



Single Board Computer
Selection Guide 2016

Rethink Healthcare Technology



Medical Device ODM/OEM Service

ONYX Healthcare USA, Inc. is an ISO 13485 & 9001 certified and FDA registered manufacturer with 15+ years of medical design experiences, leverages embedded computing technology to design and manufacture medical grade (UL/EN60601) embedded boards and fanless medical AIO system platforms as the building block to medical device OEM service .

Why do medical device companies select ONYX?

One Stop Shop Design Manufacturing Service :

Embedded Board > Open Frame Platform > Fanless Medical All-in-One System

Competitive Design Cost & Shorter Design Cycle:

CE/FCC Class B, EN/UL60601 Certified Medical Computing Prototype Platform

OEM/ODM Customizable CPU, HDD, SSD, Memory, LCD, Touchscreen, WIFI, Private Label, Unit Color, BIOS, Buttons, Form Factor

Customer Service & Technical Support:

Local Product Development Center & RMA Support (Turnaround Time: ~ 10 Business Days)

Deal Registration Protection: Yes

Product Longevity: 5 ~ 7 Year

Standard Warranty: 2 Years

Extended Warranty: 5+ Years

PACS Image Processing: Hardware/Software DICOM Compliant

Infection Control: Fanless Design, IP65 (Front), IPX1 (Whole)

Safety Certification: CCC, CSA, RoHS, EN/UL60601, CE/FCC Class B

IoT Ready: Windows/Linux/Wind River OS + McAfee Encryption Control



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Single Board Computers

Performance & Expansion Driven Medical ODM

Embedded Motherboards

EMB-BT1	6.7" x 6.7"	4
EMB-BT2		4
EMB-BT4		5
EMB-BT7		5
EMB-BSW1		6
EMB-Q170A		6
EMB-Q170B		6
EMB-H110B		7
EMB-Q87A		7
EMB-H81A		7
EMB-H81B		8
EMB-QM87A		8
EMB-Q77A		8
EMB-B75A		9
EMB-B75B		9
EMB-QM77		9
EMB-H61A		10
EMB-H61B		10
EMB-QM67		10
EMB-CV2		11
EMB-KB1		11
EMB-A70M		11
EMB-A50M		12
IMBI-QM57		12
EPC-CV1	4.53" x 6.5"	12
IMBA-Q87A	12" x 9.6"	13
IMBA-Q77	9.6" x 9.6"	13
IMBA-967		13
IMBA-H61A		14
IMBM-Q170A		14
IMBM-Q87A		14
IMBM-B75A		15
IMBM-H61A		15
IMBM-H61B		15

Compact Boards

PCM-QM77	8" x 5.75"	16
PCM-LN02		16

Pico-ITX Boards

PICO-BT01	3.94" x 2.84"	17
PICO-CV01		17
PICO-HD01		18
PICO-IMX6		18
BIO-ST01-L1U2		19
BIO-ST01-M1U1		19
BIO-ST02-C4M1		19

EPIC Boards

EPIC-BDU7	4.35" x 6.5"	20
EPIC-QM77		20
EPIC-BT07		21
EPIC-CV07		21
EPIC-5536		21

SubCompact Boards

GENE-SKU6	3.75" x 4"	22
GENE-QM87		22
GENE-QM77 Rev.A		23
GENE-QM77 Rev.B		23
GENE-BSW5		24
GENE-BT05		24
GENE-CV05		25
GENE-1350		25

Computer on Modules

Medical Device with Client Proprietary Board

Com Express CPU Modules

COM-SKHB6	4.92" x 3.75"	26
COM-SKUC6	3.75" x 3.75"	26
COM-QM87	4.92" x 3.75"	26
COM-QM77 Rev.B		27
COM-HM76		27
COM-KB	3.74" x 3.74"	27
COM-BT		28
COM-BYTC2		28
COM-CV Rev. B		29
COM-CV Rev.A11		29
NanoCOM-BT	3.31" x 2.17"	30
NanoCOM-CV Rev.A		30
NanoCOM-CV Rev.B		30

SMARC CPU Modules

uCOM-BT	3.23" x 1.96"	31
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SMARC Carrier Boards

ECB-960T	6.69" x 6.69"	31
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XTX/ETX CPU Modules

XTX-BSW	4.5" x 3.74"	31
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Qseven CPU Modules

AQ7-IMX6	2.75" x 2.75"	32
AQ7-BT		32

Qseven Carrier Boards

ECB-970-A10	9.65" x 9.65"	33
ECB-970-A10-01		33

Single Board Computers



Model	EMB-BT1	EMB-BT2
System		
Processor	Intel® Atom™ J1900 Processor (4C, 10W TDP), N2807 (2C, 4.3W TDP), E3845 (4C , 10W TDP), E3825 Processor (2C, 6W TDP)	Intel® Atom™ J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP)
Chipset	Intergrate into SoC	Intergrate into SoC
Memory	DDR3L SODIMM x 2 Max 8GB for J1900/E3845,x 1 Max 4GB for N2807, x 1 Max 8GB for E3825, Non-ECC, un-buffered memory	DDR3L, 1333 MHz SODIMM x 2 up to 8 GB, Non-ECC, un-buffered memory
I/O Chipset	Fintech 81866D	Fintech 81866D
Ethernet	Realtek 8111G x 2	Realtek 8111G x 2
Audio	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB9635 TT 1.2 (default : No)	Infineon SLB9635 TT 1.2 (default : No)
Expansion Slots	mSATA(Pcie+USB optional) + SIM Card (default: No) x 1, Mini-PCle x 1, PCIe [x1] x 1	mSATA(Pcie+USB optional) x 1, PCIe [x1] x 1
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
VGA	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
DVI	—	—
HDMI	Up to 1920 x 1200 @60 Hz	—
Display Port	—	—
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)	Dual LVDS, Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
eDP	—	—
Backlight Control	Voltage/PWM	Voltage/PWM
Environment & Power & ME		
Power Requirement	12V DC	ATX
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC	CE & FCC
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	111,131	290,990
Panel I/O Ports		
USB	USB 3.0 x 1, USB 2.0 x 2	USB 2.0 x 6
Display I/O	VGA x 1, HDMI x 1	VGA x 1
Audio I/O	Line-out x 1	Mic-in x 1, Line-out x 1
LAN I/O	RJ-45 x 2	RJ-45 x 2
Serial Port	COM (RS-232) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 2
PS/2 Port	—	1
Others	DC Jack x 1	—
Internal I/O Connectors		
Storage	SATA3 x 2, SATA2 x 2 (1 colay with mSATA), mSATA x 1	SATA2 x 2 (1 colay with mSATA), mSATA x 1
USB	USB 2.0 x 5	USB 2.0 x 4
Display I/O	LVDS x 1	LVDS x 2
Audio I/O	AAFP x 1	AAFP x 1, Speaker x 1
Serial Port	COM (RS-232) x 4, COM (RS-232/422/485) x 1	COM (RS-232) x 3
PS/2 Port	1	—
Parallel Port	SPP/EPP Mode	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	Chassis Fan x 1	Chassis Fan x 1
Power	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	24-pin ATX x 1, AT/ATX mode select jumper (default : No) x 1
Others	miniPCle x 1, PCIe [x1] x 1, SIM Card Socket(default : No) x 1, LPT x 1, Front Panel x 1, CMOS jumper x 1	Front Panel x 1, CMOS jumper x 1
OS		
OS Support	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1 for 32/64-bit, Linux Fedora



Model	EMB-BT4	EMB-BT7
System		
Processor	Intel® Atom™ J1900 Processor (4C, 10W TDP), N2807 (2C, 4.3W TDP)	Intel® Atom™ E3845 Processor (4C @ 1.91 GHz CPU, 542/792 MHz GFX, 10W TDP)
Chipset	Integrate into SoC	Integrate into SoC
Memory	DDR3L SODIMM x 2 up to 8 GB for J1900, x 1 up to 4 GB for N2807, Non-ECC, un-buffered memory	DDR3L 1333 MHz SODIMM x 1 up to 8 GB, ECC, un-buffered memory
I/O Chipset	Fintech 81866D	Fintech 81866D
Ethernet	Realtek 8111G x 1	Realtek 8111G x 2
Audio	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB9635 TT 1.2 (default : No)	Infineon SLB9635 TT 1.2 (default : No)
Expansion Slots	mSATA(Pcie+USB optional) + SIM Card (default: No) x 1, Mini-PCle x 1	mSATA(Pcie+USB optional) + SIM Card (default: No) x 1, Mini-PCle x 1, PCle [x1] x 1
Graphics		
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics
VGA	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
DVI	—	—
HDMI	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
Display Port	—	—
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via CH7511)
eDP	—	—
Backlight Control	Voltage/PWM	Voltage/PWM
Environment & Power & ME		
Power Requirement	12V DC	12V DC
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC	CE & FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	295,750	283,770
Panel I/O Ports		
USB	USB 3.0 x 1, USB 2.0 x 2	USB 3.0 x 1, USB 2.0 x 2
Display I/O	HDMI x 1	VGA x 1, HDMI x 1
Audio I/O	Line in x 1, Line-out x 1	Line-out x 1
LAN I/O	RJ-45 x 1	RJ-45 x 2
Serial Port	COM (RS-232) x 1	COM (RS-232) x 1
PS/2 Port	—	—
Others	DC Jack x 1	DC Jack x 1
Internal I/O Connectors		
Storage	SATA3 x 2, SATA2 x 2 (1 colay with mSATA), mSATA x 1	SATA3 x 2, SATA2 x 2 (1 colay with mSATA), mSATA x 1
USB	USB 2.0 x 5	USB 2.0 x 5
Display I/O	VGA x 1, LVDS x 1	LVDS x 1
Audio I/O	AAFP x 1	AAFP x 1
Serial Port	COM (RS-232) x 4, COM (RS-232/422/485) x 1	COM (RS-232) x 4, COM (RS-232/422/485) x 1
PS/2 Port	1	1
Parallel Port	SPP/EPP Mode	SPP/EPP Mode
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	Chassis Fan x 1	Chassis Fan x 1
Power	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1
Others	miniPCle x 1, PCle [x1] x 1, SIM Card Socket(default: No) x 1, LPT x 1, Front Panel x 1, CMOS jumper x 1	miniPCle x 1, PCle [x1] x 1, SIM Card Socket(default: No) x 1, LPT x 1, Front Panel x 1, CMOS jumper x 1
OS		
OS Support	Windows® 7/8.1 for 32/64-bit, Linux Fedora	Windows® 7/8.1 for 32/64-bit, Linux Fedora

Single Board Computers



Model	EMB-BSW1	EMB-Q170A	EMB-Q170B
System			
Processor	Intel® Atom™ N3710 Processor, (4C, ~6W TDP) Intel® Atom™ N3060 Processor, (2C, ~6W TDP)	Intel® 6th Gen. Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 6th Gen. Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs
Chipset	Integrate into SoC	Intel® Q170	Intel® Q170
Memory	DDR3L 1600 MHz SODIMM x 2 up to 8 GB, Non-ECC, un-buffered memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB, Non-ECC, Un-buffered Memory
I/O Chipset	F81866D	NCT6791D	NCT6791D
Ethernet	Intel® i211AT x 2	Intel® 219LM x 1, Intel® i211AT x 1	—
Audio	Realtek® ALC3236	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)
Expansion Slots	mSATA(Pcie+USB optional) x 1, Mini-PCIE x 1	PCIe [x16] x 1, M.2 M-key(22x80mm) x 1	PCIe [x4] x 1, M.2 M key (22 x 80mm) x 1, M.2 E key (22 x 30mm) x 1
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
VGA	—	Up to 1920 x 1200 @60 Hz	—
DVI	—	—	—
HDMI	Up to 2560 x 1600 @60 Hz, 3840 x 2160 @30Hz	—	Up to 4096 x 2160 @24 Hz ; 3840 x 2160 @60 Hz, with Digital Audio
Display Port	—	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
LVDS	Up to 1920 x 1080 @60Hz, Dual Channel 18/24-bit (via OH7511)	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
eDP	Up to 2560 x 1440 @60Hz	—	UP to 4096 x 2340 @60Hz
Backlight Control	Voltage/PWM, use HW control	—	Voltage/PWM
Environment & Power & ME			
Power Requirement	12-24V DC (wide range: 12V-5% ~ 24V +10%)	ATX	12V DC
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)	32°F ~140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC	CE & FCC	CE & FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	—	—	—
Panel I/O Ports			
USB	USB 3.0 x 2	USB 3.0 x 4, USB 2.0 x 2	USB 3.0 x 4
Display I/O	HDMI x 2	VGA x 1, DP x 3	DP x 2
Audio I/O	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	—	—	—
PS/2 Port	—	1	—
Others	DC Jack x 1	—	DC Jack x 1
Internal I/O Connectors			
Storage	SATA3 x 3 (1 colay with mSATA), mSATA x 1	SATA3 x 2, M.2 M-key x 1	SATA3 x 4, M.2 M key x 1, M.2 E key x 1
USB	USB 3.0 x 2, USB 2.0 x 6	USB 2.0 x 4	USB 2.0 x 6
Display I/O	LVDS or eDP x 1	—	40-pin LVDS x 1, 40-pin eDP x 1
Audio I/O	Speaker x 1	Speaker x 1	AAFP x 1, Speaker x 1
Serial Port	COM (RS-232) x 5, COM (RS-232/422/485) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 1	COM (RS-232/422/485) x 1
PS/2 Port	1	—	—
Parallel Port	—	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
Power	12V AUX Power Connector x 1, AT/ATX mode select jumper (optional) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1	12V AUX x 1, AT/ATX mode select jumper (default : No) x 1
Others	Front Panel x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1
OS			
OS Support	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora



