



Evolving to a Smart City

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- Gaming
- Medical
- Digital Signage
- Surveillance
- Automation
- Transportation
- POS / Kiosk
- Communication
- Industrial
- Vehicle



ECM-SKLH

6th Gen Intel® Core™ Processor i7/i5/i3
3.5" Micro Module with Intel® QM170 Chipset

- Onboard 6th Gen Intel® Core™ i7/i5/i3 BGA Processor
- One 260-pin DDR4 SODIMM Socket, Supports Up to 16GB DDR4 2133 SDRAM (only support non-ECC)
- Dual-channel 18/24-bit LVDS, HDMI, VGA
- Triple Display (LVDS, 2x HDMI)
- 2 SATA III, 1 Mini PCIe, 4 USB 3.0, 1 M.2 (2242) SSD, 2 USB 2.0, 2 COM, 8-bit GPIO
- HD Audio, Dual Gigabit Ethernet
- TPM 2.0/1.2 (Both optional)
- iAMT 11



ECM-QM87R

4th Gen Intel® Core™ Processor i7/i5/i3
3.5" Micro Module with Intel® QM87 Chipset

- Onboard 4th Gen Intel® Core™ i7/i5/i3 BGA Processor
- One 204-pin DDR3L SODIMM Up to 8GB DDR3 1333/1600 SDRAM
- Dual-channel 18/24-bit LVDS, HDMI, VGA
- Triple Display
- 2 SATA III, 1 Mini PCIe Card (Support mSATA)
- 6 USB 3.0, 2 USB 2.0, 2 COM, 8-bit DIO
- iAMT 9.0



ECM-BSW

Intel® Pentium®/Celeron® SoC Processor
3.5" Micro Module

- Onboard Intel® Pentium®/Celeron® SoC BGA Processor
- One 204-pin DDR3L SODIMM Socket Supports Up to 8GB DDR3L 1600 SDRAM
- Dual Display (HDMI, LVDS)
- 1 SATA III, 4 USB 3.0, 2 USB 2.0, 5 COM, 2x Mini-Pcie, 8-bit GPIO
- Fanless
- TPM 1.2 function (Optional)



ECM-BYT2

Intel® Celeron®/Atom™ SoC Processors
J1900/E3845 3.5" Micro Module

- Onboard Intel® Celeron®/Atom™ SoC J1900/E3845 BGA Processor
- One 204-pin DDR3L SODIMM Socket Supports Up to 8GB DDR3L 1066/1333 SDRAM
- Dual View, 2-CH LVDS, CRT, HDMI
- 2 x Gigabit Ethernet
- 1 SATA II, 1 USB 3.0, 7 USB 2.0, 2 COM, 8-bit GPIO
- 2 Mini PCIe
- TPM 1.2 Function (Optional)



ECM-DX2

DM&P SoC Processor Vortex86DX2
3.5" Micro Module

- Onboard DM&P SoC Vortex86DX2 BGA Processor
- Vortex86DX2 Low Power Consumption, 4.5W @ 800MHz
- Onboard DDR2 Memory Up to 1GB (32bit)
- Dual view : VGA + LVDS, VGA + TTL
- Single-channel 24-bit LVDS (Optional 18-bit)
- 1 SATA II, 4 COM, 2 USB 2.0, 8-bit GPIO, Dual LAN
- PC/104 Expansion (8/16-Bit ISA)
- Fanless Operation & Supports Extended Temperature to -40 ~ 75°C

3.5" SBC						
Model Number	ECM-SKLH	ECM-QM87R/ECM-QM87	ECM-QM77	ECM-BSW	ECM-BYT2	ECM-BYT
Processor	6th Gen Intel® Core™ i7-6820EQ 4-Core 2.8GHz processor 6th Gen Intel® Core™ i5-6440EQ 4-Core 2.7GHz processor 6th Gen Intel® Core™ i3-6100E 2-Core 2.7GHz processor	4th Gen Intel® Core™ i7-4700EQ 4-Core 3.4GHz processor 4th Gen Intel® Core™ i5-4422E, 2-Core, 1.8GHz processor 4th Gen Intel® Core™ i3-4110E, 2-Core, 2.6GHz processor	3rd Gen Intel® Core™ i7-3610QE 4-Core 2.3GHz processor 3rd Gen Intel® Core™ i5-3610ME 2-Core 2.7GHz processor 3rd Gen Intel® Core™ i3-3120ME 2-Core 2.4GHz processor	Intel® Pentium®/Celeron® processor	Intel® Atom™ E3845 4-Core 1.91GHz processor Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor Intel® Celeron® J1900 4-Core 2.0GHz processor
System Chipset	Intel® QM170 Express Chipset	Intel® QM87 Express Chipset	Intel® QM77 Express Chipset	N/A	N/A	N/A
System Memory	1 x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	1 x 204-Pin DDR3L 1333/1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3 1333/1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1066/1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1066/1333MHz SO-DIMM up to 8 GB
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec.	H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step	H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step	H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step
Expansion	1 x Mini PCIe Supports mSATA 1 x M.2 (B-Key, 2242)	1 x Mini PCIe Supports mSATA	1 x Mini PCIe	2 x Mini PCIe, 1 x Full-size Mini PCIe with mSATA Supported, 1 x Half-size Mini PCIe	2 x Mini PCIe, 1 x Full-size Mini PCIe with mSATA Supported, 1 x Half-size Mini PCIe	1 x Mini PCIe Supports mSATA
Storage	1 x mSATA Supported from Mini PCIe, 1 x M.2 (SATA)	1 x mSATA Supported from Mini PCIe	N/A	1 x mSATA Supported from Mini PCIe	1 x mSATA Supported from Mini PCIe	1 x CompactFlash Type I/II Socket 1 x mSATA Supported from Mini PCIe
I/O	2 x USB 2.0, 4 x USB 3.0, 2 x SATA III, 1 x RS-232/422/485, 1 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x SPI	2 x USB 2.0, 6 x USB 3.0, 2 x SATA III, 1 x RS-232/422/485, 1 x RS-232, 1 x 8bit GPIO, 1 x LPC	2 x USB 2.0, 4 x USB 3.0, 2 x SATA III, 1 x RS-232/422/485, 1 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x SPI	2 x USB 2.0, 4 x USB 3.0, 1 x SATA III, 1 x RS-232/422/485, 4 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x SPI	7 x USB 2.0, 1 x USB 3.0, 1 x SATA II, 1 x RS-232/422/485, 1 x RS-232, 1 x 8bit GPIO, 1 x LPC	5 x USB 2.0, 1 x USB 3.0, 1 x SATA II, 1 x RS-232/422/485, 3 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x PS2/KB & MS
Display Chipset	Intel® Skylake SoC integrated Graphics Supports triple display	Intel® QM87 Chipset Integrated Supports triple display	Intel® QM77 Chipset Integrated Supports triple display	Intel® Braswell SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display
Resolution	HDMI: Max. resolution 3840x2160 @ 24Hz LVDS: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 3840x2160 @ 24Hz LVDS: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz	HDMI: Max. resolution 1920x1080 @ 30Hz LVDS: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz
Audio Chipset	Realtek ALC233 supports 2.1-CH Audio Amp.:2W	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC233 supports 2.1-CH Audio Amp.:2W	Realtek ALC892 Supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 Supports 5.1-CH Mic-In, Line-In and Line-Out
Ethernet Chipset	1 x Intel® I210AT 1 x Intel® I219LM	1 x Intel® I210AT 1 x Intel® I217LM	1 x Intel® 82574L 1 x Intel® 82579LM	2 x Realtek 8119l	2 x Realtek 8111E	2 x Intel® I211AT
Power Requirement	+12V	+12V	+12V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V
Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
Operating Temp.	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F), -40°C ~ 85°C (-40°F ~ 185°F) (Optional for Wide Temp. Model)
Dimension (L x W)	5.7" x 4" (146mm x 101mm)					
Model Number	ECM-CDV	ECM-KA	ECM-A50M	ECM-DX2	ECM-LX800D	
Processor	Intel® Atom™ D2550 2-Core 1.86GHz processor Intel® Atom™ N2600 2-Core 1.6GHz processor Intel® Atom™ N2800 2-Core 1.86GHz processor	AMD G-Series GX-415GA 4-Core 1.5GHz processor AMD G-Series GX-217GA 4-Core 1.6GHz processor AMD G-Series GX-210HA 4-Core 1.0GHz processor	AMD G-Series T56N 2-Core 1.6GHz processor AMD G-Series T40E 2-Core 1.0GHz processor AMD G-Series T16R 1-Core 615MHz processor	DM&P Vortex86DX2 1-Core 800MHz processor	AMD Geode LX800 1-Core 500MHz processor	
System Chipset	Intel® NM10 Express Chipset	N/A	AMD G-Series A50M Chipset	N/A	AMD Geode LX800/CS5536	
System Memory	1 x 204-Pin DDR3 800/1066MHz SO-DIMM up to 4 GB	1 x 204-Pin DDR3 1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3 1333/1600MHz SO-DIMM up to 8 GB	Onboard 1GB(32bit) DDR2	Onboard 256MB DDR	
Watchdog Timer	H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step	H/W Reset, 1sec. ~ 65535sec.	H/W Reset: 1sec. ~ 65535sec./min. and 1sec. or 1min./step	H/W Reset: 1sec.~512sec.	H/W Reset: 1sec.~255min. and 1sec. or 1min./step	
Expansion	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x PC/104, 1 x Mini PCIe	1 x PC/104	
Storage	1 x CompactFlash Type I/II Socket 1 x mSATA Supported from Mini PCIe	1 x CompactFlash Type I/II Socket 1 x mSATA Supported from Mini PCIe	1 x CompactFlash Type I/II Socket 1 x mSATA Supported from Mini PCIe	1 x CompactFlash Type I/II Socket	1 x CompactFlash Type I/II Socket	
I/O	7 x USB 2.0, 1 x SATA II, 1 x RS-232, 1 x RS-232/422/485, 1 x 16bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/KB & MS	6 x USB 2.0, 3 x USB 3.0, 2 x SATA III, 1 x RS-232/422/485, 1 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/KB & MS	7 x USB 2.0, 2 x SATA II, 1 x RS-232, 1 x RS-232/422/485, 1 x 16bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/KB & MS	2 x USB 2.0, 1 x SATA II, 2 x RS-232/422/485, 2 x RS-232, 1 x 8bit GPIO, 1 x PS2/KB & MS	2 x USB 2.0, 1 x RS-232/422/485, 1 x RS-232, 1 x LPT, 1 x EIDE, 1 x 8bit GPIO, 1 x PS2/KB & MS	
Display Chipset	Intel® Cedarview Integrated Graphics Supports dual display	AMD SoC Integrated Graphics Supports triple display	AMD Fusion Accelerated Processors Supports dual display	Vortex86DX2 Integrated Graphics Supports triple display	AMD Geode LX800 Integrated Graphics Supports dual display	
Resolution	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1080 @ 60Hz LVDS: Max. resolution 1366x768 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1080 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz	For T56N, VGA: 2560 x 1600@75Hz LVDS:2048 x 1536@75Hz For T40N, VGA:1920 x 1200@75Hz LVDS: Max. resolution 1024x768 @ 60Hz	VGA: Max. resolution 1280x1024 @ 60Hz LVDS: Max. resolution 1024x768 @ 60Hz	VGA: Max. resolution 1920x1440 @ 85Hz TFT: Max. resolution 1600x1200 @ 60Hz	
Audio Chipset	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC203 supports 2-CH Mic-In, Line-In and Line-Out	
Ethernet Chipset	2 x Intel® 82574L	2 x Realtek 8111E	2 x Realtek 8111E	1 x DM&P Vortex86DX 1 x Realtek 8111E	2 x Realtek 8101L	
Power Requirement	+12V ~ +26V	+12V ~ +26V	+12V	+12V ~ +26V	+12V ~ +24V	
Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	
Operating Temp.	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F) -40°C ~ 75°C (-40°F ~ 167°F) (for Wide Temperature Model)	0°C ~ 60°C (32°F ~ 140°F)	
Dimension (L x W)	5.7" x 4" (146mm x 101mm)					

The product described may contain design defects or errors known as errata which may cause the product to deviate from published specifications.



EBM-SKLU

6th Gen Intel® Core™ SoC Processor i7/i5/i3 5.25" Mini Module

- Onboard 6th Gen Intel® Core™ SoC i7/i5/i3 BGA Processor
- 2 x 260pin DDR4 SO-DIMM up to 16G per DIMM, total 32GB (non ECC only)
- Dual display (LVDS & HDMI)
- 1 SATA III, 2 Mini PCIe, 4 USB 3.0, 4 USB 2.0, 6 COM, 16-bit GPIO
- +12 ~ 26V Wide Power Range
- TPM 2.0 & TPM 1.2 (Both optional)



EBM-QM87U

4th Gen Intel® Core™ SoC Processor i7/i5/i3 5.25" Mini Module

- Onboard 4th Gen Intel® Core™ SoC i7/i5/i3 BGA Processor
- 2 x 204-pin DDR3L SO-DIMM Up to 8G Per DIMM, total 16GB
- Dual Display (LVDS & HDMI)
- 2 mPCIe Ports, One Supports mSATA and The Other Supports USB w/ SIM Card Slot
- 2 x USB 3.0 Compatible with USB 2.0
- +12 ~ 26V Wide Power Range



EBM-BSW

Intel® Pentium®/Celeron® SoC Processor 5.25" Mini Module

- Onboard Intel® Pentium®/Celeron® SoC BGA Processor
- 1x 204pin DDR3L SO-DIMM up to 8G
- Dual display (LVDS & HDMI)
- 1 x SATA III, 2 x mini-PCIe, 4 x USB3.0, 3 xUSB2.0, 5 COMs, 16-bit GPIO
- +12 ~ 26V Wide Power Range
- TPM 1.2 (Optional)



EBM-BYT

Intel® Celeron®/Atom™ SoC Processor J1900/E3845 5.25" Mini Module

- Onboard Intel® Celeron®/Atom™ SoC J1900/E3845 BGA Processor
- One 204-pin DDR3L SODIMM Socket, Supports Up to 8GB DDR3L 1066/1333MHz SDRAM
- Dual Display, Dual-channel 18/24-bit LVDS, HDMI
- HD Audio, Dual Gigabit Ethernet
- 1 SATA II, 2 Mini PCIe, 1 USB 3.0, 5 USB 2.0, 6 COM, 1 CF, 16-bit GPIO
- Fanless Operation



EPI-QM87R

4th Gen Intel® Core™ Processor i7/i5/i3 EPIC Module with Intel® QM87 Chipset

- Onboard 4th Gen Intel® Core™ i7/i5/i3 BGA Processor
- One 204-pin DDR3L SODIMM Up to 8GB DDR3L 1333/ 1600 SDRAM
- Triple Independent Display
- 18/24-bit Dual-channel LVDS, 1 DVI, 2 HDMI
- Dual Gigabit Ethernet, HD Audio
- 2 SATA III, 1 Mini PCIe, 6 USB 3.0, 2 USB 2.0, 4 COM, 8-bit GPIO
- Supports mSATA, TPM 1.2 Function
- iAMT 9.0

5.25" SBC					
Model Number	EBM-SKLU	EBM-BSW	EBM-QM87U	EBM-BYT	EBM-CDV
Processor	6th Gen Intel® Core™ i7-6600U, 2-Core, 2.6GHz processor 6th Gen Intel® Core™ i5-6300U, 2-Core, 2.4GHz processor 6th Gen Intel® Core™ i3-6100U, 2-Core, 2.3GHz processor	Intel® Pentium®/Celeron® processor	4th Gen Intel® Core™ i7-4650U 2-Core, 3.3GHz processor 4th Gen Intel® Core™ i5-4300U, 2-Core, 1.9GHz processor 4th Gen Intel® Core™ i3-4010U, 2-Core, 1.7GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ D2550 2-Core 1.86GHz processor Intel® Atom™ N2800 2-Core 1.86GHz processor
System Chipset	N/A	N/A	N/A	N/A	Intel® NM10 Express Chipset
System Memory	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB	1 x 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	2 x 204-pin DDR3L SO-DIMM Up to 8G Per DIMM, total 16GB	1 x 204-pin DDR3L 1066/1333MHz SO-DIMM Up to 8GB	1 x 204-Pin DDR3 1066MHz SO-DIMM up to 4 GB
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec. and 1sec./step	H/W Reset, 1sec. ~ 65535sec. and 1sec./step	H/W Reset, 1sec. ~ 65535sec. and 1sec./step	H/W Reset, 1sec. ~ 65535sec. and 1sec./step	H/W Reset: 1sec.~255min. and 1sec. or 1min./step
Expansion	1 x Mini PCIe Supports SIM Card, 1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports SIM Card mSATA, 1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports SIM Card, 1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports SIM Card 1 x Mini PCIe Supports mSATA	1 x Mini PCIe
Storage	1 x mSATA Supported from Mini PCIe	eMMC(reserve32G)	1 x CompactFlash Type I/II Socket, 1 x mSATA Supported from Mini PCIe	1 x CompactFlash Type I/II Socket 1 x mSATA Supported from Mini PCIe	1 x CompactFlash Type I/II Socket
I/O	4 x USB 3.0, 4 x USB 2.0, 1 x SATA III, 2 x RS-232/422/485, 4 x RS-232, 1 x SIM Card Slot, 1 x 16bit GPIO, 1 x LPC, 1 x SPI	4 x USB 3.0, 3 x USB 2.0, 1 x SATA III, 2 x RS-232/422/485, 3 x RS-232, 1 x SIM Card Slot, 1 x 16bit GPIO, 1 x LPC, 1 x SPI	2 x USB 2.0, 2 x USB 3.0, 2 x SATA II, 1 x RS-232/422/485, 1 x RS-232, 1 x SIM Card Slot, 1 x 16bit GPIO	1 x USB 3.0, 5 x USB 2.0, 1 x SATA II, 2 x RS-232/422/485, 4 x RS-232, 1 x SIM Card Slot, 1 x 16bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/ KB & MS	8 x USB 2.0, 1 x SATA II, 2 x RS-232/422/485, 4 x RS-232, 1 x SIM Card Slot (3G Module Via Mini PCIe Slot), 1 x 16bit GPIO, 1 x LPC, 1 x SPI
Display Chipset	Intel® Skylake U SoC integrated Graphics Supports dual display	Intel® Braswell SoC integrated Graphics Supports dual display	Intel® Lynx Point Integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Cedarview Integrated Graphics Supports dual display
Resolution	HDMI: Max. resolution 3840x2160 @ 24Hz LVDS: Max. resolution 1920x1080 @ 60Hz	HDMI: Max. resolution 1920x1080 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz	HDMI: Max. resolution 4000x2000 @ 25Hz LVDS: Max. resolution 1920x1080 @ 60Hz	DP: Max. resolution 2560x1600 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz LVDS: Max. resolution 1366x768 @ 60Hz
Audio Chipset	Realtek ALC233 supports 2.1-CH Line-Out and Amp.	Realtek ALC233 supports 2.1-CH Line-Out and Amp.	Realtek ALC892 supports 5.1-CH Mic-In, Line-In, Line-Out, Speak-out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In, Line-Out	Realtek ALC892 Supports 5.1-CH Mic-In, Line-In and Line-Out
Ethernet Chipset	1 x Intel® I210AT 1 x Intel® I219LM	2 x Realtek 8119	1 x Intel® I210AT 1 x Intel® I218LM	2 x Intel® I210IT	2 x Intel® 82574L
Power Requirement	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V
Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT Single +12~28V Power Input/ ATX, Optional +24V Input (Inverter Still +12V Out)
Operating Temp.	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	-40°C ~ 85°C (-40°F ~ 185°F) 0°C ~ 60°C (with Processor J1900)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	8" x 5.75" (203mm x 146mm)				

