.0	Optional	Optional
	Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX/ATX: Vin	ATX: Vin, VSB; AT: Vin
Supply Voltage		Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V
Power Consumption Max.		55.742W	73.25W	59.721W	24.61W	20.73W
Power Consumption Idle		7.834W	4.798W	4.204W	4.16W	4.12W
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp.(Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")

Note: "-" : means Not Applicable (N/A)

Computer On Modules



Model Name		SOM-6832	SOM-6869	SOM-6867	SOM-7583	SOM-7569
Form Factor		COM Express Compact	COM Express Compact	COM Express Compact	COM Express Mini	COM Express Mini
Pin-out Type		COM R3.0 Type 6	COM R2.1 Type 6	COM R2.1 Type 6	COM R3.0 Type 10	COM R2.1 Type 10
Processor System	CPU	Intel® Atom/Pentium/Celeron x6000 Series (Elkhart Lake)	Intel® Atom E3900 & Pentium/Celeron N series	Intel® Atom E3900 & Celeron N/J series	Intel® 11th Gen. U Series (Tiger Lake-UP3)	Intel® Atom E3900 & Pentium/Celeron N series
	Base Frequency	2.0-1.0GHz	1.6-1.1GHz	2.0-1.19GHz	2.2-1.5GHz	1.6-1.1GHz
	Processor Core	4/2	4/2	4/2	4/2	4/2
	LLC	1.5MB	2MB	2/1MB	12/8/6/4MB	2MB
	CPU TDP	12/10/9/7.5/6.5/6/4.5W	6/6/12/9.5/6.5/10W	10 - 6W	28/15/12W	12/9.5/6.5/6W
	Chipset	-	-	-	-	-
Memory	Technology	DDR4 3200	ECC: DDR3L 1600; Non-ECC: DDR3L 1866	DDR3L 1333	LPDDR4X up to 4267MT/s	DDR3L 1866/1600
	ECC Support	IBECC support by Specific CPU SKUs	A1: non-ECC; B1: ECC	-	IBECC support by Specific CPU SKUs	ECC and non-ECC
	Max. Capacity	32GB	8GB	8GB	16GB	8GB
	Socket	2 x 260P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM	-	-
Graphics	Controller	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel® Iris® Xe Graphics	Intel® HD Graphics
	Max. Frequency	800-750MHz	750-550MHz	854-792MHz	1350-1250MHz	750-550MHz
	VGA	-	1	1	-	-
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit	No LVDS; eDP only	LVDS 1-CH 18/24-bit eDP (optional)
	DDI (HDMI/DVI/DisplayPort)	2	1; up to 2 if remove VGA	1; up to 2 if remove LVDS	1	1
Multiple Displays	Triple-Display	Triple-Display	Dual-Display	Dual-Display	Dual-Display	
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	-	-	-	-
	PCIe x4	-	-	-	-	-
	PCIe x1	6	5	3 (max. 4 if remove GbE)	4	4
LPC	1	1	1	1	1	
Serial Bus	SMBus	1	1	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	Optional	Optional	-	-	Optional
Ethernet	Controller	Maxlinear GPY215	Intel® I210	Intel® I210	Intel® I225	Intel® I210
	GbE Speed	2.5G	10/100/1000Mbps	10/100/1000Mbps	2.5G	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	2	2	2	2
	USB 3.2 Gen 2 (10Gbps)	2; up to 4 if remove PCIe	-	-	2	-
	USB 3.2 Gen 1 (5Gbps)	-	2	1	-	2
	USB 2.0	8	8	8	8	8
	Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	Optional	-	-	Optional
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	Onboard Storage	eMMC	-	SATA SSD	NVMe SSD	eMMC
TPM	TPM2.0	TPM2.0	-	Intel fTPM	TPM2.0	
Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin	ATX: Vin, VSB; AT: Vin
	Supply Voltage	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-20V VSB: 4.75-5.25V
	Power Consumption Max.	TBD	14.76W	15.36W	TBD	14.73W (E3950)
	Power Consumption Idle	TBD	4.46W	9.48W	TBD	4.68W (E3950)
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140° F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp.(Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")	84 x 55 mm (3.3" x 2.17")	84 x 55 mm (3.3" x 2.17")

Note: "-" : means Not Applicable (N/A)

Computer On Modules

NEW


Model Name		SOM-7567	SOM-2532	SOM-2569	SOM-3569	SOM-3567
Form Factor		COM Express Mini	SMARC	SMARC	Qseven	Qseven
Pin-out Type		COM R2.1 Type 10	SMARC 2.1.1	SMARC 2.0/2.1	Qseven 2.1	Qseven 2.1
Processor System	CPU	Intel® Atom E3800 & Celeron N/J series	Intel® Atom/Pentium/Celeron x6000 Series (Elkhart Lake)	Intel® Atom E3900 & Pentium/Celeron N series	Intel® Atom E3900 & Pentium/Celeron N series	Intel® Atom E3800 & Celeron N/J series
	Base Frequency	2.0-1.33GHz	2.0-1.0GHz	2.5-1.8GHz	1.6-1.1GHz	2.0-1.33GHz
	Processor Core	4/2/1	4/2	4/2	4/2	4/2/1
	LLC	2MB/1MB/512KB	1.5MB	2MB	2MB	2MB/1MB/512KB
	CPU TDP	10/8/7.5/6/5/3W	12/10/9/7.5/6.5/6/4.5W	12/9/6.5/6W	12/9/6.5/6W	10/8/6/5/4.3/3W
	Chipset	-	-	-	-	-
Memory	Technology	DDR3L 1333/1066	LPDDR4 3200	LPDDR4 2400	LPDDR4 2400	DDR3L 1333/1066
	ECC Support	-	IB ECC support by Specific CPU SKUs	-	-	-
	Max. Capacity	4GB	16GB	8GB	8GB	8GB
	Socket	-	-	-	-	-
Graphics	Controller	Intel® HD Graphics	Intel® UHD Graphics	Intel® HD Graphics 505/500	Intel® HD Graphics	Intel® HD Graphics
	Max. Frequency	854-792MHz	800-750MHz	750-550MHz	750-550MHz	854-750MHz
	VGA	-	-	-	-	-
	LCD (TTL/LVDS/eDP)	LVDS 1-CH 18/24-bit	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit eDP (optional)	LVDS 2-CH 18/24-bit
	DDI (HDMI/DVI/DisplayPort)	1	2	2	1	1
	Multiple Displays	Dual-Display	Triple-Display	Triple-Display	Dual-Display	Dual-Display
Expansion	PCIe x16	-	-	-	-	-
	PCIe x8	-	-	-	-	-
	PCIe x4	-	-	-	-	-
	PCIe x1	3 (max. 4 if remove GbE)	4	4 (max. 5 if remove GbE)	4	3 (max. 4 if remove GbE)
	LPC	1	N/A; Support eSPI	-	1	1
Serial Bus	SMBus	1	-	1	1	1
	I2C Bus	1	1	1	1	1
	CAN Bus	-	2	Optional	Optional	-
Ethernet	Controller	Intel® I210	2 x Marvell 88E1512	2 x Intel® I210	Intel® I210	Intel® I210
	GbE Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
	10Gb Ethernet	-	-	-	-	-
I/O	SATA	2	1	1	2	2
	USB 3.2 Gen 2 (10Gbps)	-	2	-	-	-
	USB 3.2 Gen 1 (5Gbps)	1	-	2	2	1
	USB 2.0	4	6	6	8	6
	Audio	HD Audio	1 x HD Audio/ up to 2 x I2S	1 x HD Audio/ up to 2 x I2S	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	14	12	-	-
	SDIO (GPIO pin shared)	-	-	1	1	-
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	4 (2 x 4-wire / 2 x 2-wire)	4 (2 x 4-wire / 2 x 2-wire)	2 (2 x 4-wire, 1 on MFG pins)	2 (2 x 4-wire, 1 on MFG pins)
	Onboard Storage	SATA SSD	eMMC	eMMC	eMMC	eMMC
	TPM	-	TPM2.0	TPM2.0	TPM2.0	-
	Power	Power Type	ATX: Vin, VSB; AT: Vin	ATX/AT: Vin	ATX/ATX: Vin	ATX: Vin, VSB, AT: Vin
Supply Voltage		Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-5.25V	Vin: 4.75-5.25V	Vin: 4.75-5.25V VSB: 4.75-5.25V	Vin: 4.75-5.25V VSB: 4.75-5.25V
Power Consumption Max.		16.56W (E3845)	TBD	14.11W	9.1W	7.53W
Power Consumption Idle		8.04W (E3845)	TBD	3.45W	2.82W	3.28W
Environment	Operating Temp.	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)	0 ~ 60 °C (32 ~ 140 °F)
	Extended Temp.(Optional)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Mechanical	Dimensions	84 x 55 mm (3.3" x 2.17")	82 x 50 mm (3.23" x 1.97")	82 x 50 mm (3.23" x 1.97")	70 x 70 mm (2.75" x 2.75")	70 x 70 mm (2.75" x 2.75")