Model	EMB-H110B	EMB-Q87A	EMB-H81A
System			
Processor	Intel® 6th Gen. Core™ i7/i5/i3, LGA1151 Socket Processor, Max. 65W TDPs	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W TDPs	Intel® 4th Gen. Core™ i Series 22nm LGA1150 socket Processor, Max. 65W, TDPs
Chipset	Intel® H110	Intel® Q87	Intel® H81
Memory	DDR4 2133/1867 MHz SODIMM x 2, Up to 32GB Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB Non-ECC, Un-buffered Memory
I/O Chipset	NCT6791D	NCT6791D	NCT6791D
Ethernet	Realtek 8111G x 2	Intel® I217LM x 1, Intel® I210AT x 1	Realtek 8111G x 2
Audio	Realtek® ALC887	Realtek® ALC887	Realtek® ALC887
TPM	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB96XX TT 1.2/2.0 (default: No)	Infineon SLB9635 TT 1.2
Expansion Slots	PCIe [x1] x 1, mSATA/PCIe+USB optional x 1, Mini-PCIe x 1	PCIe [x4] x 1, mSATA/PCIe+USB optional x 1, Mini-PCIe x 1	PCIe [x1] x 1, mSATA/PCIe+USB optional x 1, Mini-PCIe x 1
Graphics			
Graphics Chipset	—	Intel® HD Graphics	Intel® HD Graphics
VGA	—	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
DVI	—	—	—
HDMI	Up to 4096 x 2160 @24 Hz; 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz; 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz; 3840 x 2160 @60 Hz, with Digital Audio	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit colay	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit
eDP	UP to 4096 x 2340 @60Hz	—	—
Backlight Control	Voltage/PWM	Voltage/PWM	Voltage/PWM
Environment & Power & ME			
Power Requirement	12V DC	12-24V DC (wide rage:12V-5%~ 24V+10%)	12-24V DC (wide rage:12V-5%~ 24V+10%)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90%RH, non-condensing
Certificate	CE & FCC	CE & FCC	CE & FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	—	104,363	288,850
Panel I/O Ports			
USB	USB 3.0 x 4	USB 3.0 x 4	USB 3.0 x 2, USB 2.0 x 2
Display I/O	DP/HDMI (BOM Change) x 2	HDMI x 1, DP x 1	HDMI x 1, DP x 1
Audio I/O	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1	Mic-in x 1, Line-out x 1
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	—	—	—
PS/2 Port	—	—	—
Others	DC Jack x 1	DC Jack x 1	DC Jack x 1
Internal I/O Connectors			
Storage	SATA3 x 2, mSATA x 1	SATA3 x 4, mSATA x 1	SATA3 x 2, SATA2 x 1, mSATA x 1
USB	USB 2.0 x 4	USB 2.0 x 6	USB 2.0 x 6 USB (2 colay with Mini-Card)
Display I/O	40-pin LVDS x 1, 40-pin eDP x 1	VGA x 1, LVDS x 1	VGA x 1, LVDS x 1
Audio I/O	AAFP x 1, Speaker x 1	AAFP x 1, Speaker x 1, DMIC (optional) x 1	AAFP x 1, Speaker x 1
Serial Port	COM (RS-232/422/485) x 1, COM (RS-232) x 1	COM (RS-232) x 2	COM (RS-232) x 1, COM (RS-232/422/485) x 1
PS/2 Port	—	1	1
Parallel Port	—	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
Power	12V AUX x 1, AT/ATX mode select jumper (default: No) x 1	12V AUX x 1, AT/ATX mode select jumper (default: No) x 1	12V AUX x 1, AT/ATX mode select jumper (default: No) x 1
Others	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, CMOS jumper x 1	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1
OS			
OS Support	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora

Single Board Computers



Model	EMB-H81B	EMB-QM87A	EMB-Q77A
System			
Processor	Intel®4th Gen. Core™ I Series 22nm LGA1150 socket Processor, Max. 65W, TDPs	On board Intel® 4th generation BGA 1364 Processor	Intel® 3rd/2nd Generation Core™ I series LGA1155 socket Processor
Chipset	Intel® H81	Intel® QM87	Intel® Q77 Express Chipset
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB Non-ECC, Un-buffered Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3L 1600/1333, up to 16GB	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB Non-ECC, Un-buffered Memory
I/O Chipset	NCT6791D	Fintek F81868D-I	NCT 6779D
Ethernet	Realtek 8111G x 2	Intel® I217-LM / Realtek RTL 8111E x 2	Intel® 82579LM (Support Intel® I AMT 8.X) x 1, Intel® 82583V x 1
Audio	Realtek® ALC887	Realtek® ALC892/886/662	Realtek® ALC887
TPM	Infineon SLB9635 TT 1.2	Infineon SLB9635TT 1.2(Optional)	Infineon SLB9635 TT 1.2 (optional)
Expansion Slots	PCIe [x1] x 1, mSATA(Pcie+USB optional) x 1, Mini-PCIe x 1	PCIe [x16] x 1, Mini-PCIe x 1	PCIe [x16] x 1, Mini-PCIe(mSATA optional) x 1
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® Core™7/7.5/3 + QM87	Intel® HD Graphics
VGA	Up to 1920 x 1200 @60 Hz	1	Up to 1920 x 1200 @60Hz (via DVI-I)
DVI	—	—	Up to 1920 x 1200 @60Hz
HDMI	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	1	—
Display Port	Up to 4096 x 2160 @24 Hz / 3840 x 2160 @60 Hz, with Digital Audio	—	—
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	1	—
eDP	—	—	—
Backlight Control	Voltage/PWM	Voltage/PWM	—
Environment & Power & ME			
Power Requirement	12-24V DC (wide rage:12V-5%~ 24V+10%)	12V DC	ATX
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE & FCC	CE/FCC	CE & FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	288,850	106,000	95,000
Panel I/O Ports			
USB	USB 3.0 x 2, USB 2.0 x 2	USB 3.0 x 4	USB 3.0 x 2, USB 2.0 x 6
Display I/O	HDMI x 1, DP x 1	HDMI x 3, VGA x 1	DVI-D x 1, DVI-I x 1
Audio I/O	Mic-in x 1, Line-out x 1	Line-in, Mic-in, Line-out	Mic-in x 1, Line in x 1, Line-out x 1
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	—	RS-232/422/485 x 1	—
PS/2 Port	—	1	—
Others	DC Jack x 1	—	—
Internal I/O Connectors			
Storage	SATA3 x 2, SATA2 x 1, mSATA x 1	SATA3 x 4, SATA 2 x 2, Support RAID 0,1,5,10	SATA3 x 2, SATA2 x 2
USB	USB 2.0 x 6 USB (2 colay with Mini-Card)	USB 3.0 x 2, USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 1
Display I/O	VGA x 1, LVDS x 1	LVDS x 1	—
Audio I/O	AAFP x 1, Speaker x 1	—	AAFP x 1, speaker x 1
Serial Port	COM (RS-232) x 1, COM (RS-232/422/485) x 1	RS-232 x 4	COM (RS-232) x 1, COM (RS-232/422/485) x 1
PS/2 Port	1	—	—
Parallel Port	—	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
Power	12V AUX x 1, AT/ATX mode select jumper (default No) x 1	8-pin connector x 1	24-pin ATX x 1, 12V AUX x 1, AT/ATX mode select jumper x 1
Others	Front Panel x 1, Chassis Intrusion x 1, Buzzer x 1, CMOS jumper x 1	—	Front Panel x 1, Chassis Intrusion x 1, CMOS jumper x 1
OS			
OS Support	Windows® 7/8.1/10 for 32/64-bit, Linux Fedora	Windows® 7/8.1 for 32/64-bit, Linux Fedora	Windows® XP 32/64-bit, Windows® 7 32/64-bit (WHQL), Windows® 8 (WHQL), Linux Fedora



Model	EMB-B75A	EMB-B75B	EMB-QM77
System			
Processor	Intel® 3rd/2nd Generation Core™ I series LGA1155 socket Processor	Intel® 3rd/2nd Generation Core™ I series LGA1155 socket Processor	Socket Intel® 3rd generation rPGA988 Processor
Chipset	Intel® B75 Express Chipset	Intel® B75 Express Chipset	Intel® QM77
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3 1600/1333/1066, up to 16GB
I/O Chipset	ITE 8728F	ITE 8728F	ITE IT8728F+Fintek F81216DG
Ethernet	Realtek 8111F x 2	Realtek 8111F x 1	Intel® WG82579LM / Realtek 8111E x 2
Audio	Realtek® ALC887	Realtek® ALC887	Realtek® ALC892/886/662
TPM	Infineon SLB9635 TT 1.2	—	Infineon SLB9635TT 1.2
Expansion Slots	PCI-E [x16] x 1	PCIe [x16] x 1	PCIe [x16] x 1, Mini-PCIe x 1, CFast x 1
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® Core™ i7/i5/i3 + QM77
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz	1
DVI	—	—	1
HDMI	Up to 1920 x 1080 @60Hz	Up to 1920 x 1080 @60Hz	1 (by SKU)
Display Port	—	—	2 (by SKU)
LVDS	—	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit, support EDID LVDS autodetect	1
eDP	—	—	—
Backlight Control	—	—	Voltage/PWM
Environment & Power & ME			
Power Requirement	ATX	ATX	12V DC
Operating Temperature	32°F - 140°F (0°C - 60°C)	32°F - 131°F (0°C - 55°C)	32°F - 140°F (0°C - 60°C)
Operating Humidity	0% - 90%RH, non-condensing	0% - 90%RH, non-condensing	0% - 90% RH, non-condensing
Certificate	CE & FCC	CE & FCC	CE/FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	116,656	199,397	60,000
Panel I/O Ports			
USB	USB 3.0 x 2, USB 2.0 x 2	USB 3.0 x 2, USB 2.0 x 2	USB 3.0 x 4
Display I/O	VGA x 1, HDMI x 3	VGA x 1, HDMI x 2 (1 optional)	DP x 2 or DP x 1 + HDMI x 1, DM-D x 1
Audio I/O	Mic-in x 1, Line in x 1, Line-out x 1	Mic-in x 1, Line in x 1, Line-out x 1	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2	RJ-45 x 1	RJ-45 x 2
Serial Port	—	RS-232 x 1	RS-232/422/485 x 1
PS/2 Port	2	2	1
Others	—	—	—
Internal I/O Connectors			
Storage	SATA3 x 1, SATA2 x 2	SATA3 x 1, SATA2 x 1	SATA3 x 2, SATA2 x 2, Support RAID 0,1,5,10
USB	USB 3.0 x 2, USB 2.0 x 4	USB 2.0 x 4	USB 2.0 x 6
Display I/O	—	LVDS x 1	VGA x 1, LVDS x 1
Audio I/O	—	—	—
Serial Port	COM (RS-232) x 1, COM (RS-232/422/485) x 1	COM (RS-232) x 1	COM (RS-232) x 1
PS/2 Port	—	—	—
Parallel Port	—	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
Power	12V AUX x 1, 24-pin ATX x 1	12V AUX x 1, 24-pin ATX x 1	12V AUX x 1
Others	Front panel x 1	Front panel x 1	—
OS			
OS Support	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP/7 for 32/64-bit, Linux Fedora