EPIC			
Model Number	EPI-QM87R/EPI-QM87	EPI-QM77	EPI-QM67
Processor	4th Gen Intel® Core™ i7-4700EQ, 4-Core 3.4GHz processor 4th Gen Intel® Core™ i5-4422E, 2-Core, 1.8GHz processor 4th Gen Intel® Core™ i3-4110E, 2-Core, 2.6GHz processor	3rd Gen Intel® Core™ i7-3610QE 4-Core 2.3GHz processor 3rd Gen Intel® Core™ i5-3610ME 2-Core 2.7GHz processor 3rd Gen Intel® Core™ i3-3120ME 2-Core 2.4GHz processor	2nd Gen Intel® Core™ i7-2710QE 4-Core 2.1GHz processor 2nd Gen Intel® Core™ i5-2510E 2-Core 2.5GHz processor 2nd Gen Intel® Core™ i3-2330E 2-Core 2.2GHz processor
System Chipset	Intel® QM87 Express Chipset	Intel® QM77 Express Chipset	Intel® Q67 Chipset
System Memory	1 x 204-Pin DDR3L 1333/1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333/1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3 1066/1333MHz SO-DIMM up to 8 GB
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec and 1sec. or 1min./step	H/W Reset, 1sec. ~ 65535min. and 1sec. or 1min./step	H/W Reset, 1sec. ~ 65535min. and 1sec. or 1min./step
Expansion	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA
Storage	1 x mSATA Supported from Mini PCIe	1 x mSATA Supported from Mini PCIe	1 x mSATA Supported from Mini PCIe
I/O	6 x USB 3.0, 2 x USB 2.0, 2 x SATA III, 2 x RS-232/422/485, 2 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/ KB & MS, 1 x IrDA	4 x USB 3.0, 2 x USB 2.0, 2 x SATA III, 1 x RS-232/422/485, 1 x RS-232, 1 x 16bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/ KB & MS, 1 x IrDA	10 x USB 2.0, 2 x SATA III, 1 x RS-232/422/485, 1 x RS-232, 1 x 8bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/ KB & MS, 1 x IrDA
Display Chipset	Intel® Valleyview SoC integrated Graphics Supports triple display	Intel® QM77 Chipset Integrated Supports triple display	Intel® QM67 Chipset Integrated Supports dual display
Resolution	DVI-I: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 3840x2160 @ 24Hz LVDS: Max. resolution 1920x1080 @ 60Hz	DVI-I: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	DVI-I: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz
Audio Chipset	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out
Ethernet Chipset	1 x Intel® I210AT 1 x Intel® I217LM	1 x Intel® 82574L 1 x Intel® 82579LM	1 x Intel® 82574L 1 x Intel® 82579LM
Power Requirement	+12V ~ +19V	+12V ~ +19V	+12V ~ +19V
Power Type	AT/ATX	AT/ATX	AT/ATX
Operating Temp.	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	4.5" x 6.5" (115mm x 165mm)		

Advantages of Boards and Modules

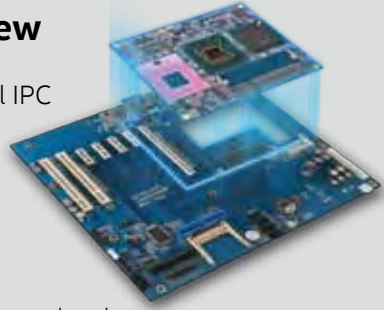
- Facilitation**
 - Off-the-shelf computer boards
 - Support the future bus architecture extension interfaces
- Reliability**
 - Expertise of ruggedized design
 - Serving medical, transportation and harsh environment
- Compliance**
 - Compliance with industry standard
 - Compliance with safety regulations
 - In-house testing and certification facilities



The product described may contain design defects or errors known as errata which may cause the product to deviate from published specifications.

COM Express Overview

The COM Express concept was originally introduced by several IPC companies in 2004, and later standardized by the PICMG Consortium in 2005.



- The COM Express is a highly integrated and compact Computer On Module form factor.
- It integrates Processor and Chipset core features while all I/O and bus signals mapped two low profile, high density connectors.
- It can be used in a design process much like an integrated circuit component



ESM-APLM

Intel® Pentium®/Celeron®/Atom™ SoC Processor Mini Type10 COMe Module

- Onboard Intel® Pentium®/Celeron®/Atom™ SoC Processor
- On board DDR3L 1333/1600/1867 up to 8GB
- Support Single Channel 18/24 bit LVDS & eDP (optional), One DDI channel supporting DisplayPort/HDMI/DVI
- 2 SATA III, 6 USB 2.0, 2 USB 3.0, 8-bit GPIO
- Intel I211AT Gigabit Ethernet
- HD Audio Interface
- +9V ~ +19V Wide Range Power Input
- Type 10 Rev 2.1 Pin-out

ESM-SKLH

6th Gen Intel® Core™ Processor i7/i5/i3 Type6 COMe Basic Module with Intel® QM170 Chipset

- Onboard 6th Gen Intel® Core™ Processor i7/i5/i3 Processor
- Two 260-pin SODIMM DDR4 SDRAM slot up to 32GB
- Dual-channel 18/24-bit LVDS, VGA, DP/HDMI/DVI, eDP Optional
- Intel® I219LM Gigabit Ethernet
- 8 PCIe x1, 1 PCIe x16, 4 SATA III, 8 USB 2.0, 4 USB 3.0
- HD Audio Interface
- Type 6 Pin-out
- TPM 2.0 (optional)

ESM-BYT2

Intel® Celeron®/Atom™ SoC Processor J1900/E3845 Type6 COMe Compact Module

- Intel® Celeron®/Atom™ SoC J1900/E3845 BGA Processor
- One 204-pin DDR3L SODIMM Up to 4GB DDR3L 1066/1333 SDRAM
- Support Dual-channel 18/24-bit LVDS, Display Port, HDMI, DVI, VGA, eDP (optional)
- Intel® I211AT Gigabit Ethernet
- 2 SATA II, 7 USB 2.0, 1 USB 3.0, 8-bit GPIO
- HD Audio Interface
- +9 ~ +19V Wide Range Power Input
- Type 6 Pin-out
- Extended Temperature: -40 ~ +85°C

COM Express						
Model Number	ESM-APLM	ESM-SKLA	ESM-SKLH	ESM-QM87/ESM-QM87R	ESM-BDW	ESM-BYT2
Processor	Onboard Intel® Pentium®/Celeron®/Atom™ SoC Processor	Intel® Xeon® E3-1505M v5 4-Core 2.8GHz processor (Intel® CM236 Express Chipset)	6th Gen Intel® Core™ i7-6820EQ 4-Core 2.8GHz processor (Intel® QM170 Chipset)	4th Gen Intel® Core™ i7-4700EQ 4-Core 3.4GHz processor 4th Gen Intel® Core™ i5-4422E, 2-Core, 1.8GHz processor 4th Gen Intel® Core™ i3-4110E, 2-Core, 2.6GHz processor	5th Gen Intel® Core processor	Intel® Celeron® J1900 4-Core 2.0GHz processor Intel® Atom™ E3845 4-Core 1.91GHz processor Intel® Atom™ E3825 2-Core 1.33GHz processor
System Memory	Onboard DDR3L 1333/1600/1867 up to 8 GB	2 x 260-Pin DDR4 SO-DIMM up to 32GB	2 x 260-Pin DDR4 SO-DIMM up to 32GB	2 x 204-Pin DDR3 1333/1600MHz SO-DIMM or 204-Pin DDR3L 1600MHz SO-DIMM up to 16 GB	2 x 204-Pin DDR3L 1600MHz SO-DIMM up to 16 GB	2 x 204-Pin DDR3L 1600MHz SO-DIMM or 204-Pin DDR3L 1333MHz SO-DIMM up to 4 GB (Processor E3845 & J1900 only support 1333MHz)
Expansion	3 x PCIe1 1 x PCIe1 (LAN Mux, default LAN)	8 x PCIe1	8 x PCIe1	7 x PCIe1, 1 x PCIe16	4 x PCIe1	3 x PCIe1
USB	6 x USB 2.0, 2 x USB 3.0 1 x USB client (pin header)	8 x USB 2.0, 4 x USB 3.0	8 x USB 2.0, 4 x USB 3.0	8 x USB 2.0, 1 x USB 3.0	8 x USB 2.0, 2 x USB 3.0	7 x USB 2.0, 1 x USB 3.0
SATA	2 SATA III	4 x SATA III	4 x SATA III	2 x SATA II, 2 x SATA III	4 x SATA III	2 x SATA II
COM Port	2 x UART	2 x UART	2 x UART	N/A	2 x UART	2 x UART
MIO	1 x SMBus, 1 x LPC, 1 x I ² C, SDIO (Option)	1 x SMBus, 1 x LPC, 1 x I ² C	1 x SMBus, 1 x LPC, 1 x I ² C	1 x SMBus, 1 x LPC	1 x LPC, 1 x SMBus, 1 x I ² C	1 x LPC, 1 x SMBus, 1 x I ² C
Display Chipset	Apollo Lake SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® QM87 Chipset Integrated	Intel® GT2 Integrated Graphics	Intel® Valleyview SoC integrated Graphics
Display	eDP/LVDS+DP, eDP/LVDS+HDMI 1.4b	VGA+LVDS+DDI, VGA+DDI+DDI	VGA+LVDS+DDI, VGA+DDI+DDI	DDI+VGA, DDI+LVDS, VGA+LVDS	VGA+LVDS	VGA+LVDS
Audio	Intel® High Definition Audio	Intel® CM236 integrated	Intel® QM170 integrated	Intel® QM87 Chipset Integrated	Intel® Broadwell SoC integrated	Intel® Valleyview SoC integrated
Ethernet	Intel® I211AT	1 x Intel® I219LM	1 x Intel® I219LM	1 x Intel® I211AT	1 x Intel® I218LM	1 x Intel® I211AT
Power Requirement	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F) (Standard) -40°C to +85°C (Extended Temperature)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F) (Standard) -40°C ~ 85°C (-40°F ~ 185°F) (Extended)
Dimension (L x W)	84 x 55 mm	5" x 3.7" (125mm x 95mm)	5" x 3.7" (125mm x 95mm)	5" x 3.7" (125mm x 95mm)	5" x 3.7" (125mm x 95mm)	5" x 3.7" (125mm x 95mm)
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

COM Express			
Model Number	ESM-BYT	ESM-CDV	ESM-A50M
Processor	Intel® Celeron® J1900 4-Core 2.0GHz processor Intel® Atom™ E3845 4-Core 1.91GHz processor Intel® Atom™ E3825 2-Core 1.33GHz processor	Intel® Atom™ D2550 2-Core 1.86GHz processor Intel® Atom™ N2600 2-Core 1.6GHz processor Intel® Atom™ N2800 2-Core 1.86GHz processor	AMD G-Series T56N 2-Core 1.6GHz processor AMD G-Series T40E 2-Core 1.0GHz processor
System Memory	2 x 204-Pin DDR3L 1066MHz SO-DIMM (for Bay trail-E3826/E3825/E3815) or 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB (Processor E3845 & J1900 only support 1333MHz)	1 x 204-Pin DDR3 800/1066MHz SO-DIMM up to 4 GB	2 x 204-Pin DDR3 1066/1333MHz SO-DIMM up to 8 GB
Expansion	3 x PCIe1	4 x PCIe1, 2 x PCI	7 x PCIe1
USB	7 x USB 2.0, 1 x USB 3.0	8 x USB 2.0	8 x USB 2.0
SATA	2 x SATA II	2 x SATA II	4 x SATA II
COM Port	1 x UART	N/A	N/A
MIO	1 x SMBus, 1 x LPC, 1 x I ² C	1 x SMBus, 1 x LPC, 1 x I ² C 1 x IDE	1 x LPC, 1 x SMBus, 1 x I ² C
Display Chipset	Intel® Valleyview SoC integrated Graphics	Intel® Cedarview Integrated Graphics	AMD Fusion Accelerated Processors
Display	N/A	N/A	VGA+LVDS, HDMI+LVDS, VGA+HDMI
Audio	Intel® Valleyview SoC integrated	Intel® NM10 integrated	AMD Fusion Accelerated Processors
Ethernet	1 x Intel® I211AT	1 x Intel® 82574L	1 x Intel® 82577LM
Power Requirement	+9V ~ +19V	+9V ~ +19V	+8V ~ +18V
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F) (Standard) -40°C ~ 85°C (-40°F ~ 185°F) (Extended)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	5" x 3.7" (125mm x 95mm)	5" x 3.7" (125mm x 95mm)	5" x 3.7" (125mm x 95mm)
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

SOM Carrier Board			
Model Number	EEV-EX13	EEV-EX14	EEV-EX62
USB	8 x USB 2.0 (4 USB External)	8 x USB 2.0, 4 x USB 3.0 (4 USB External)	(4 USB External)
SATA	4 x SATA II (On Board)	4 x SATA II (On Board)	On board
COM Port	2 x RS-232, 1 x LPT (1 x COM external, 1 x COM on Board)	1 x RS-232/422/485, 1 x RS-232, 1 x LPT (1xRS232/422/485 external, 1xRS232 on board)	
Video	1 x VGA, 1 x LVDS (1 x LVDS on Board)	1 x Display Port, 1 x VGA, 1 x HDMI, 1 x LVDS (1 x LVDS on board)	
Other	1 x PS2/ KB & MS, 1 x LAN	1 x PS2/ KB & MS, 1 x SDIO, 2 x LAN	
DIO	1 x 8bit GPIO	1 x 8bit GPIO	N/A
MIO	1 x IrDA, 1 x CompactFlash Type I/II Socket	1 x IrDA	
Expansion	1 x PCI, 2 x PCIe1, 1 x PCIe16, 1 x Express Card	1 x PCIe16, 1 x PCIe4, 1 x PCIe1, 1 x Express Card, 1 x Mini PCIe	
Audio	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out	
Power Requirement	ATX	AT/ATX	
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	
Size(L x W)	9.6" x 9.6" (243.84mm x 243.84mm)	9.6" x 9.6" (243.84mm x 243.84mm)	5" x 3.7" (125mm x 95mm)
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

Qseven Solution

Small Form Factor for Ultra Mobile Applications

- Freely available industry standard
- Defined for low cost
- High performance interfaces
- Fast serial interfaces
- Compact size
- Perfect for new low power chipsets & processors

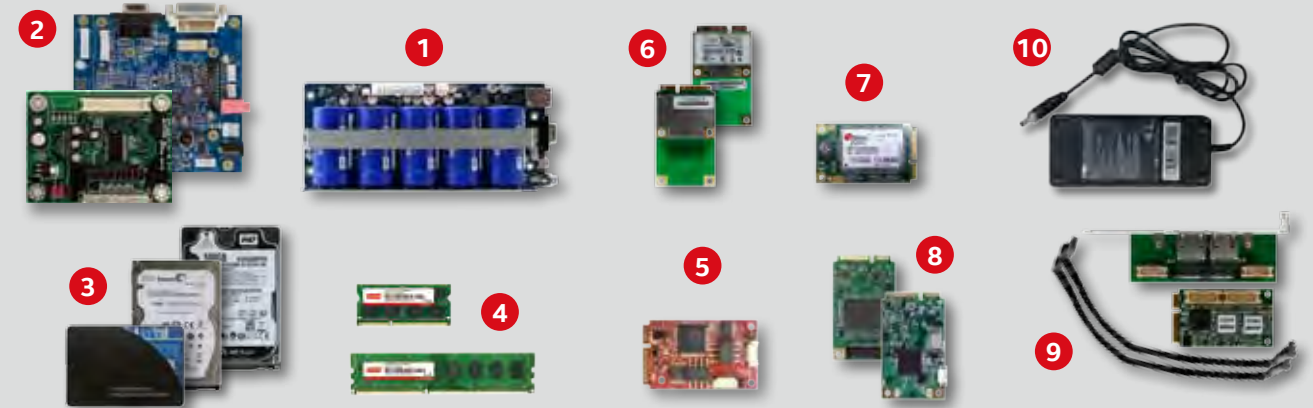
Qseven Carrier Board		
Model Number	EEV-Q701	EEV-Q702
USB	6 x USB 2.0 (4 USB External, 2 USB on board)	4 x USB 2.0, 1 x USB 3.0 (4 x USB on board, 1 x USB 3.0 external)
SATA	2 x SATA II (On Board)	2 x SATA II (On Board)
COM Port	1 x RS-232, 1 x RS-422/485 (1 x RS232 External)	1 x UART (1 x UART External)
Video	1 x HDMI, 1 x LVDS (1 x LVDS on board)	1 x HDMI, 1 x Display Port, 1 x LVDS (1 x eDP and 1 x LVDS on board)
Other	N/A	1 x SDIO, 1 x LAN
DIO	N/A	1 x 16bit GPIO
MIO	1 x IrDA, 1 x PS2/ KB & MS	N/A
Expansion	1 x Mini PCIe Supports SIM Card	1 x PCIe1, 1 x Mini PCIe Supports SIM Card
Audio	Realtek ALC892 Mic-In, Line-In and Line-Out	Realtek ALC892 Mic-In, Line-In and Line-Out
Power Requirement	ATX	ATX
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)	-40°C ~ 85°C (-40°F ~ 185°F)
Size(L x W)	5.7" x 4" (146mm x 101mm)	6.69" x 6.69" (170mm x 170mm)
Certification	CE, FCC Class B	CE, FCC Class B



Qseven Module				
Model Number	EQM-BSW	EQM-BYT	EQM-CDV	EQM-A50M
Processor	Intel® Pentium®/Celeron® processor	Intel® Atom™ E3845 4-Core 1.91GHz processor Intel® Atom™ E3825 2-Core 1.33GHz processor Intel® Atom™ E3815 1-Core 1.46GHz processor	Intel® Atom™ N2600 2-Core 1.6GHz processor Intel® Atom™ N2800 2-Core 1.86GHz processor	AMD G-Series T40E 2-Core 1.0GHz processor AMD G-Series T16R 1-Core 615MHz processor
System Memory	1 x Onboard DDR3L 2GB, up to 4GB	Onboard DDR3L 2GB up to 4 GB (Processor E3845 only support 1333MHz)	Onboard DDR3 1GB up to 2 GB	Onboard DDR3 2GB up to 4 GB
Expansion	3 x PCIe1	3 x PCIe1	3 x PCIe1	4 x PCIe1
USB	5 x USB 2.0, 1 x USB 3.0	5 x USB 2.0, 1 x USB 3.0	8 x USB 2.0	8 x USB 2.0
SATA	2 x SATA II	2 x SATA II	2 x SATA II	2 x SATA II
COM Port	1 x UART	1 x UART	N/A	1 x SDIO
MIO	1 x SMBus, 1 x LPC, 1 x I²C	1 x LPC, 1 x SMBus, 1 x I²C	1 x LPC, 1 x SMBus	1 x SMBus, 1 x LPC, 1 x I²C
Display Chipset	Intel® Braswell SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Cedarview Integrated Graphics	AMD Radeon 6250
Display	HDMI+LVDS	HDMI+DDI	HDMI+LVDS	HDMI+LVDS, DDI+LVDS
Audio	Intel® Braswell SoC integrated	Intel® Valleyview SoC integrated	Intel® Valleyview SoC integrated	AMD G-series A50M integrated
Ethernet	1 x Realtek 8119I	1 x Intel® I211AT	1 x Intel® 82574L	1 x Realtek 8111E
Power Requirement	+5V	+5V	+5V	+5V
Operating Temperature	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F) (Standard) -40°C ~ 85°C (-40°F ~ 185°F) (Extended)	0°C ~ 60°C (32°F ~ 140°F) (Standard) -40°C ~ 85°C (-40°F ~ 185°F) (Extended)	0°C ~ 60°C (32°F ~ 140°F) (Standard) -40°C ~ 85°C (-40°F ~ 185°F) (Extended)
Dimension (L x W)	2.8" x 2.8" (70mm x 70mm)	2.8" x 2.8" (70mm x 70mm)	2.8" x 2.8" (70mm x 70mm)	2.8" x 2.8" (70mm x 70mm)
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

Peripherals

Avalue provides compatible accessories and peripherals for customers to make one-stop shopping possible. It's not necessary to find other vendors for external devices if customers need extra functions. Avalue list cables, modules, daughter boards, storages and even services, just for your convenience.