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 3.5" SBCs

NEW

NEW



Model Name		MIO-5375	MIO-5152	MIO-5393	MIO-5391	
Form-Factor		3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact	3.5" MI/O-Compact	
Processor System	CPU	i3-1115G4E/ i5-1145G7E/ i7-1185G7E/ i7-1185G9E	N6210/J6412/x6425E	i5-8400H/i7-9850HL / i7-9850HE/ E-2276ME	i3-7102E/ i5-7442EQ/ i7-7820E/ E3-1505MV6	
	# of Cores	4 ~ 8	2 ~ 4	4 ~ 6	2 ~ 4	
	# of Threads	4 ~ 8	2 ~ 4	8 ~ 12	4 ~ 8	
	Max. Turbo Frequency	3.90GHz ~ 4.40GHz	2.6GHz ~ 3.0GHz	4.1 GHz ~ 4.5GHz	2.90GHz ~ 4.00GHz	
	Base Frequency	1.50GHz ~ 3.0GHz	1.2GHz ~ 2.0GHz	1.9 GHz ~ 2.8 GHz	2.10GHz ~ 3.00GHz	
	Last Level Cache (LLC)	8MB~8MB		8MB~12MB	3MB~8MB	
	CPU TDP (Watt)	15W~28W		25W~45W	25W~45W	
BIOS	AMI EFI 256Mb	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 128Mb		
Memory	Technology	DDR4-3200MHz	DDR4-3200MHz	DDR4-2400MHz	DDR4-2400MHz	
	Max. Capacity	64GB	32GB	32GB (64GB*)	32GB (64GB*)	
	# of Channels	2	1	2	2	
	# of Sockets	2	1	2	2	
ECC Support	-	-	Support	Support		
Graphics	Chipset	Integrated Gfx		Intel Gen.9LP	Intel Gen.9LP	
	Controller	Integrated Gfx Intel® UHD Graphics 630	Intel® UHD Graphics	Intel® UHD Graphics P630	Intel® HD Graphics P630	
	3D Accelerator	DX12, OGL4.0, OCL1.2	DX12, OGL4.5, OCL1.2	DX3D 2015/11.2, OGL5.0, OCL2.1/2.0/1.2	DX3D 2015/11.2, OGL5.0, OCL2.1/2.0/1.2	
	VGA	-	-	-	1920 x 1200 @ 60Hz	
	LFP	LVDS	48-bit, 1920 x 1200 @ 60Hz	18/24-bit, up to 1920 x 1200	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
		eDP	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-
	HDMI1	HDMI1.4, 4096 x 2304@30Hz, 24bpp	HDMI 2.0, 4096 x 2160@60Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp	HDMI1.4, 4096 x 2304@30Hz, 24bpp	
	HDMI2	-	-	-	HDMI1.4, 4096 x 2304@30Hz, 24bpp	
	DisplayPort1	HDMI2.0, 4096 x 2304@60Hz, 24bpp	DP1.4a, 4096 x 2160 x 36bpp@60Hz, 36bpp	DP1.2 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	
	# of Display Pipe (Multi-Display)	4	3	3 (w/ MIOe)	3	
I/O	Ethernet	LAN1	Intel i219LM	RTL8111H	Intel i219	Intel i219LM
		LAN2	Intel i210	RTL8111H	Intel i210	Intel i210IT
	# of Ports		1	1	2	2
		Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)
	USB	USB3.1	4	4 (10 Gbps)	4 (10 Gbps)	-
		USB3.0	-	-	-	4 (5.0 Gb/s)
	UART	USB2.0	2 (internal)	2 (Internal)	2 (Internal)	2
		RS-232/422/485	2	2	2	2
	Serial Bus	RS-232	2 (4-wire)	4	-	Optional 2 Ports to GPIO
		I2C Bus	1	1	1	Option to SMBus, 100K/400K
	Audio	SMBus	1	Opt. to I2C	1	1
		CANBus	1	-	1	-
	Storage	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
Amplifier		-	-	-	-	
Expansion	GPIO (DIO)	8-bit	8-bit	16-bit	16-bit	
	mSATA	-	-	-	F/S mSATA (SATA, USB2.0)	
	eMMC	-	-	-	-	
	SATA SSD	-	-	-	-	
	M.2 E-Key 2230	PCIe, USB2.0	PCIe x1, USB2.0	PCIe x1, USB2.0	PCIe (x1/x2), USB2.0	
M.2 B-Key 3042	USB2.0	opt. to E-Key, PCIe x1, USB2.0	-	-		
M.2 B/M-Key 2280	-	-	PCIe x2, SATA, USB2.0	-		
M.2 M-Key 2242	-	SATA	-	-		
M.2 M-Key 2280	NVMe (PCIex4), opt. SATA	-	Option to M.2 B/M-Key 2280 (PCIex4, USB2.0)	-		
Others	mini-PCIe	-	-	-	Option to mSATA (PCIex1, USB2.0)	
Power	PC/104	-	-	-	-	
	PC/104	-	-	-	-	
	PC/104-Plus	-	-	-	-	
	MIOe (PCIe/PCIe Bifurcation/USB2.0/USB3.0/LPC/eSPI/SMBus/Line-out/Power Supply)	Support	-	Support	Support	
TPM	TPM	TPM2.0 AES-256	TPM2.0 (NPCT750AABYX)	TPM2.0 (SLB9670X02.0 FW7.63/SPI)	TPM2.0 (SLB9665X02.0 FW5.62)	
	Fan	1 x SMART Fan, 4-wire	4-Wire Smart Fan	4-Wire Smart Fan	4-Wire Smart Fan	
WatchDog Timer	Support	Support	1 ~ 255 sec	65536 Level, Minute or Second	65536 Level, Minute or Second	
	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX	
Power Supply Voltage	Power Supply Voltage	12V~24V	12V	12V	12V	
	Connector	2X2 ATX Connector	ATX 2x2pin 90D	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	
	Power Management	ACPI	ACPI	ACPI	ACPI	
	Power Consumption (idle)	19.2W	21.39W	11.55W	TBU	
Thermal	Power Consumption (Full Load)	46.8W	7.31W	44.55W/ 74.44W/ 95.38W/ 102.75W	TBU	
	Fan or Fanless	Active (Fan Base)/ Passive (Fan-less)	Fanless	Active (Fan Base)/ Passive (Fan-less)	Active (Fan Base)/ Passive (Fan-less)	
Environment	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0~60C	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	
	Storage Temperature	-40~85C	-40~85C	-40~85C	-40~85C	
	Relative Humidity (Operating)	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	
Certification	Relative Humidity (Storage)	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	
	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	
Safety Certifications	-	-	-	-		

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 3.5" SBCs



Model Name		MIO-5373	MIO-5272	MIO-5350	MIO-5251	MIO-5850	
Form-Factor		3.5" MI/O-Compact		3.5" MI/O-Compact		3.5" MI/O-Compact	
Processor System	CPU	i7-8665UE/i5-8365UE/i3-8145UE/Celeron 4305U*	i7-7600U/ i5-6300U/ i3-6100U	N4200/ N3350/ E3930/ E3940/ E3950	J1900/ E3845/ E3825	J1900/ E3825	
	# of Cores			4/ 2/ 4/ 4/ 2	4/4/2	4/ 2	
	# of Threads			2 - 4	4/4/2	4/ 2	
	Max. Turbo Frequency	3.90GHz ~ 4.40GHz	3.0GHz ~ 3.40GHz	2.5GHz/ 2.4GHz/ 2GHz/ 1.8GHz/ 1.8GHz	2.42GHz / - / -	2.42GHz / -	
	Base Frequency	1.60GHz ~ 2.20GHz	2.30GHz ~ 2.80GHz	1.1GHz/ 1.1GHz/ 1.6GHz/ 1.6GHz/ 1.3GHz	2.00GHz/ 1.9GHz/ 1.33GHz	2.00GHz/ 1.33GHz	
	Last Level Cache (LLC)	4MB-8MB	3MB-4MB	2MB/ 2MB/ 2MB/ 2MB/ 2MB	2MB/ 2MB/ 1MB	2MB/ 1MB	
Memory	CPU TDP (Watt)	15W	15W	6W/ 6W/ 12W/ 9.5W/ 6.5W	10W/ 10W/ 6W	10W/ 6W	
	BIOS	AMI UEFI 256Mb		AMI UEFI 64 Mb	AMI UEFI 64Mbit	AMI UEFI 64Mbit	
	Technology	DDR4-2400MHz	DDR3L-1600MHz	DDR3L 1867MHz	DDR3L-1333/ 1066MHz	DDR3L-1333/ 1066MHz	
	Max. Capacity	32GB (64GB*)	16GB	16GB	Up to 8GB	Up to 8GB	
	# of Channels	2	2	1	1	1	
	# of Sockets	2	2	1	1	1	
Graphics	ECC Support	-	-	-	-	-	
	Chipset	Intel Gen.9	Integrated SoC	Integrated SoC	Integrated SoC	Integrated SoC	
	Controller	Intel® UHD Graphics 620	Intel® HD Graphics 620	Intel Gen9 graphics engine	Intel® HD Graphics for Z3700 Series	Intel® HD Graphics for Z3700 Series	
	3D Accelerator	Direct3D 2015, OpenGL4.5, OpenCL2.1	Direct3D 2015, OpenGL4.5, OpenCL2.1	Direct3D 2015, OpenGL4.5, OpenCL2.1	DX11, OGL3.2, OCL1.2	DX11, OGL3.0, OCL1.2	
	VGA	-	1920 x 1200 @ 60Hz	1920 x 1200 @ 60Hz	Up to 2560 x 1600 @ 60Hz	Up to 2560 x 1600 @ 60Hz	
	LFP	LVDS	48-bit, 1920 x 1200 @ 60Hz	48-bit, 1920 x 1200	48-bit, 1920 x 1200	48-bit, 1920 x 1200	48-bit, 1920 x 1200
		eDP	Opt. eDP1.4 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	Opt. eDP1.4, 4096 x 2160@30Hz	Opt. 2560 x 1600 @ 60Hz	Opt. 2560 x 1600 @ 60Hz
	HDMI1	HDMI1.4 4096 x 2160@24Hz, 24bpp	HDMI1.4 4096 x 2160@24Hz, 24bpp	HDMI1.4b 3840x2160@30Hz	HDMI1.4a 1920 x 1080 @ 60Hz	HDMI1.4a, 1920x1200x24bpp @60Hz	
	HDMI2	-	-	-	-	-	
	DisplayPort1	DP1.2 3840 x 2160@60Hz, 30bpp 4096 x 2304@60Hz, 24bpp	-	Opt. DP1.2a 4096x2260@60Hz	Opt. to HDMI, up to 2560 x 1600 @ 60Hz	-	
# of Display Pipe (Multi-Display)	3	3	3	2	2		
I/O	Ethernet	LAN1	i219	i219	i210AT	i210AT	
		LAN2	i210IT	i210IT	i210AT	i210AT	
	SATA	# of Ports	1, option 2 to NVMe	2	1, opt. 2	1	1
		Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen2 (3.0 Gb/s)	Gen2 (3.0 Gb/s)
	USB	USB3.1	4 (10GT/s)	-	-	-	-
		USB3.0	-	2 (5.0 Gb/s)	2 (5.0 Gb/s)	1	1
		USB2.0	2	4	4	4	4
	UART	RS-232/422/485	2	2	2	2	2
		RS-232	Optional 2 Ports to GPIO	-	2	2	2
	Serial Bus	I2C Bus	1	Option to SMBus	Opt. with SMBus, 100K/400K	Opt. to SMBus	Opt. to SMBus
		SMBus	1	1	Support	1	1
		CANBus	1	-	-	-	-
	Audio	CODEC	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S	Realtek ALC888S
		Amplifier	-	-	-	-	-
Storage	GPIO (DIO)	16-bit	8-bit	8-bit	8-bit	16-bit	
	mSATA	-	F/S mSATA (SATA, USB2.0)	F/S mSATA (SATA, USB2.0)	F/S (SATA, USB2.0, SMBus)	F/S (SATA, USB2.0, SMBus)	
	eMMC	32GB	-	-	-	On board 32GB Opt. up to 64GB	
	SATA SSD	-	-	-	-	-	
Expansion	M.2 E-Key 2230	PCIe x1, USB2.0	-	PCIe, USB2.0	-	Opt to mini-PCIe (PCIex1, USB2.0)	
	M.2 B-Key 3042	-	-	-	-	-	
	M.2 B/M-Key 2280	SATA, USB2.0	-	-	-	-	
	M.2 M-Key 2242	-	-	-	-	-	
	M.2 M-Key 2280	Option to M.2 B/M-Key 2280 (PCIex4, USB2.0)	-	-	-	-	
	mini-PCIe	-	1 x F/S (PCIex1, USB2.0), Opt. 2nd to mSATA	-	F/S (PCIex1, USB2.0, SMBus)	F/S (PCIex1, USB2.0)	
	PC/104	-	-	-	-	-	
	PC/104-Plus	-	-	-	-	-	
MIOs (PCIe/PCIe Bifurcation/USB2.0/USB3.0/LPC/eSPI/SMBus/Line-out/Power Supply)	Support	Support	Support	Support	-		
Others	TPM	TPM2.0 (SLB9670XQ2, 0FW7.63)	Option SLB9665XQ2.0 FW 5.00	Opt. TPM2.0 (SLB9665TT2.0)	-	-	
	Fan	4-Wire Smart Fan	3-Wire Smart Fan	-	Fan (12V)	Fan (12V)	
	WatchDog Timer	65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second	
Power	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX	AT, ATX	
	Power Supply Voltage	12~24V	12V	12V	12V	12V	
	Connector	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 90D, Optional 180D, DC-Jack	Phoenix 1x2	
	Power Management	ACPI	ACPI	ACPI	ACPI	ACPI	
	Power Consumption (idle)	6.61W@12V; 7.42W@24V	6.46W@12V	0.4A@12V	0.62A@12V	Check test report (DS need update)	
Power Consumption (Full Load)	30.10W@12V; 33.33W@24V	22.03W@12V	1.26A@12V	1.16A@12V	Check test report (DS need update)		
Thermal	Fan or Fanless	Active (Fan Base)/ Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	
	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	
	Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	
	Relative Humidity (Operating)	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	
Environment	Relative Humidity (Storage)	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	
	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	
Certification	Safety Certifications	-	-	-	-	-	