Single Board Computers



Model	EMB-H61A	EMB-H61B	EMB-QM67
System			
Processor	Intel® 3rd/2nd Generation Core™ I series, 32nm LGA1155 socket Processors, up to 35W	Intel® 3rd/2nd Generation Core™ I series, 32nm LGA1155 socket Processors, up to 35W	Integrated Intel® Atom™ processor D2550
Chipset	Intel® H61	Intel® H61	Intel® NM10
Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	DDR3 1333/1600 MHz SODIMM x 2, Up to 16GB, Non-ECC, Un-buffered Memory	SO-DIMM x 2, max. 4GB, DDR3 800/1066 MHz, non-ECC, un-buffered memory
I/O Chipset	Fintek F81866D-1	Fintek F81866D-1	ITE IT8783F
Ethernet	Realtek 8111E x 2	Realtek 8111F x 2	Realtek 8111E x 2
Audio	Realtek® ALC887	Realtek® ALC887	VIA 1708S
TPM	Infinion SLB9635 TT 1.2	Infinion SLB9635 TT 1.2	—
Expansion Slots	PCIe [x4] x 1, Mini-PCIe(mSATA optional) + SIM Card x 1	PCIe [x4] x 1, Mini-PCIe(mSATA optional) + SIM Card x 1	PCIe [x1] x 1, Mini-PCIe(mSATA optional) + SIM Card x 1
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
VGA	Up to 2048 x 1536 @ 75 Hz	Up to 2048 x 1536 @ 75 Hz	Up to 1920 x 1200 @60 Hz
DVI	Up to 1920 x 1200 @60 Hz	—	Up to 1920 x 1200 @60 Hz
HDMI	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz	—
Display Port	—	—	—
LVDS	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	Up to 1920 x 1200 @60 Hz, Dual Channel 18/24-bit	Up to 1440 x 900 @60Hz, Single Channel 18/24 bit
eDP	—	—	—
Backlight Control	Voltage/PWM	Voltage/PWM	Voltage/PWM
Environment & Power & ME			
Power Requirement	12V DC	12V DC	12V DC
Operating Temperature	32–131°F (0–55°C)	32–131°F (0–55°C)	32°F – 140°F (0°C – 60°C)
Operating Humidity	0% – 90%RH, non-condensing	0% – 90%RH, non-condensing	0% – 90%RH, non-condensing
Certificate	CE & FCC	CE & FCC	CE & FCC
Form Factor	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	117,673	211,000	178,817
Panel I/O Ports			
USB	USB 2.0 x 6	USB 2.0 x 6	USB 2.0 x 4
Display I/O	VGA x 1, DVI-D x 1, HDMI x 1	VGA x 1, HDMI x 2	VGA x 1, DVI-D x 1
Audio I/O	Mic-in x 1, Line in x 1, Line-out x 1	Mic-in x 1, Line in x 1, Line-out x 1	Mic-in x 1, Line in x 1, Line-out x 1
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	COM (RS-232/422/485) x 1	COM (RS-232/422/485) x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 1
PS/2 Port	1	1	—
Others	—	—	DC Jack x 1
Internal I/O Connectors			
Storage	SATA x 2, mSATA x 1	SATA x 2, Mini-Card slot x 1	SATA x 2, mSATA x 1
USB	USB 2.0 x 2	USB 2.0 x 2	USB 2.0 x 2
Display I/O	LVDS x 1	LVDS x 1	LVDS x 1
Audio I/O	—	—	—
Serial Port	COM (RS-232) x 5	COM header x 5 (RS-232)	COM header x 3, COM2 External Power Selection Jumper x 1
PS/2 Port	—	—	1
Parallel Port	—	—	LPT header x 1
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
Power	12V AUX x 1, AT/ATX mode select jumper x 1	12V AUX x 1, AT/ATX mode select jumper x 1	12V AUX x 1, AT/ATX mode select jumper x 1
Others	SIM Card Socket x 1, Front Panel x 1, CMOS jumper x 1	SIM Card Socket x 1, Front Panel x 1, CMOS jumper x 1	SIM Card Socket x 1, Front Panel x 1, WDT Function Switch x 1, CMOS jumper x 1
OS			
OS Support	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP/7 32-bit, Linux Fedora
Note			



Model	EMB-CV2	EMB-KB1	EMB-A70M
System			
Processor	Intel® Atom™ D2550 B3 Processor Dual Core 1.86 GHz	AMD 1st generation APU SoC (FT3 BGA Package), Quad(2G, 1.5G), Dual (1.6G, 1.0G)	On board AMD® Embedded R-260H/R-460L APU(Dual Core) up to 25W
Chipset	Intel® ICH10R	—	AMD® M3/A70M
Memory	Dual-Channel with 204-pin SDRAM x 2, DDR3 1066, up to 4GB	SO-DIMM x 2, max. 16GB, DDR3(L) 1600/1333 MHz, Non-ECC, un-buffered memory	SO-DIMM x 2, DDR3 1333/1066 MHz, up to 16GB
I/O Chipset	Winbond W8327DHG-P	Fintek F81866D-I	ITE IT8728
Ethernet	Realtek® 8111E x 2	Realtek 8111F x 2	Realtek® 8111E x 2
Audio	Via VT1705	Realtek® ALC887 with Amplifier	Realtek® ALC892
TPM	—	Infineon SLB9635 TT 1.2 (default: No)	—
Expansion Slots	PCIe [x4] x 1	PCIe [x4] x 1, Mini-PCIe + SIM Card (mSATA optional) x 1, Mini-PCIe x 1	PCIe [x4] x 1, Mini-PCIe x 1, mSATA x 1
Graphics			
Graphics Chipset	Intel® Atom™ D2550 B3 Processor	Sea Islands Family (Integrated)	AMD® M3/A70M
VGA	1	Up to 1920 x 1200 @60 Hz	—
DVI	1	Up to 1920 x 1200 @60 Hz	—
HDMI	—	—	4
Display Port	—	—	—
LVDS	1	Up to 1920 x 1080 @60Hz, Dual Channel 18/24 bit (via CH7511)	—
eDP	—	—	—
Backlight Control	Voltage	Voltage/PWM	Voltage
Environment & Power & ME			
Power Requirement	12V DC	ATX	12V DC
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Operating Humidity	0% ~ 90% R/H, non-condensing	0% ~ 90%RH, non-condensing	0% ~ 90% R/H, non-condensing
Certificate	CE/FCC	CE & FCC	CE/FCC
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX, 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)
MTBF (Hours)	107,000	140,000	88,000
Panel I/O Ports			
USB	USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 2	USB 2.0 x 1
Display I/O	DVI-D x 1, VGA x 1	VGA x 1, DVI-D x 1	HDMI x 4
Audio I/O	Line-in, Mic-in, Line-out	Mic-in x 1, Line-out x 1	Mic-in, Line-out
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	RS-232 x 1, RS-232/422/485 x 1	COM (RS-232/422/485) x 1, COM (RS-232) x 1	—
PS/2 Port	—	2	—
Others	DC Jack x 1	—	—
Internal I/O Connectors			
Storage	SATA2 x 6	SATA x 2, mSATA x 2	SATA2 x 2
USB	USB 2.0 x 4	USB 2.0 x 4	USB 3.0 x 2, USB 2.0 x 4
Display I/O	LVDS x 1	LVDS x 1	—
Audio I/O	—	Speaker x 1	—
Serial Port	—	COM header x 4 (RS-232)	RS-232 x 1, RS-232/422/485 x 1
PS/2 Port	—	—	—
Parallel Port	—	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out) x 1
FAN	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1	CPU Fan x 1, Chassis Fan x 1
Power	12V AUX x 1	12V AUX x 1, 24-pin ATX x 1	12V AUX x 1
Others	—	SIM Card Socket x 1, Front Panel x 1, Buzzer x 1, CMOS jumper x 1	—
OS			
OS Support	Windows® XP/7 for 32/64-bit, Linux Fedora	Windows® XP/7 for 32/64-bit, Linux Fedora	Windows® XP/7 for 32/64-bit, Linux Fedora
Note			

Single Board Computers



Model	EMB-A50M	IMBI-QM57	EPC-CV1
System			
Processor	On board AMD® Fusion APU T56NT44R	Socket Intel® Core i PGA988 Processor	Integrated Intel® Atom™ N2600/N2800 processor
Chipset	AMD® M1/A50M	Intel® QM57	Intel® NM10
Memory	SO-DIMM x 2, DDR3 1066/800 MHz, up to 8GB	Dual-Channel with 204-pin SDRAM x 2, DDR3 1066/800, up to 8GB	SO-DIMM x 1, DDR3 800/1066 MHz, non-ECC, un-buffered memory
I/O Chipset	ITE IT8771E	ITE IT8728F	Fintek 81866D-I
Ethernet	Realtek® 8111E x 2	Intel® 82577LM / 82574L, Gigabit LAN x 2	Realtek 8111F x 2
Audio	Realtek® ALC892	Realtek® ALC888	Realtek 887 x 1, Audio Amplifier EUA 2012A x 1
TPM	—	—	—
Expansion Slots	PCIe [x4] x 1, Mini-PCIe x 1, mSATA x 1	PCIe [x4] x 1, Mini-PCIe x 1, PCI x 1, CF x 1	Mini-PCIe x 2
Graphics			
Graphics Chipset	AMD® M1/A50M	Intel® Core™M7/6 + QM57	—
VGA	—	1	Up to 1920 x 1200 @60 Hz
DVI	1	1	—
HDMI	1	1	Up to 1920 x 1200 @60 Hz
Display Port	—	—	—
LVDS	—	1	Up to 1920 x 1280 @60Hz, 18-bit single channel
eDP	—	—	—
Backlight Control	Voltage	Voltage	Voltage/ PWM, 1 x DC 5V/12V for LCD backlight inverter board
Environment & Power & ME			
Power Requirement	12V DC	12V DC	12V DC
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	14°F ~ 140°F (-10°C ~ 60°C)
Operating Humidity	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing	0% ~ 90% RH, non-condensing
Certificate	CE/FCC	CE/FCC	CE & FCC class B
Form Factor	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	Mini-ITX 6.7" x 6.7" (170mm x 170mm)	EPIC Form Factor, 4.53"x6.5" (115mm;165mm)
MTBF (Hours)	70,000	56,000	228,000
Panel I/O Ports			
USB	USB 2.0 x 6	USB 2.0 x 4	USB2.0 x 4
Display I/O	HDMI x 1, DVI-Dx1	HDMI x 1, DVI-D x 1, VGA x 1	HDMI x 1
Audio I/O	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	—
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	—	RS-232 x 1	COM x 1 (RS-232/422/485)
PS/2 Port	1	Mini-Din PS/2 K/B and Mouse x 1	—
Others	—	—	DC Jack x 1
Internal I/O Connectors			
Storage	SATA2 x 5	SATA 3.0 Gb/s x 3, Support RAID 0,1,5,10	SATA x 2, mSATA x 2
USB	USB 3.0 x 2, USB 2.0 x 4	USB 2.0 x 4	USB 2.0 x 2
Display I/O	—	LVDSx1	VGA x 1, LVDS x 1
Audio I/O	—	—	Line-out/ Mic-in Pin header x 1, SPDIF x 1
Serial Port	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 2, RS-232/422/485 x 1	RS-232 pin header x 3
PS/2 Port	—	—	1
Parallel Port	—	—	—
DIO	8-bit programmable (4-in/4-out) x 1	8-bit programmable (4-in/4-out)	8-bit programmable (4-in/4-out) x 1
FAN	CPU Fan x 1, Chassis Fan x 1	CPU Fan connector(s) (4-pin) x 1, Chassis Fan connector(s) (4-pin) x 1	Chassis Fan x 1
Power	12V AUX x 1, 24-pin ATX x 1	24-pin ATX connector x 1, 4-pin connector x 1	2-pin 12V DC x 1
Others	—	—	SIM card connector x 1, Front panel x 1, 4-pin Amplifier connector x 1
OS			
OS Support	Windows® XP/7 for 32/64-bit, Linux Fedora	Windows® XP, Windows® 7 32/64-bit, Linux Fedora	Windows® XP/7 32-bit, Linux Fedora
Note			