Peripherals & Accessories

	Embedded Peripherals	Description
1	Power Board	EPM-1718 60W DC to DC Marine Power Module
		EPM-1714 Super Cap Power Module
2	Display Board	EPM-1525 VGA/DVI to TTL/LVDS Scalar Module
		EPM-1530 18/24 bit LVDS Receiver Module
	Accessories	Description
3	Industrial Flash Storage	Flash Disk: HDD/SSD Flash Card: CF/CFast Flash Module: mSATA/SATA DOM
4	Industrial DRAM Module	- Type: DDR2~DDR4 - Capacity:1GB~16GB - Wide temperature
5	CANBus Module	- Form Factor :mPCIe - Dual Channel CAN 2.0B - Wide temperature :-40° to 85°C
6	Wi-Fi Module	- Form Factor: mPCIe/ M.2 - Bluetooth supported
7	3G/4G Module	3G/ 4G Wireless Ublox Mini PCIe module (3G Plus GPS)
8	Capture Card	Mini SDI/HDV capture card w/H.264 High Profile encoding
9	Mini LAN Port	2-port 10/100/1000 Ethernet board
10	Power Adapter	AC DC Adapter 60W/84W/120W
11	Microsoft Windows Embedded OS	Avalue provides Embedded Software to customers who integrated Avalue's hardware products. Windows Embedded Standard 7/8 Window 10 IOT Enterprise



EPM-1718

60W DC to DC Marine Power Module

- 60W Marine Power Board w/IEC 60945 Certified
- Wide DC Input Range: +9~36Vdc; DC Output: +12Vdc
- Supports Over voltage/current protection
- Input to Output Isolation: 1500Vdc
- Operating Temperature Range: -40°C ~ 85°C
- Efficiency up to 92.8%
- Dimension: 70mm x 60mm



ACC-ADP-060N-05R

Power Adapter

- Output Electrical: 12V/5A, 60W
- Meet DOE Level VI
- EMC Standard: EN55022 CLASS B / EN55024 CLASS B
- Various safety Certifications
- Dimension: 135 x 62 x 37mm



EAX-Q170P

Intel® 6th Generation Core™ Processor ATX Motherboard With Intel® Q170 Express Chipset

- Intel® 6th Generation Core™ Processor (Max. TDP at 95W)
- Intel® Q170 Express Chipset
- 4 x 288-pin DDR4 up to 64GB
- VGA, HDMI, DP
- 1 x M.2 2230 KeyA Slot support WiFi module
- 1 x SIM card slot, 1 x Mini PCI-e
- 6 x SATA III, 6 x USB 3.0, 6 x USB 2.0
- 5 x RS232, 1 x RS232/422/485
- Onboard Infineon SLB9665 support TPM 2.0
- AT/ATX power



EAX-Q87R(C226)

Intel® 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors ATX Motherboard

- Intel® Q87 Express Chipset (Co-lay C226 Chipset)
- 4 x DDR3 1333/1600 MHz DIMM supports up to 32GB
- VGA, DP, DVI
- 6 x SATA III, 4 x USB 3.0, 9 x USB 2.0
- 5 x RS-232, 1 x RS-232/422/485, 1 x 8-bit GPIO
- 1 x Intel® I210AT PCI-e Gigabit Ethernet
- 1 x Intel® I217LM PCI-e Gigabit Ethernet PHY
- AT/ATX power



EAX-Q77

Intel® 2nd /3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors ATX Motherboard

- Intel® Q77 Express Chipset
- 4 x DDR3 1333/1600 MHz DIMM supports up to 32 GB
- VGA, DVI, HDMI
- 1 x Intel® 82574L PCI-e Gigabit Ethernet
- 1 x Intel® 82579LM PCI-e Gigabit Ethernet PHY
- 4 x PCI, 1 x PCI-e x16, 1 x PCI-e x4, 1 x Mini PCI-e
- 4 x SATA II, 2 x SATA III
- 9 x USB 2.0, 4 x USB 3.0
- 1 x RS-232/422/485, 5 x RS-232, 1 x 8-bit GPIO
- AT/ATX power



SEAX-H81

Intel® 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors ATX Motherboard

- Intel® H81 Express Chipset
- 2 x DDR3 1333/1600 MHz DIMM supports up to 16 GB
- VGA, HDMI
- 1 x PCI-e x 16, 3 x PCI-e x 1, 3 x PCI
- 2 x SATA III, 2 x SATA II
- 8 x USB 2.0, 2 x USB 3.0
- 2 x RS-232, 1 x S/PDIF, 1 x LPT, 1 x 8-bit GPIO
- ATX Power



ERX-H110P

Intel® 6th Generation Core™ Processor Micro ATX Motherboard

- Intel® H110 Express Chipset
- 2 x DDR4 2133MHz DIMM supports up to 32GB
- 1 x Intel® I219LM Gigabit Ethernet PHY
- 1 x Intel® I211AT PCI-e Gigabit Ethernet
- VGA, HDMI, DP
- 1 x M.2 2230 KeyA Slot support WiFi module
- 1 x SIM card slot, 1 x Mini PCI-e, 1 x PCI-e x16, 3 x PCI-e x1
- 4 x SATA III, 4 x USB 3.0, 4 x USB 2.0
- 5 x RS232, 1 x RS232/422/485
- Onboard Infineon SLB9665 support TPM 2.0
- AT/ATX power

ATX					
Model Number	EAX-Q170P	EAX-Q87R(C226)	EAX-Q77	EAX-Q67	SEAX-H81
Processor	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors	Intel® LGA1155 Socket Supports 2nd/3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors	Intel® 2nd/ 3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 84W)
System Chipset	Intel® Q170 Express Chipset	Intel® Q87 Express Chipset (Co-lay C226 Chipset)	Intel® Q77 Express Chipset	Intel® Q67 Express Chipset	Intel® H81 Express Chipset
System Memory	4 x 288-pin DDR4 2133MHz DIMM supports up to 64GB	4 x 240-Pin DDR3 1333/1600 MHz DIMM supports up to 32 GB	4 x 240-pin DDR3 1333/1600 MHz DIMM supports up to 32 GB	4 x 240-Pin DDR3 1066/1333 MHz DIMM supports up to 32 GB	2 x 204-pin DDR3 1066/1333 MHz DIMM supports up to 16 GB
Expansion	4 x PCI, 1 x PCI-e x 16 1 x PCI-e x 4, 1 x PCI-e x 1 1 x M.2 2230 KeyA Slot supports WiFi module 1 x SIM card slot 1 x Full/Half Size Mini-PCIe Supports mSATA (Switch Through Jumper)	4 x PCI (Support 5V) 1 x PCI-e x 16 1 x PCI-e x 4 1 x PCI-e x 1	4 x PCI 1 x PCI-e x 16 1 x PCI-e x 4 1 x PCI-e x 1 1 x Mini PCI-e	4 x PCI 1 x PCI-e x 16 1 x PCI-e x 4 1 x PCI-e x 1	3 x PCI 1 x PCI-e x 16 3 x PCI-e x 1
Display	Intel® 6th Generation CPU Integrated VGA + HDMI + DVI	Intel® 4th Generation CPU integrated DP + VGA + DVI	Intel® 2nd/3rd Generation CPU integrated HDMI + VGA, HDMI + DVI, VGA + DVI	Intel® 2nd/3rd Generation CPU integrated HDMI + VGA	Intel® 4th Generation CPU integrated HDMI + VGA
Resolution	VGA: 2560 x 1600 @ 60 Hz HDMI: 3840 x 2160 @ 30 Hz DP: 4096 x 2304 @ 60Hz	VGA: 1920 x 1200 @ 60Hz DVI: 1920 x 1200 @ 60Hz DP: 3840 x 2160 @ 24Hz	VGA: 2048 x 1536 @ 60Hz DVI: 1920 x 1200 @ 60Hz DVI: 1920 x 1200 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1080 @ 60Hz	VGA: 1920 x 1200 @ 60Hz HDMI: 4096 x 2160 @ 24Hz
Audio	Realtek ALC892 supports 5.1-CH Mic-in, Line-in and Line-out 2 x 6W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-in and Line-out 2 x 6W Audio Amplifier	Realtek ALC269Q supports 5.1-CH Mic-in, Line-in and Line-out 2 x 2W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-in and Line-out	Realtek ALC662 supports 5.1-CH Mic-in, Line-in and Line-out
Ethernet	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I217LM 1 x Intel® I210AT	1 x Intel® 82579LM 1 x Intel® 82574L	1 x Intel® 82579LM 1 x Intel® 82583V	1 x Realtek 8111E
USB/SATA/COM/LAN	12/6/6/2	13/6/6/2	13/6/6/2	12/6/6/2	10/4/2/1
Power Requirement	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V
Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	ATX
Operating Temp	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	12" x 9.6" (304.8mm x 243.84mm)	12" x 9.6" (304.8mm x 243.84mm)	12" x 9.6" (304.8mm x 243.84mm)	12" x 9.6" (304.8mm x 243.84mm)	11.61" x 7.87" (295 mm x 200 mm)
Weight	1.32lbs (0.6 kg)	1.32lbs (0.6 kg)	1.32lbs (0.6 kg)	1.32lbs (0.6 kg)	1.1lbs (0.5 kg)

Micro ATX					
Model Number	ERX-H110P	ERX-Q77	ERX-Q67	ERX-B75	ERX-H61
Processor	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1155 Socket Supports 2nd/ 3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors	Intel® LGA1155 Socket Supports 2nd/ 3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors	Intel® LGA1155 Socket Supports 2nd/ 3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® LGA1155 Socket Supports 2nd/ 3rd Generation Core™ i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 95W)
System Chipset	Intel® H110 Express Chipset	Intel® Q77 Express Chipset	Intel® Q67 Express Chipset	Intel® B75 Express Chipset	Intel® H61 Express Chipset
System Memory	2 x 288-pin DDR4 2133MHz DIMM supports up to 32GB	4 x 240-Pin DDR3 1333/1600 MHz DIMM supports up to 32 GB	4 x 240-pin DDR3 1066/1333 MHz DIMM supports up to 32 GB	2 x 240-pin DDR3 1333/1600 MHz DIMM supports up to 16 GB	2 x 240-pin DDR3 1333/1600 MHz DIMM supports up to 8 GB
Expansion	1 x PCI-e x 16 3 x PCI-e x 1 1 x M.2 Slot supports WiFi module 1 x SIM card slot 1 x Full/Half Size Mini-PCIe supports mSATA	3 x PCI 1 x PCI-e x 16	1 x PCI 1 x PCI-e x 16 1 x PCI-e x 4 1 x PCI-e x 1	1 x PCI 1 x PCI-e x 16 1 x PCI-e x 1	1 x PCI 1 x PCI-e x 16 2 x PCI-e x 1
Display	Intel® 6th Generation CPU Integrated HDMI + VGA, HDMI + DP, VGA + DP	Intel® 2nd/3rd Generation CPU integrated HDMI + VGA, HDMI + LVDS, VGA + LVDS	Intel® 2nd/3rd Generation CPU integrated HDMI + VGA, HDMI + DP, VGA + DP	Intel® 2nd/3rd Generation CPU integrated VGA, DVI-D, HDMI	Intel® 2nd/3rd Generation CPU integrated VGA + DVI-D, VGA + HDMI, DVI-D + HDMI
Resolution	VGA: 2560 x 1600 @ 60Hz HDMI: 3840 x 2160 @ 30Hz DP: 4096 x 2304 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1920 x 1200 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DP: 1920 x 1080 @ 60Hz	VGA: 2560 x 160 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200 @ 60Hz
Audio	Realtek ALC892 supports 5.1-CH Mic-in, Line-in and Line-out 2 x 6W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-in, Line-out 2 x 2W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-in, Line-out, 1 x S/PDIF	Realtek ALC661 supports 5.1-CH Mic-in, Line-in, Line-out, 1 x S/PDIF	Realtek ALC661 supports 5.1-CH Mic-in, Line-out, Line-in
Ethernet	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® 82579LM 1 x Intel® 82574L	1 x Intel® 82579LM 1 x Intel® 82583V	1 x Realtek 8111E	1 x Realtek 8111E
USB/SATA/COM/LAN	8/4/6/2	10/6/6/2	12/6/6/2	8/4/1/1	8/4/1/1
Power Requirement	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/-12V
Power Type	AT/ATX	AT/ATX	AT/ATX	ATX	ATX
Operating Temp	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 50°C (32°F ~ 122°F)
Dimension (L x W)	9.6" x 9.6" (243.84mm x 243.84mm)	9.6" x 9.6" (243.84mm x 243.84mm)	9.6" x 9.6" (243.84mm x 243.84mm)	9.26" x 7.67" (235.1mm x 194.9mm)	9.6" x 7.28" (244mm x 185mm)
Weight	1.35lbs (0.6kg)	1.35lbs (0.6kg)	1.35lbs (0.6kg)	1.35lbs (0.6kg)	0.88lbs (0.4kg)



EMX-Q170P

Intel® 6th Generation Core™ Processor Mini ITX Motherboard

- Intel® Q170 Express Chipset
- 2 x DDR4 2133MHz SO-DIMM supports up to 32GB
- 1 x Intel® I219LM Gigabit Ethernet PHY
- 1 x Intel® I211AT PCI-e Gigabit Ethernet
- VGA, HDMI, DP, Dual channel 18/24-bits LVDS
- 5 x SATA III, 1 x SATA III or 1 x mSATA III by auto switch IC
- 4 x USB 3.0, 8 x USB 2.0
- 5 x RS232, 1 x RS232/422/485
- Onboard Infineon SLB9665 support TPM 2.0
- AT/ATX power



EMX-H110P

Intel® 6th Generation Core™ Processor Mini ITX Motherboard

- Intel® H110 Express Chipset
- 2 x DDR4 2133MHz SO-DIMM supports up to 32GB
- 1 x Intel® I219LM Gigabit Ethernet PHY
- 1 x Intel® I211AT PCI-e Gigabit Ethernet
- VGA, HDMI, DP, Dual channel 18/24-bits LVDS
- 3 x SATA III, 1 x SATA III or 1 x mSATA III by auto switch IC
- 4 x USB 3.0, 4 x USB 2.0
- 5 x RS232, 1 x RS232/422/485
- Onboard Infineon SLB9665 support TPM 2.0
- AT/ATX power



EMX-Q87R

Intel® 4th Generation Core™ Refresh i7/i5/i3 Mini ITX Motherboard

- Intel® Q87 Express Chipset
- 2 x DDR3 1333/1600 MHz SO-DIMM supports up to 16 GB
- VGA, HDMI, DP
- 1 x Intel® I211AT PCI-e Gigabit Ethernet
- 1 x Intel® I217LM PCI-e Gigabit Ethernet PHY
- 4 x SATA III, 6 x USB 3.0, 6 x USB 2.0
- 1 x Mini PCI-e Supported mSATA, 1 x PCI-e x 16, 1 x CFast
- 3 x RS-232, 1 x RS-232/422/485, 1 x 8-bit GPIO
- AT/ATX power



EMX-H61

Intel® 2nd/3rd Generation Core™/Pentium®/Celeron® Mini ITX Motherboard

- Intel® H61 Express Chipset
- 2 x DDR3 1066/1333 MHz DIMM supports up to 8 GB
- VGA, DVI-D, HDMI
- 2 x BroadcomR 57788 PCI-e Gigabit Ethernet
- 1 x Mini PCI-e, 1 x PCI-e x 16
- 4 x SATA II
- 2 x USB 3.0, 8 x USB 2.0
- ATX Power



SEM-XH81

Intel® 4th Generation Core™ Refresh i7/i5/i3, Pentium® and Celeron® Processors Mini ITX Motherboard

- Intel® H81 Express Chipset
- 2 x DDR3 1333/1600 MHz DIMM supports up to 16 GB
- VGA, HDMI, DVI-D
- 1 x Realtek RTL8111E PCI-e Gigabit Ethernet
- 1 x PCI-e x 16, 1 x Mini PCI-e
- 2 x SATA III, 2 x SATA II
- 7 x USB 2.0, 2 x USB 3.0
- 1 x RS-232, 1 x S/PDIF
- ATX Power

Mini ITX				
Model Number	EMX-Q170P	EMX-H110P	EMX-Q87R	EMX-QM77
Processor	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/i5/i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® rPGA988 Socket Supports Intel® 3rd Generation Core™ i7/i5/i3 Processors
System Chipset	Intel® Q170 Express Chipset	Intel® H110 Express Chipset	Intel® Q87 Express Chipset	Intel® QM77 Express Chipset
System Memory	2 x 260-pin DDR4 2133MHz SO-DIMM supports up to 32GB	2 x 260-pin DDR4 2133MHz SO-DIMM supports up to 32GB	2 x 204-pin DDR3 1333/1600 MHz SO-DIMM supports up to 16 GB	2 x 204-Pin DDR3 1333/1600 MHz SO-DIMM supports up to 16 GB
Expansion	1 x PCI-e x 16 1 x Full Size Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x Half Size Mini PCI-e	1 x PCI-e x 16 1 x Full Size Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x Half Size Mini PCI-e	1 x PCI-e x 16 1 x Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x CFast	1 x PCI-e x 16 1 x Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x CFast
Display	Intel® 6th Generation CPU integrated Triple Display	Intel® 6th Generation CPU integrated VGA + LVDS, VGA + HDMI, VGA + DP, HDMI + LVDS, HDMI + DP, LVDS + DP	Intel® 4th Generation CPU integrated Triple Display	Intel® 2nd/ 3rd Generation CPU integrated VGA + LVDS, VGA + HDMI, VGA + DVI, HDMI + LVDS, HDMI + DVI, LVDS + DVI
Resolution	VGA: 2560 x 1600 @ 60Hz, HDMI: 3840 x 2160 @ 30Hz DP: 4096 x 2304 @ 60Hz Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS)	VGA: 2560 x 1600 @ 60Hz, HDMI: 3840 x 2160 @ 30Hz DP: 4096 x 2304 @ 60Hz Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS)	VGA: 1920 x 1200 @ 60Hz HDMI: 4096 x 2160 @ 24Hz LVDS: 1920 x 1080 @ 60Hz DP: 3840 x 2160 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1920 x 1200 @ 60Hz DVI: 1920 x 1200 @ 60Hz
Audio	Realtek ALC892 supports 5.1-CH Mic-in, Line-out, Line-in 6W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-out, Line-in 6W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-out, Line-in 2 x 2W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in, Line-in and Line-out
Ethernet	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I217LM 1 x Intel® I211AT	1 x Intel® 82579LM 1 x Intel® 82583V
USB/SATA/COM/LAN	12/6/6/2	8/4/6/2	12/4/4/2	12/5/3/2
Power Requirement	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V
Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX
Operating Temp	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)
Weight	0.88lbs (0.4kg)	0.88lbs (0.4kg)	1.03lbs (0.47kg)	1.03lbs (0.47kg)