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 2.5" Pico-ITX

NEW

NEW



Model Name		MIO-2363	MIO-2375	MIO-2361	MIO-2360	
Form-Factor		MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	
Processor System	CPU	x6425E/x6413E/x6211E	i7-1185G7E/ i7-1185G7E/ i5-1145G7E/ i3-1115G4E	E3950/ E3940/ E3930/ N4200/ N3350	E3940/ E3930/ N4200/ N3350	
	# of Cores	4/ 4/ 2	4/ 4/ 4/ 2	4/ 4/ 2/ 4/ 2	4/ 2/ 4/ 2	
	# of Threads	4/ 4/ 2	8/ 8/ 8/ 4	4/ 4/ 2/ 4/ 2	4/ 2/ 4/ 2	
	Max. Turbo Frequency	3.0GHz / 3.0GHz / 3.0GHz	4.40GHz/ 4.40GHz/4.10GHz/ 3.90GHz	2.00GHz/ 1.8GHz/1.8GHz/ 2.50GHz/ 2.4GHz	1.8GHz/1.8GHz/ 2.50GHz/ 2.4GHz	
	Base Frequency	2.0GHz/ 1.5GHz/ 1.3GHz	1.80GHz/ 1.80GHz/ 1.50GHz/ 2.20GHz	1.6GHz/ 1.6GHz/ 1.3GHz/ 1.1GHz/ 1.1GHz	1.6GHz/ 1.3GHz/ 1.1GHz/ 1.1GHz	
	Last Level Cache (LLC)	1.5MB/ 1.5MB/ 1.5MB	12MB/ 12MB/ 8MB/ 6MB	2MB/ 2MB/ 2MB/ 2MB	2MB/ 2MB/ 2MB/ 2MB	
Memory	CPU TDP (Watt)	12W/ 9W/ 6W	15W/ 15W/ 15W/ 15W	12W/ 9W/ 6W/ 6W/ 6W	9W/ 6W/ 6W/ 6W	
	BIOS	AMI UEFI 256Mb	AMI UEFI 256Mb	AMI UEFI 64Mbit	AMI UEFI 64Mbit	
	Technology	LPDDR4x-3733/ 3200/ 3200	LPDDR4x-4267	LPDDR4-2400	DDR3L-1867	
	Max. Capacity	up to 8GB	Onboard 16GB	Onboard 4GB	Up to 8GB	
	# of Channels	2	2	2	1	
	# of Sockets	-	-	-	1	
Graphics	ECC Support	Support	-	-	-	
	Chipset	Integrated SoC	Integrated SoC	Integrated SoC	Integrated SoC	
	Controller	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® Iris® Xe Graphics	Intel® HD Graphics 505	Intel® HD Graphics 505	
	3D Accelerator	DX12, OGL4.5, OCL1.2, Vulkan 1.1	DX12, OGL4.0, OCL2.0	DX12, OGL4.3, OCL2.0	DX12, OGL4.3, OCL2.0	
	VGA	-	-	-	1920 x 1200 @ 60Hz	
	LFP	LVDS	18/24-bit LVDS	-	48-bit, 1920 x 1200	24-bit, 1440 x 900
		eDP	-	eDP1.4 HBR3, up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz	-	-
	HDMI1	3840 x 2160 @ 30Hz	-	HDMI 1.4b, 3840x2160x24bpp @30Hz	HDMI1.4b 3840x2160@30Hz	
	HDMI2	-	-	-	-	
	DisplayPort1	-	x DP1.4 (DP++), up to 4096x2304x36bpp@60Hz; with DSC 7680x4320x30bpp@60 Hz	-	-	
# of Display Pipe (Multi-Display)	2	2	2	2 (3 with MIOe)		
I/O	Ethernet	LAN1	i210IT	i210IT	i210AT	
		LAN2	i210IT	i210	i210IT	
	SATA	# of Ports	-	1	1	1
		Speed	-	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)	Gen3 (6.0GT/s)
	USB	USB3.1	2	2	-	-
		USB3.0	-	-	2	2 (5.0 Gb/s)
	UART	RS-232/422/485	2	1	2	2
		RS-232	-	1	-	-
	Serial Bus	I2C Bus	1	1	Option to SMBus	Option to SMBus (Intel LPSS)
		SMBus	-	Optional	1	1
		CANBus	-	-	-	-
	Audio	CODEC	ALC888S	ALC888S	ALC888S	ALC888S
Amplifier		-	-	-	-	
Storage	GPIO (DIO)	8-bit	4-bit	8-bit	8-bit	
	mSATA	-	-	Option to mini-PCIe	H/S (SATA, USB2.0)	
	eMMC	128GB/ 64GB/ 64GB	-	32GB	-	
	SATA SSD	-	-	-	-	
Expansion	M.2 E-Key 2230	PCIe x1, USB2.0	PCIe x2, USB2.0	PCIe x1, USB2.0	-	
	M.2 B-Key 3042	SATA, USB2.0, opt to PCIe x1	SATA, USB2.0	-	-	
	M.2 B/M-Key 2280	-	-	-	-	
	M.2 M-Key 2242	-	PCIe x2	-	-	
	M.2 M-Key 2280	-	-	-	-	
	mini-PCIe	-	-	F/S (PCIex1, USB2.0)	F/S (PCIex1, USB2.0)	
	PC/104	-	-	-	-	
	PC/104-Plus	-	-	-	-	
Others	MIOe (PCIe/PCIe Bifurcation/USB2.0/ USB3.0/LPC/eSPI/SMBus/Line-out/ Power Supply)	-	-	-	Support	
	TPM	TPM2.0 (Infineon SLB 9670)	TPM2.0 (Infineon SLB 9670)	TPM2.0 (Infineon SLB 9670)	-	
Power	Fan	-	Smart Fan, 1A@12V	Fan (12V)	-	
	WatchDog Timer	65536 Level, 0~65535 sec	65536 Level, 0~65535 sec	65536 Level, 0~65535 sec	1~255 sec	
	Power Type	AT, ATX	AT, ATX	AT, ATX	AT, ATX	
	Power Supply Voltage	12~24V	12V	12/24V Selectable	12V	
	Connector	Wafer 2P 3.96mm	Wafer 2P 3.96mm	Wafer 2P 3.96mm	Wafer 2P 3.96mm	
	Power Management	ACPI	ACPI	ACPI	ACPI	
Thermal	Power Consumption (Idle)	9.35W (12V), 11.60 (24V)	23.388 W	E3950: 8.59 W (12V) E3950: 8.81 W (24V)	N4200: 4.89 W (12V) N3350: 4.61 W (12V) E3940: 5.39W (12V)	
	Power Consumption (Full Load)	26.69W (12V), 28.7W (24V)	9.029 W	E3950: 26.27 W (12V) E3950: 26.51 W (24V)	N4200: 12.90 W (12V) N3350: 17.18 W (12V) E3940: 13.55W (12V)	
Environment	Fan or Fanless	Passive (Fan-less)	Active (Fan Base)	Passive (Fan-less)	Passive (Fan-less)	
	Operating Temperature (air flow 0.7 m/sec)	Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	
	Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	
	Relative Humidity (Operating)	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	
Certification	Relative Humidity (Storage)	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	
	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	
Safety Certifications	-	-	-	-		