Single Board Computers



Model	IMBA-Q87A	IMBA-Q77	IMBA-967
System			
Processor	Intel® 4th Generation Core™ i7/i5/i3/Pentium®/Celeron® 22mm LGA 1150 socket Processor	Socket Intel® 3rd generation LGA 1155 Processor	Socket Intel® 2nd generation LGA 1155 Processor
Chipset	Intel® Q87	Intel® Q77	Intel® Q67
Memory	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333, Dual Channel	Dual-Channel with 240-pin DRAM x 4, DDR3 1600/1333/1066, up to 32GB	Dual-Channel with 240-pin DRAM x 4, DDR3 1333/1066, up to 32GB
I/O Chipset	NCT6791D, F81216HD	Winbond W83627DHG	Winbond W83627DHG
Ethernet	LAN1: Intel® P4HY I217LM Giga LAN, LAN2: Intel® I210AT Giga LAN	Intel® 82579 / 82583V, Gigabit LAN x 2	Intel® 82579LM / 82574L, Gigabit LAN x 2
Audio	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC662	Realtek® ALC662
TPM	20-1 PIN header for TPM1.2/FW3.19	Infineon SLB9635TT 1.2(Optional)	Infineon SLB9635TT 1.2(Optional)
Expansion Slots	PCIe [x16] x 1, PCIe [x4] x 1, PCI x 5	PCIe [x16] x 1, PCIe [x4] x 1, PCIe [x1] x 2, PCI x 3	PCIe [x16] x 1, PCIe [x4] x 1, PCIe [x1] x 1, PCI x 4
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® Core™ i7/i5/i3 + Q77	Intel® Core™ i7/i5/i3 + Q67
VGA	Up to 1920 x 1200 @60Hz	1	1
DVI	Up to 1920 x 1200 @60Hz	1	1
HDMI	HDMI 1.4, up to 4096 x 2610 @24Hz	1 (by SKU)	1
Display Port	DP 1.2, up to 2560 x 1440 @60Hz	2 (by SKU)	—
LVDS	—	1	—
Backlight Control	—	Voltage/PWM	Voltage
Environment & Power & ME			
Power Requirement	24-pin ATX connector x 1, 8 pin ATX 12V Power connector x 1	12V DC	12V DC
Operating Temperature	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)
Operating Humidity	0% – 90% RH, non-condensing	0% – 90% RH, non-condensing	0% – 90% RH, non-condensing
Certificate	CE & FCC Class A	CE/FCC	CE/FCC
Form Factor	ATX, 12" x 9.6" (305 mm x 244 mm)	ATX, 12" x 9.6" (305 mm x 244 mm)	ATX, 12" x 9.6" (305 mm x 244 mm)
MTBF (Hours)	86,000	56,000	52,000
Panel I/O Ports			
USB	USB 3.0 x 4, USB 2.0 port x 2	USB 3.0 x 2 with Type A connectors, USB 2.0 x 2 with Type A connectors	USB 2.0 x 4 with Type A connectors
Display I/O	DVI-D x 1, HDMI x 1, DP x 1 (or DVI-D x1, HDMI x2 by BKU)	DP x 2 or DP x 1 + HDMI x 1, DVI-D x 1	HDMI x 1, DVI-D x 1, VGA x 1
Audio I/O	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	RS-232/422/485 x 1	RS-232/422/485 x 1	RS-232 x 1
PS/2 Port	Combo Port (Keyboard & Mouse) x 1	Mini-Din PS/2 K/B and Mouse x 1	Mini-Din PS/2 K/B and Mouse x 1
Internal I/O Connectors			
Storage	SATA 6.0Gb/s x 6, Supports RAID 0/1/5/10	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 4, Support RAID 0,1,5,10	SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 4, Support RAID 0,1,5,10
USB	USB 2.0 x 8	USB 3.0 x 2, USB 2.0 x 6	USB 2.0 x 8
Display I/O	VGA x 1	VGA x 1, LVDS x 1	—
Audio I/O	—	—	—
Serial Port	RS-232 header x 5	RS-232 x 5	RS-232 x 3, RS-232/422/485 x 1
PS/2 Port	—	—	—
Parallel Port	LPT connector x 1	—	LPT x 1
DIO	8-bit x 1 (In/Out programmable)	8-bit programmable (4-in/4-out)	8-bit programmable (4-in/4-out)
FAN	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1
Power	—	24-pin ATX connector x 1, 4-pin connector x 1	24-pin ATX connector x 1, 4-pin connector x 1
Others	—	—	lDA x 1
OS			
OS Support	Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora	Windows® XP, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Windows® 8 32/64-bit
Note			

Single Board Computers



Model	IMBA-H61A	IMBM-Q170A	IMBM-Q87A
System			
Processor	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium® / Celeron® 22nm LGA 1155 Processor	Intel® 6th Generation(Skylake-S) Core™ i7/i5/ i3/Pentium®/ Celeron® 14nm LGA1151 Socket Processor	Intel® 4th Generation Core™ i7/i5/i3/Pentium®/ Celeron® 22nm LGA 1155 socket Processor
Chipset	Intel® H61	Intel® Q170	Intel® Q87
Memory	240-pin DIMM x 2, max. 16GB, DDR3 1333/1066/800, Dual channel	288-pin DIMM x 4, max. 64GB, DDR4 2133/1867, Dual channel	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333, Dual channel
I/O Chipset	NCT6776F	NCT6791D, F81216HD	NCT6791D, F81216HD
Ethernet	Realtek RTL8111F Giga LAN x 2	LAN1: Intel® PHY I219LM Giga LAN, LAN2: Intel® I211AT Giga LAN	LAN1: Intel® PHY I217LM Giga LAN, LAN2: Intel® I210AT Giga LAN
Audio	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887 (Colay with ALC886)	Realtek® ALC887 (Colay with ALC886)
TPM	20-1 PIN header for TPM1.2/FW3.19	20-1 PIN header for TPM1.2/FW3.19	20-1 PIN header for TPM1.2/FW3.19
Expansion Slots	PCIe [x16] x 1, PCIe [x1] x 2, PCI x 4, Full-Half Size Mini-card x 1	PCIe [x16] x 1, PCIe [x4](open edge) x 1, PCIe[x1] (open edge) x 1, PCI x 1	PCIe [x16] x 1, PCIe [x4] x 1, PCI x 2, Half size Mini-Card x 1 (PCIe + USB or mSATA optional)
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
VGA	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
DVI	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @60Hz
HDMI	—	HDMI 1.4 up to 4096 x 2160 @24Hz	—
Display Port	—	—	DP 1.2, up to 3840 x 2160 @60Hz
LVDS	—	—	—
Backlight Control	—	—	—
Environment & Power & ME			
Power Requirement	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 8 pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 8 pin ATX 12V Power connector x 1
Operating Temperature	32°F - 140°F (0°C - 60°C)	32°F - 140°F (0°C - 60°C)	32°F - 140°F (0°C - 60°C)
Operating Humidity	0% - 90%RH, non-condensing	0% - 90% RH, non-condensing	0% - 90% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A	CE & FCC Class A
Form Factor	ATX, 12" x 9.6" (305 mm x 244 mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
MTBF (Hours)	136,599	—	100,000
Panel I/O Ports			
USB	USB 2.0 x 4	USB 3.0 x 10	USB 3.0 x 4, USB 2.0 x 6
Display I/O	VGA x 1, DVI-D x 1	DVI-H x 1, HDMI x 2	DVI-D x 1, DP x 2, VGA x 1
Audio I/O	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	DB-9 COM x 2 (COM2 support RS-232/422/485)	DB-9 COM x 1 (support RS-232/422/485)	—
PS/2 Port	Keyboard Connector x 1, Mouse Connector x 1	Combo Port (Keyboard & Mouse) x 1	Combo Port (Keyboard & Mouse) x 1
Internal I/O Connectors			
Storage	SATA 3.0Gb/s x 4	SATA 6.0Gb/s x 6, Supports RAID 0/1/5/10	SATA 6.0Gb/s x 5, Supports RAID 0/1/5/10;
USB	USB 2.0 x 5	USB 2.0 x 4	Half size Mini-Card (PCIe + USB, mSATA optional) x 1, USB 2.0 x 2
Display I/O	—	—	—
Audio I/O	—	Speaker header x 1 (Line-out)	—
Serial Port	RS-232 header x 4	RS-232 header x 5	RS-232 header x 5, RS-232/422/485 x 1
PS/2 Port	—	—	—
Parallel Port	LPT connector x 1, Support SPP/EPP/ECP Mode	—	—
DIO	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)
FAN	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2
Power	Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1	Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1	Front panel header x 1, Clear CMOS jumper x 1, TPM header x 1, BIOS flash header (2[x4]P p=1.27mm) x 1, Chassis Intrusion x 1
Others	—	—	—
OS			
OS Support	Windows® XP 32-bit, Windows® 7 32/64-bit, Windows® 8 32/64-bit	Windows® 7 32/64-bit, Windows® 8.1 64-bit, Windows® 10 64-bit, Linux Fedora 64bit	Windows® 7 32/64-bit, Windows® 8 32/64-bit, Linux Fedora
Note			



Model	IMBM-B75A	IMBM-H61A	IMBM-H61B
System			
Processor	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/ Celeron® 22nm LGA 1155 Processors	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/ Celeron® 22nm LGA 1155 Processors	Intel® 3rd/ 2nd Generation Core™ i7/i5/i3/ Pentium®/ Celeron® 22nm LGA 1155 Processors
Chipset	Intel® B75	Intel® H61	Intel® H61
Memory	240-pin DIMM x 4, max. 32GB, DDR3 1600/1333 Dual channel	240-pin DIMM x 2, max. 16GB, DDR3 1333/1066/800, Dual channel	240-pin DIMM x 2, max. 16GB, DDR3 1333/1066/800, Dual channel
I/O Chipset	ITE IT8783F	Fintech 81866D+81216HD	Fintech 81866D+81216HD
Ethernet	Realtek RTL8111F Giga LAN x 2	Realtek RTL8111F Giga LAN x 2	Realtek RTL8111F Giga LAN x 2
Audio	Realtek® ALC887	Realtek ALC887	Realtek ALC887
TPM	Infineon SLB9635 TT 1.2	—	—
Expansion Slots	PCIe[x16] x 1, PCIe[x4] x 1, PCI x 2	PCIe [x16] x 1, PCIe [x1] x 1, PCI x 1, Half Size Mini-Card x 1	PCIe [x16] x 1, PCI x 2, Half Size Mini-Card x 1
Graphics			
Graphics Chipset	Intel® HD Graphics	Intel® HD Graphics	Intel® HD Graphics
VGA	Up to 1920 x 1200 @60Hz	Up to 1920 x 1200 @75Hz	Up to 1920 x 1200 @75Hz
DVI	—	Up to 1920 x 1200 @60 Hz	—
HDMI	Up to 1920 x 1080 @60Hz	—	—
Display Port	—	—	—
LVDS	—	Up to 1920 x 1200 @60 Hz	Up to 1920 x 1200 @60 Hz
Backlight Control	—	Voltage/ PWM	Voltage/ PWM
Environment & Power & ME			
Power Requirement	24-pin ATX connector x 1, 8 pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1	24-pin ATX connector x 1, 4-pin ATX 12V Power connector x 1
Operating Temperature	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)
Operating Humidity	0% – 90% RH, non-condensing	0% – 80% RH, non-condensing	0% – 80% RH, non-condensing
Certificate	CE & FCC Class A	CE & FCC Class A	CE & FCC Class A
Form Factor	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)	Micro-ATX, 9.6" x 9.6" (244mm x 244mm)
MTBF (Hours)	83,621	87,274	—
Panel I/O Ports			
USB	USB 3.0 x 2, USB 2.0 port x 2	USB 2.0 x 4 port	USB 2.0 port x 4
Display I/O	VGA x 1, HDMI x 3	VGA x 1, DV-D x 1,	VGA x 2
Audio I/O	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out	Line-in, Mic-in, Line-out
LAN I/O	RJ-45 x 2	RJ-45 x 2	RJ-45 x 2
Serial Port	—	RS232 DB-9 connector x 2	RS232 DB-9 connector x 2
PS/2 Port	Keyboard Mouse Connector x 1, mouse connector x 1	Keyboard Connector x 1, Mouse Connector x 1	Keyboard Connector x 1, Mouse Connector x 1
Internal I/O Connectors			
Storage	SATA 6.0Gb/s x 1, SATA 3.0Gb/s x 4	SATA 3.0Gb/s x 3, CFast Socket x 1	SATA 3.0Gb/s x 3, CFast™ Socket x 1
USB	USB 3.0 x 2, USB 2.0 x 4	USB 2.0 x 4	USB 2.0 x 4
Display I/O	—	—	—
Audio I/O	—	—	—
Serial Port	RS-232/422/485 x 1, RS-232 header x 4	RS-232/422/485 x 2, RS-232 x9	RS-232/422/485 x 2, RS-232 x9
PS/2 Port	—	—	—
Parallel Port	LPT connector x 1, Support SPP/EPP/ECP Mode	LPT connector x 1, Support SPP/EPP/ECP Mode	LPT connector x 1, Support SPP/EPP/ECP Mode
DIO	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)	8-bit x 1 (In/Out programmable)
FAN	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2	4 pin CPU Fan x 1, 4-pin Chassis Fan x 1	4 pin CPU Fan x 1, 4-pin Chassis Fan x 2 (Fan2 optional)
Power	Front panel header x 2, I2DA header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1	Front panel header x 1, Clear CMOS jumper x 1, BIOS flash header (2[x4]P p=1.27mm) x 1
Others	I2DA x 1	—	—
OS			
OS Support	Windows® XP 32/64-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora	Windows® XP 32-bit, Windows® 7 32/64-bit, Linux Fedora
Note			