Mini ITX				
Model Number	EMX-QM67	EMX-B75	EMX-H61	SEM-XH81
Processor	Intel® rPGA988 Socket Supports Intel® 2nd/3rd Generation Core™ i7/i5/i3 Processors	Intel® LGA1155 Socket Supports 2nd/ 3rd Generation Core™ i7/i5/i3, Pentium® and Celeron® Processors (Max. TDP at 65W)	Intel® LGA1155 Socket Supports 2nd/ 3rd Generation Core™ i7/i5/i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/i5/i3, Pentium® and Celeron® Processors (Max. TDP at 84W)
System Chipset	Intel® QM67 Express Chipset	Intel® B75 Express Chipset	Intel® H61 Express Chipset	Intel® H81 Express Chipset
System Memory	2 x 204-Pin DDR3 1066/1333 MHz SO-DIMM supports up to 16 GB	2 x 204-Pin DDR3 1333/1600 MHz SO-DIMM supports up to 16 GB	2 x 240-Pin DDR3 1066/1333 MHz DIMM supports up to 8 GB	2 x 240-pin DDR3 1333/1600 MHz SO-DIMM supports up to 16 GB
Expansion	1 x PCI-e x 16 1 x Mini PCI-e 1 x CFast	1 x Mini PCI-e Supports mSATA (Switch Through Jumper)	1 x Mini PCI-e 1 x PCI-e x 16	1 x PCI-e x 16 1 x Mini PCI-e
Display	Intel® 2nd/ 3rd Generation CPU integrated VGA + LVDS, VGA + HDMI, VGA + DP, HDMI + LVDS, HDMI + DP, DP+ LVDS	Intel® 2nd/ 3rd Generation CPU integrated VGA + HDMI + DVI-D	Intel® 2nd/ 3rd Generation CPU integrated VGA + DVI-D, VGA + HDMI, DVI-D + HDMI	Intel® 4th Generation CPU integrated VGA + DVI-D, VGA + HDMI, DVI-D + HDMI
Resolution	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 2000 @ 60Hz LVDS: 1920 x 1080 @ 60Hz DP: 2560 x 1600 @ 60Hz	VGA: 2560 x 1600 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200 @ 60Hz	VGA: 1920 x 1200 @ 60Hz HDMI: 4096 x 2160 @ 24Hz DVI-D: 1920 x 1200 @ 60Hz
Audio	Realtek ALC892 supports 5.1-CH Mic-in, Line-in and Line-out	Realtek ALC661 supports 2-CH Mic-in and Line-out	Realtek ALC892 supports 7.1-CH Mic-in, Line-out, Line-in, Rear R/L, S/PDIF	Realtek ALC892 supports 7.1-CH Mic-in, Line-out, Line-in, Rear R/L, S/PDIF-out
Ethernet	1 x Intel® 82579LM 1 x Intel® 82583V	2 x Realtek 8111E	2 x Broadcom® 57788	1 x Realtek 8111E
USB/SATA/COM/LAN	12/5/4/2	10/5/10/2	10/4/0/2	9/4/1/1
Power Requirement	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V	+12V/+5V/5Vsb/+3.3V/-12V
Power Type	AT/ATX	ATX	ATX	ATX
Operating Temp	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)
Weight	1.03lbs (0.47kg)	0.88lbs (0.4kg)	0.88lbs (0.4kg)	0.88lbs (0.4kg)



EMX-BSWP

Intel® Celeron® Processor N3160
Thin Mini ITX Motherboard

- 2 x DDR3L 1600MHz SO-DIMM supports up to 8GB
- VGA, HDMI
- 2 x Intel® i211AT Gigabit Ethernet
- 1 x Mini PCI-e Supported mSATA
- 1 Mini PCI-e, 1 x PCI-e
- 2 x SATA III, 2 x SATA Power
- 4 x USB 2.0, 4 x USB 3.0
- 5 x RS232, 1 x RS232/422/485
- Onboard eMMC (Optional 32GB)
- DC in +12V



EMX-BYT2

Intel® Celeron® J1900 Processor
Thin Mini ITX Motherboard

- 2 x DDR3L 1333MHz SO-DIMM supports up to 8GB
- VGA, HDMI
- 2 x Intel® i211AT Gigabit Ethernet
- 1 x Mini PCI-e Supported mSATA, 1 x Mini PCI-e, 1 x PCI-e
- 2 x SATA II, 2 x SATA Power
- 2 x USB 2.0, 4 x USB 3.0
- 5 x RS232, 1 x RS232/422/485
- Onboard eMMC (Optional 32GB)
- DC in +12V



EMX-CDV

Intel® Atom™ D2550 Processor
Mini ITX Motherboard

- Intel® ICH10-R Express Chipset
- 2 x DDR3 1333/1600 MHz SO-DIMM supports up to 16 GB
- VGA, HDMI
- 2 x Realtek RTL8111E PCI-e Gigabit Ethernet
- 1 x PCI, 2 x Mini PCI-e, 4 x SATA II
- 7 x USB 2.0
- 6 x RS-232, 1 x 8-bit GPIO
- TPM 1.2 (Optional)
- DC in +12V



EMX-CDT

Intel® Atom™ D2550 Processor
Mini ITX Motherboard

- Intel® NM10 Express Chipset
- 1 x DDR3 1066/1333 MHz SO-DIMM supports up to 4 GB
- VGA, HDMI
- 2 x Realtek RTL8111E PCI-e Gigabit Ethernet
- 1 x Mini PCI-e Supported mSATA, 1 x PCI-e x1
- 2 x SATA II, 8 x USB 2.0
- 6 x RS-232
- 1 x 8-bit GPIO
- ATX Power



SENX-BYT

Intel® Celeron® Processor J1900
Nano ITX Motherboard

- 1 x DDR3L 1333 MHz SO-DIMM Supports up to 8 GB
- VGA, HDMI
- 1 x Realtek RTL8111G PCI-e Gigabit Ethernet
- 1 x SATA II, 1 x SATA Power
- 2 x USB 2.0, 1 x USB 3.0
- 1 x RS-232 (Pin9 Without Power)
- 1 x SD card slot, 1 x 4-bit GPIO
- 1 x SIM card slot
- 1 x Mini PCI-e Supported mSATA, 1 x Mini PCI-e
- 1 x SMA connector
- DC in +12V

Mini ITX						
Model Number	EMX-BSWP	EMX-BYT2	EMX-CDV	MX1900J-A	EMX-CDD	EMX-CDT
Processor	Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)	Onboard Intel® Celeron® Processor J1900 (2M Cache, Up to 2.42 GHz)	Intel® Atom™ D2550 Processor (1M Cache, 1.86GHz) (N2800/ N2600 for Option)	Onboard Intel® Celeron® Processor J1900 (2M Cache, Up to 2.42 GHz)	Intel® Atom™ D2550 Processor (1M Cache, 1.86GHz)	Intel® Atom™ D2550 Processor (1M Cache, 1.86GHz)
System Chipset			Intel® ICH10-R		Intel® NM10 Express Chipset	Intel® NM10 Express Chipset
System Memory	2 x 204-pin DDR3L 1600 MHz SO-DIMM supports up to 8GB	2 x 204-pin DDR3L 1333 MHz SO-DIMM supports up to 8GB	2 x 204-pin DDR3 1066/1333 MHz SO-DIMM supports up to 4 GB	2 x 204-pin DDR3L 1333 MHz SO-DIMM supports up to 8 GB	2 x 204-pin DDR3 1066/1333 MHz SO-DIMM supports up to 4 GB	1 x 204-pin DDR3 1066/1333 MHz SO-DIMM supports up to 4 GB
Expansion	1 x PCI-e 1 x Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x Mini PCI-e 1 x SD card slot supports SD/ SDHC Card 1 x SIM card slot	1 x PCI-e 1 x Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x Mini PCI-e 1 x SD card slot supports SD/ SDHC Card 1 x SIM card slot	1 x PCI 2 x Mini PCI-e	1 x Mini PCI-e Supports mSATA 1 x Mini PCI-e	1 x PCI 1 x Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x Mini PCI-e	1 x PCI-e x 1 1 x Mini PCI-e Supports mSATA (Switch Through Jumper)
Display	Intel® Atom™/ Celeron® SoC Integrated Graphics HDMI + LVDS, HDMI + VGA, VGA + LVDS	Intel® Atom™/ Celeron® SoC Integrated Graphics HDMI + LVDS, HDMI + VGA, VGA + LVDS	Integrated Intel® Graphics Media Accelerator HDMI + LVDS, HDMI + VGA, VGA + LVDS	Intel® Atom™/ Celeron® SoC Integrated Graphics LVDS + VGA, VGA + DP, DP + LVDS	Integrated Intel® Graphics Media Accelerator LVDS + VGA, VGA + HDMI, HDMI + LVDS	Integrated Intel® Graphics Media Accelerator LVDS + VGA, VGA + HDMI, HDMI + LVDS
Resolution	VGA: 2560 x 1600 @ 60Hz HDMI: 3840 x 2160 @ 30Hz LVDS: 1920 x 1080 @ 60Hz	VGA: 2560 x 1600 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1920 x 1080 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1920 x 1080 @ 60Hz	VGA: 2048 x 1536 @ 60Hz LVDS: 1920 x 1200 @ 60Hz DP: 1920 x 1200 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1920 x 1080 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1440 x 900 @ 60Hz
Audio	Realtek ALC662 supports 2-CH Mic-in, Line-out 2 x 3W Audio Amplifier	Realtek ALC662 supports 2-CH Mic-in, Line-out 2 x 3W Audio Amplifier	Realtek ALC269 supports 5.1-CH Mic-in, Line-in and Line-out 2 x 2W Audio Amplifier	Realtek ALC892 supports 2-CH Mic-in, Line-in and Line-out 2 x 2W Audio Amplifier	Realtek ALC661 supports 2-CH Mic-in and Line-out 2 x 3W Audio Amplifier	Realtek ALC661 supports 2-CH Mic-in and Line-out
Ethernet	2 x Intel I211AT	2 x Intel I211AT	2 x Realtek 8111E	2 x Intel® I211AT	2 x Realtek 8111E	2 x Realtek 8111E
USB/SATA/COM/LAN	8/2/6/2	6/2/6/2	7/4/6/2	8/2/1/2	8/2/6/2	8/2/6/2
Power Requirement	+12V	+12V	+12V	+12V	+12V	+12V/+5V/5Vsbj/+3.3V/-12V
Power Type	AT/ATX	AT/ATX	AT/ATX	ATX	ATX	ATX
Operating Temp	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)	6.69" x 6.69" (170mm x 170mm)
Weight	0.88lbs (0.4Kg)	0.88lbs (0.4Kg)	1.03lbs (0.47kg)	1.03lbs (0.47kg)	1.03lbs (0.47kg)	1.058lbs (0.48kg)

Nano ITX			
Model Number	SENX-BYT	SENX-KA	ENX-CDD
Processor	Intel® Celeron® Processor J1900 (2M Cache, up to 2.42 GHz)	Onboard AMD Embedded G-Series SOC Quad core GX-415GA 1.5GHz Processor	Intel® Atom™ D2550 Processor (1M Cache, 1.86GHz)
System Chipset			Intel® NM10 Express Chipset
System Memory	1 x 204-Pin DDR3L 1333 MHz SO-DIMM supports up to 8 GB	1 x 204-Pin DDR3L 1333/1600 MHz SO-DIMM supports up to 16 GB	1 x 204-Pin DDR3 1066/1333 MHz SO-DIMM supports up to 4 GB
Expansion	1 x Half size Mini PCI-e supports mSATA 1 x Full size Mini PCI-e 1 x SIM Card Slot Onboard 32GB eMMC	1 x Half size Mini PCI-e supports mSATA 1 x Full size Mini PCI-e	1 x Mini PCI-e Supports mSATA (Switch Through Jumper) 1 x 14-pin Header for Customized Add-on Card 1 x SIM Card slot
Display	Intel® Atom™/ Celeron® SoC Integrated Graphics HDMI + VGA, HDMI + LVDS, VGA + LVDS	AMD Embedded G-Series Integrated HDMI + DP	Integrated Intel® Graphics Media Accelerator LVDS + VGA, VGA + HDMI, HDMI + LVDS
Resolution	VGA: 2560 x 1600 @ 60Hz HDMI: 1920 x 1080 @ 60Hz LVDS: 1920 x 1200 @ 60Hz	HDMI: 3840 x 2160 @ 24 Hz DP: 3840 x 2160 @ 24 Hz	VGA: 1920 x 1200 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS: 1440 x 900 @ 60Hz
Audio	Realtek ALC662 supports 2-CH Mic-in and Line-out 2 x 3W Audio Amplifier	Realtek ALC892 supports 5.1-CH Mic-in and Line-out	Realtek ALC662 supports 2-CH Mic-in and Line-out 2 x 3W Audio Amplifier
Ethernet	1 x RTL8111G	1 x Realtek 8111E	1 x Realtek 8111E
USB/SATA/COM/LAN	3/1/1/1	6/1/1/1	4/1/1/1
Power Requirement	+12V	+12V	+12V
Power Type	ATX	ATX	ATX
Operating Temp	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
Dimension (L x W)	4.72" x 4.72" (120mm x 120mm)	4.72" x 4.72" (120mm x 120mm)	4.72" x 4.72" (120mm x 120mm)
Weight	0.88lbs (0.4kg)	0.88lbs (0.4kg)	0.88lbs (0.4kg)





RSC-IMX61

Freescale i.MX6 Cortex-A9 SBC

- Freescale i.MX6 Cortex-A9 Dual Lite/Quad 1GHz CPU
- 4GB eMMC
- 1GB DDR3 memory
- HDMI output with screw lock
- SD socket
- USB2.0 Type A x2, USB 2.0 x1 (wafer), USB OTGx1
- Gigabit LAN with Micrel MIC2788 Ethernet PHY
- Mini-PCIe (half size)
- 12-26V DC input, typical 19V DC input
- Optional POE (802.3AT)
- Optional External I/R Jack (co-design with on-board I/R sensor)



ACP-IMX6POS

Freescale i.MX6 Cortex-A9 SBC

- Freescale i.MX6 Cortex-A9 Dual Lite/Quad 1GHz CPU
- Onboard 1GB(Dual Lite) or 2GB(Quad) DDR3 SDRAM
- Onboard 4GB eMMC, up to 8GB
- Quad(VGA+HDMI or LVDS+HDMI or VGA+LVDS)
- Dual Lite(LVDS+HDMI)
- 1x GLAN, Optional 2nd GLAN
- 4x UART (2x RS232, 2x RS232/485)
- USB Touch Controller Penmount 6000 (5W RES)
- Freescale G Sensor MMA8451
- Cash Drawer interface (RJ11)
- 12~24V DC Input



SMA-IMX61

Freescale i.MX6 SMARC Module

- Onboard Freescale i.MX6 Solo/Dual Lite/Dual/Quad CPU
- Up to 1.2GHz
- Wolfson WM8326 PMIC
- DDR3L 512MB ~ 2GB
- eMMC 4GB ~ 64GB
- Broadcom BCM54610 10/100/1000
- Up to 3 PCIe1, MLB150, 12 GPIOs, SDIO,SATA, 3 SPI, 3 I2C, 1 I2S, SPDIF, WDT, 2 CAN, JTAG



RQM-IMX6

Freescale i.MX6 Cortex-A9 Qseven Module

- Qseven spec 2.0
- Freescale i.MX6 Cortex-A9 Quad 1GHz CPU
- 1GB DDR3, up to 2GB
- 4GB eMMC, up to 32GB
- 1x PCIe1, up to 3x PCIe1/ 4x USB 2.0/ SATA/ 8bit SDIO/ SPI/ I2C/ UART/ CAN/ GPIO/ JTAG
- Micrel KSZ9031 Gigabit Ethernet
- Dual Display 24bit LVDS/ HDMI
- Standard Temperature: 0 to 60°C
- OS: Android 4.4/ Ubuntu 12.04



RQM-3188

Rockchip RK3188 cortex-A9 Qseven Module

- Rockchip RK3188 cortex-A9 Quad Core 1.6 GHz
- 1GB DDR3L, up to 2GB
- 8GB eMMC, up to 32GB
- Dual Display 24bit LVDS/ HDM
- 10/100 Ethernet
- 1 x UART/ USB OTG/ SDIO/ I2S/ I2C/ PMIC/ camera interface
- 3 x USB 2.0
- 1 x USB for wifi/BT (optional)

RISC Single Board			Qseven			
Model Number	RSC-IMX61	ACP-IMX6POS	RSC-IMX51	EQM-BYT2	RQM-IMX6	RQM-RK3188
Processor	Freescale i.MX6 Dual Lite Freescale i.MX6 Quad Core	Freescale i.MX6 Dual Lite Freescale i.MX6 Quad Core	Freescale i.MX515 ARM Cortex-A8 800MHz CPU	Intel® Atom™ Processor (E3825/ E3845)	Freescale i.MX6 Solo/ Quad	Rockchip RK3188 cortex-A9 Quad Core 1.6 GHz
System Memory	DDR3 1G	1GB DDR3 (Dual Lite) 2GB DDR3 (Quad Core)	512MB DDR2	2GB DDR3 (E3825) 4GB DDR3 (E3845)	1GB RAM(Solo) 2GB RAM(Quad)	1GB DDR3L, up to 2GB
Storage	eMMC 4GB	eMMC 4GB	eMMC 4GB	8GB eMMC(E3825) 32GB eMMC(E3845)	4GB eMMC, up to 32GB	8GB eMMC, up to 32GB
I/O	External I/O Connector 1 x USB2.0 Type A x2 (Double deck) 1 x HDMI with screw lock 1 x 10/100/1000 LAN RJ45x1, Optional POE support(IEEE 802.3at) Micro SD socket x 1 1 x Jack for I/R extender cable, co-design (Optional) Internal I/O connector 1 x USB2.0, 1 x USB OTG 1 x 2x5 GPIO, 1 x LVDS 24bitx2, 1 x Backlight control 1 x Line out, speaker out & MIC in 1 x Mini-PCIe (half size) socket, 1 x I2C, 1 x SATA (i.MX6 Quad only) 1 x Battery connector for RTC 1 x debug port 1 x RS232	External I/O Connector 1 x USB Type A Double Deck 2 x RJ45 Connector with Indicate LED 1 x HDMI Connector(Vertical Type) 1 x Mini USB Connector 1 x RJ11 Connector for Cash Drawer 2 x DB9 Male Connector 1 x DC 12V Power Input by Power DC Jack Internal I/O connector 1 x VGA 3x USB pin header 1 x 5-wire Resistive Touch Interface 1 x Dual Channel 24-bit LVDS 1 x Stereo Speaker-out 1 x Mini PCIe 1 x SIM Socket 1 x Front Panel Connector with Power Button & Indicate LED for Power & WIFI	External I/O Connector 1 x 10/ 100Mbps LAN, 1 x RS-232, 1 x Dip Switch, 1 x Reset, 1 x Power Jack lock, 1 x Optional HDMI Internal I/O connector 2 x RS-232/485, 4 x USB 2.0, 1 x DIO, 1 x I2C, 1 x TTL/LVDS, 1 x inverter, 4W touch, 1 x Speaker, 1 x Lin in MIC, 1 x GPIO	2 x SATA 3 x PCIe, 1 x SDIO 8bit, 1 x MIPI CSI camera (Linux only), 1 x LPC, 1 x SMBus, 1 x I2C, 1 x UART, 5 x USB 2.0, 1 x USB 3.0	1 x SATA (Ubuntu only), 1 x PCIe up to 3x PCIe, 1 x MIPI CSI camera, 4 x USB 2.0, 1 x OTG, 1 x SDIO 8bit, 1 x SPI, 1 x I2C, 1 x UART, 1 x CAN, 1 x GPIO, 1 x JTAG	1 x UART for debug, 3 x USB 2.0, 1 x USB OTG, 1x USB for wifi/BT (Optional), 1x Dual Display 24bit LVDS/ HDMI, 1x camera interface 1 x 10/100 Ethernet, 1 x SDIO, 1 x I2S, 1x I2C, 1 x PMIC
Power Requirement	12 ~ 26V DC input , 2.5mm DC Jack,typical 19V input With brown-out detection or POE power in	DC 12 ~ 24V Power Input	+12V DC Input	+5V	+5V	+5V
Operating Temperature	-20°C ~ 85°C	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (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°C ~ 85°C	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-20°C ~ 80°C
Dimension (L x W)	146mm x 102mm	175mm x 110mm	120mm x 80mm	70mm x 70mm	70mm x 70mm	70mm x 70mm
Weight	0.15kg	0.16kg	0.16kg	0.02kg	0.02kg	0.02kg
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