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

MIO Extension 2.5" Pico-ITX



Model Name		MIO-2263	MIO-3360	MIO-3260	
Form-Factor		MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	MIO Extension 2.5" Pico-ITX	
Processor System	CPU	J1900/ E3825	N4200/ N3350	E3825/ N2930	
	# of Cores	4/ 2	4/ 2	4/ 2	
	# of Threads	4/ 2	4/ 2	4/ 2	
	Max. Turbo Frequency	2.42GHz / -	2.50GHz/ 2.40GHz	2.42 GHz/ -	
	Base Frequency	2.0GHz/ 1.33GHz	1.10GHz/ 1.10GHz	2.0 GHz/1.33 GHz	
	Last Level Cache (LLC)	2MB/ 1MB	2MB/ 2MB	2MB/ 1MB	
	CPU TDP (Watt)	10W/ 6W	6W/ 6W	7.5W/ 6W	
BIOS		AMI UEFI 64Mbit	AMI UEFI 64Mbit	AMI UEFI 64Mbit	
Memory	Technology	DDR3L-1333/ DDR3L-1066	DDR3L-1867	DDR3L 1333/ 1066 MHz	
	Max. Capacity	Up to 8GB	Up to 8GB	Up to 8GB	
	# of Channels	1	1	1	
	# of Sockets	1	1	1	
	ECC Support	-	-	-	
	Chipset	Integrated SoC	Integrated SoC	Integrated SoC	
Graphics	Controller	Intel® HD Graphics Z3700 Series	Intel® HD Graphics 505	Intel Gen7 graphic engine	
	3D Accelerator	DX11, OGL3.0, OCL1.2, OGL ES2.0	DX12, OGL4.3, OCL2.0	DX11, OGL3.0, OCL1.1, OGL ES2.0	
	VGA	Up to 2560 x 1600 @ 60Hz	1920 x 1200 @ 60Hz	Up to 2560 x 1600 @ 60Hz	
	LFP	LVDS	24-bit, 1440 x 900	48-bit, 1920 x 1200	1920 x 1200 @ 60Hz
		eDP	-	Opt. eDP1.3, 3840 x 2160@60Hz	-
	HDMI1	Opt. to VGA	HDMI 1.4b, 3840x2160x24bpp @30Hz	-	
	HDMI2	-	-	-	
	DisplayPort1	-	Option HDMI	Option HDMI	
	# of Display Pipe (Multi-Display)	3 (2 with MIOe)	2	2	
	I/O	Ethernet	LAN1	i210AT	i210IT
LAN2			-	-	
SATA		# of Ports	1	-	1
		Speed	Gen2 (3.0 Gb/s)	Gen3 (6.0GT/s)	Gen2 (3.0 Gb/s)
USB		USB3.1	-	-	-
		USB3.0	1	1	1(from MIOe)
		USB2.0	3	4	4 (internal)
UART		RS-232/422/485	1	2	2
		RS-232	1	-	-
Serial Bus		I2C Bus	-	1	1
		SMBus	Support	1	1
		CANBus	-	-	-
Audio		CODEC	ALC888S	ALC888S	ALC888S
	Amplifier	-	-	-	
GPIO (DIO)	8-bit	8-bit	8-bit		
Storage	mSATA	H/S (SATA, SMBus, no USB2.0)	H/S (SATA, USB2.0)	F/S (SATA, USB2.0)	
	eMMC	-	-	-	
	SATA SSD	-	-	-	
Expansion	M.2 E-Key 2230	-	-	-	
	M.2 B-Key 3042	-	-	-	
	M.2 B/M-Key 2280	-	-	-	
	M.2 M-Key 2242	-	-	-	
	M.2 M-Key 2280	-	-	-	
	mini-PCIe	H/S (PCIex1, USB2.0, SMBus)	Opt. to mSATA, (PCIex1, USB2.0)	Opt. to mSATA, (PCIex1, USB2.0)	
	PC/104	-	-	-	
	PCI104	-	-	-	
	PC/104-Plus	-	-	-	
MIOe (PCIe/PCIe Bifurcation/USB2.0/USB3.0/LPC/eSPI/SMBus/Line-out/Power Supply)	Support	Support	Support		
Others	TPM	-	-	-	
	Fan	12V Only	-	-	
	WatchDog Timer	1~255 sec	65536 Level, Minute or Second	1~255 sec	
Power	Power Type	AT, ATX	AT, ATX	AT, ATX	
	Power Supply Voltage	12V	12V	12V	
	Connector	Wafer 2P 3.96mm	"ATX 2x2 90D, Optional 180D, DC-Jack"	From 64pin connector A	
	Power Management	ACPI	ACPI	ACPI	
	Power Consumption (Idle)	J1900: 0.86@12V E3825: 0.59@12V	0.37 @ 12V (4.48W)	E3825: 4.47W N2930: 5.08W	
Power Consumption (Full Load)	J1900: 1.04@12V E3825: 0.76@12V	1.44 @ 12V (17.38W)	E3825: 7.13W N2930: 5.08W		
Thermal	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	
	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	
	Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	
	Relative Humidity (Operating)	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	
	Relative Humidity (Storage)	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	
Certification	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	
	Safety Certifications	-	-	-	

Note: "-" : means Not Applicable (N/A)

Embedded Single Board Computers

3.5" Single Board Computers

PC104 CPU Modules



Model Name		PCM-9366	PCM-9310	PCM-9365	
Form-Factor		3.5" Single Board Computers	3.5" Single Board Computers	3.5" Single Board Computers	
Processor System	CPU	N4200/ E3950/ N3350	N3160/ N3060 / X5-E8000	N2930/ E3825	
	# of Cores	4/ 4/ 2	4/ 2/ 4	4/ 2	
	# of Threads	4/4/2	4/2/4	4/ 2	
	Max. Turbo Frequency	2.5GHz /2.0GHz /2.4GHz	2.24GHz /2.48GHz /2.00GHz	2.16GHz / -	
	Base Frequency	1.1GHz/ 1.6GHz/ 1.1GHz	1.6GHz/ 1.6GHz/ 1.04GHz	1.83GHz/ 1.33GHz	
	Last Level Cache (LLC)	2MB/ 2MB/ 2MB	2MB/ 2MB/ 2MB	2MB/ 1MB	
	CPU TDP (Watt)	6W/ 12W/ 6W	6W/ 6W/ 5W	7.5W/ 6W	
	BIOS	AMI UEFI 64Mbit	AMI UEFI 64Mbit	AMI UEFI 64Mbit	
	Technology	DDR3L-1867MHz	DDR3L-1600	DDR3L-1333/ DDR3L-1066	
	Max. Capacity	Up to 8GB	Up to 8GB	On board Up to 4GB	
Memory	# of Channels	1	1	1	
	# of Sockets	1	1	-	
Graphics	ECC Support	-	-	-	
	Chipset	Integrated SoC	Integrated SoC	Integrated SoC	
	Controller	Intel® HD Graphics 505	Intel® HD Graphics 400	Intel® HD Graphics Z3700 Series	
	3D Accelerator	DX12, OGL4.3, OCL2.0	DX11.1, OGL4.2, OCL1.2	DX11, OGL3.0, OCL1.2, OGL ES2.0	
	VGA	Up to 2560 x 1600 @ 60Hz	1920 x 1200	2560 x 1600 @ 60Hz	
	LFP	LVDS	48-bit, 1920 x 1200	48-bit, 1920 x 1200	48-bit, 1920 x 1200
		eDP	Opt. eDP1.3, 3840 x 2160@60Hz	2560x1440x24bpp@60Hz	2560x1440x24bpp@60Hz
	HDMI1	HDMI 1.4a, 1920x1200x24bpp @60Hz	HDMI 1.4b, 3840x2160x24bpp@30Hz or 2560x1600x24bpp @30Hz	HDMI 1.4b, 3840x2160x24bpp@30Hz or 2560x1600x24bpp @30Hz	
	HDMI2	-	-	-	
	DisplayPort1	-	-	-	
# of Display Pipe (Multi-Display)	2	2	2		
I/O	Ethernet	LAN1	i210IT	RTL8111	RTL8111E
		LAN2	i210IT	RTL8111	RTL8111E
	SATA	# of Ports	1	1, opt. 2 to mSATA	1
		Speed	Gen3 (6.0GT/s)	Gen3 (6.0GT/s), opt. port with Gen2	Gen2 (3.0 Gb/s)
	USB	USB3.1	-	-	-
		USB3.0	2	2 (5 Gb/s)	1 (5 Gb/s)
		USB2.0	4	4	5
	UART	RS-232/422/485	2	2	1
		RS-232	2	2	3
	Serial Bus	I2C Bus	Option to SMBus	Option to SMBus (simulated)	Option to SMBus (simulated)
SMBus		1 (option with I2C)	1	1 (IT8523)	
Audio	CANBus	2	-	-	
	CODEC	ALC888	ALC892	ALC898	
Storage	Amplifier	-	-	-	
	GPIO (DIO)	16-bit	8-bit	8-bit	
Expansion	mSATA	F/S (SATA, USB2.0, SMBus)	F/S (SATA, USB2.0)	F/S (SATA, USB2.0)	
	eMMC	-	-	-	
	SATA SSD	-	-	-	
	M.2 E-Key 2230	PCIe x1, USB2.0	-	-	
	M.2 B-Key 3042	-	-	-	
	M.2 B/M-Key 2280	-	-	-	
	M.2 M-Key 2242	-	-	-	
	M.2 M-Key 2280	-	-	-	
	mini-PCIe	Opt. to mSATA (PCIex1, USB2.0)	F/S (PCIex1, USB2.0), opt. 2nd to mSATA	F/S (PCIex1, USB2.0)	
	PC/104	-	-	-	
PC/104-Plus	-	-	-		
Others	MI0e (PCIe/PCIe Bifurcation/USB2.0/USB3.0/LPC/eSPI/SMBus/Line-out/Power Supply)	-	-	-	
	TPM	Optional (SLB9665XQ2.0 FW 5.00)	Optional TPM2.0 (SLB9665XQ2.0 FW5.00)	Optional TPM2.0 (SLB9665XQ2.0 FW5.00)	
	Fan	-	Fan (12V)	-	
	WatchDog Timer	65536 Level, Minute or Second	65536 Level, Minute or Second	65536 Level, Minute or Second	
	Power Type	AT, ATX	AT/ATX	AT/ATX	
	Power Supply Voltage	9-36V	12V	12V	
	Connector	Phoenix 1x2	ATX 2x2 90D, Optional 180D, DC-Jack	ATX 2x2 180D, Optional 90D	
	Power Management	ACPI	ACPI	ACPI	
	Power Consumption (Idle)	0.55A@12V	0.58A@12V	0.51@12V	
	Power Consumption (Full Load)	1.4A@12V	1.03A@12V	0.75@12V	
Environment	Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	Passive (Fan-less)	
	Operating Temperature (air flow 0.7 m/sec)	0 ~ 60 °C	0 ~ 60 °C	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	
	Storage Temperature	-40 ~ 85 °C	-40 ~ 85 °C	-40 ~ 85 °C	
	Relative Humidity (Operating)	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	
	Relative Humidity (Storage)	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	
	EMC	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	
	Safety Certifications	-	-	-	