Single Board Computers



Model	PCM-QM77	PCM-LN02
System		
Form Factor	5.25" Compact Board	5.25" Compact Board
CPU	Intel® Core™ i7/i5/i3/Celeron® IVY bridge and Sandy Bridge (Socket-G2 based)	Onboard Intel® Atom™ N455/D525
CPU Frequency	Up to 2.5 GHz	Up to 1.83 GHz
Chipset	Intel® QM77/HM76	PineView™ D/M DDR3 + ICH8M
Memory Type	DDR3 1066/1333/1600, SODIMM x 2 up to 16G	Onboard 2 GB/4 GB DDR3 667/800
Max. Memory Capacity	8 GB	4 GB
BIOS	UEFI	AMI 8MB
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	ATX/DC12V	+12V & ATX co-lay
Power Supply Type	ATX	ATX/DC-12V
Power Consumption (Typical)	—	—
Dimension (L x W)	8" x 5.75" (203mm x 146mm)	8" x 5.75" (203mm x 146mm)
Operating Temperature	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)
Storage Temperature	-40°F – 176°F (-40°C – 80°C)	-40°F – 176°F (-40°C – 80°C)
Operating Humidity	0% – 90% relative humidity, non-condensing	0% – 90% relative humidity, non-condensing
MTBF (Hours)	60,000	—
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Core™ i7/i5/i3 integrated	Integrated
Video Output	CRT, LVDS LCD, DVI-I	CRT, TTL (Optional), or LVDS 18/24 bit
Backlight Inverter Supply	Max. 12V	Max. 12V
I/O		
Ethernet	Intel® 82579LM x 1, Intel® 82583V x 1, 10/100/1000Base-TX need Pin header for LAN	Intel® 82567V x 1, Intel® 82583V x 1, 10/100/1000Base-TX x 2
Audio	Realtek ALC892, 2.1CH	ALC888-GR, 2 CH
USB Port	USB3.0 x 4, USB 2.0 x 4	USB2.0 x 6
Serial Port	RS-232 x 8, RS-232/422/485 x 2	RS-232 x 5, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1 or FDD Function	SPP/EPP/ECP x 1
HDD Interface	SATA 3.0 x 2, SATA 2.0 x 2	UDMA33 x 1, SATA 2 x 2
FDD Interface	—	—
SSD	CFast,mSATA	CompactFlash™
Expansion Slot	PCI-Express (x16), Mini-Card or mSATA, PCI, Mini PCI Digital I/O (8 in/8 out), iAMT 8.0 support , 5V/12V Voltage output	PC/MCIA x 1, PC-104-Plus, Two mini-card (1st: full size+SIM; 2nd: half size) on the top side; CF x 1, LAN connector Pin header Type
DIO	16 bit	8 bit
TPM	Optional	Optional
Touch	Optional	—
Note		



Model	PICO-BT01	PICO-CV01
System		
Form Factor	Pico-ITX	Pico-ITX
CPU	Onboard Intel® Atom™ E3845 or Celeron® J1900/N2807 Processor SoC	Intel® Atom™ N2600 Processor
CPU Frequency	Up to 2.0 GHz	1.6 GHz Dual Core
Chipset	Intel® E3845/J1900/N2807	N2600 + NM10
Memory Type	204-pin DDR3L SODIMM x 1, DDR3L 1066/1333, Max 8GB	SODIMM DDR3 1066MHz
Max. Memory Capacity	Up to 8GB	2 GB
BIOS	AMI/SPI	AMI 32MB
Wake On LAN	Yes	Yes
Watchdog Timer	1-255 steps by software program	255 Level
Power Requirement	+12VDC	+12V only
Power Supply Type	AT/ATX (default), lockable connector optional	AT / ATX
Power Consumption (Typical)	Intel® Celeron® J1900 2.0GHz, DDR3L 1333 MHz 8 GB, 1.14A@+12V	Intel® Atom™ N2600 1.6GHz,DDR3 800MHz 2GB, 0.83A@12VDC
System Cooling	Heat-spreader, heatsink or cooler optional	Fanless, Heat-sink
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	0.88lb (0.4 kg)	1.1 lb (0.5 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C), -4°F ~ 158°F (-20°C ~ 70°C) WITas I
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	95,000
Certification	CE,FCC	CE,FCC
Display		
Chipset	Intel® E3845/J1900/N2807	Intel® Atom™ N2600 integration
Resolution	VGA up to 2048 x 1152 @60Hz or DP up to 2560 x 1400 @60Hz LVDS (18/24-bit) up to 1400 x 900 @60Hz	VGA up to 1920x1200 @60Hz uHDMI up to 1920 x 1200 @60Hz LVDS (18bit) up to 1366 x768 @60Hz
LCD Interface	18/24-bit Single LVDS	18-bit Single Channel LVDS with PWM function
I/O		
Storage/SSD	SATA II 3.0Gb/s x 1, mSATA/Mini-Card (Full-size) x 1	SATA II 3.0Gb/s x 1, mSATA/Mini-Cardx1
Ethernet	Intel® Gigabit Ethernet 211AT 10/100/1000Base-TX x 1	Realtek RTL 8111E, 10/100/1000Base-TX x 1
USB Port	USB 3.0 x 1 Rear IO, USB 2.0 x 1 Rear IO and x 1 Pin header	USB2.0 x 5
Serial Port	RS-232 x 1, RS-232/422/485 x 1 (Ring /+5V/+12V)	RS-232 x 1, RS-232/422/485 x 1
Audio	Line-out x 1	Audio Buzzer x 1, HD Audio Codec(ALC662) for Mic-in/Line-in/ Line-out
DIO	4-bit (2-in, 2-out)	4-bit (2-in, 2-out)
Expansion Slot	Mini-Card (Half-size) x 1, BIO x 1	—
SIM	Option by BIO Board	—
TPM	—	—
Touch	—	—
Note		


Single Board Computers



Model	PICO-HD01	PICO-IMX6
System		
Form Factor	Pico-ITX	Pico-ITX
CPU	AMD G-series T40E (Dual Core)/T40R (Single Core) Processor	Freescale i.MX6 Quad 1.0 GHz Automotive Freescale i.MX6 Dual Lite 1.0 GHz Ex. Consumer
CPU Frequency	1.0 GHz Dual Core	1.0 GHz Dual/Quad Core
Chipset	G-Series T40E+ A50M	i.MX6
Memory Type	SODIMM DDR3 1066MHz	1GB DDR3
Max. Memory Capacity	4 GB	2GB
BIOS	AMI 32Mb	—
Wake On LAN	YES	—
Watchdog Timer	255 Levels	Integrated
Power Requirement	+12V only	12V
Power Supply Type	AT/ATX	AT
Power Consumption (Typical)	AMD T-40R 1.0 GHz, DDR3 1066MHz 2GB, 0.91A@12V DC	0.6A@12V, full load, Quad CPU
System Cooling	Fanless, Heat-sink	Fanless, Heat-sink
Dimension	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	1.1 lb (0.5 kg)	0.88lb (0.4 kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	0°C ~ 60°C, -40°C ~ 85°C (optional)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°C ~ 85°C
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	89,000	80,000
Certification	CE,FCC	CE/FCC
Display		
Chipset	Integrated decoders in AMD G-series	Freescale i.MX6
Resolution	VGA up to 1920x1200 @60Hz uHDMI up to 1920 x 1200 @60Hz LVDS (18lt) up to 1366 x768 @60Hz	mHDMI, LVDS
LCD Interface	18lt Single Channel LVDS with PWM function	1 CH 18b LVDS x 1
I/O		
Storage/SSD	SATA II 3.0Gb/s x 1, mSATA/Mini-Card x 1	SATA w/SATA PWR connector, eMMC up to 16GB
Ethernet	Realtek RTL 8111E, 10/100/1000Base-TX x 1	GbE x 1
USB Port	USB2.0 x 5	Up to 4, one OTG port
Serial Port	RS-232 x 1, RS-232/422/485 x 1	4-wire UART x 2
Audio	Audio Buzzer x 1, HD Audio Codec (ALC662) for Mic-in/ Line-in/Line-out	Line-in, Speaker out, mic
DIO	4-bit (2-in, 2-out)	8-bit
Expansion Slot	—	Mini-Card (Quad only), CAN Bus (optional)
SIM	—	Optional
TPM	—	—
Touch	—	—
Note		

Single Board Computers



Model	BIO-ST01-L1U2	BIO-ST01-M1U1	BIO-ST02-C4M1
System			
Form Factor	2.5" Board	2.5" Board	2.5" Board
BIO	80 Pin Hi-speed Board to board connector	80 Pin Hi-speed Board to board connector	80 Pin hi-speed Board to board connector
Power Requirement	Power from MB by BIO	Power from MB by BIO	Power from MB by BIO
Board Size	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)	3.94" x 2.84" (100mm x 72mm)
Gross Weight	200g	200g	200g
Operation Temperature	32°F - 140°F (0°C - 60°C)	32°F - 140°F (0°C - 60°C)	32°F - 140°F (0°C - 60°C)
Storage Temperature	-40 °F - 176°F (-40°C - 80°C)	-40 °F - 176°F (-40°C - 80°C)	-40 °F - 176°F (-40°C - 80°C)
Operation Humidity	0% - 90% relative humidity, non-condensing	0% - 90% relative humidity, non-condensing	0% - 90% relative humidity, non-condensing
I/O			
PCIe	Realtek 811E, 10/100/1000Base-TX, RJ-45 x 1	Mini-Card x 1	Mini-Card x 1 (full size)
USB	USB 2.0 x2 on rear I/O	USB 2.0 x 1 on rear I/O	USB 2.0 x 1 on rear I/O
Audio	Dual Channel Audio output with 2W Amp.	Dual Channel Audio output with 2W Amp.	—
SIM	—	SIM Slot x 1	SIM Slot x 1
Serial Port	—	—	COM1, COM2 RS-232 by Pin Header, COM3, COM4 RS-232 on Rear I/O
Expansion Interface	SMbus x 1, GPIO x 1	SMbus x 1, GPIO x 1	
Note			

Single Board Computers



Model	EPIC-BDU7	EPIC-QM77
System		
Form Factor	EPIC	EPIC
CPU	Intel® 5th Generation Intel® Core™ i3/i5/i7 ULT Processor SoC	Intel® Core™ i7/i5/i3/Celeron® (BGA based, <=25W)
CPU Frequency	Up to 2.2 GHz	Up to 2.5 GHz
Chipset	5th Generation Intel® Core™ i series ULT Processor SoC	Intel® PCH QM77/HM76
Memory Type	DDR3L 1333/1600, SODIMM x 1	DDR3 1066/1333/1600, SODIMM x 1
Max. Memory Capacity	Up to 8G	Up to 8G
BIOS	UEFI	UEFI
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+12V or 9-24V AT/ATX (default)	DC12V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	38.8W	—
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	63,000	—
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	5th Generation Intel® Core™ i series ULT Processor SoC	Intel® Core™ i7/i5/i3 integrated
Video Output	Triple independent Displays: VGA, LVDS, DP, LVDS (Optional), eDP (Optional)	CRT+2 LVDS/eDP+Internal LVDS), CRT+HDMI, CRT+DVI, DV+HDMI
Backlight Inverter Supply	Max. 12V	Max. 12V
I/O		
Ethernet	Intel® WG211AT x 1/WG218LM x 1, RJ-45 x 2	Intel® 82579LM x 1/Intel® 82583V x 1, 10/100/1000Base
Audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB2.0 x 4, USB3.0 x 2	USB2.0 x 4, USB3.0 x 2
Serial Port	COM: RS-232 x 4, COM2, COM3: RS-232/422/485 x 2 (Ring/+5V/+12V)	RS-232 x 5 , RS-232/422/485 x 1 (COM2)
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	SATA 3.0 x 2	SATA3 x 2
FDD Interface	—	—
SSD	mSATA (Share with half-size Mini-Card by BIOS)	mSATA x 1
Expansion Slot	Mini Card x 1, SIM x1 (Optional), PCI-104 (Optional), 16 bit DIO or LPT, PS/2 x 1	Mini Card x 1, 16 bit DIO or LPT, PCI-104
DIO	16 bit	16 bit
TPM	Optional	Optional
Touch	Optional	Optional
Note		