Qseven Carrier Board		SMARC		
Model Number	REV-Q703	SMA-IMX61	REV-SA01	REV-SA02
Processor		Freescale i.MX6 Solo 800M Hz Freescale i.MX6 Quad Core 1.0G Hz		
System Memory		1GB DDR3 (solo) 2GB DDR3 (Quad Core)		
Storage		eMMC 4GB		
External I/O Connector	External I/O Connector 1 x USB 2.0, 1 x USB 3.0, 1 x Ethernet, 1 x HDMI, 1 x COM, 1 x DP, 1 x OTG, 1 x SD socket, 3 x Audio phone jack Internal I/O connector 2 x USB2.0, 1 x USB 2.0, 1 x GPIO, 1 x PCIe x1, 1 x mPCIe, 2 x SATA w/ PWR, 1 x SPI, 1 x CAN, 1 x LPC, 1 x JFP (Miscellaneous Setting Connector), 1 x PWM CPU Fan Header, 1 x PWR Header, 1 x LVDS, 1 x Back light	2 x USB 2.0 Port (One OTG) 2 x RX/TX (Ser1/3) 2 x UART (Ser0/2) 3 x PCIe1 1 x MLB150 12 x GPIOs, 1 x SDIO, 1 x SATA eMMC, 2 x SPI, 3 x I2C, 3 x I2S, 1 x SPDIF, 1 x WDT, 2 x CAN, 1 x JTAG	External I/O Connector 1 x HDMI, 1 x VGA, 2 x RJ45, 1 x DB9, 1 x Mini-USB, 2 x USB Type A Internal I/O connector 1 x LVDS, 1 x Backlight, 1 x SD Socket, 1 x USB Connector, 2 x CAN BUS, 1 x Speaker-out/ Mic-in, 1 x RS-232, 1 x GPIO, 1 x SATA, 1 x RTC Battery, 1 x 2 Cell Li Battery Connector	External I/O Connector 1x LAN, 2 x RCA, 1 x SD Socket, 1 x Mini USB(OTG), 1 x USB Type A 2.0 double deck, 1 x HDMI, 1 x Display port, 1 x VGA, 2 x RS232, 1 x RST Switch, 1 x Power Switch, 1 x Power LED, 1 x DIP SW Internal I/O connector 1 x Camera, 2 x Speaker, 1 x D-MIC, 1 x Mini PCIe(SATA), 1 x Mini PCIe (USB), 1 x Sim Card , 1 x GPIO, 1 x I2C, 1 x USB2.0, 1 x PCIe-1, 1 x LVDS, 1 x Battery charger connect, 1 x Inverter, 2 x RS485, 2 x CAN
Power Requirement	DC +12V	3V to 5.25V - Operates Directly from Single Level Lithium Ion Cells, or Fixed 3.3V or 5V Power Supplies	+9V ~ 36V DC-in (REV-SA01-02-A1R) +9V ~ 24V DC-in (REV-SA01-03-A1R)	DC +12V
Operating Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	Commercial Temperature: 0°C ~ 60°C (32°F ~ 140°F) Industrial Temperature: -40°C ~ 85°C (-40°F ~ 185°F)	0°C ~ 60°C (32°F ~ 140°F)	-40°C ~ 85°C (-40°F ~ 185°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-20°C ~ 80°C (-40°F ~ 176°F)	-40°C ~ 85°C (-40°F ~ 185°F)
Dimension (L x W)	70mm x 70mm	82mm x 50mm	146mm x 101mm	70mm x 70mm
Weight	0.024kg	0.06kg	0.13kg	0.024kg
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B



RISC System	
Model Number	AIB-IMX6
Processor	Freescale i.MX6 Multimedia Processor
System Memory	1 X Onboard DDR3 1GB
Storage	1 x On board 4GB eMMC
External I/O Connector	1 x USB2.0 Type A(Double deck), 1 x HDMI, 1 x 10/100/1000 LAN RJ45, Optional POE support(IEEE 802.3at), 1 x Micro SD socket
Power Requirement	12 ~ 26V DC input, 2.5mm DC Jack, typical 19V input With brownout detection or POE power in(optional)
Operating Temperature	-40°C ~ 70°C (-40°F ~ 158°F)
Storage Temperature	-40°C ~ 70°C (-40°F ~ 158°F)
Dimension (L x W x H)	153mm x 107.8mm x 30mm
Weight	1.5kg
Certification	CE, FCC Class B



- ▶ Small Size
- ▶ Big Possibilities
- ▶ Save Electricity

Compact system

Compact systems are characterized either with performance computing or low power consumption, so it can save space and electricity. This series can be widely used in the field of Multi-Function Computing, Dynamic Digital Signage, Reliable and Affordable Video Surveillance and Digital Kiosk Building Block. It's manageable and reliable for your business and environmental friendly with outstanding support.

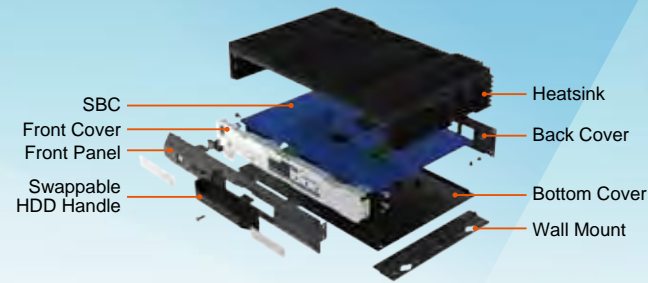


Compact System						
Model Number	NUC-BYT	EPC-BSW	EPC-BYT2	EPC-BYT	EPC-CDV	EPC-KA
Board	NUCB-BYT	ECM-BSW + AUX-032	ECM-BYT2	ECM-BYT + AUX-032	ECM-CDV + AUX-032	ECM-KA + AUX-032
Processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Pentium®/Celeron® processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ D2550 2-Core 1.86GHz processor	AMD G-Series GX-415GA 4-Core 1.5GHz processor
System Chipset	Intel® NM10 Express Chipset				Intel® NM10 Express Chipset	
System Memory	1 x 204-Pin DDR3L 1066MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3 1066MHz SO-DIMM up to 4 GB	1 x 240-Pin DDR3 1600MHz DIMM up to 8 GB
Expansion	2 x Mini PCIe	2 x Mini PCIe	2 x Mini PCIe	1 x Mini PCIe	1 x Mini PCIe	1 x Mini PCIe
Storage	1 x 2.5" Drive Bay 1 x mSATA	1 x mSATA, 1 x 2.5" Drive Bay (7mm HDD Restricted)	1 x mSATA, 1 x 2.5" Drive Bay (7mm HDD Restricted)	1 x CompactFlash Type I/II Socket, 1 x mSATA, 2.5" Drive Bay (7mm HDD Restricted)	1 x CompactFlash Type I/II Socket, 1 x mSATA, 2.5" Drive Bay	1 x CompactFlash Type I/II Socket, 1 x mSATA, 2.5" Drive Bay (7mm HDD Restricted)
USB	2 x USB 2.0, 2 x USB 3.0	2 x USB 2.0, 4 x USB 3.0	3 x USB 2.0, 1 x USB 3.0	5 x USB 2.0, 1 x USB 3.0	3 x USB 2.0	3 x USB 2.0, 2 x USB 3.0
COM Port	1 x RS-232	1 x RS-232/422/485, 4 x RS-232	1 x RS-232/422/485	3 x RS-232, 1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485 (Factory Optional)	2 x RS-232
Other	1 x SIM Card Slot, 1 x Knockouts for Antenna Mounting	1 x Knockouts for Antenna Mounting	2 x Knockouts for Antenna Mounting	1 x Knockouts for Antenna Mounting	1 x Knockouts for Antenna Mounting	1 x Knockouts for Antenna Mounting
Display Chipset	Intel® Valleyview SoC integrated Graphics	Intel® Braswell SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Cedarview Integrated Graphics	AMD SoC Integrated Graphics
Resolution	HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1080 @ 60Hz
Audio Chipset	Realtek ALC887 supports 2-CH	Realtek ALC233 supports 2.1-CH	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH
Audio Interface	Line-Out	Mic-In, Line-In and Line-Out		Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out
Ethernet Chipset	2 x Intel® 82583V	2 x Realtek 8119I	2 x Realtek 8111E	2 x Intel® I211AT	2 x Intel® 82574L	2 x Realtek 8111E
Ethernet Interface	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
Power Connector	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
Power Requirement	+9V ~ +24V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V
ACPI		Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S3, S5; ACPI 3.0 Compliant
Power Mode	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
Adapter	Input: 90 ~ 240Vac/ 50 ~ 60Hz; Output: 36W Adapter (12V @ 3A Adapter)	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter
Construction	Aluminum + Metal + Plastic	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
Dimension (L x W x H)	4.57" x 4.33" x 2.56" (116mm x 110mm x 65mm)	7" x 5.6" x 2.0" (178mm x 142mm x 50mm)	6.88" x 4.33" x 1.57" (175mm x 110mm x 40mm)	7" x 5.6" x 2.0" (178mm x 142mm x 50mm)	7" x 4.4" x 2.0" (178mm x 112mm x 50mm)	7" x 5.6" x 2.0" (178mm x 142mm x 50mm)
Operating Temperature	(w/SSD, mSATA, CFast), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F)	(w/SSD, mSATA, CF), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	-10 ~ +45°C (w/mSATA & SSD), Ambient w/Air Flow 0 ~ 40°C (32 ~ 104°F) (w/HDD), Ambient w/Air Flow	(w/SSD, mSATA, CF), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA, CF), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA, CF), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)
Certification Information	CE, FCC Class B	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A

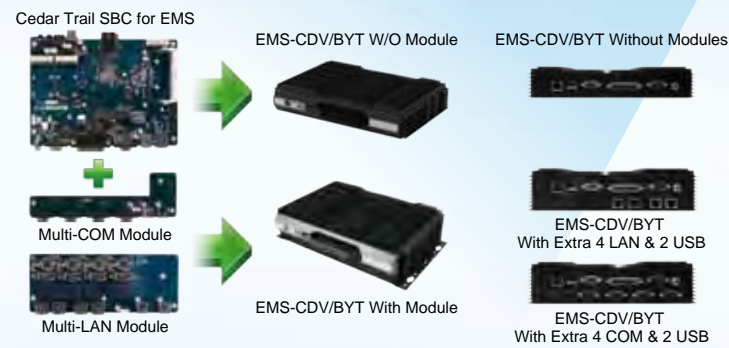
The product described may contain design defects or errors known as errata which may cause the product to deviate from published specifications.

Sophisticated Design

Modularization



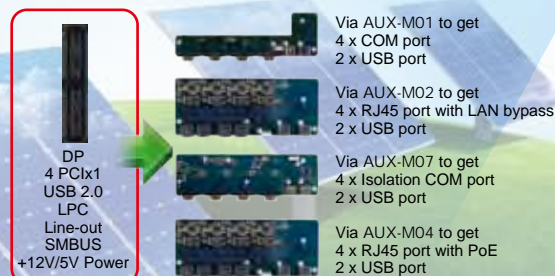
Modularization via IET



- IET Expansion Supporting Multi-COM Isolation, Multi-LAN Bypass and Multi-LAN PoE Module
- Time-Saving Development for New Functions
- Flexible Design to Meet Versatile Requirements

IET Pin Definition

EMS-CDV/BYT is an expandable rugged system that can quickly build innovative platform to meet customer's needs.



Via AUX-M01 to get
4 x COM port
2 x USB port

Via AUX-M02 to get
4 x RJ45 port with LAN bypass
2 x USB port

Via AUX-M07 to get
4 x Isolation COM port
2 x USB port

Via AUX-M04 to get
4 x RJ45 port with PoE
2 x USB port



Rugged System	
Model Number	EMS-SKLU
Board	EBM-SKLUS
Processor	6th Gen Intel® Core™ i7-6600U, 2-Core, 2.6GHz processor 6th Gen Intel® Core™ i5-6300U, 2-Core, 2.4GHz processor 6th Gen Intel® Core™ i3-6100U, 2-Core, 2.3GHz processor
System Memory	1 x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB
Expansion	1 x Avalue 80-Pin IET Interface 1 x Mini PCIe 1 x M.2 (B-Key, 2242, 2280)
Storage	1 x 2.5" Drive Bay, 1 x M.2 (SATA)
USB	4 x USB 3.0
COM Port	2 x RS-232/422/485 (Jumper)
Other	2 x SIM Card Slot, 1 x SMBus, 2 x PS2/ KB & MS, 2 x Antenna mounting w/ cover
DIO	1 x 12bit GPIO
Display Chipset	Intel® Skylake SoC integrated Graphics
Display Resolution	DP: Max. resolution 4096x2304 @ 60Hz
Audio Chipset	Realtek ALC892 supports 2.1-CH
Audio Interface	Mic-In, Line-In and Line-Out
Ethernet Chipset	1 x Intel® I211AT 1 x Intel® I219LM
Ethernet Interface	10/100/1000 Base-Tx GbE compatible
Power Connector	3-Pin Terminal Block
Power Requirement	+9V ~ +36V TVS component for surge protection
ACPI	Single Power ATX Support S0, S3, S4, S5; ACPI 5.0 Compliant
Power Mode	AT/ATX (ATX is default setting)
Adapter	Optional AC-DC Adapter
Construction	Aluminum + Metal
Dimension (L x W x H)	9.45" x 5.96" x 1.77" (240 x 151.5 x 45mm)
Operating Temperature	(w/SSD), ambient w/ air flow -20°C ~ 60°C (-4°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)
Certification Information	CE, FCC Class A/B, IEC 60945

Rugged System

Model Number	EMS-BYT	EMS-BYT-6COM	EMS-BYT-5LAN	EMS-BYT 4COM Isolation	EMS-BYT-PoE	EMS-BYT-HDMI	EMS-BYT-DVI	
Processor	Intel® Celeron® J1900 4-Core 2.0GHz processor Intel® Atom™ E3845 4-Core 1.91GHz processor							
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB							
Expansion	1 x Avalue 80-Pin IET Interface, 2 x Mini PCIe						2 x Mini PCIe	
Storage	1 x 2.5" Drive Bay, 1 x mSATA							
Display	Intel® Valleyview SoC integrated Graphics							
Audio	Realtek ALC892 supports 2.1-CH Mic-In, Line-In and Line-Out							
Ethernet	1 x Intel® I211AT	1 x Intel® I211AT	1 x Intel® I211AT 4 x Intel® 82574L	1 x Intel® I211AT	1 x Intel® I211AT	3 x Intel® I211AT	1 x Intel® I211AT	
USB	2 x USB 2.0 1 x USB 3.0	4 x USB 2.0	4 x USB 2.0 1 x USB 3.0	4 x USB 2.0 1 x USB 3.0	4 x USB 2.0 1 x USB 3.0	4 x USB 2.0 1 x USB 3.0	4 x USB 2.0 1 x USB 3.0	
COM Port	2 x RS-232/422/485 (BIOS)	6 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (BIOS)	6 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (BIOS)	4 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (BIOS)	
DIO	1 x 12bit GPIO							
Others	1x SIM Card Slot, 1x SMBus, 2 x PS2/ KB & MS, 2 x Knockouts for Antenna Mounting							
Power Requirement	Lockable DC Jack, +12V ~ +26V TVS component for surge protection							
Operating Temperature	(w/SSD, mSATA), ambient w/ air flow -15°C ~ 60°C (5°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F) For Valleyview I SoC (w/SSD, mSATA), ambient w/ air flow -40°C ~ 75°C (-40°F ~ 167°F)							
Dimension (L x W x H)	9.45" x 6.69" x 1.77" (240 x 170 x 45mm)			9.45" x 6.69" x 2.36" (240 x 170 x 60mm)				
Certification	CE, FCC Class A/B							

Rugged System

Model Number	EMS-CDV	EMS-CDV-6COM	EMS-CDV-5LAN	EMS-CDV 4COM Isolation	EMS-CDV-PoE	EMS-CDV-HDMI	EMS-CDV-DVI	
Processor	Onboard Intel® Atom™ D2550 BGA Processor							
System Memory	1 x 204-Pin DDR3L 1066MHz SO-DIMM up to 4 GB							
Expansion	1 x Avalue 80-Pin IET Interface, 2 x Mini PCI						2 x Mini PCIe	
Storage	1 x 2.5" Drive Bay, 1 x mSATA							
Display	Intel® Cedarview Integrated Graphics							
Audio	Realtek ALC892 supports 2.1-CH Mic-In, Line-In and Line-Out							
Ethernet	1 x Intel® 82574L	1 x Intel® 82574L	5 x Intel® 82574L	1 x Intel® 82574L	5 x Intel® 82574L	1 x Intel® 82574L	1 x Intel® 82574L	
USB	3 x USB 2.0	5 x USB 2.0	5 x USB 2.0	5 x USB 2.0	5 x USB 2.0	5 x USB 2.0	3 x USB 2.0	
COM Port	2 x RS-232/422/485 (BIOS)	6 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (BIOS)	6 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (BIOS)	4 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (BIOS)	
DIO	1 x 12bit GPIO							
Others	1x SIM Card Slot, 1x SMBus, 2 x PS2/ KB & MS, 2 x Knockouts for Antenna Mounting							
Power Requirement	Lockable DC Jack, +12V ~ +26V TVS component for surge protection							
Operating Temperature	(w/SSD, mSATA), ambient w/ air flow -15°C ~ 60°C (5°F ~ 140°F) (w/SSD, mSATA), ambient w/ air flow -15°C ~ 50°C (5°F ~ 122°F) (EMS-CDV-PoE) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)							
Dimension (L x W x H)	9.45" x 6.69" x 1.77" (240 x 170 x 45mm)			9.45" x 6.69" x 2.36" (240 x 170 x 60mm)				
Certification	CE, FCC Class A/B							

Fanless Rugged System

Avalue Rugged Systems were specially designed for long-term operation in extreme harsh environments.