Note: "-" : means Not Applicable (N/A)

Model Name		PCM-3365	PCM-9563
Form-Factor		PC/104	5.25"
Processor System	CPU	E3845/ E3825/ N2930	N4200/ N3350
	# of Cores	4/ 4/ 2	4/ 2
	# of Threads	4/ 4/ 2	4 / 2
	Max. Turbo Frequency	- / - / 2.16 GHz	2.50GHz/ 2.40GHz
	Base Frequency	1.91GHz/1.33 GHz/ 1.83GHz	1.10GHz/ 1.10GHz
	Last Level Cache (LLC)	2MB/ 1MB/ 2MB	2MB/ 2MB
	CPU TDP (Watt)	10W/ 6W/ 7.5W	6W/ 6W
	BIOS	AMI UEFI 64Mbit	AMI EFI 16Mbit
	Technology	DDR3L 1333/ 1066 MHz	DDR3L 1867MHz
	Max. Capacity	Up to 8GB	Up to 8GB
Memory	# of Channels	1	1
	# of Sockets	1	1
ECC Support	-	-	
Chipset	Integrated SoC	Integrated SoC	
Controller	Intel Gen7 graphic engine	Intel Gen9 graphic engine	
3D Accelerator	DX11, OGL3.2, OCL1.1	DX11, OGL3.2, OCL1.1	
VGA	Up to 2560 x 1600 @ 60Hz	1920 x 1200	
LFP	LVDS	1920 x 1200 @ 60Hz	48-bit, 1920 x 1200 @ 60Hz
	eDP	-	v1.4 (1920x1200@ 60Hz)
HDMI1	HDMI 1.4a, 1920x1200x24bpp @60Hz	HDMI 1.4a, 1920x1200x24bpp @30Hz	-
HDMI2	-	-	-
DisplayPort1	-	-	DP 1.2a (1920 x 1200 @60Hz/ HDMI 1.4a, (1920x1200x24bpp @30Hz)
# of Display Pipe (Multi-Display)	2	2	2
Ethernet	LAN1	i210IT	i210
	LAN2	-	i210, (3rd LAN support by request)
SATA	# of Ports	1	2 (2nd support by request)
	Speed	Gen2 (3.0 Gb/s)	Gen3 (6.0 Gb/s)
USB	USB3.1	-	-
	USB3.0	-	2
UART	RS-232/422/485	1	2
	RS-232	2	4
Serial Bus	I2C Bus	Option to SMBus	Option to SMBus
	SMBus	Support	Support
Audio	CANBus	-	-
	CODEC	Intel High Definition audio interface (requires an audio extension module P/N: PCE-SA01-00A1E)	Realtek ALC888S
Storage	Amplifier	-	-
	GPIO (DIO)	8-bit	8-bit
mSATA	F/S (SATA signal shared with Onboard flash)	F/S (SATA, USB2.0)	
eMMC	-	-	
SATA SSD	-	-	
M.2 E-Key 2230	-	1	
M.2 B-Key 3042	-	-	
M.2 B/M-Key 2280	-	-	
M.2 M-Key 2242	-	-	
M.2 M-Key 2280	-	-	
mini-PCIe	Opt. to mSATA (PCIex1, USB2.0)	Opt. to mSATA (PCIex1, USB2.0)	
PC/104	-	-	
PC/104-Plus	-	1	
MI0e (PCIe/PCIe Bifurcation/USB2.0/USB3.0/LPC/eSPI/SMBus/Line-out/Power Supply)	-	-	
TPM	-	-	
Fan	-	-	
WatchDog Timer	1-255 sec/min, output to Reset	255 levels timer interval, programmable by software	
Power Type	AT, ATX (Support PC104-Plus Power module)	AT, ATX	
Power Supply Voltage	12V, 5V, 5VSB	12V	
Connector	Wafer 8P 2.00mm	2X2 ATX Connector	
Power Management	ACPI	ACPI	
Power Consumption (Idle)	E3845: 4.72W E3825: 4.47W N2930: 4.42W	N4200: 0.44 @ 12V (5.28W) N3350: 0.48 @ 12V(5.76W)	
Power Consumption (Full Load)	E3845: 7.69W E3825: 5.68W N2930: 6.84W	N4200: 1.32 @ 12V (15.84W) N3350: 1.36 @ 12V(16.32W)	
Fan or Fanless	Passive (Fan-less)	Passive (Fan-less)	
Operating Temperature (air flow 0.7 m/sec)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	0 ~ 60 °C (32 ~ 140 °F); Extend: -40 ~ 85 °C (-40 ~ 185 °F)	
Storage Temperature	-40 ~ 85C	-40 ~ 85C	
Relative Humidity (Operating)	40 °C @ 95% RH Non-Condensing	40 °C @ 95% RH Non-Condensing	
Relative Humidity (Storage)	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	-40 °C ~ 85 °C and 60 °C @ 95% RH Non-Condensing	
EMC	CE/FCC Class B	CE/FCC Class B	
Safety Certifications	-	-	

Industrial Motherboards

UTX

Intel Core i Platform

Intel Atom Platform



Model Name		AIMB-U233	AIMB-U217	AIMB-U117
Form Factor		UTX-E	UTX-E	UTX
Processor System	CPU	Intel® 8th Gen Core i7/i5/i3/Celeron	Intel E3950/ E3940	Intel E3950/ E3930
	Socket	BGA1528	FCBGA	FCBGA
	Max. Speed	2.2/1.7/1.6 GHz	QC 1.6 GHz	QC 1.6/ DC 1.3 GHz
	TDP	15 W	12W/ 9.5W	12W/ 6.5W
	L2 Cache	8M/6M/4M/2M	2M	2M
	L3 Cache	-	-	-
	Chipset	-	-	-
BIOS		AMI EFI 256Mbit, SPI	AMI EFI 128 Mbit SPI	AMI EFI 128 Mbit SPI
Expansion Slot	M.2	3 (M-key, E-key, B-Key)	1 (E-Key)	1 (E-Key)
	PCI	-	-	-
	Mini PCIe	-	1 (F/S)	1 (F/S)
	PCIe	-	-	-
Memory	Technology	DDR4 2400MHz SDRAM	Single channel DDR3L 1866/ 1600/ 1333 Mhz SDRAM	Single channel DDR3L 1866/ 1600/ 1333 Mhz SDRAM
	Max. Capacity	32 GB	8GB	8GB
	Socket	1 x 260-pin SODIMM	1 X 204-pin SODIMM	1 X 204-pin SODIMM
Graphics	Controller	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics
	VGA/DVI-D/HDMI/DP	-/-/2/-	-/-/1/1	-/-/1/1
	Dual channel 24-bit LVDS/eDP	1/1 (LVDS is optional)	1/1 (LVDS is optional)	1/1 (LVDS is optional)
	Multiple Display	2 HDMI+eDP 2 HDMI+LVDS	DP+HDMI+eDP DP+HDMI+LVDS	DP+HDMI+eDP DP+HDMI+LVDS
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Intel i211AT LAN2: Intel i211AT LAN3: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H
	Connector	RJ45 x 2	RJ-45 x3	RJ-45 x2
TPM		Optional	Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s
	Channel	1	1	1
	eSATA/mSATA	-/-	-/-	-/-
External I/O	VGA/DVI/HDMI/DP	-/-/2/-	-/-/1/1	-/-/1/1
	Ethernet	2	3	2
	USB	2 x USB3.0	4 x USB3.0	4 x USB3.0
	Audio	Line Out	Line out	Line out
	Serial	-	-	-
	PS/2	-	-	-
	DC Jack	1	1	1
Internal Connector	LVDS & Inverter	1 (Optional)	1 (Optional)	1 (Optional)
	DVI	-	-	-
	USB	2	2	-
	Serial	4 (2 x RS-232, 2 x RS-232 or 422 or 485)	4 (2 x RS-232, 2 x RS-232 or 422 or 485)	2 (1 x RS-232; 1 x RS-422 or 485)
	Parallel	-	-	-
	SATA	1	1	1
	CompactFlash/ eMMC	-	-/1 x 153 ball eMMC (optional)	-/1 x 153 ball eMMC (optional)
	GPIO	16-bit GPIO	16-bit GPIO	8-bit GPIO
	CANBus	-	1 (Isolated CANBus)	1 (Optional)
	MDB	-	-	1 (colay with RS-232)
ccTALK	-	-	1 (colay with RS-422/ 485)	
Power Input		12V DC-in Rear: DC Jack	12~24V DC-in Rear: DC Jack	12~24V DC-in Rear: DC Jack
Certification		CE/FCC Class B	CE/FCC Class B	CE/FCC Class B

Note: “-” : means Not Applicable (N/A)