Model	EPIC-BT07	EPIC-CV07	EPIC-5536
System			
Form Factor	EPIC	EPIC	EPIC
CPU	Intel® Atom™/ Celeron® E3845/J1900/N2807	Intel® Atom™ D2550/N2800/N2600	AMD Geode™ LX 800
CPU Frequency	Up to 2.0 GHz	1.6 GHz – 2.13 GHz	Up to 500 MHz
Chipset	Intel® Atom™/ Celeron® SOC	Intel® Atom™ D2550/N2600 + NM10	AMD CS5536
Memory Type	DDR3L 1333, SODIMM x 1	DDR3 800/1066 MHz	SDRAM DDR333 (DDR400 optional), SODIMM x 1
Max. Memory Capacity	Up to 8G	Up to 4G	1 GB
BIOS	AMI	AMI 4MB	Award 1 MB
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Level	255 Levels
Power Requirement	+12V or 9-24V AT/ATX(default)	+12V	+12V
Power Supply Type	AT/ATX	AT/ATX	AT/ATX
Power Consumption (Typical)	11.8W	–	AMD Geode™ LX 800 500 MHz, DDR333 1 GB, 1.35A@12V
Dimension (L x W)	4.53" x 6.50" (115mm x 165mm)	(165mm x 115mm)	4.53" x 6.50" (115mm x 165mm)
Operating Temperature	32°F – 140°F (0°C – 60°C)	32 °F – 140 °F (0 °C – 60 °C); -4 °F – 158 °F (-20 °C – 70 °C) For WITAS 1	32°F – 140°F (0°C – 60°C)
Storage Temperature	-40°F – 176°F (-40°C – 80°C)	-40 °F – 176 °F (-40 °C – 80 °C)	-40°F – 176°F (-40°C – 80°C)
Operating Humidity	0% – 90% relative humidity, non-condensing	10–80%, non-condensing	0% – 90% relative humidity, non-condensing
MTBF (Hours)	110,000	–	70,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® Atom™/ Celeron® SOC	Intel® Atom™ D2550/ N2600 integrated	AMD Geode™ +TI SN75LVDS83
Video Output	CRT, LVDS, HDMI	CRT, LVDS, DVI (optional, need to change connector)	CRT, LVDS & TTL
Backlight Inverter Supply	Max. 12V	Max. 12V	Max. 12V
I/O			
Ethernet	Intel® i211 Gigabit Ethernet, RJ-45 x 2	Giga LAN Realtek 8111E x 2	10/100Base-TX x 2, Realtek 8100C (Optional Gigabit LAN)
Audio	High Definition Audio Interface	ALC662 co-lay ALIC886/892	High Definition Audio (HDA)
USB Port	USB2.0 x 5, USB3.0 x 1	USB 2.0 x 7	USB2.0 x 4 (Does not support wake-up function)
Serial Port	COM1, 4, 5, 6 : RS-232 x 4, COM2, 3 : RS-232/422/485 x 1 (Ring/ +5V/ +12V)	RS-232 x 7, RS-232/422/485 x 1 (COM 2)	RS-232 x 3, TTL only/ GPS x1, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1	SPP/EPP/ECP x 1
HDD Interface	SATA 2.0 x 1	SATA 2.0 x 1	UDMA100 x 1, SATA 1 x 2
FDD Interface	–	None	FDD x 1
SSD	mSATA x 1 (Share with half-size Mini-Card by BOM)	mSATA	CompactFlash™
Expansion Slot	Mini-Card x 1, SIM x 1 (Only E3800 series), PCI-104 x 1 (optional), 16 bit DIO or LPT, SMIbus x 1, I2C x 1 (optional), PS/2 x 1	PCI-104 x 1, Mini-Card x 2 (One support mSATA), Touch Panel feature (Optional), 8 pin DIO 4 in/4out	PC/104-plus
DIO	16 bit	16 bit	8-bit
TPM	Optional	–	–
Touch	Optional	Yes	–
Note		TAIWAN EXCELLENCE 2015	

Single Board Computers



Model	GENE-SKU6	GENE-QM87
System		
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Skylake-U Processor SoC	Onboard Intel® 4th Generation Core™ i5-4402E Processor
CPU Frequency	Up to 2.4/3.0 GHz	Up to 2.7GHz
Chipset	Intel® Skylake-U Processor SoC	Intel® PCH QM87
Memory Type	DDR4 1866/2133, SODIMM x1	DDR3L 1333/1600, SODIMM x 1
Max. Memory Capacity	Up to 8GB	8 GB
BIOS	UEFI	SPI type
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+9~-36V or +12V	+12V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	—	Intel® Core™ i5-4402E 1.6 GHz, DDR3L 1600 8GB, 2.73A@+12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.7mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 61°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 81°C)	-40°F ~ 176°F (-40°C ~ 81°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 91% relative humidity, non-condensing
MTBF (Hours)	—	105,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Skylake-U Processor SoC	Intel® Haswell BGA integrated
Video Output	DVI+LVDS, DVI + CRT , DVI+eDP, CRT+LVDS, CRT+eDP , DP+LVDS	CRT+LVDS, CRT+HDMI, LVDS+DVI, LVDS+DM, LVDS+HDMI, DVI+HDMI, (Real I/O as GENE-QM77 Rev.B)
Backlight Inverter Supply	Up to 24-bit dual-channel LVDS x 2	Up to 24-bit dual-channel LVDS x 2
I/O		
Ethernet	Intel® i210, 10/100/1000Base, RJ 45 x2 (Support EtherCAT)	Intel® I211AT, I217LM, Intel®I210 10/100/1000Base-TX x2
Audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB 3.0 x 4, USB 2.0 x 2	USB2.0 x 6, USB3.0 x 2
Serial Port	RS-232 x 1 , RS-232/422/485 x 3	RS-232 x 3 , RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1 (Option, share with DIO)	—
HDD Interface	SATA 3.0 x 1, +5V SATA power connector x 1	SATA 3.0 (6 Gbps) x 2
FDD Interface	—	—
SSD	mSATA (share with half-size Mini-Card and selective by BIOS)	CFast™, mSATA (share with Mini-Card by jumper),
Expansion Slot	BIO x 1, Mini-Card x 2 and default is mSATA x 1 (half-size), Mini-Card x 1 (Full-size)	Mini-Card x 1
DIO	8 bit	8 bit
TPM	x 1	x 1
Touch	x 1	x 1
Note		



Model	GENE-QM77 Rev. A	GENE-QM77 Rev. B
System		
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Core™ i7/i5/i3/Celeron® (Socket-G2 based)	Intel® Core™ i7/i3/Celeron® (BGA based, 17W)
CPU Frequency	Up to 2.7 GHz	Up to 1.8 GHz
Chipset	Intel® PCH QM77/HM76	Intel® PCH QM77/MH76
Memory Type	DDR3 1333/1600, SODIMM x 1	DDR3 1066/1333/1600, SODIMM x 1
Max. Memory Capacity	8 GB	8 GB
BIOS	SPI type	SPI type
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	+12V	+12V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Intel® Core™ i7-3610QE 2.3 GHz, DDR3 1333 8 GB, 5.2A@+12V Intel® Core™ i5-3610ME 2.7 GHz, DDR3 1333 8 GB, 3.47A@+12V	Intel® Core™ i7-3556LE 2.5 GHz, DDR3 1333 8 GB, 2.49A@+12V
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)	5.75" x 4" (146mm x 101.6mm)
Operating Temperature	32°F – 140°F (0°C – 60°C)	32°F – 140°F (0°C – 60°C)
Storage Temperature	-40°F – 176°F (-40°C – 80°C)	-40°F – 176°F (-40°C – 80°C)
Operating Humidity	0% – 90% relative humidity, non-condensing	0% – 90% relative humidity, non-condensing
MTBF (Hours)	51,000	50,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Core™ i7/i5/i3/Celeron® Integrated	Intel® Core™ i7/i3/Celeron® Integrated
Video Output	CRT+LVDS, CRT+DVI, LVDS+DVI, LVDS+LVDS	CRT+LVDS, CRT+DVI, CRT+HDMI, LVDS+DVI, LVDS+HDMI, DVI+HDMI, LVDS+LVDS
Backlight Inverter Supply	Up to 24-bit dual-channel LVDS x 2	Up to 24-bit dual-channel LVDS x 2
I/O		
Ethernet	Intel® 82579LM, Realtek RTL-8111E, 10/100/1000Base	Intel® 82579LM, Realtek RTL-8111E, 10/100/1000Base
Audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB2.0 x 6, USB3.0 x 2	USB2.0 x 6, USB3.0 x 2
Serial Port	RS-232 x 3, RS-232/422/485 x 1	RS-232 x 3, RS-232/422/485 x 1
Parallel Port	SPP/EPP/ECP x 1 (shared with DIO, By BIOS setting)	SPP/EPP/ECP x 1 (By BIOS setting)
HDD Interface	SATA 3.0 (6 Gbps) x 2	SATA 3.0 (6 Gbps) x 2
FDD Interface	–	–
SSD	CFast™, mSATA (share with Mini-Card by BOM)	CFast™, mSATA (share with Mini-Card by BOM)
Expansion Slot	Mini-Card x 1	Mini-Card x 1
DIO	8 bit	8 bit
TPM	x 1	x 1
Touch	x 1	x 1
Note		

Single Board Computers



Model	GENE-BSW5	GENE-BT05
System		
Form Factor	3.5" SubCompact Board	3.5" SubCompact Board
CPU	Intel® Pentium® & Celeron® MD Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
CPU Frequency	Up to 2.6 GHz	Up to 2.0GHz
Chipset	Intel® Pentium® & Celeron® MD Processor SoC	Intel® N2930/N2807/J1900/E3845/E3825
Memory Type	DDR3L 1600, SODIMM x 1	DDR3L 1066/1333, SODIMM x 1
Max. Memory Capacity	Up to 8 GB	Up to 8G
BIOS	UEFI	UEFI
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Level
Power Requirement	+12V	+12V
Power Supply Type	AT/ ATX	AT/ATX
Power Consumption (Typical)	Intel® Pentium® N3700 @ 2.40 GHz, DDR 3L 1600MHz, 8G, 1.55A@+12V	Intel® N2930, DDR3L 1600MHz 8G, 0.65A@+12V
Dimension (L x W)	5.75" x 4" (146mm x 101.7mm)	5.75" x 4" (146mm x 101.6mm)
Operating Temperature	32°F - 140°F (0°C - 60°C)	32°F - 140°F (0°C - 60°C) or WITAS 2 (E3825)
Storage Temperature	-40°F - 176°F (-40°C - 81°C)	-40°F - 176°F (-40°C - 80°C)
Operating Humidity	0% - 90% relative humidity, non-condensing	0% - 90% relative humidity, non-condensing
MTBF (Hours)	81,000	111,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Pentium® & Celeron® MD SoC	Intel® N2930/N2807/J1900/E3845/E3825
Video Output	LVDS x 2 + VGA (HDMI is optional, shared with LVDS2)	CRT+LVDS, HDMI+LVDS , CRT+HDMI
Backlight Inverter Supply	Up to 24-bit dual-channel LVDS	Up to 24-bit dual-channel LVDS x 1
I/O		
Ethernet	Realtek RTL-8111E, 10/100/1000Base, RJ-45 x2	Intel® I211 (or 210), 10/100/1000Base-TX, RJ-45 x 2
Audio	High Definition Audio Interface	High definition audio interface
USB Port	USB3.0 x 2, USB2.0 x 3	USB2.0 x 3, USB 3.0 x 1
Serial Port	RS-232/422/485 x 2, RS-232 x 4	RS-232 x 2 , RS-232/422/485 x 2
Parallel Port	SPP/EPP/ECP x 1 (Option, share with DIO)	SPP/EPP/ECP x 1
HDD Interface	SATA 3.0 x 1	SATA 2.0 x 1
FDD Interface	—	—
SSD	mSATA x 1 (half-size)	CFast™ (alternative with mSATA by BOM and also occupy one Mini-Card location)
Expansion Slot	Mini-Card x 1(Full-size)	Mini-Card x 2 (Full-size x 1, Half-size x 1)
DIO	8 bit	8 bit
TPM	x 1	x 1
Touch	x 1 (USB interface)	x 1
Note		



Model	GENE-CV05	Model	GENE-1350
System		System	
Form Factor	3.5" SubCompact Board	Form Factor	3.5"
CPU	Intel® Atom™ D2550/N2800/N2600	Processor	Ti OMAP™ 3503/3530 600 MHz
CPU Frequency	Up to 1.86GHz	System Memory	Onboard 128/256 MB (Optional) LP DDR RAM
Chipset	Intel® NM10	Ethernet	Davicom DM9000AEP, 10/100Base-TX, RJ-45 x 1
Memory Type	DDR3 800/1066, SODIMM x 1	Boot Loader	Microsoft Windows® CE 6.0 or Linux - Kernel 2.6.32
Max. Memory Capacity	4 GB	Watchdog Timer	Generate a time-out system reset
BIOS	SPi type	Expansion Interface	Mini-Card (with USB interface only) x 2, Proprietary Expansion Slot x 1
Wake on LAN	Yes	Battery	Lithium battery
Watchdog Timer	255 Levels	Battery Charger	Linear tech LTC4100
Power Requirement	+12V	Power Requirement	+9V to +24V DC
Power Supply Type	AT/ ATX	Power Consumption (Typical)	Ti OMAP™ 3530, 128/256 MB LP DDR, 0.24A@+12V
Power Consumption (Typical)	Intel® Atom™ N2800, DDR3 1333 4 GB, 1.00A@+12V	Board Size	5.75"(L) x 4"(W) (146mm x 101.6mm)
	Intel® Atom™ N2600, DDR3 1066 2 GB, 0.87A@+12V	Gross Weight	0.88 lb (0.4 kg)
	Intel® Atom™ D2550, DDR3 1333 4 GB, 1.24A@+12V	Operating Temperature	32°F ~ 158°F (0°C ~ 70°C) -4°F ~ 158°F (-20°C ~ 70°C) for WITAS 1 -40°F ~ 176°F (-40°C ~ 80°C) for WITAS 2
Dimension (L x W)	5.75" x 4" (146mm x 101.6mm)	Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	MTBF (Hours)	100,000
Operating Humidity	0% ~ 90% relative humidity, non-condensing	Display	
MTBF (Hours)	62,000	VGA/LCD Controller	Ti OMAP™ 3
Certification	CE/FCC	Video Output	Up to 1280 x 768 for LCD Up to 1024 x 768 for CRT
Display		Backlight Inverter Supply	Up to 18-bit single channel TTL/LVDS LCD
VGA/LCD Controller	Intel® Atom™ D2550/N2800/N2600 integrated	I/O	
Video Output	CRT+LVDS, CRT+DVI, LVDS+DVI, LVDS+LVDS	Storage	256 MB NAND Flash, SD, MicroSD
Backlight Inverter Supply	Up to 24-bit Dual-Channel LVDS	Output Interface	RS-232 x 1, RS-232/422/485 (auto flow) x 1, TTL UART x 1
I/O		Universal Serial Bus	USB2.0 Host x 2, USB2.0 Client x 1
Ethernet	Realtek RTL 8111E x 2, 10/100/1000Base-TX, RJ-45 x 2	Digital I/O	Supports 8-bit (Programmable)
Audio	High definition audio interface	Audio	Line-in, Line-out, Mic-in, Speaker-out (1W Amplifier)
USB Port	USB2.0 x 6	Touch Screen	Supports 4-wire resistive touch screen
Serial Port	RS-232 x 5, RS-232/422/485 x 1	Keypad Interface	Supports 6 x 6 matrix keypad
Parallel Port	SPP/EPP/ECP x 1 (Shared with COM6 by BOM)	Motion Sensor	-
HDD Interface	SATA 2.0 x 1	Note	
FDD Interface	-		
SSD	CFast™ (alternative with mSATA by BOM and also occupy one Mini-Card location)		
Expansion Slot	Mini-Card x 1		
DIO	8 bit		
TPM	x 1		
Touch	x 1		
Note			