Sophisticated Design for Rugged Environment

Optional Wide Range Voltage Input from 9~75V (Depending on Models)

Wide Temperature Operating Design



Lockable DC Jack

Lockable DC Jack



CF Cover

Anti-Shock Protection
Anti-Vibration Protection

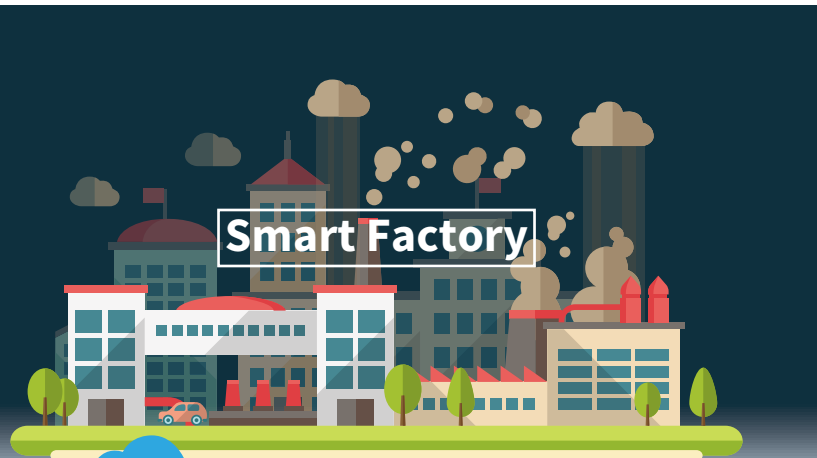
Rugged System					
Model Number	EPS-QM87E	EPS-QM77E	ERS-BYT	ERS-CDV	ERS-A50M
Board	EPI-QM87	EPI-QM77	ECM-BYT + AUX-032	ECM-CDV + AUX-032	ECM-A50M-56N + AUX-032
Processor	4th Gen Intel® Core™ i7-4700EQ 4-Core 3.4GHz processor 4th Gen Intel® Core™ i5-4422E, 2-Core, 1.8GHz processor 4th Gen Intel® Core™ i3-4110E, 2-Core, 2.6GHz processor	3rd Gen Intel® Core™ i7-3610QE 4-Core 2.3GHz processor 3rd Gen Intel® Core™ i5-3610ME 2-Core 2.7GHz processor 3rd Gen Intel® Core™ i3-3120ME 2-Core 2.4GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ D2550 2-Core 1.86GHz processor	AMD T56N 2-Core 1.6GHz
System Chipset	Intel® QM87 Express Chipset	Intel® QM77 Express Chipset		Intel® NM10 Express Chipset	AMD G-Series A50M Chipset
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM or 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM or 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3 1066MHz SO-DIMM up to 4 GB	1 x 204-Pin DDR3 1066MHz SO-DIMM up to 4 GB
Expansion	1 x Mini PCIe	1 x Mini PCIe	1 x Mini PCIe	1 x Mini PCIe	1 x Mini PCIe
Storage	1 x 2.5" Drive Bay 1 x mSATA	2 x 2.5" Drive Bay 1 x mSATA	1 x CompactFlash Type I/II Socket 1 x mSATA, 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x mSATA, 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x mSATA, 1 x 2.5" Drive Bay
USB	2 x USB 2.0, 4 x USB 3.0	2 x USB 2.0, 4 x USB 3.0	3 x USB 2.0, 1 x USB 3.0	6 x USB 2.0	6 x USB 2.0
COM Port	2 x RS-232, 2 x RS-232/422/485 (Factory Optional)	1 x RS-232, 1 x RS-232/422/485 (Factory Optional)	3 x RS-232, 1 x RS-232/422/485 (BIOS)	1 x RS-232, 1 x RS-232/422/485 (Factory Optional)	1 x RS-232, 1 x RS-232/422/485 (Factory Optional)
Other	2 x Knockouts for Antenna Mounting	2 x Knockouts for Antenna Mounting	2 x Knockouts for Antenna Mounting	2 x Knockouts for Antenna Mounting	2 x Knockouts for Antenna Mounting
DIO			1 x 8bit GPIO	1 x 16bit GPIO	
Display Chipset	Intel® QM87 Chipset Integrated Supports triple display	Intel® QM77 Chipset Integrated Supports dual display	Intel® Valleyview SoC integrated Graphics	Intel® Cedarview Integrated Graphics	AMD Radeon 6320
Display Resolution	DVI-I: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 3840x2160 @ 24Hz	DVI-I: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz HDMI: Max. resolution 1920x1080 @ 60Hz
Audio Chipset	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 5.1-CH
Audio Interface	Mic-In and Line-Out	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out
Ethernet Chipset	1 x Intel® I210AT, 1 x Intel® I217LM	1 x Intel® 82574L, 1 x Intel® 82579LM	2 x Intel® I211AT	2 x Intel® 82574L	2 x Realtek 8111E
Ethernet Interface	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
Power Connector	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
Power Requirement	+12V ~ +19V	+12V ~ +19V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V
ACPI	Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 1.0b and 2.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 3.0 Compliant	Single Power ATX Support S0, S1, S3, S4, S5; ACPI 3.0 Compliant
Power Mode	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz; Output 84W Adapter (12V @ 7A Adapter) Input: 100 ~ 240Vdc/ 50 ~ 60Hz; Output 120W Adapter (12 V @ 10A Adapter)	Input: 100 ~ 240Vdc/ 50 ~ 60Hz; Output 84W Adapter (12V @ 7A Adapter) Input: 100 ~ 240Vdc/ 50 ~ 60Hz; Output 120W Adapter (12 V @ 10A Adapter)	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter
Construction	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
Dimension (L x W x H)	9.84" x 8.66" x 2.36" (250mm x 220mm x 60mm)	9.84" x 8.66" x 2.36" (250mm x 220mm x 60mm)	10.67" x 5.91" x 2.17" (271mm x 150mm x 55mm)	10.67" x 5.91" x 2.17" (271mm x 150mm x 55mm)	10.67" x 5.91" x 2.17" (271mm x 150mm x 55mm)
Operating Temperature	(w/SSD, mSATA), ambient w/ air flow; i7 -10°C ~ 50°C (14°F ~ 122°F) (w/SSD, mSATA), ambient w/ air flow; i5/i3 -10°C ~ 60°C (14°F ~ 140°F)	(w/SSD, mSATA), ambient w/ air flow; i7 -10°C ~ 50°C (14°F ~ 122°F) (w/SSD, mSATA), ambient w/ air flow; i5/i3 -10°C ~ 60°C (14°F ~ 140°F)	(w/SSD, mSATA, CF), ambient w/ air flow -10°C ~ 60°C (14°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 45°C (32°F ~ 113°F) For Valleyview I SoC (w/SSD, mSATA), ambient w/ air flow -40°C ~ 75°C (-40°F ~ 167°F)	(w/SSD, mSATA, CF), ambient w/ air flow -10°C ~ 60°C (14°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 45°C (32°F ~ 113°F)	(w/SSD, mSATA, CF), ambient w/ air flow -10°C ~ 60°C (14°F ~ 140°F)
Certification Information	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class B	CE, FCC Class A

Shocks

Strong Vibrations

Extreme Temp.

Wide Range DC Power Input



Smart Factory

Compact Handling Hardware



HPC-BYT

Smart Factory Data Gateway
Bridge IT and OT System

	Machine Automation Machine Controller Din Rail Library
	Production Testing Equipment Manufacturing Testing Controller Expandable I/O Real-Time
	Factory Environment Monitoring Facility Data Collector Readiness I/O Distributed I/O

HPC Fabrication

- IP50
- MIL-STD-810G
- CE & FCC
- EN50155

- Compact & Robust
- No Vents
- Cable-Less

- SOM Structure

- Din Rail
- Storage w/ Protection
- Expansion Slot



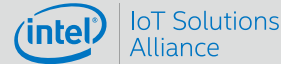
VM System					
Model Number	HPC-BYT	VMS-BYT	EMS-SKLU	ERS-BYTE-10COM	ERS-CDVE-10COM
Board	ESM-BYT2 + EAP-CE04 + HPC DB-A	EBM-BYTV	EBM-SKLUS	EBM-BYTS + AUX-M03	EBM-CDVS + AUX-M03
Processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Onboard 6th Gen Intel® Core™ i7/i5/i3 BGA Processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ D2550 2-Core 1.86GHz processor
System Chipset					Intel® NM10 Express Chipset
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3 1066MHz SO-DIMM up to 4 GB
Expansion	2 x Mini PCIe	1 x Avalue 80-Pin IET Interface 1 x Bluetooth Interface 1 x CAN module Interface 2 x Mini PCIe	1 x Avalue 80-Pin IET Interface 1 x Mini PCIe 1 x M.2 (B-Key, 2242, 2280)	2 x Mini PCIe	2 x Mini PCIe
Storage	1 x CFAST™, 1 x 2.5" Drive Bay (7mm HDD Restricted)	1 x 2.5" Drive Bay 1 x CFAST™ or mSATA	1 x 2.5" Drive Bay, 1 x M.2 (SATA)	1 x 2.5" Drive Bay, 1 x mSATA	1 x 2.5" Drive Bay, 1 x mSATA
USB	3 x USB 2.0, 1 x USB 3.0	2 x USB 2.0, 1 x USB 3.0	4 x USB 3.0	4 x USB 2.0, 1 x USB 3.0	5 x USB 2.0
COM Port	6 x RS-232/422/485 (Can be set as RS-232/422/485 by BIOS)	2 x RS-232/422/485 (BIOS)	2 x RS-232/422/485 (Jumper)	4 x RS-232, 6 x RS-232/422/485 (BIOS) COM3 ~ COM10 Supports 2.5KV Isolation Protection	4 x RS-232, 6 x RS-232/422/485 (BIOS) COM3 ~ COM10 Supports 2.5KV Isolation Protection
Other	3 x Knockouts for Antenna Mounting	1 x DC-Out (12V/4A), 5 x Knockouts for Antenna Mounting	2 x SIM Card Slot 1 x SMBus 2 x PS2/ KB & MS 2 x Antenna mounting w/ cover	1 x SIM Card Slot 1 x SMBus 1 x LPT Port 1 x LVDS 2 x PS2/ KB & MS 2 x Knockouts for Antenna Mounting	1 x SIM Card Slot 1 x SMBus 1 x LPT Port 1 x LVDS 2 x PS2/ KB & MS 2 x Knockouts for Antenna Mounting
DIO		1 x 8bit GPIO	1 x 12bit GPIO	1 x 12bit GPIO	1 x 12bit GPIO
Display Chipset	Intel® Valleyview SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Skylake SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Cedarview Integrated Graphics
Display Resolution	DP: Max. resolution 2560x1080 @ 60Hz DP: Max. resolution 2560x1080 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz LVDS: Max. resolution 1600x1200 @ 60Hz	DP: Max. resolution 4096x2304 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz	VGA: Max. resolution 1920x1200 @ 60Hz LVDS: Max. resolution 1920x1080 @ 60Hz
Audio Chipset	Realtek ALC892	Realtek ALC892 supports 5.1-CH	Realtek ALC892 supports 2.1-CH	Realtek ALC892	Realtek ALC892
Audio Interface	Line-In and Line-Out	2 x Mic-In and 2 x Line-Out	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out
Ethernet Chipset	2 x Intel® I211AT	2 x Intel® I211AT	1 x Intel® I211AT 1 x Intel® I219LM	1 x Intel® I211AT	1 x Intel® 82574L
Ethernet Interface	2 x RJ45	2 x RJ45	2 x RJ45	1 x RJ45	1 x RJ45
Power Connector	Phoenix Connector	Phoenix Connector	3-Pin Terminal Block	Lockable DC Jack	Lockable DC Jack
Power Requirement	+12V ~ +48V	+9V ~ +36V	+9V ~ +36V TVS component for surge protection	+12V ~ +26V TVS component for surge protection Reverse current/voltage protection	+12V ~ +26V TVS component for surge protection
ACPI	Single Power ATX Support S0, S3, S4, S5; ACPI 5.0 Compliant	Single Power ATX Support S0, S3, S4, S5 ACPI 5.0 Compliant	Single power ATX Supports S0, S3, S4, S5 ACPI 5.0 Compliant	Single Power ATX Support S0, S3, S4, S5 ACPI 5.0 Compliant	Single Power ATX Support S0, S3, S4, S5 ACPI 3.0 Compliant
Power Mode	AT/ATX (ATX is default setting)	AT/ATX (Industrial PC Power Mode)	AT/ATX (ATX is the default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
Adapter	Optional AC-DC Adapter		Optional AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter
Construction	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
Dimension (L x W x H)	5.5" x 3.3" x 6.4" (140.7mm x 85mm x 163mm)	9.45" x 7.3" x 2.36" (240mm x 186mm x 60mm)	9.45" x 5.96" x 1.77" (240 x 151.5 x 45mm)	9.09" x 12.36" x 3.15" (231mm x 160mm x 80mm)	9.09" x 12.36" x 3.15" (231mm x 160mm x 80mm)
Operating Temperature	(w/SSD, mSATA, CF), ambient w/ air flow -40°C ~ 70°C (-40°F ~ 158°F) (w/HDD), ambient w/ air flow 0°C ~ 45°C (32°F ~ 113°F)	(w/SSD, mSATA, CFAST), ambient w/ air flow -40°C ~ 75°C (-40°F ~ 167°F)	(w/SSD), ambient w/ air flow -20°C ~ 60°C (-4°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA), ambient w/ air flow -15°C ~ 60°C (5°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 45°C (32°F ~ 113°F)	(w/SSD, mSATA), ambient w/ air flow -10°C ~ 60°C (14°F ~ 140°F) (w/HDD), ambient w/ air flow 0°C ~ 45°C (32°F ~ 113°F)
Certification Information	CE Heavy Industrial, FCC Heavy Industrial, UL	CE, FCC Class A, e13 Mark	CE, FCC Class A/B, IEC 60945	CE, FCC Class B	CE, FCC Class B

The product described may contain design defects or errors known as errata which may cause the product to deviate from published specifications.



IET Expansion

The 6th generation Intel® Core™ processor family



SLP-SKL

Fanless Expandable Controller with PCI/PCI-e expansion slots

- Intel® 6th Generation Core™ Processor
- 2 x 260-pin DDR4 2133MHz SODIMM up to 32 GB
- 3 x PCI + 1 x PCI-e x16 expansion slots
- 6 x USB3.0, 4 x COM, 1 x CFast, 1 x PS/2 Keyboard, 1 x PS/2 Mouse, 16CH isolated DIO
- 2 x 2.5" HDD/SSD Drive Bay, SATA 6G b/s
- Dual display (DVI-I + DP), HD Audio, Dual Gigabit Ethernet
- Fanless Operation
- Wide Range DC Power Input from 9~36V
- Support Avalue IET module



EPC-BTCR

Fanless Intel® Atom™ Processor Z3735F system

- Onboard Intel® Atom™ Processor Z3735F
- Onboard 32GB eMMC
- Onboard 2GB DDR3L Memory
- 1 x HDMI, 1 x 10/100 Ethernet, 1 x Line-Out
- 3 x USB 2.0, 1 x micro USB Client (Android Only)
- 1 x RS-232
- 1 x MicroSDXC™ Card slot
- 1 x SMA connector (Optional)
- 1 x Power LED
- 65W adapter (DC in +19V@3.4A)



ECS-BSW

Fanless Intel® Celeron® Processor N3160 Tiny Box PC

- 4 x USB 3.0, 2 x USB 2.0, 5 x RS232
- 2 x RealTek RTL8119 Gigabit Ethernet
- 1 x 204-pin DDR3L SODIMM Up to 8GB
- 1 x HDMI, 1 x VGA
- 1 x 2.5" Drive bay
- 1 x Power on/off switch with Power LED button
- 1 x SMA connector (optional)
- 60W Adapter (DC in 12V@5A)



Expandable Fanless System		Embedded Computing System				
Model Number	SLP-SKL	EPC-BTCR	ECS-BSW	SEPC-BYT	SEPC-KA	SEPC-CDD2
Processor	Intel® Core™ i7-6700TE Processor (4-Core 2.4GHz) Intel® Core™ i5-6500TE Processor (4-Core,2.3GHz) Intel® Core™ i3-6100TE Processor (2-Core,2.7GHz)	Intel® Atom™ Processor Z3735F (2M Cache, up to 1.83 GHz)	Intel® Celeron® Processor N3160 (2M Cache, up to 2.08 GHz)	Intel® Celeron® Processor J1900 (2M Cache, up to 2.42 GHz)	Onboard AMD Embedded G-Series SOC Quad core GX-415GA 1.5GHz Processor	Intel® Atom™ D2550 Processor (1M Cache, 1.86GHz)
System Chipset	Intel® Q170 Express Chipset	N/A	N/A	N/A	N/A	Intel® NM10 Express Chipset
System Memory	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB	Onboard 2GB DDR3L Memory	1 x 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3/DDR3L 1333/1600MHz SO-DIMM, Up to 16 GB	1 x 204-Pin DDR3 1066/1333MHz SO-DIMM up to 4 GB
Expansion	1 x Mini PCI-e Supports mSATA 1 x PCI-ex16 3 x PCI	N/A	1 x Full-Sized Mini PCI-e supports mSATA 1 x Half-Sized Mini PCI-e	1 x Mini PCI-e supports mSATA 1 x Mini PCI-e	1 x Mini PCI-e supports mSATA 1 x Mini PCI-e	1 x Mini PCI-e supports mSATA
Storage	1 x Mini PCI-e Supports mSATA 2 x 2.5" Drive Bay support RAID 0,1 1 x CFast™	1 x MicroSDXC™ Card slot Onboard 32GB eMMC	1 x Full-Sized Mini PCI-e supports mSATA 1 x 2.5" Drive Bay	1 x Mini PCI-e supports mSATA 1 x 2.5" Drive Bay Onboard 32GB eMMC	1 x Mini PCI-e supports mSATA 1 x 2.5" Drive Bay	1 x Mini PCI-e supports mSATA 1 x 2.5" Drive Bay
USB	6 x USB 3.0	3 x USB 2.0 1 x micro USB Client (Android only)	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 1 x USB 3.0	4 x USB 2.0 2 x USB 3.0	4 x USB 2.0
COM Port	2 x RS-232 2 x RS-232/422/485	1 x RS-232	5 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232
Other	1 x Power on/off switch with Power LED 1 x Reset button 1 x HDD LED 1 x CFast LED 1 x Internal USB 2.0 (Type-A) 1 x PS/2 Keyboard 1 x PS/2 Mouse 1 x 16CH isolated DIO	1 x Power on/off switch 1 x Power LED 1 x SMA connector (Optional) Wi-Fi Module support 1T/1R (Optional)	1 x Power on/off Switch 1 x Power LED 1 x HDD LED 1 x SMA Connector (Optional)	1 x SD card slot 1 x SIM card slot 1 x Power on/off switch 1 x Power LED 1 x HDD LED 1 x SMA connector	1 x SD card slot 1 x SIM card slot 1 x Power on/off switch 1 x Power LED 1 x HDD LED 1 x SMA connector (optional) 1 x S/PDIF 1 x CIR	1 x SD card slot 1 x SIM card slot 1 x Power on/off switch with Power LED 2 x SMA connector (optional) 1 x CIR
Display	Intel® 6th Generation CPU Integrated DP + DVI-I	Intel® Atom™ SoC Integrated Graphics HDMI	Intel® Atom™/ Celeron® SoC Integrated Graphics VGA + HDMI	Intel® Atom™/ Celeron® SoC Integrated Graphics VGA + HDMI	AMD Embedded G-Series Integrated Graphic DP + HDMI	Intel® Atom™ SoC Integrated Graphics VGA + HDMI
Audio	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC5645 Line-Out	Realtek ALC233 support 2.1-CH Mic-In and Line-Out	Realtek ALC662 supports 2-CH Mic-In and Line-Out	Realtek ALC892 supports 2-CH Mic-In and Line-Out	Realtek ALC661 supports 2-CH Mic-In and Line-Out
Ethernet	1 x Intel® I219LM, 1 x Intel® I210AT	1 x 10/100 Ethernet	2 x Realtek RTL8119I	1 x Realtek RTL8111G	1 x Realtek RTL8111E	1 x Realtek 8111E
Power Connector	Phoenix Connector	DC Jack	DC Jack (lockable)	DC Jack	DC Jack	DC Jack
Power Requirement	Built-in 9-36 VDC wide-range DC input	+19V	+12V ~ +26V	+12V	+12V	+12V
Power Mode	ATX	AT	ATX	ATX	ATX	ATX
Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 180W Adapter (24V @ 7.5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 65W Adapter (19V @ 3.4A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)
Operating Temperature	(w/Industrial SSD, CFast), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/ eMMC) ambient w/air flow 0°C ~ 40°C (32°F ~ 140°F)	(w/SSD, mSATA), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	40°C ~ 75°C (-40°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)
Construction	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
Mounting Kit	Wall Mount VESA (Optional)	VESA/ Din rail/ Kensington lock (Optional)	VESA/ Din rail/ Wall Mount (Optional)	VESA/ Wall Mount (Optional)	VESA/ Wall Mount (Optional)	VESA/ Wall Mount (Optional)
Dimension (L x W x H)	200 x 225 x 218 mm	147x 160 x 35 mm	180 x 126 x 68mm	180 x 125 x 58 mm	180 x 125.2 x 53 mm	180 x 122 x 55.5 mm
Weight	4.5 kg	0.5 kg	1.5 kg	1.2 kg	1.2 kg	1.2 kg

Industrial System

Extending expertise on industrial motherboards and industrial PC manufacturing, Avalue combines scalable motherboards and various chassis to provide customers numbers of MB-based systems.