Industrial Motherboards

Mini-ITX

Intel Atom Platform

AMD Platform



Model Name	AIMB-218	AIMB-215	AIMB-216	AIMB-217	AIMB-229	AIMB-228	
Form Factor	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	THIN Mini-ITX	Mini-ITX	THIN Mini-ITX	
Processor System	CPU	Intel Pentium J6425/ Celeron J6413/Celeron N6211/Atom x6413E	Intel Celeron J1900 / N2930 / N2807	Intel Pentium N3710 & Celeron N3160/N3010 & Atom x5-E8000	Intel Pentium N4200/ Celeron N3350/Atom x7-E3950	AMD Embedded Ryzen V2000	AMD Embedded Ryzen V1000/R1000
	Socket	FCBGA	FCBGA	FCBGA	FCBGA	-	FP5
	Max. Speed	QC 1.8/QC 1.8/DC 1.2/QC 1.5 GHz	QC 2.0 / 1.83 GHz; DC 1.58 GHz	QC 1.6/QC 1.6/DC 1.04/QC 1.04 GHz	QC 1.1/DC 1.1/QC 1.6 GHz	8C 4.15GHz / 6C 3.95GHz	QC 3.35GHz/ QC 2.00GHz/ DC 2.30GHz
	TDP	10W/10W/6.5W/9W	10 / 7.5 / 4.3 W	6 / 6 / 4 / 5 W	6 W/6 W/12 W	54W/25W	45W/ 15W/ 15W
	L2 Cache	1.5MB	2 MB / 2 MB / 1 MB	2MB	2MB	4Mb	2M/2M/1M
	L3 Cache	-	-	-	-	-	-
	Chipset	-	-	-	-	-	-
	BIOS	AMI EFI 256Mbit, SPI	AMI EFI 16 Mbit, SPI	AMI EFI 16 Mbit, SPI	AMI EFI 128 Mbit, SPI	AMI EFI 128 Mbit, SPI	AMI EFI 128Mbit, SPI
Expansion Slot	M.2	2 (B key + E key)	-	1 (B Key)	1 (E Key)	1 M Key & 1 E Key	2 (B key + E key)
	Mini PCIe	-	2	1	1	0	-
	PCIe	PCIe x1, 1 slot	PCIe x1, 1 slot	PCIe x1, 1 slot	PCIe x1, 1 slot	PCIe x8, 1 slot	PCIe x 8, 1 slot (Only PCIe4 signal for R1000)
Memory	Technology	Dual channel DDR4 3200MHz SDRAM	Dual / Dual / Single channel DDR3L 1333 MHz SDRAM	Dual channel DDR3L 1600/1066 MHz SDRAM	Dual channel DDR3L 1866 MHz SDRAM	Dual Channel DDR4 3200MHz SDRAM	Dual channel DDR4 2400/2666/3200 MHz SDRAM
	Max. Capacity	64 GB/ up to 32 GB per DIMM	8 / 8 / 4 GB	8 GB/ up to 8 GB per DIMM	8 GB/ up to 8GB per DIMM	64 GB/ 32 GB per DIMM non-ECC/ECC Support	32 GB/ up to 16 GB per DIMM
	Socket	2 x 260-pin SODIMM	2 / 2 / 1 x 204-pin SODIMM	2 x 204-pin SODIMM	2 x 204-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Graphics	Controller	Intel UHD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	AMD Radeon	AMD Radeon
	VGA/DVI-D/ HDMI/DP++	-/-/1/1	1/-/1/1	-/1/1/1 (DP only)	1/-/1/1	-/-/2/2	-/-/1/4
	Dual channel 24-bit LVDS/eDP	1/1 (LVDS & eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)	-/1	1/- (LVDS is optional)
	Type C Alt.	-	-	-	-	2	-
Multiple Display	Triple display: DP+HDMI+LVDS(or eDP)	Dual display: VGA+DP(or eDP), VGA+LVDS, LVDS+DP(or eDP)	Triple display: DVI-D+DP(or eDP)+LVDS, DVI-D+DP(or eDP)+HDMI	Triple display: VGA(or EDP)+ DP(or LVDS)+HDMI	Quad displays: HDMI+HDMI+DP+DP, eDP+HDMI+DP+DP	Quad displays: DP+DP+DP+DP LVDS+DP+DP+DP	
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8119I LAN2: Realtek RTL8119I	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H
	Connector	RJ-45 x 2	RJ-45 x2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
TPM	Optional	optional	Optional	Optional	TPM2.0	Optional	
SATA	Max Data Transfer Rate	600 MB/s	300 MB/s	600 MB/s	600 MB/s	600 MB/s	600MB/s
	Channel	1	2	2	2	2	2
	eSATA/mSATA	-/-	-/1	-/-	-/1	-/-	-/-
Rear I/O	VGA/DVI-D/ HDMI/DP	-/-/1/1	1/-/1/1	-/1/1/1	1/-/1/1	-/-/2/2	-/-/1/1000: 4 -/-/1/1000: 3
	Type C Alt.	-	-	-	-	2	-
	Ethernet	2	2	2	2	2	2
	USB	4 (3 x USB3.2 Gen1/ 1 USB 2.0)	4 (1 x USB3.2 Gen1/ 3 x USB 2.0)	4 (USB3.2 Gen1)	4 (USB3.2 Gen1)	3 x USB3.2 Gen2 / 3 x USB3.2 Gen1	4 (2 USB 3.2 Gen2/ 2 USB 2.0)
	Audio	Line-out	Line-out	Line-out	Line-out	Line out + Mic/Line in	Mic-in, Line-out
	Serial	-	-	-	-	-	-
	PS/2	-	-	-	-	-	-
DC Jack	1	1	1	1	1	1	
Internal Connector	LVDS/eDP	1 (optional) /1 (optional) eDP co-lay with LVDS	1/1 (optional) eDP colay with DP	1/1 (optional) LVDS colay with HDMI, eDP colay with DP	1/1 (optional) LVDS colay with DP, eDP colay with VGA	-/1	1 (optional)/- LVDS colay with DP
	USB	4 (USB 2.0)	4 (USB 2.0)	6 (USB 2.0), USB7/8/9/10 is optional	8 (USB 2.0), USB9/10/11/12 is optional	2 (USB2.0)	2 (USB2.0)
	Serial	6 (5 x RS-232, 1 x RS-232/422/485) COM3-COM6 optional	6 (5 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	6 (4 x RS-232; 2 x RS-232/422/485)	6 (4 x RS-232, 2 x RS-232/422/485, 1 supports CcTalk, 1 supports TTL)
	Parallel	-	-	-	-	-	-
	SATA	1	2	2	2	2	2
	eMMC/UFS	-/1 (32~256GB), optional	-/-	-/-	-/-	-/-	-/-
GPIO	8 bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	16 bit	16-bit GPIO	
Power Input	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12~24V DC-in Rear: DC Jack Internal: ATX 4 pin	
Certification	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	

Note: “-” : means Not Applicable (N/A)

Industrial Motherboards

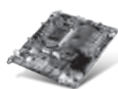
Mini-ITX

Intel Core i Platform

NEW

Preliminary

NEW



Model Name		AIMB-288	AIMB-278	AIMB-287	AIMB-277	AIMB-286	AIMB-286EF
Form Factor		THIN Mini-ITX extended (170 x 190mm)	Mini-ITX	THIN Mini-ITX	Mini-ITX	THIN Mini-ITX	THIN Mini-ITX
Processor System	CPU	Intel 12th Core i	Intel 12th Core i9/i7/i5/i3	Intel 10th Core i9/i7/i5/i3/Celeron	Intel 10th Core i9/i7/i5/i3/Celeron	Intel 9th/8th Core i7/ i5/ i3/ Pentium/Celeron	Intel 9th/8th Core i7/ i5/ i3/ Pentium/Celeron
	Socket	LGA 1700 socket	LGA 1700 socket	LGA1200	LGA1200	LGA1151	LGA1151
	Max. Speed	2.8/2.9/3.1/3.2/3.8/3.2 GHz	P-core up to 5.0 GHz E-core up to 3.8 GHz	2.8/2.9/3.1/3.2/3.8/3.2 GHz	2.8/2.9/3.1/3.2/3.8/3.2 GHz	3.7/3.6/3.2/3.1/3.0/2.9/2.4/2.1GHz	3.7/3.6/3.2/3.1/3.0/2.9/2.4/2.1GHz
	TDP	Up to 65W	Up to 65W	65W/58W/35W	65W/58W/35W	65W/54W/35W	65W/54W/35W
	L2 Cache	-	-	-	-	-	-
	L3 Cache	Up to 20MB	Up to 30MB	20MB/16MB/12MB/6MB/2MB	20MB/16MB/12MB/6MB/2MB	12MB/9 MB/6 MB/4 MB/2 MB	12MB/9 MB/6 MB/4 MB/2 MB
	Chipset	Intel H610E	Intel Q670E	Intel H420E	Intel Q470E	Intel H310	Intel H310
	BIOS	AMI EFI 256 Mb	AMI EFI 256 Mbit SPI	AMI EFI 256 Mbit SPI	AMI EFI 256 Mbit SPI	AMI EFI 128 Mbits, SPI	AMI EFI 128 Mbits, SPI
Expansion Slot	M.2	2 (B key +M Key)	2 (M key + E key)	2 (M key + E key)	2 (M key + E key)	2 (B key + E key)	2 (B key + E key)
	Mini PCIe	0	0	0	0	0	0
Memory	Technology	Dual Channel DDR5 4800 MHz SDRAM	Dual Channel DDR5 4800 MHz SDRAM	Dual Channel DDR4 2933 MHz SDRAM	Dual Channel DDR4 2933 MHz SDRAM	Dual Channel DDR4 2666 MHz SDRAM	Singel Channel DDR4 2666 MHz SDRAM
	Max. Capacity	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	32 GB/ up to 32 GB per DIMM
Graphics	Socket	2 x 262-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	1 x 260-pin SODIMM
	Controller	TBD	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics
	VGA/DVI-D/HDMI/DP++	-/-/-2	-/-/-2	-/-/-2	1/-/1/1	-/-/1/1	-/-/1/1
	Dual channel 24-bit LVDS/eDP	0/1	0/1	0/1	1/1	1/1 (eDP is optional)	1/1 (eDP is optional)
	Type C Alt.	-	1	-	-	-	-
Multiple Display	Dual display: DP+DP, DP+eDP		Triple displays: DP+DP+eDP	Dual display: HDMI + HDMI, HDMI+eDP	Triple displays: DP+DP+HDMI, DP+HDMI+LVDS (or eDP), LVDS(or eDP)+DP+DP	Dual display: DP+HDMI, DP+LVDS(or eDP), HDMI+LVDS(or eDP)	Dual display: DP+HDMI, DP+LVDS(or eDP), HDMI+LVDS(or eDP)
	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
Ethernet	Controller	LAN1: Intel i219LM LAN2: Intel i225	LAN1: Intel i219LM LAN2: Intel i225	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H (only for FL/F/G2 SKU) LAN3: Intel i211AT (only for FL/F SKU)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H LAN3: Intel i211AT
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 3 (AIMB-286FL/F: AIMB-286G2: 2; AIMB-286L: 1)	RJ-45 x 3
	TPM	TPM2.0	TPM2.0	Optional	Optional	Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	2	3	2	4	3	3
	eSATA/mSATA	-/-	-/-	-/-	-/-	-/-	-/-
Rear I/O	VGA/DVI/HDMI/DP	-/-/-2	-/-/-2	-/-/-2	-/-/1/1	-/-/1/1	-/-/1/1
	Type C Alt.	-	1	-	-	-	-
	Ethernet	2	2	2	2	FL/F SKU: 3 G2 SKU: 2 L SKU: 1	3
	USB	4 (USB3.2 Gen1)	4 (USB3.2 Gen2)	4 (USB3.2 Gen1)	4 (USB3.2 Gen2)	4 (USB 3.2 Gen1)	4 (USB3.2 Gen1)
	Audio	Line out	Mic-in, Line-out, Line-in	Line out	Mic-in, Line-out, Line-in	Mic-in, Line-out	Mic-in, Line-out
	Serial	-	-	-	-	-	-
	PS/2	-	-	-	-	-	-
	DC Jack	1 (4-pin phoenix connector)	-	-/1	-	1	1
Internal Connector	LVDS/eDP	-/1	1/1 (LVDS optional)	-/1	1/1	1/1 (optional) LVDS colay with eDP	1/1 (optional) LVDS colay with eDP
	VGA	-	-	-	1 (pin header)	-	-
	USB	2 x USB 3.2 Gen1 (5Gb/s)	2 USB3.2 Gen2, 2 USB3.2 Gen1	4 (2x USB3.2 Gen1, 2xUSB2.0)	4 (USB3.2 Gen1)	4 USB 2.0 (only for FL/F/G2 SKU)	4 (USB 2.0)
	Serial	2 (RS-232/422/485; support by BOM optional)	2 (RS232/422/485 + RS232)	4 (2 x RS-232, 2 x RS-232/422/485; RS-422/485 support by BOM optional)	2 (RS232/422/485)	FL/F SKU: 6 (4 x RS-232, 2 x RS-232/422/485, RS-422/485 support by BOM optional) G2/L SKU: 2 (1 x RS-232, 1 x RS-232/422/485, RS-422/485 support by BOM optional)	2 (1 x RS-232, 1 x RS-232/422/485; RS-422/485 support by BOM optional)
	Parallel	-	-	-	-	-	-
	SATA	1	3	2	4	FL/F/G2 SKU: 3 L SKU: 2	3
	eMMC/UFS	-/-	-/-	-/-	-/-	-/-	-/-
GPIO	0	8-bit GPIO	8-bit GPIO	8-bit GPIO	16-bit GPIO	16-bit GPIO	
Power Input	19~24V / 12V DC-in Rear: Phoenix connector 4 pin	12V ATX	12~24V DC-in Rear: DC Jack Internal: ATX 4 pin	ATX Internal: ATX 24 pin + 8 pin (12V)	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12V DC-in Rear: DC Jack Internal: ATX 4 pin	
Certification	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	