Computer on Modules



Model	COM-SKHB6	COM-SKUC6	COM-QM87
System			
Form Factor	COM Express Basic Size	COM Express Compact Size	COM Express, Basic, Pin-out Type 6
CPU	Onboard 6th Gen Intel® Core™ H-series Processor, BGA type	Onboard 6th Gen Intel® Core™ U-series Processor, BGA type	Onboard 4th Generation Intel® Core™ i5 Processor
CPU Frequency	Up to i7-6820EQ 2.8 GHz, vPro™	Up to i7-6600U 2.6 GHz, vPro™	Up to 2.7GHz
Chipset	Onboard 6th Gen Intel® Core™ H-series Processor	Onboard 6th Gen Intel® Core™ U-series Processor	Intel® PCH QM87
Memory Type	DDR4, SODIMM x2, ECC Support	DDR3L 1333/1600, SODIMM x 1	DDR3/DDR3L 1333/1600, SODIMM x 2, Supports Dual Channel function
Max. Memory Capacity	32GB	8 GB	16GB
BIOS	AMI BIOS, Legacy Free	AMI BIOS, Legacy Free	AMI BIOS
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 levels	255 levels	255 Levels
Power Requirement	Standard: +12V	Standard: +12V	Nominal: +12V
Power Supply Type	AT/ATX Selection	AT/ATX Selection	AT/ ATX
Power Consumption (Typical)	Intel® i7-6820EQ 2.8GHz, DDR4 16GB, 3.08A@12V	Intel® i3-6100U 2.3GHz, 8GB DDR3L, 1A@12V	Intel® Core™ i5-4400E 2.7GHz, DDR3 1600 8GB, 3.21A @+12V
Dimension (L x W)	4.92" x 3.75" (125mm x 95mm)	3.75in x 3.75in (95mm x 95mm)	4.92" x 3.74" (125mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)	-4°F ~ 158°F (-20°C ~ 70°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	10% ~ 90% relative humidity, non-condensing	10% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	80,000	80,000
Certification	CE/FCC Class A	CE/FCC Class A	CE/FCC
Display			
VGA/LCD Controller	Onboard 6th Gen Intel® Core™ H-series Processor, GT2	Onboard 6th Gen Intel® Core™ U-series Processor, GT2/GT1	Intel® Core™ i7/i5/i3 Celeron® integrated
Video Output	VGA, LVDS/eDP, DDI x2	VGA, LVDS/eDP, DDI x 1 (up to 2)	CRT, LVDS LCD, DDI
Backlight Inverter Supply	—	—	—
I/O			
Ethernet	Intel® I219, Gigabit Ethernet	Intel® I219, Gigabit Ethernet	Intel® 217LM, Gigabit Ethernet
Audio	HD Audio	HD Audio	High definition audio
USB Port	USB2.0 x 8, USB3.0 x 4	USB2.0 x8, USB3.0 x4	USB2.0 x 8, USB3.0 x 4
Serial Port	2-Wire UART (Tx/Rx) x2	2-Wire UART (Tx/Rx) x2	Tx/Rx x 2
Parallel Port	—	—	—
HDD Interface	SATA x 4	SATA x 3 (SATA Port 3 optional)	SATA x 4
Onboard SSD	—	—	—
Expansion Slot	PCIe x16 x 1, PCIe x1 x8, I2C, LPC, SMBus	PCIe x1 x8, I2C, LPC, SMBus	PCI-Express x1 x 7 (Gen 2.0) PCI-Express x16 x 1 (Gen 3.0) Configurable to 2 x 8-lane PCI Express Ports Configurable to 1 x 8-lane or 2 x 4-lane PCI Express Ports LPC Bus x 1, SM Bus x 1, I2C x 1
DIO	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
TPM	Optional	Optional	Optional
Note			



Model	COM-QM77 Rev. B	COM-HM76	COM-KB
System			
Form Factor	COM Express, Basic, Pin-out Type 6	COM Express, Basic Module, Pin-out Type 6	COM Express, Compact Module, Pin-out type 6
CPU	On board 3rd Gen. Intel® Core™ i7/i5/i3/Celeron® (FCBGA1023)	Socket G2 for Intel® 2nd & 3rd generation Core™ i7/i5/i3/Pentium®/Celeron® processor	AMD® Embedded G-Series SoC APU
CPU Frequency	Up to 2.5GHz	Up to i7-3610QE, Quad core, 2.3GHz	Quad(2G), Dual (1.6G)
Chipset	Intel® PCH QM77/HM76	Intel® HM76	AMD® Embedded G-Series SoC
Memory Type	DDR3 1333/1600, SODIMM x 2, Supports Dual Channel function	Non-ECC DDR3L 1333/1600	AMD GX-420CA SoC with AMD Radeon™ HD 8400E Graphics(Quad) GX-217GA SoC with AMD Radeon™ HD 8280E Graphics (Dual)
Max. Memory Capacity	Max. 16GB	Max. 8 GB	MAX. 8 GB
BIOS	AMI BIOS	AMI BIOS	AMI BIOS
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	Nominal: +12V	Nominal: +12V	Nominal: +12V, Optional: +8.5V ~ +19V
Power Supply Type	AT/ATX	AT/ ATX	AT/ATX
Power Consumption (Typical)	Intel® Core™ i3-3217UE 1.6GHz, DDR3 1066 4GB, 2.23A @+12V	i7-3610QE 2.3GHz, DDR3L 8GB, 2.73A@12V, 1.18A@5V, 0.31A@3.3V, 100% loading on ECB-920A	AMD GX-420CA 2.0GHz, 8GB memory, 100% load, 1.2A@12V
Dimension (L x W)	4.92" x 3.74" (125mm x 95mm)	4.92" x 3.75" (125mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -4°F ~ 158°F (-20°C ~ 70°C) for WITAS 1	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	150,000	80,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® Core™ i7/i5/i3 Celeron® integrated	Intel® Core™ i7/ i5/i3/Celeron® processor integrated	AMD® eKabini integrated
Video Output	CRT, LVDS LCD, DDI x 2	CRT, 18/24-bit Dual-channel LVDS, DDI x 2	CRT, 24-bit dual channel LVDS, eDP/ LVDS (18 x 1), DDI x 2
Backlight Inverter Supply	—	—	—
I/O			
Ethernet	Intel® 82579LM, Gigabit Ethernet	Intel® 82579LM for 10/1000/1000Base-TX	Realtek® 8111E, Gigabit Ethernet
Audio	High definition audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 8 , USB 3.0 x 2
Serial Port	Tx/Rx x 2	Tx/Rx x 2	Tx/Rx x 2
Parallel Port	—	—	—
HDD Interface	SATA 2 x 4	SATA x 4	SATA x 2
Onboard SSD	—	—	—
Expansion Slot	PCI-Express [x16] x 1, PCI-Express [x1] x 7, LPC Bus x 1, SM Bus x 1, I2C x 1	PCI-Express [x16] x 1, PCI-Express [1] x 7, LPC bus x 1, SMBus x 1	PCI-Express [x1] x 5, LPC bus x 1, SMBus x 2, PCI-Express[x4] x 1 (PEG)
DIO	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
TPM	Optional	—	—
Note			

Computer on Modules



Model	COM-BT	COM-BYTC2
System		
Form Factor	COM Express, Compact, Pin-out Type 6	COM Express, Compact Size
CPU	Onboard Intel® Atom™ SoC	Onboard Intel® Atom™ Processor SoC
CPU Frequency	Intel® Atom™ N2930 (1.83 GHz), N2807 (1.58 GHz), E3845 (1.91 GHz), E3827 (1.75 GHz), E3826 (1.46 GHz), E3825 (1.33 GHz), E3815 (1.46 GHz), J1900 (2.0 GHz)	Up to J1900 1.91 GHz, Quad core
Chipset	Intel® Atom™ SoC	Intel® Atom™ SoC
Memory Type	DDR3L 1066/1333 MHz SODIMM x 1	DDR3L 1066/1333, SODIMM x 1
Max. Memory Capacity	8 GB	8GB
BIOS	AMI BIOS	AMI BIOS, Legacy Free
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 levels
Power Requirement	Nominal: +12V	Standard: +12V
Power Supply Type	AT/ ATX	AT/ATX Selection
Power Consumption (Typical)	0.92A@12V, full load, J1900 0.48A@12V, full load, N2807	1A@ 12V with J1900, full load
Dimension (L x W)	3.74" x 3.74" (95mm x 95mm)	3.75" x 3.75" (95mm x 95mm)
Operating Temperature	32°F - 140°F (0°C - 60°C)	32°F - 140°F (0°C - 60°C)
Storage Temperature	-40°F - 176°F (-40°C - 80°C)	-4°F - 158°F (-20°C - 70°C)
Operating Humidity	0% - 90% relative humidity, non-condensing	10% - 90% relative humidity, non-condensing
MTBF (Hours)	80,000	80,000
Certification	CE/FCC	CE/FCC Class A
Display		
VGA/LCD Controller	Intel® Atom™ SoC Integrated	Intel® Atom™ SoC
Video Output	CRT, LVDS LCD, DDI, eDP (on module, by switch)	VGA, LVDS, eDP
Backlight Inverter Supply	—	—
I/O		
Ethernet	Intel® 211, Gigabit Ethernet	Intel® I210IT, Gigabit Ethernet
Audio	High Definition Audio Interface	HD Audio
USB Port	USB 2.0 x 6, USB 2.0/3.0 x 1	USB2.0 x 7
Serial Port	Tx/Rx x 2	—
Parallel Port	—	—
HDD Interface	SATA x 2	SATA x 1, PATA x 1
Onboard SSD	—	—
Expansion Slot	PCI-Express[k1] x 3 (Gen 2.0) LPC Bus x 1 SMBus x 1	PCIe [x1] x 2 PCI x 4 I2C LPC SMBus
DIO	GPIO 8-bit	GPIO 8-bit
TPM	Optional	Optional
Note		