Two key factors to develop Avalue's MB system is expansion and thermal design; for higher rugged/ harsh applications, better expansion and thermal design are required.

Quality Control

- Pre-assembly Test
- System Assembly Test
- Temperature Burn-in Test
- 100% Final Testing
- Final Q.C. Assurance

Availability

- Low MOQ requirement
- Long-Term Supply
- OS pre-installation
- Accessories providing

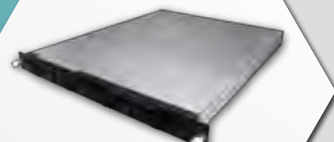
Flexibility

- Engineering Modification
- Mechanical Modification
- Software/ Firmware Modification



ATX / Micro ATX / Mini ITX Barebone System						
Model Number	BAX-P500-Q170	BRX-P500-B75	BMX-P520-H81	BMX-T521-BSW	BMX-T521-BYT	BMX-T520-QM77
Processor	Intel® 6th Generation Core™ Process (Max. TDP at 95W)	Intel® 2nd/ 3rd Generation Core™ i7/i5/i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® 4th Generation Core™ Refresh i7/i5/i3, Pentium® and Celeron® Processors (Max. TDP at 84W)	Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)	Intel® Celeron® Processor J1900 (2M Cache, up to 2.42 GHz)	Intel® Core™ i7-3610QE 4-Core 2.3GHz Intel® Core™ i5-3610ME 2-Core 2.7GHz Intel® Core™ i3-3120ME 2-Core 2.4GHz
System Chipset	Intel® Q170 Express Chipset	Intel® B75 Express Chipset	Intel® H81 Express Chipset	N/A	N/A	Intel® QM77 Express Chipset
System Memory	4 x 288-pin DDR4 2133MHz DIMM up to 64 GB	2 x 240-pin DDR3 1333/1600MHz DIMM up to 16 GB	2 x 240-pin DDR3 1333/1600MHz DIMM up to 16 GB	2 x 204-pin DDR3L 1600MHz SO-DIMM up to 8 GB (Default: 1 x 2GB DDR3L)	2 x 204-pin DDR3L 1333MHz SO-DIMM up to 8 GB (Default: 1 x 2GB DDR3L)	2 x 204-pin DDR3 1333/1600MHz SO-DIMM up to 16 GB
Expansion	7 x Full Height expansion slots	4 x Low profile expansion slots	1 x Low profile expansion slot	1 x Full Size Mini PCI-e support mSATA Only 1 x Full Size Mini PCI-e support WiFi & 3G/4G module	1 x Full Size Mini PCI-e support mSATA Only 1 x Full Size Mini PCI-e support WiFi & 3G/4G module	1 x Mini PCI-e 1 x PCI-ex16
Storage	1 x 2.5" or 1 x 3.5" Internal Drive Bay 2 x 5.25" External Drive Bay	1 x 2.5" or 3.5" Internal Drive Bay 1 x 3.5" (Up to 92mm) or 5.25" External Drive Bay	1 x 2.5" or 1 x 3.5" (up to 24.5mm) Drive Bay 1 x 3.5" (up to 20.0mm) Drive Bay 1 x 5.25" External Drive Bay	1 x SD card slot support SD/ SDHC Card 2 x 2.5" Drive Bay	1 x SD card slot support SD/ SDHC Card 2 x 2.5" Drive Bay	1 x 3.5" or 2 x 2.5" Drive Bay 1 x CFast™
USB	4 x USB 2.0 4 x USB 3.0	4 x USB 2.0 4 x USB 3.0	6 x USB 2.0 2 x USB 3.0	4 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	4 x USB 2.0 4 x USB 3.0
COM Port	1 x RS-232	1 x RS-232	1 x RS-232	5 x RS232 (pin9 with power) 1 x RS232/422/485	5 x RS232 (pin9 with power) 1 x RS232/422/485	3 x RS-232
Other	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard 1 x PS/2 Mouse	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard or Mouse	1 x SIM Card Slot 2 x SMA Connector (Optional)	1 x PS/2 Keyboard 1 x PS/2 Mouse 2 x SMA Connector (Optional)
Display	Intel® 6th Generation CPU Integrated VGA + HDMI + DP	Intel® 2nd/ 3rd Generation CPU Integrated VGA + HDMI + DP	Intel® 4th Generation CPU Integrated VGA + DVI-D, VGA + HDMI, DVI-D + HDMI	Intel® Atom™/ Celeron® SoC Integrated Graphics VGA + HDMI	Intel® Atom™/ Celeron® SoC Integrated Graphics VGA + HDMI	Intel® 2nd/3rd Generation CPU Integrated VGA + HDMI + DVI-D
Display Resolution	VGA: 2560 x 1600 @ 60 Hz HDMI: 3840 x 2160 @ 30 Hz, 2560 x 1600 @ 30 Hz DP: 4096 x 2304 @ 60Hz	VGA: 2560 x 160 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DVI-D: 1920 x 1200 @ 60Hz	VGA: 1920 x 1200 @ 60Hz HDMI: 4096 x 2160 @ 24Hz DVI-D: 1920 x 1200 @ 60Hz	VGA: 2560 x 1600 @ 60Hz HDMI: 3840 x 2160 @ 30Hz	VGA: 2560 x 1600 @ 60 Hz HDMI: 1920 x 1200 @ 60Hz	VGA: 2048 x 1536 @ 60Hz HDMI: 1920 x 1200 @ 60Hz DVI: 1920 x 1200 @ 60Hz
Audio	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC661 supports 5.1-CH Mic-In, Line-In and Line-Out	Realtek ALC892 supports 7.1-CH Mic-In, Line-In, Line-Out, Rear R/L & S/PDIF-out	Realtek ALC662 supports 2-CH Mic-In and Line-Out	Realtek ALC662 supports 2-CH Mic-In and Line-Out	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out
Ethernet	1 x Intel® I219LM 1 x Intel® I211AT	1 x Realtek 8111E	1 x Realtek 8111E	2 x Intel® I211AT	2 x Intel® I211AT	1 x Intel® 82583V 1 x Intel® 82579LM
Power Connector	AC Jack (IEC 320 C14)	AC Jack (IEC 320 C14)	AC Jack (IEC 320 C14)	DC Jack (lockable)	DC Jack (lockable)	Phoenix Connector DC Jack (lockable)
Power Requirement	100 ~ 240 Vac	100 ~ 240 Vac	100 ~ 240 Vac	+12V	+12V	+12V
Power Mode	ATX	ATX	ATX	ATX	ATX	ATX
Adapter/Power Supply	Standard PS2 350W Power Supply	Standard TFX 300W Power Supply	Standard TFX 300W Power Supply	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A) Optional
Operating Temperature	(w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD, mSATA), ambient w/ air flow 0°C ~ 50°C (32°F ~ 122°F) (w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/SSD), ambient w/ air flow; i7 -10°C ~ 50°C (14°F ~ 122°F) (w/SSD), ambient w/ air flow; i5/i3/Celeron -10°C ~ 60°C (14°F ~ 140°F)
Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	-40°C ~ 75°C (-40°F ~ 167°F)	-40°C ~ 75°C (-40°F ~ 167°F)	-40°C ~ 75°C (-40°F ~ 167°F)
Construction	Metal	Metal	Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
Mounting Kit	Wall Mount Kit (Standard)	N/A	N/A	VESA/ Din rail/ Wall Mount (Optional)	VESA/ Din rail/ Wall Mount (Optional)	Wall Mount kit (Standard)
Dimension (L x W x H)	450 x 196 x 330 mm	334 x 96 x 370 mm	265 x 100 x 310 mm	180 x 182 x 76 mm	180 x 182 x 76 mm	353 x 230 x 99 mm

- Supporting up to ATX motherboard.
- Designing for Digital Signage, Slim workstation Application.
- Space saving.



1U Chassis

- Supporting micro-ATX or ATX motherboard.
- Industrial control, Automation, Networking Security, Telecom, Application Server
- Flexible for additional slot expansion.



2U Chassis

+ Industrial System Overview



4U Chassis

- Supporting micro-ATX or ATX motherboard.
- Work Station, DVR/Surveillance, Application Server Application.
- Highly Expandable Function for different application.



Mini-Server

- Supporting mini-ITX motherboard.
- Digital Signage, Thin Client, Car PC, Gaming Application
- Space saving with flexible chassis design.
- Optional Smart Power & Eco UPS

Pre-Configured System						
Model Number	BAX-R1U0-Q87R	BAX-R2U0-Q87R	BAX-R4U0-Q87R	BAX-R1U4S-C226	BAX-R2U8S-C226	BMX-P54S-Q87R
Processor	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 95W)	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i5/ i3/ Xeon®, Pentium® and Celeron® Processors	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i5/ i3/ Xeon®, Pentium® and Celeron® Processors	Intel® LGA1150 Socket Supports 4th Generation Core™ Refresh i7/ i5/ i3, Pentium® and Celeron® Processors (Max. TDP at 95W)
System Memory	4 x 240-Pin DDR3 1333/1600 MHz DIMM up to 32 GB	4 x 240-Pin DDR3 1333/1600 MHz DIMM up to 32 GB	4 x 240-Pin DDR3 1333/1600 MHz DIMM up to 32 GB	4 x 240-Pin DDR3 1333/1600 MHz DIMM up to 32 GB	4 x 240-Pin DDR3 1333/1600 MHz DIMM up to 32 GB	2 x 204-pin DDR3 1333/1600 MHz SO-DIMM up to 16 GB
Storage	2 x 3.5" Drive Bay or 1 x 2.5" + 1 x 3.5" Drive Bay	6 x 3.5" Drive Bay or 2 x 5.25" + 4 x 3.5" Drive Bay	3 x 3.5" Internal Drive Bay 2 x 3.5" + 3 x 5.25" External Drive Bay	4 x 2.5" or 3.5" hot-swap HDD trays 1 x Internal 2.5" Drive Bay	8 x 2.5" or 3.5" hot-swap HDD trays 1 x 2.5" Internal Drive Bay	4 x 2.5" or 3.5" hot-swap HDD trays 1 x 2.5" Internal Drive Bay
Expansion	Full Height PCI Slot x 1 (via riser card and bracket)	4 x Low profile expansion slots	7 x Full Height expansion slots	Full Height PCI Slot x 1 (via riser card and bracket)	4 x Low profile expansion slots	1 x Low profile expansion slot
Display	Intel® 4th Generation CPU Integrated DP + VGA + DVI	Intel® 4th Generation CPU Integrated DP + VGA + DVI	Intel® 4th Generation CPU Integrated DP + VGA + DVI	Intel® 4th Generation CPU Integrated DP + VGA + DVI	Intel® 4th Generation CPU Integrated DP + VGA + DVI	Intel® 4th Generation CPU Integrated DP + VGA + HDMI
Audio	N/A	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier
Ethernet	1 x Intel® I217LM 1 x Intel® I210AT	1 x Intel® I217LM 1 x Intel® I210AT	1 x Intel® I217LM 1 x Intel® I210AT	1 x Intel® I217LM 1 x Intel® I210AT	1 x Intel® I217LM 1 x Intel® I210AT	1 x Intel® I217LM 1 x Intel® I211AT
USB	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	6 x USB 3.0
COM Port	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232
Others	1 x PS/2 Keyboard 1 x PS/2 Mouse	1 x PS/2 Keyboard 1 x PS/2 Mouse	1 x PS/2 Keyboard 1 x PS/2 Mouse	1 x PS/2 Keyboard 1 x PS/2 Mouse	1 x PS/2 Keyboard 1 x PS/2 Mouse	1 x PS/2 Keyboard 1 x PS/2 Mouse
Power Type	ATX	ATX	ATX	ATX	ATX	ATX
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
Power Supply	315W 1U Flex 100-240Vac	500W PS2 100-240Vac	500W PS2 100-240Vac	315W 1U Flex 100-240Vac	500W 1U Single 100-240Vac	265W 1U Flex 100-240Vac
Dimensions (L x W x H) w/o Front Panel	381 x 482.6 x 44.4 mm	504 x 482.6 x 88.9 mm	508 x 482.6 x 178 mm	533.4 x 482.6 x 44.4 mm	571.5 x 482.6 x 88.9 mm	275 x 210 x 230 mm

Pre-Configured System						
Model Number	BAX-R1U0-Q170	BAX-R2U0-Q170	BAX-R4U0-Q170	BAX-R1U4S-Q170	BAX-R2U8S-Q170	BMX-P54S-Q170
Processor	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Generation Core™ i7/ i5/ i3 Processors (Max. TDP at 95W)
System Memory	4 x 288-pin DDR4 2133MHz DIMM up to 64 GB	4 x 288-pin DDR4 2133MHz DIMM up to 64 GB	4 x 288-pin DDR4 2133MHz DIMM up to 64 GB	4 x 288-pin DDR4 2133MHz DIMM up to 64 GB	4 x 288-pin DDR4 2133MHz DIMM up to 64 GB	2 x 260-pin DDR4 2133MHz SO-DIMM up to 32 GB
Storage	2 x 3.5" Drive Bay or 1 x 2.5" + 1 x 3.5" Drive Bay	6 x 3.5" Drive Bay or 2 x 5.25" + 4 x 3.5" Drive Bay	3 x 3.5" Internal Drive Bay 2 x 3.5" + 3 x 5.25" External Drive Bay	4 x 2.5" or 3.5" hot-swap HDD trays 1 x Internal 2.5" Drive Bay	8 x 2.5" or 3.5" hot-swap HDD trays 1 x 2.5" Internal Drive Bay	4 x 2.5" or 3.5" hot-swap HDD trays 1 x 2.5" Internal Drive Bay
Expansion	Full Height PCI Slot x 1 (via riser card and bracket)	4 x Low profile expansion slots	7 x Full Height expansion slots	Full Height PCI Slot x 1 (via riser card and bracket)	4 x Low profile expansion slots	1 x Low profile expansion slot
Display	Intel® 6th Generation CPU integrated VGA + HDMI + DP	Intel® 6th Generation CPU Integrated VGA + HDMI + DP	Intel® 6th Generation CPU Integrated VGA + HDMI + DP	Intel® 6th Generation CPU Integrated VGA + HDMI + DP	Intel® 6th Generation CPU Integrated VGA + HDMI + DP	Intel® 6th Generation CPU Integrated VGA + HDMI + DP
Audio	N/A	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	N/A	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier	Realtek ALC892 supports 5.1-CH Mic-In, Line-In and Line-Out 2 x 6W Amplifier
Ethernet	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT
USB	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0	2 x USB 2.0 4 x USB 3.0
COM Port	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232
Others	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard or Mouse	1 x PS/2 Keyboard or Mouse
Power Type	ATX	ATX	ATX	ATX	ATX	ATX
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
Power Supply	315W 1U Flex 100-240Vac	500W PS2 100-240Vac	500W PS2 100-240Vac	315W 1U Flex 100-240Vac	500W 1U Single 100-240Vac	265W 1U Flex 100-240Vac
Dimensions (L x W x H) w/o Front Panel	381 x 482.6 x 44.4 mm	504 x 482.6 x 88.9 mm	508 x 482.6 x 178 mm	533.4 x 482.6 x 44.4 mm	571.5 x 482.6 x 88.9 mm	275 x 210 x 230 mm



Human-machine Interface Solutions - LPC Series

Panel Technology

- SAA (Super Anti-Abrasion) Panel Glass on Top Technology
- LED Backlight with PWM
- Sunlight Readable
- Privacy Filter upon Request

Outstanding EE Design

- Low Power Consumption
- Scalable System Performance
- Wide Temperature: -10~60°C
- Single 12V Power Input
- Onboard CPU/RAM

Mechanical Design Features


- Panel Size from 8~17"
- IP-65 Front Panel
- Fanless Operation
- VESA/Versatile Installations
- Panel Mount/Open Frame

Options and Customization

- Optional Extra 3 COMs
- WiFi, 3G, GPS Modules
- Whole System IP-65
- Various Panel Sizes

LPC Series					
Model Number	LPC-0809	LPC-1009	LPC-1209	LPC-1509	LPC-1709
LCD Size	8", 4:3	10.4", 4:3	12.1", 4:3	15", 4:3	17", 4:3
Display Type	SVGA	XGA	XGA	XGA	SXGA
Resolution	800 x 600	1024 x 768	1024 x 768	1024 x 768	1280 x 1024
Pixel pitch	0.0675mm(H) x 0.2025mm(V)	0.0685mm(H) x 0.2055mm(V)	0.240mm(H) x 0.240mm(V)	0.297mm(H) x 0.297mm(V)	0.264mm(H) x 0.264mm(V)
Luminance	500 cd/m ²	500 cd/m ²	600 cd/m ²	400 cd/m ²	350 cd/m ²
Contrast ratio	500	1200	700	700	800
Viewing angle	50(U), 70(D), 70(L), 70 (R)	88 (U), 88 (D), 88 (L), 88 (R)	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	80 (U), 80 (D), 85 (L), 85 (R)
Response time	25 ms	25 ms	16 ms	16 ms	30 ms
Backlight	LED	LED	LED	LED	LED
Touch Type	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive
Touch Light Transmission	80 %	80 %	80 %	80 %	80 %
Touch Controller	USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)
Processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB
Expansion	1 x Mini PCIe Support mSATA	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card
Storage	1 x CompactFlash Type I/II Socket	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay
I/O	1 x USB 3.0, 3 x USB 2.0, 1 x RS-232, 1 x RS-232/422/485, 1 x HDMI, 1 x Knockouts for Antenna Mounting	1 x USB 3.0, 3 x USB 2.0, 1 x SATA II 1 x RS-232/422/485 (BIOS) 1 x HDMI, 1 x Knockouts for Antenna Mounting	1 x USB 3.0, 3 x USB 2.0, 1 x SATA II 1 x RS-232/422/485 (BIOS) 1 x HDMI, 1 x Knockouts for Antenna Mounting	1 x USB 3.0, 3 x USB 2.0, 1 x SATA II 1 x RS-232/422/485 (BIOS) 1 x HDMI, 1 x Knockouts for Antenna Mounting	1 x USB 3.0, 3 x USB 2.0, 1 x SATA II 1 x RS-232/422/485 (BIOS) 1 x HDMI, 1 x Knockouts for Antenna Mounting
Display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display
Audio	Realtek ALC892, Line-Out	Realtek ALC892, Line-Out	Realtek ALC892, Line-Out	Realtek ALC892, Line-Out	Realtek ALC892, Line-Out
Ethernet	2 x Intel® I211AT	2 x Intel® I210IT	2 x Intel® I210IT	2 x Intel® I210IT	2 x Intel® I210IT
Power Connector	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V
Dimension	202.5 x 159.5 x 46.5mm	259 x 196 x 41mm	283 x 222 x 45mm	350 x 273.9 x 53.1mm	382 x 320.4 x 58.8mm
Weight	1.5Kgs	2.11Kgs	2.84Kgs	4.2Kgs	5Kgs