Note: "-" means Not Applicable (N/A)

Industrial Motherboards

Mini-ITX

Intel Core i Platform



Model Name		AIMB-276	AIMB-285	AIMB-275	AIMB-205	AIMB-233	AIMB-232
Form Factor		Mini-ITX	THIN Mini-ITX	Mini-ITX	Mini-ITX	THIN Mini-ITX	THIN Mini-ITX
Processor System	CPU	Intel 9th/8th Gen Core i7/ i5 / i3/ Pentium/Celeron	Intel 7th/6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel 7th/6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel 7th & 6th Gen Core i7/ i5/ i3/ Pentium/Celeron	Intel® 8th Gen Core i7/i5/ i3/Celeron	Intel core i7-6600u / i5-6300u / i3-6100u/ celeron 3955u Intel core i7-7600u i5-7300u/ i3-7100u/Celeron 3965u
	Socket	LGA1151	LGA1151	LGA1151	LGA1151	BGA1528	BGA1356
	Max. Speed	3.7/3.6/3.2/3.1/3.0/2.9/ 2.4/2.1GHz	3.6/3.3/2.4/3.4/3.2/ 2.8/2.6 GHz	3.6/3.3/2.4/3.4/3.2/ 2.8/2.6 GHz	3.6/3.3/2.4/3.4/3.2/ 2.8/2.6 GHz	2.2/1.7/1.6/2.0 GHz	2.6GHz/2.4GHz/ 2.3GHz/2GHz
	TDP	65W/58W/54W/35W	65W/54W/ 51W/ 35W	65W/54W/ 51W/ 35W	65W/51W/54W/35W	15W	15W
	L2 Cache	-	-	-	-	-	-
	L3 Cache	12MB/9 MB/6 MB/ 4 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/2 MB	4 MB/3 MB/3 MB/2 MB
	Chipset	Intel Q370	Intel H110	Intel Q170/H110	Intel H110	-	-
BIOS	AMI EFI 256 Mbits, SPI	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI	AMI EFI 256 Mbits, SPI	AMI uEFI 16 Mbit, SPI	
Expansion Slot	M.2	2 (B key + E key)	-	1 (B Key)	1 (B Key)	2 (M key + E key)	-
	Mini PCIe	0	2	1	1	1 (F/S), optional	2
	PCIe	PCIe x 16, 1 slot	PCIe x 4, 1 slot	PCIe x16, 1 slot	PCIe x 16, 1 slot	PCIe x1, 1 slot	-
Memory	Technology	Dual Channel DDR4 2666 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual Channel DDR4 2133/2400 MHz SDRAM	Dual channel DDR4 2133/2400 MHz SDRAM	Dual Channel DDR4 2400MHz SDRAM	Dual Channel DDR4 2400 MHz SDRAM
	Max. Capacity	64 GB/ up to 32 GB per DIMM	32 GB	32 GB	32 GB	32 GB/ up to 16 GB per DIMM	32 GB/ up to 16 GB per DIMM
	Socket	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM	2 x 260-pin SODIMM
Graphics	Controller	Intel® UHD Graphics	Intel® HD Graphics	Intel® HD Graphics	Intel HD Graphics	Intel Graphics Gen 9	Intel HD Graphics 520
	VGA/DVI-D/HDMI/ DP++	-/-/1/2	1/-/1/1 (VGA by pin header)	-/-/1/1	1/1/-/1	-/-/1/-	-/-/1/1
	Dual channel 24-bit LVDS/eDP	1/1 (eDP is optional)	1/- (LVDS only for LV sku)	1/1 (eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)	1/1 (eDP is optional)
	Type C Alt.	-	-	-	-	1	-
	Multiple Display	Triple display: DP+DP+HDMI, DP+DP+LVDS(or eDP), DP+HDMI+LVDS(or eDP)	Dual display: DP+HDMI, DP+VGA, HDMI+VGA, DP+LVDS, HDMI+LVDS, VGA+LVDS	Triple display: DP+HDMI+LVDS DP+HDMI+eDP	Dual display: DP+VGA, DP+LVDS(or eDP), DP+DVI-D, DVI-D+VGA, DVI-D+LVDS(or eDP), VGA+LVDS(or eDP)	Triple display: Type C Alt. + HDMI+LVDS(or eDP)	Triple display: DP+HDMI+LVDS(or eDP)
Ethernet	Interface	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	Controller	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel PHY i219-LM LAN2: Intel i211	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel i219LM LAN2: Intel i211AT	LAN1: Intel i219LM LAN2: Intel i211AT
	Connector	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
TPM	Optional	Optional	Optional	Optional	Optional	Optional	Optional
SATA	Max Data Transfer Rate	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/s
	Channel	3	3	3	2	2	2
	eSATA/mSATA	-/-	-/1	-/1	-/1	-/-	-/1
Rear I/O	VGA/DVI/HDMI/DP	-/-/1/2	-/-/1/1	-/-/1/1	1/1/-/1	-/-/1/1(Type C Alt.) Type C Alt. is optional	-/-/1/1
	Type C Alt.	1 (Optional)	-	-	-	1 (optional)	-
	Ethernet	2	2	2	2	2	-
	USB	8 (6 x USB 3.2 Gen2/ 2 USB3.2 Gen1), 1 optional Type-C	4 (USB 3.2 Gen1)	4 (USB 3.2 Gen1)	8 (4 x USB3.2 Gen1/ 4 x USB2.0)	4 (USB3.2 Gen2) (3 type A+1 type C, Type C is optional)	4 (USB 3.2 Gen1)
	Audio	Mic-in, Line-out, Line-in	Mic-in, Line-out	Mic-in, Line-out, Line-in	Mic-in, Line-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	Serial	-	-	-	-	-	Mic-in, Line-out
	PS/2	1 (4-pin phoenix connector)	-	-	-	-	-
	DC Jack	1/1 (optional) LVDS colay with eDP	1	-	-	-	-
Internal Connector	LVDS/eDP	-	1/- (LVDS only for LV SKU)	1/1 (optional) LVDS colay with eDP	1/1 (optional) eDP colay with DP	1/1 (eDP optional)	1/1 (eDP optional)
	VGA	-	1	-	-	-	-
	USB	2 (USB 3.2 Gen1)	4 (USB 2.0)	6 (2 x USB 3.2 Gen1/ 4 x USB 2.0)	6 (USB 2.0), USB11/12/13/14 is optional	4 (2 x USB 3.2 Gen1, 2 x USB2.0)	4 (2 x USB 3.2 Gen1, 2 x USB2.0)
	Serial	2 (1 x RS-232; 1 x RS-232/422/485)	2 (1 x RS-232; 1 x RS-232/422/485)	2 (1 x RS-232; 1 x RS-232/422/485)	8 (7 x RS-232; 1 x RS-232/422/485)	6 (5 x RS-232, 1 x RS-232/422/485)	2 (RS-232)
	Parallel	-	-	-	-	-	-
	SATA	3	3	3	2	2	2
	eMMC/UFS	-/-	-/-	-/-	-/-	-/-	-/-
GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	8-bit GPIO	
Power Input	12~24V / 12V DC-in Rear: Phoenix connector/ DC Jack Internal: - / ATX 4 pin	12V DC-in Rear: DC Jack Internal: ATX 4 pin	12~24V DC-in Rear: Phoenix connector Internal: ATX 4 pin	ATX Internal: ATX 20 pin + 4 pin (12V)	12~24V DC-in Rear: Phoenix connector	12V DC-in Rear: DC Jack Internal: ATX 4 pin	
Certification	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	

Note: “-” : means Not Applicable (N/A)