Model	COM-CV Rev. B	COM-CV Rev. A11
System		
Form Factor	COM Express, Compact, Pin-out Type 6	COM Express, Compact, Pin-out Type 2
CPU	Onboard Intel® Atom™ D2550/N2600, Dual Core Processors up to 1.86 GHz	Onboard Intel® Atom™ D2550/N2600 Dual Core Processors up to 1.86 GHz
CPU Frequency	Up to 1.86 GHz	Up to 1.86 GHz
Chipset	Intel® NM10	Intel® NM10
Memory Type	DDR3 1066, SODIMM x 1	DDR3 1066, SODIMM x 1
Max. Memory Capacity	Up to 4 GB	Up to 4 GB
BIOS	AMI BIOS	AMI BIOS
Wake on LAN	Yes	Yes
Watchdog Timer	255 Levels	255 Levels
Power Requirement	Nominal: +12V	Nominal: +12V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Intel® D2550 1.86 GHz, DDR3 1066/4GB, 1.39A@+12V	Intel® D2550 1.86 GHz, DDR3 1066/4GB, 1.21A@+12V
Dimension (L x W)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) (D2550/N2600) -40°F ~ 185°F (-40°C ~ 85°C)(N2600)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	80,000	80,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Intel® Atom™ D2550/N2600 Processor integrated	Intel® Atom™ D2550/N2600 Processor integrated
Video Output	CRT/LVDS LCD/ DDI x 1	CRT/LVDS LCD
Backlight Inverter Supply	—	—
I/O		
Ethernet	Intel® 82583V, Gigabit Ethernet	Intel® 82583V, Gigabit Ethernet
Audio	High Definition Audio Interface	High Definition Audio Interface
USB Port	USB2.0 x 8, USB3.0 x 2	USB2.0 x 8
Serial Port	Tx/Rx x 2	From LPC interface
Parallel Port	—	From LPC interface
HDD Interface	SATA 2 x 2	SATA 2 x 4, PATA x 1
Onboard SSD	—	—
Expansion Slot	PCI-Express [x1] x 4 LPC Bus x 1 SM Bus x 1	PCI-Express [x1] x 3 32-bit PCI x 2 LPC Bus x 1 SM Bus x 1
DIO	GPIO 8-bit	GPIO 8-bit
TPM	Optional	—
Note		

Computer on Modules



Model	NanoCOM-BT	NanoCOM-CV Rev. A	NanoCOM-CV Rev. B
System			
Form Factor	COM Express, Nano Module, Pin-out Type 10	COM Express, Ultra (Nano) Module, Pin-out Type 1	COM Express, Ultra (Nano) Module, Pin-out Type 10
CPU	Intel® Atom™/ Celeron® SOC Processor (M)	Onboard Intel® Atom™ N2600	Onboard Intel® Atom™ N2600
CPU Frequency	Up to E3845, 1.91 GHz	Up to 1.6GHz	Up to 1.6GHz
Chipset	Intel® Atom™/ Celeron® SOC Processor	Intel® NM10	Intel® NM10
Memory Type	Onboard DDR3L	Non-ECC DDR3 800	Non-ECC DDR3 800
Max. Memory Capacity	2 GB DDR3L Onboard (up to 4 GB)	2GB, DDR3 onboard	2GB, DDR3 onboard
BIOS	AMI BIOS	AMI BIOS	AMI BIOS
Wake on LAN	Yes	Yes	Yes
Watchdog Timer	255 Levels	255 Levels	255 Levels
Power Requirement	Standard : +12V, AT/ATX Optional: +5V, AT/ATX	Nominal: +12V	Nominal: +12V
Power Supply Type	AT/ATX	Nominal: +12V, +4.75V ~ +14.7V (Optional)	Nominal: +12V, +4.75V ~ +14.7V (Optional)
Power Consumption (Typical)	0.7A@12V, full load, E3845	0.65A@12V, full load, N2600	0.72A@12V, full load, N2600
Dimension (L x W)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 80°C) by E3845/E3825	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) for WITAS 2	32°F ~ 140°F (0°C ~ 60°C), -40°F ~ 185°F (-40°C ~ 85°C) for WITAS 2
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	90,000	80,000	80,000
Certification	CE/FCC	CE/FCC	CE/FCC
Display			
VGA/LCD Controller	Intel® Atom SOC	Intel® Atom™ N2600 integrated	Intel® Atom™ N2600 integrated
Video Output	LVDS LCD/eDP, DDI x 1	LVDS, CRT	LVDS, DDI
Backlight Inverter Supply	—	—	—
I/O			
Ethernet	Intel®	Intel® 82583V	Intel® 82583V
Audio	High Definition Audio Interface	Mic-in, Line-in, Line-out	Mic-in, Line-in, Line-out
USB Port	USB2.0 x 8	USB 2.0 x 8 via NM10	USB 2.0 x 8 via NM10
Serial Port	Tx/Rx x 2	—	TX/RX x 2
Parallel Port	From LPC interface	—	—
HDD Interface	SATA 3.0 Gb/s x 2, SATA 2 x 3	SATA 3.0Gb/s x 2 (one shared with SSD)	SATA 3.0Gb/s x 2 (one shared with SSD)
Onboard SSD	Optional eMMC support	Optional up to 4GB	Optional up to 4GB
Expansion Slot	PCI-Express [x1] x 3, 32-bit PCI x2 LPC Bus x 1 SM Bus x 1	PCI-Express [x1] x 3 LPC bus x 1 SMBus x 1	PCI-Express [x1] x 3 LPC bus x 1 SMBus x 1
DIO	GPIO 8-bit	GPIO 8-bit	GPIO 8-bit
TPM	—	—	—
Note			



Model	XTX-BSW	uCOM-BT	ECB-960T
System			
Form Factor	XTX	SMARC Version 1.1	Mini-ITX form Factor (170mmx 170mm)
CPU	Onboard Intel® Atom™ N3000 Processor SoC, D1 stepping	Intel® Atom™ SOC Processor	—
CPU Frequency	Up to 1.86GHz	up to 1.91 GHz	—
Chipset	Onboard Intel® Atom™ N3000 Processor SoC, D1 stepping	Intel® Atom™ E3800 series	—
Memory Type	DDR3L 1066 MHz, SODIMM x 1	Onboard DDR3L	—
Max. Memory Capacity	8 GB	2 GB (optional to 4 GB)	—
BIOS	AMI BIOS	AMI BIOS	—
Wake on LAN	Yes	No	—
Watchdog Timer	255 Levels	255 Levels	—
Power Requirement	+5V	Normal: 3.3V - 5V	+12V DC; +8-20VDC-in on separate connector
Power Supply Type	AT/ ATX	AT/ ATX	—
Power Consumption (Typical)	—	0.7A@12V, full load, E3845	—
Dimension (L x W)	4.5" x 3.74" (114mm x 95mm)	3.23" x 1.96" (82 x 50 mm)	6.69" x 6.69" (170mm x 170mm)
Operating Temperature	32°F - 140°F (0°C - 60°C)	32 °F - 140 °F (0 °C - 60 °C)	32 °F - 140 °F (0 °C - 60 °C)
Storage Temperature	-40°F - 176°F (-40°C - 80°C)	-40°F - 185°F (-40°C - 85°C)	-4 °F - 158 °F (-20 °C - 70 °C)
Operating Humidity	0% - 90% relative humidity, non-condensing	0% - 90% relative humidity, non-condensing	10% - 80% relative humidity, non-condensing
MTBF (Hours)	80,000	80,000	80,000
Certification	CE/FCC	CE/FCC	—
Display			
VGA/LCD Controller	Intel® Atom™ N3000 Processor integrated	Intel® Atom SOC	—
Video Output	CRT, LVDS LCD, DP (optional)	24-bit LVDS LCD/eDP, HDMI	18/24-bit Single channel LVDS
Backlight Inverter Supply	—	—	—
I/O			
Ethernet	Realtek 8105E, 10/100Base-TX	Intel® I211AT, 10/100/1000Base-TX	—
Audio	Realtek ALC892	HD Audio x 1	Line-in, Line-out, Microphone
USB Port	USB2.0 x 5	USB3.0 x 1, USB2.0 x 2	USB3.0 x 1, USB2.0 x 6
Serial Port	2	UART x 2 (1 for TX/RX/RTS#/ CTS#, 1 for TX/RX)	2-wire x 1, 4-wire x 1
Parallel Port	1	—	—
HDD Interface	SATA x 2 (one shared with PATA), PATA x 1	SATA x 2	SATA x 1
FDD Interface	—	—	—
SSD	—	Optional for onboard eMMC	—
Expansion Slot	PCI Express [x1] x 2, PCI	PCI Express [x1] x 3 I2C, SMBus x 1, SDIO SPI x 2, SPI 0 for boot only	PCI-Express [x1] x 3 via adapter card
DIO	—	GPIO, 9 bit (up to 12 bit)	—
TPM	—	—	—
Note	LPC not supported	—	microSD card x 1 I2C/Client mode

Computer on Modules



Model	AQ7-IMX6	AQ7-BT
System		
Form Factor	Qseven Rev. 2.0	Qseven Rev.2.0
CPU	Freescaler® i.MX6 SoC Processor	Intel® Atom™ SOC Processor
CPU Frequency	1.0 GHz (Dual lite), 1.2 GHz(Quad)	up to 1.91GHz
Chipset	Freescaler® i.MX6 Quad 1.0GHz Processor Freescaler® i.MX6 Quad 1.2GHz Processor Freescaler® i.MX6 Dual Lite 800MHz Processor	Intel® Atom™ E3800 series
Memory Type	Onboard DDR3 1066MHz (Quad) Onboard DDR3 800MHz (Dual lite)	Onboard DDR3L
Max. Memory Capacity	Onboard DDR3 1066MHz, 1GB, up to 2GB (Quad) Onboard DDR3 800MHz, 1GB, up to 2GB (Dual lite)	2GB (Optional to 4 GB)
BIOS	—	AMI BIOS
Wake on LAN	No	No
Watchdog Timer	255 level (per level 0.5 sec)	255 Levels
Power Requirement	+5V	+5V
Power Supply Type	AT/ ATX	AT/ ATX
Power Consumption (Typical)	Freescaler iMX6 Quad 1.2GHz, DDR3 1GB, eMMC 8GB, 5.375W (w/ECB-970)	2A@5V, full load, E3845
Dimension (L x W)	2.75" x 2.75" (70mm x 70mm)	2.75" x 2.75" (70mm x 70mm)
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 80 °C) WITAS 2	32 °F ~ 140 °F (0 °C ~ 60 °C) -40 °F ~ 185 °F (-40 °C ~ 80 °C) by E3825
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	100,000	80,000
Certification	CE/FCC	CE/FCC
Display		
VGA/LCD Controller	Freescaler® i.MX6 Quad 1.0GHz Processor Freescaler® i.MX6 Quad 1.2GHz Processor Freescaler® i.MX6 Dual Lite 800MHz Processor	Intel® Atom™ SOC
Video Output	LVDS x 2 (24-bit x 1)/LVDS x 1 (24-bit x 2), HDMI 1.4	24-bit LVDS LCD, DDI x 1
Backlight Inverter Supply	—	—
I/O		
Ethernet	Micro® KSZ9021RNI, 10/1000/1000Base-TX	Intel® I210T, 10/1000/1000Base-TX
Audio	I2S x 1	High Definition Audio Interface
USB Port	USB 2.0 x 5 (Shared with USB OTG client x 1)	USB 2.0 x 6, USB 3.0 x 1
Serial Port	4-Wire UART x 1	4-Wire UART x 1, 2-wire UART x 1
Parallel Port	—	—
HDD Interface	SATA 3.0GB/s x 1 (Quad)	SATA x 2, 1 share with onboard SSD
FDD Interface	—	—
SSD	eMMC x 1 (optional)	Optional
Expansion Slot	PCI Express [x1] x 1 CAN Bus x 1 I2C x 1 SDIO x 1	PCI Express [x1] x 3 LPC Bus x 1 (shared with GPIO) SMBus x 2
DIO	8 bit	GPIO 8-bit (shared w/ LPC, optional)
TPM	—	—
Note		



Model	ECB-970-A10	ECB-970-A10-01
System	X86 (A10)	ARM (A10-01)
Form Factor	Micro ATX	Micro ATX
I/O Chipset	—	—
Ethernet	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)	10/100/1000Base-TX, RJ-45 x 1 (From CPU module)
Expansion	Interface PCI-E [x4] x 1 (For Super I/O Card only), LPC Connector x 1	PCI-E [x1] x 1
Power Requirement	+5V DC	+5V DC
Power Consumption (Typical)	—	3-5 Watt @5V
Board Size	9.65" x 9.65" (243.84mm x 243.84mm)	9.65" x 9.65" (243.84mm x 243.84mm)
Gross Weight	1.32 lb (0.6 kg)	1.32 lb (0.6 kg)
Operation Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operation Humidity	0% ~ 90% relative humidity, non-condensing	0% ~ 90% relative humidity, non-condensing
MTBF (Hours)	75,000	75,000
Display		
VGA/LCD Controller	VGA x 1	—
Video Output	18-bit Single Channel LVDS	24-bit Dual-Channel LVDS
Backlight Inverter Supply	—	LVDS x 2, eDP x 2, HDMI x 1
I/O		
Storage	SATA x 2, SDIO x 1	SATA 2 x 1
Serial Port	RS-232 x 1, RS-232/422/485 x 1	One, For debug only
Parallel Port	—	—
USB	USB 2.0 x 8, USB 3.0 x 2	USB 2.0 x 5 (one shared with USB OTG)
PS/2 Port	—	—
I2C	—	1
Audio	Line-out, Microphone	Headphone
Debug LED	Port 80	—
Note		

Onyx Healthcare USA, Inc

America Headquarter

324 West Blueridge Ave.
Orange, CA 92865
Tel: +1-714-792-0774
Fax: +1-714-792-0481
E-mail: usasales@onyx-healthcare.com

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