Industrial Motherboards

Micro-ATX

Intel Core i Platform

AMD Platform



Model Name		AIMB-588	AIMB-587	AIMB-506	AIMB-586	AIMB-505	AIMB-585	AIMB-522
Form Factor		Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX	Micro-ATX
Processor System	CPU	Intel 12th Core i	Intel 10th Xeon/Core/9/17/15/13/Pentium/Celeron	Intel 9th & 8th Gen Core 17/15/13/Pentium/Celeron	Intel 9th & 8th Xeon/Core 17/15/13 / Pentium/ Celeron	Intel 6th & 7th Gen Xeon/ Core i7/ i5/ i3 / Pentium/ Celeron	Intel 6th & 7th Gen Xeon/ Core i7/ i5/ i3/ Pentium/ Celeron	AMD Ryzen Pro
	Socket	LGA1700	LGA1200	LGA1151	LGA1151	LGA1151	LGA1151	AM4
	Max speed	Up to 3.8GHz	3.8/ 3.5/3.4/3.2/3.1/3.0/2.9/2.8/2.4/2.3/2.0 /1.8 Ghz	3.7/3.6/3.2/3.0/ 2.9 Ghz	3.7/3.6/3.4/3.2/3.1/ 3.0/2.9/2.4/2.1 Ghz	3.4/3.2/2.8/2.7/2.6/ 2.4/2.3 Ghz	3.6/3.3/2.4/ 3.4/3.2/2.8/ 2.6 Ghz	Up to 3.4GHz
	TDP	Up to 125W	95W/80W/65W/58W/ 35W	65W /58W/35W	80W/71W/65W/35W	65W / 51W / 35W	80W / 65W / 51W / 35W	Up to 105W
	L2 cache							
	L3 cache	Up to 30MB	20MB/16MB/12MB/ 6MB/4MB/2MB	12 MB / 9MB / 6MB /2MB	12MB/9 MB/8 MB/ 6 MB/4 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	8 MB/6 MB/4 MB/ 3 MB/2 MB	Up to 64MB
	Chipset	Q670E / R680E / H610E	Intel Q470E/W480E	Intel H310	Intel Q370/C246/H310	Intel H110	Intel Q170/C236/H110	X570
	BIOS	AMI EFI 256 Mb	AMI EFI 256 Mbits, SPI	AMI EFI 128 Mbits, SPI	AMI EFI 256 Mbits, SPI	AMI EFI 128 Mbits,SPI	AMI EFI 128 Mbits,SPI	AMI EFI 256 Mb
Expansion Slot	PCI	-	-	2 (L Sku: 0)	-	1	-	-
	PCIe x16	1	1 (QG2/F: x16 link, WG2: x8 link)	1	1 (QG2/L: x16 link, WG2: x8 link)	1	1	1
	PCIe x8	-	1 (WG2 only)	-	1 (WG2 only)	-	1(L sku: 0)	-
	PCIe x4	2	1	-	1	-	1(L sku: 0)	2
	PCIe x1	-	1	1	1 (QG2/WG2 only)	2	1(L sku: 2)	-
	mini-PCIe/ M.2	-/1(M Key)	- /1(M key)	- /1 (B-Key, L Sku:0)	- /2 (M & E key, QG2/ WG2 only)	1/-	1 / -	1 / 1(M key)
Memory	Technology	Dual Channel DDR5 4800 MHz SDRAM	Dual Channel DDR4 2666/2933 MHz SDRAM	Dual Channel DDR4 2400/2666 MHz SDRAM	Dual Channel DDR4 2400/2666 MHz SDRAM	Dual channel DDR4 2133/2400 MHz SDRAM	Dual channel DDR4 2133/2400 MHz SDRAM	Dual channel DDR4 3200MHz SDRAM
	Max. Capacity	128GB / up to 32 GB per DIMM	128GB/ up to 32 GB per DIMM	64 GB/ up to 32 GB per DIMM	128 GB/ up to 32 GB per DIMM	32GB	64 GB	128GB / up to 32 GB per DIMM
	Socket	4 x 288 pin DIMM	4 x 288 pin DIMM	2 x 288-pin DIMM	4 x 288-pin DIMM	2 x 288-pin DIMM	4x288- pin DIMM	4 x 288 pin DIMM
Graphics	Controller	TBD	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	Intel HD Graphics	intel HD Graphics	Radeon™ Graphics (Ryzen 4000 series)
	VRAM	TBD	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB	Shared system memory up to 1 GB	TBD
	VGA	-	1 (F/WG2 only)	1	-	1	1 (optional)	1
	LCD	-	-	Dual Channel 48-bit LVDS (Optional)	Dual channel 48-bit LVDS(option)	Dual channel 48-bit LVDS (Optional)	-	-
	DVI-D	-	-	1	-	1	1	-
	HDMI	1	-	-	1 (option to HDMI2.0a)	-	1 (option to HDMI2.0a)	1
	DP/eDP	2/1	2/1 (WG2: eDP is option)	1/1 (G2/ L sku without eDP)	2 / 1 (L: eDP is option)	1/1	1 / 1	1 / -
	Dual Display	DP++ + DP++ , DP++ + eDP, DP++ + HDM, HDMI + eDP	DP++ + VGA, DP++ + DP++ + eDP, VGA + eDP	DP+ DVI-D, DP+VGA, DVI-D+VGA, DP+eDP(LVDS), DVI-D+eDP(LVDS), VGA+eDP(LVDS)	DP++ + HDMI, DP++ + DP++ + eDP/LVDS, HDMI + eDP/LVDS	VGA + DVI, VGA + DP, VGA + eDP, DVI + DP, DVI + eDP, DP + eDP	DP++ + HDMI, DP++ + DVI-D, DP++ + eDP/ VGA, HDMI + DVI-D, HDMI + eDP/ VGA + DVI-D, DVI-D + DP++ + HDMI	VGA+DP, VGA+HDMI, HDMI+DP
	Triple Display	eDP + HDMI + DP++, eDP + DP++ + DP++, HDMI + DP++ + DP++	DP++ + DP++ + VGA, DP++ + DP++ + eDP, DP++ + VGA + eDP	-	DP++ + DP++ + HDMI, DP++ + DP++ + eDP/ LVDS, DP++ + HDMI + eDP/ LVDS	-	eDP/ VGA + DP++ + HDMI, eDP/ VGA + HDMI + DVI-D, DP++ + eDP/ VGA + DVI-D, DVI-D + DP++ + HDMI	VGA+DP+HDMI
	Ethernet	Interface	10/100/1000 Mbps	10/100/1000/ 10GbE Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
Controller		LAN1: Intel I219LM LAN2: Intel I225LM LAN3/4: I210-AT (Option)	LAN1: Intel I219LM (QG2/WG2/L) LAN2: Intel I211AT (QG2) I210AT (WG2) LAN3/4: X550-AM1 (QG2/WG2 Option)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel I219LM (QG2/WG2/L) LAN2: Intel I211AT (QG2) I210AT (WG2) LAN3/4: Realtek RTL8111H (Option)	LAN1: Realtek RTL8111H LAN2: Realtek RTL8111H	LAN1: Intel I219LM LAN2: Intel I211AT (WG2: I210)	LAN 1/2/3/4: Intel I225LM
Connector		RJ-45 x 4 (2 option)	RJ-45 x 4 (2 option)	RJ-45 x2	RJ-45 x 4 (2 option)	RJ-45 x2	RJ-45 x2	RJ-45 x 4
TPM		Optional	Optional	Optional	Optional	Optional	Optional	
SATA	Max Data Transfer	600 MB/S	600 MB/S	600 MB/s	600 MB/s	600 MB/s	600 MB/s	600 MB/S
	Channel	6	6 -QG2 sku; 8 - WG2/F sku (SW RAID)	3	6 - QG2 sku; 8 - WG2 sku (SW RAID)	3	4 (SW RAID, QG2/ WG2 only)	4
	mSATA/M.2	- / 1 (M key)	- / 1 (M key)	- /1 (B Key, F, G2 sku)	- / 1 (M key)	1 / -	1 / -	- / 1 (M key)
I/O Interface	VGA	-	1 (QG2/WG2 option)	1	-	1	1 (on board, option)	1
	USB	4x USB (2.0) / 5x USB (3.2 Gen1) / 3 USB (3.2 Gen2) / 1x USB (Type C)	6 USB (2.0) / 6 USB (3.2 Gen1) / 4 USB (3.2 Gen2)	F sku: 20 (8 USB3.0 + 12 USB2.0) G2 sku: 12 (4 USB3.0 + 8 USB2.0) L sku: 8 (4 USB3.0 + 4 USB2.0)	WG2 / QG2 sku: 4 USB3.1 + 2 USB 3.0 + 8 USB2.0, 2 option) L sku: 4 USB 3.0 + 8 USB 2.0	6(USB 2.0),8(USB 3.0)	2 (USB 2.0), 12 (USB 3.0)	8x USB (3.2 Gen 2)
	Serial	6 (4x RS-232; 2x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	F sku: 14 (12 x RS-232; 2 x RS-232/422/485) G2 sku: 10 (8 x RS-232; 2 x RS-232/422/485) L sku: 2 (2 x RS-232)	6 (QG2/WG2: 5x RS-232, 1x RS-232/422/485) 2 (L: 1x RS-232, 1x RS-232/422/485)	10 (8 x RS-232; 2 x RS-232/422/485)	6 (5 x RS-232; 1 x RS-232/422/485)	6 (4 x RS-232; 2 x RS-232/422/485)
	Parallel	-	-	-	-	1	-	-
	SIM Card Holder	-	-	1 (L Sku:0)	-	-	-	-
	PS/2	-	1 (onboard)	1 (onboard)	1 (onboard)	1 (onboard)	1 (onboard)	-
	Ethernet (GbE)	4 (2 option)	4 (2 x 10GbE option)	2	4 (2 option)	2	2	4
	IEEE 1394	-	-	-	-	-	-	-
	Audio	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out	Mic-in, Line-out
	GPIO	8-bit	16 bit	16-bit	16-bit	8-bit	8-bit	8-bit
	Power Input	ATX Internal: ATX 24 pin + 8 pin (12V)	ATX Internal: ATX 24 pin + 8 pin (12V)	ATX Internal: ATX 24 pin + 4 pin (12V)	ATX or 12V DC-in Internal: ATX 24 pin + 4 pin (12V) or 8 pin (12V)	ATX Internal: ATX 24 pin + 4 pin (12V)	ATX Internal: ATX 24 pin + 4 pin (12V)	ATX Internal: ATX 24 pin + 8 pin (12V)
Certification	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	CE/FCC Class B	

Note: “-” : means Not Applicable (N/A)