Model Number	LPC-1231	LPC-1531	LPC-1232	LPC-1532
LCD Size	12.1", 4:3	15", 4:3	12.1", 4:3	15", 4:3
Display Type	XGA	XGA	XGA	XGA
Resolution	1024 x 768	1024 x 768	1024x768	1024x768
Pixel pitch	0.240mm(H) x 0.240mm(V)	0.297mm(H) x 0.297mm(V)	0.240mm(H) x 0.240mm(V)	0.297mm(H) x 0.297mm(V)
Luminance	600 cd/m ²	400 cd/m ²	600 cd/m ²	400 cd/m ²
Contrast ratio	700	700	700	700
Viewing angle	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)
Response time	16 ms	16 ms	16 ms	16 ms
Backlight	LED	LED	LED	LED
Touch Type	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive
Touch Light Transmission	80 %	80 %	80 %	80 %
Touch Controller	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)
Processor	Intel® Pentium®/Celeron® processor	Intel® Pentium®/Celeron® processor	6th Gen Intel® Core™ i5-6300U, 2-Core, 2.4GHz processor	6th Gen Intel® Core™ i5-6300U, 2-Core, 2.4GHz processor
System Memory	1 x 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1600MHz SO-DIMM up to 8 GB	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB
Expansion	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card
Storage	1 x 2.5" Drive Bay 1 x Onboard eMMC (32G reserved)	1 x 2.5" Drive Bay 1 x Onboard eMMC (32G reserved)	1 x 2.5" Drive Bay	1 x 2.5" Drive Bay
I/O	4 x USB 3.0, 1 x SATA III 2 x RS-232/422/485 (Factory Optional), 1 x HDMI, 1 x Knockouts for Antenna Mounting	4 x USB 3.0, 1 x SATA III 2 x RS-232/422/485 (Factory Optional), 1 x HDMI, 1 x Knockouts for Antenna Mounting	4 x USB 3.0, 1 x SATA III 2 x RS-232/422/485 (Factory Optional), 1 x HDMI Output, 1 x Knockouts for Antenna Mounting	4 x USB 3.0, 1 x SATA III 2 x RS-232/422/485 (Factory Optional), 1 x HDMI Output, 1 x Knockouts for Antenna Mounting
Display	Intel® Braswell SoC integrated Graphics Supports dual display	Intel® Braswell SoC integrated Graphics Supports dual display	Intel® Skylake SoC integrated Graphics Supports dual display	Intel® Skylake SoC integrated Graphics Supports dual display
Audio	Realtek ALC233, Line-Out	Realtek ALC233, Line-Out	Realtek ALC233, Line-Out	Realtek ALC233, Line-Out
Ethernet	2 x Realtek RTL8119	2 x Realtek RTL8119	1 x Intel® I210AT, 1 x Intel® I219LM	1 x Intel® I210AT, 1 x Intel® I219LM
Power Connector	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V
Dimension	283 x 222 x 45mm	350 x 273.9 x 53.1mm	283 x 222 x 45	350 x 273.9 x 53.1
Weight	2.84Kgs	4.2Kgs	2.84Kgs	4.2Kgs



POS/Kiosk Solutions - FPC Series

- Scalable System**
- Panel Size:** Ranges from 8 ~ 21.5"
- System Core: CPU**
Intel: Celeron/Pentium/Atom/Core Duo/Core 2 Duo/AMD
- Internal Board**
3.5" SBC/Mini-ITX based system
- Chassis & Frame**
Style/materials of chassis and panel frame
- Panel Resolution**
Resolution/Touch/SAA/Sunlight Readable
- Storage**
CF/ 2.5" HDD/ RAM
- OS**
Linux/Windows
- Options & Customization**
- WiFi Module
- CAN Bus
- PoE (Power over Ethernet)
- Installation Accessories
- Open Frame model for your own enclosures
- Peripheral Cards for extended functions



FPC Series					
Model Number	FPC-08W29	FPC-17L08	FPC-21W08	FPC-1732	FPC-21W32
LCD Size	8"	17", 4:3	21.5"	17", 4:3	21.5"
Display Type	WSVGA	SXGA	Full HD	SXGA	Full HD
Resolution	1024 x 600	1280 x 1024	1920 x 1080	1280x1024	1920x1080
Pixel pitch	0.1725 mm (W) x 0.1656 mm (H)	0.264mm (H) x 0.264mm (V)	0.248mm (H) x 0.248mm (V)	0.264mm (H) x 0.264mm (V)	0.248mm (H) x 0.248mm (V)
Luminance	500 cd/m ²	350 cd/m ²	250 cd/m ²	350 cd/m ²	250 cd/m ²
Contrast ratio	700	800	1000	800	1000
Viewing angle	70 (U), 75 (D), 75 (L), 75 (R)	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 85 (L), 85 (R)
Response time	20 ms	30 ms	5 ms	30 ms	5 ms
Backlight	LED	LED	LED	LED	LED
Touch Type	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive
Touch Light Transmission	80 %	80 %	80 %	80 %	80 %
Touch Controller	Onboard USB touch (PenMount)	USB touch (EETI)	USB touch (EETI)	USB touch (EETI)	USB touch (EETI)
SBC	ECM-BYT	EMX-Q87	EMX-Q87	EMX-H110	EMX-H110
Processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	4th Gen Intel® Core™ i3-4330TE 2-Core 2.4GHz processor 4th Gen Intel® Core™ i5-4570TE 2-Core 2.7GHz processor	4th Gen Intel® Core™ i3-4330TE 2-Core 2.4GHz processor 4th Gen Intel® Core™ i5-4570TE 2-Core 2.7GHz processor	6th Generation Core™ i7/ i5/ i3 Processors	6th Generation Core™ i7/ i5/ i3 Processors
System Chipset	Intel® Valleyview SoC	Intel® Q87 Chipset	Intel® Q87 Chipset	Intel® H110 Express Chipset	Intel® H110 Express Chipset
I/O Chipset	Nuvoton W83627DHG-P	Nuvoton NTC6106D	Nuvoton NTC6106D	Nuvoton NTC6106D	Nuvoton NTC6106D
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	2 x 204-Pin DDR3 1333/1600MHz SO-DIMM up to 16 GB	2 x 204-Pin DDR3 1333/1600MHz SO-DIMM up to 16 GB	2 x 204-Pin DDR3L 1600/2133MHz SO-DIMM up to 16 GB	2 x 204-Pin DDR3L 1600/2133MHz SO-DIMM up to 16 GB
Expansion	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	2 x PCIe8 1 x M.2 2230 Slot 1 x SIM card slot 1 x Mini PCIe Supports mSATA	2 x PCIe8 1 x M.2 2230 Slot 1 x SIM card slot 1 x Mini PCIe Supports mSATA
Storage	1 x CompactFlash Type I/II Socket (CF-SATA optional)	1 x 2.5" Drive Bay	1 x 2.5" Drive Bay	1 x 2.5" Drive Bay	1 x 2.5" Drive Bay
USB	3 x USB 2.0, 1 x USB 3.0	1 x USB 2.0, 4 x USB 3.0	1 x USB 2.0, 4 x USB 3.0	1 x USB 2.0, 4 x USB 3.0	1 x USB 2.0, 4 x USB 3.0
COM Port	1 x RS-232/422/485, 1 x RS-232	1 x RS-232/422/485, 2 x RS-232	1 x RS-232/422/485, 2 x RS-232	1 x RS-232/422/485, 2 x RS-232	1 x RS-232/422/485, 2 x RS-232
Other	n/a	1 x WiFi	1 x WiFi	1 x WiFi	1 x WiFi
Display Chipset	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Q87 Chipset Integrated Supports triple display	Intel® Q87 Chipset Integrated Supports triple display	Intel® H110 Chipset Integrated Supports triple display	Intel® H110 Chipset Integrated Supports triple display
Display Resolution	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	DP: Max. resolution 1920x1200 VGA: Max. resolution 2048x1536 HDMI: Max. resolution 1920x1200	DP: Max. resolution 1920x1200 VGA: Max. resolution 2048x1536 HDMI: Max. resolution 1920x1200	DP: Max. resolution 1920x1200 VGA: Max. resolution 2048x1536 HDMI: Max. resolution 1920x1200	DP: Max. resolution 1920x1200 VGA: Max. resolution 2048x1536 HDMI: Max. resolution 1920x1200
Audio	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH
Audio Interface	Mic-In and Line-Out	Mic-In, Line-In and Line-Out 2 x 2W Speaker Output	Mic-In, Line-In and Line-Out 2 x 2W Speaker Output	Mic-In, Line-In and Line-Out 2 x 2W Speaker Output	Mic-In, Line-In and Line-Out 2 x 2W Speaker Output
Ethernet	2 x Intel® I211AT	1 x Intel® I211AT, 1 x Intel® I217LM	1 x Intel® I211AT, 1 x Intel® I217LM	1 x Intel® I219LM, 1 x Intel® I211AT	1 x Intel® I219LM, 1 x Intel® I211AT
Power Connector	Lockable DC Jack, +12V ~ +26V				
Power Type	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz; Output: 60W Adapter (12V @ 5A Adapter)				
Construction (Front, Rear)	Metal, Aluminum + Metal	Black, Black	Black, Black	Black, Black	Black, Black
Dimension	225 x 129 x 43.4mm	387.5 X 346 X 76.6mm	526 X 346.5 X 80.4mm	TBD	TBD
Weight	1.27Kgs	6.14Kgs	7.32Kgs	6.14Kgs	7.32Kgs
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
OS Information	Win 8, Win 7, Linux	Win 7, Win 8	Win 7, Win 8	Win 8, Win 10	Win 8, Win 10

Multi-touch Solution - APC/BFC Series

In order to provide our clients with dynamic touch solutions, Avalue is now introducing new multi-touch solutions in two product lines including APC and BFC. Integrated with Windows 7, our multi-touch solution is driver-free and gives better touch consistency. With its improved interactivity, our multi-touch panel PC will help clients reduce costs and greatly increase customer satisfaction.



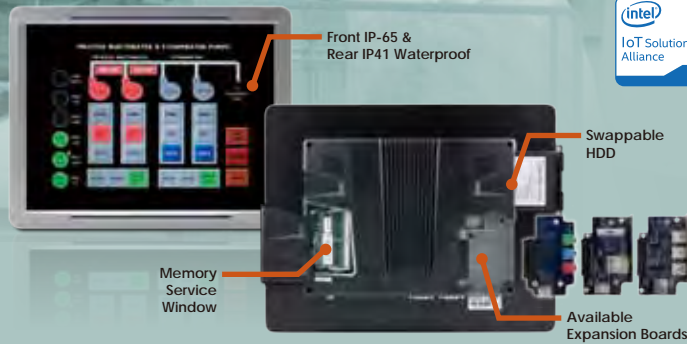
APC Series	BFC Series				
Model Number	APC-18W9	BFC-10W9	BFC-1509	BFC-15W9	BFC-1709
LCD Size	18.5"	10.1"	15", 4:3	15.6"	17", 4:3
Display Type	WXGA	WSVGA	XGA	WXGA	SXGA
Resolution	1366 x 768	1024 x 600	1024 x 768	1366 x 768	1280 x 1024
Pixel pitch	0.300mm (H) x 0.300mm (V)	0.2175 (H) x 0.2088 (V)	0.297mm (H) x 0.297mm (V)	0.252mm (H) x 0.252mm (V)	0.264mm (H) x 0.264mm (V)
Luminance	300 cd/m ²	200 cd/m ²	400 cd/m ²	300 cd/m ²	350 cd/m ²
Contrast ratio	1000	500	700	500	800
Viewing angle	80 (U), 80 (D), 85 (L), 85 (R)	70 (U), 70 (D), 70 (L), 70 (R)	70 (U), 70 (D), 80 (L), 80 (R)	80 (U), 80 (D), 80 (L), 80 (R)	80 (U), 80 (D), 85 (L), 85 (R)
Response time	5 ms	7 ms	8 ms	8 ms	30 ms
Backlight	LED	LED	LED	LED	LED
Touch Type	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive
Touch Light Transmission	91 %	86 %	88 %	88 %	88 %
Touch Controller	USB touch (EETI)	USB touch (EETI)	USB touch (EETI)	USB touch (EETI)	USB touch (EETI)
SBC	EBM-BYT	ECM-BYT	EBM-BYT	EBM-BYT	EBM-BYT
Processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor
System Chipset	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC
I/O Chipset	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E
System Memory	1 x 204-Pin DDR3L 1066/1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1066/1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1066/1333MHz SO-DIMM up to 8 GB
Expansion	1 x Mini PCIe 1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Mini PCIe 1 x Mini PCIe Supports mSATA	1 x Mini PCIe 1 x Mini PCIe Supports mSATA	1 x Mini PCIe 1 x Mini PCIe Supports mSATA
Storage	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay
USB	1 x USB 2.0, 1 x USB 3.0	3 x USB 2.0, 1 x USB 3.0	1 x USB 2.0, 1 x USB 3.0	1 x USB 2.0, 1 x USB 3.0	1 x USB 2.0, 1 x USB 3.0
COM Port	1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485	1 x RS-232/422/485	1 x RS-232/422/485	1 x RS-232/422/485
Other	n/a	n/a	n/a	n/a	n/a
Display Chipset	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display
Display Resolution	HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1200 @ 60Hz
Audio	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH
Audio Interface	Line-Out	Line-Out	Line-Out	Line-Out	Line-Out
Ethernet	2 x Intel® I211AT	2 x Intel® I211AT	2 x Intel® I211AT	2 x Intel® I211AT	2 x Intel® I211AT
Power Connector	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V
Power Type	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)
Construction (Front, Rear)	Black Coverlens, Black	Silver Aluminum, Black	Silver Aluminum, Black	Silver Aluminum, Black	Silver Aluminum, Black
Dimension	443 x 290 x 59mm	251.94 x 154.5 x 45.25mm	350 x 274 x 53.5mm	385.3 x 240.3 x 55.5mm	384.5 x 317 x 59.5mm
Weight	4.54Kgs	1.2Kgs	4.2Kgs	4.2Kgs	5.2Kgs
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
OS Information	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux



ARC-1509/ARC-1209

15"/12.1" Fanless Rugged Touch Panel PC with IET Expansion

- ◆ Wide Temp, Wide Voltage Input
- ◆ Anti-Shock, Anti-Vibration
- ◆ Modularized Design



SPC Series

Full IP-65 Rating Stainless Steel Touch Panel PC Perfect Fit For Harsh Washdown Environments

Super Scratch-proof Panel

SPC series offer a high level of hard glass compliant with SAA panels. It is resistant to scratches from nails, coins, keys and other sharp metal tools.

Stainless: Vandal-proof; Oil-proof

- Rust-proof; Resistance to corrosion
- Stainless
- Vandal-proof/Resistance of high temp.

Full IP-65/Design for Water-proof

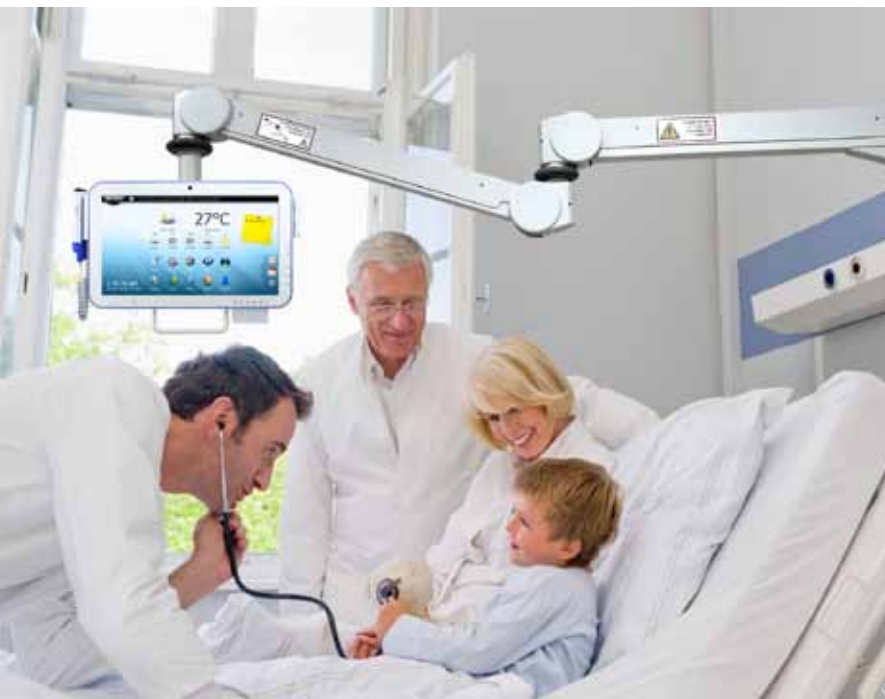
- Full IP-65
- Water-draining design
- IP-67 Connector
- Membrane Buttons

Wide volt./Over Current Protection

- Flexibility
- Safety
- Over Current/ Surge Protection



ARC Series	ARC-1209	ARC-1509	SPC Series	SPC-1209	SPC-1509	SPC-1709	SPC-22W9
Model Number	ARC-1209	ARC-1509	SPC-1209	SPC-1509	SPC-1709	SPC-22W9	
LCD Size	12.1", 4:3	15", 4:3	12.1", 4:3	15", 4:3	17", 4:3	22"	
Display Type	XGA	XGA	XGA	XGA	SXGA	WSXGA	
Resolution	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1280 x 1024	1680 x 1050	
Pixel pitch	0.240mm (H) x 0.240mm (V)	0.297mm (H) x 0.297mm (V)	0.240mm (H) x 0.240mm (V)	0.297mm (H) x 0.297mm (V)	0.264mm (H) x 0.264mm (V)	0.282mm (H) x 0.282mm (V)	
Luminance	600 cd/m ²	400 cd/m ²	600 cd/m ²	400 cd/m ²	350 cd/m ²	250 cd/m ²	
Contrast ratio	700	700	700	700	800	1000	
Viewing angle	80 (U), 80 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	70 (U), 70 (D), 80 (L), 80 (R)	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 85 (L), 85 (R)	
Response time	16 ms	16 ms	16 ms	16 ms	30 ms	5 ms	
Backlight	LED	LED	LED	LED	LED	LED	
Touch Type	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive	5 Wires resistive	
Touch Light Transmission	80 %	80 %	80 %	80 %	80 %	80 %	
Touch Controller	Onboard USB touch (PenMount)	Onboard USB touch (PenMount)	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)	
SBC	ARC-BYT	ARC-BYT	EBM-BYT	EBM-BYT	EBM-BYT	EBM-BYT	
Processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Celeron® J1900 2.0GHz/Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	
System Chipset	EC ITE IT8528E	EC ITE IT8528E	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC	
I/O Chipset	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	
Expansion	1 x Mini PCIe Supports mSATA 1 x Optional 80-pin Expansion	1 x Mini PCIe Supports mSATA 1 x Optional 80-pin Expansion	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	1 x Mini PCIe Support mSATA 1 x Mini PCIe Supports SIM Card	
Storage	1 x 2.5" Drive Bay (7mm HDD Restricted)	1 x 2.5" Drive Bay (7mm HDD Restricted)	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	
USB	1 x USB 3.0, 3 x USB 2.0	1 x USB 3.0, 3 x USB 2.0	3 x USB 2.0	3 x USB 2.0	3 x USB 2.0	3 x USB 2.0	
COM Port	1 x RS-232/422/485 (Factory Optional) 1 x RS-232	1 x RS-232/422/485 (Factory Optional) 1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232	1 x RS-232	
Other	1 x WiFi, 3 x Knockouts for Antenna Mounting	1 x WiFi, 3 x Knockouts for Antenna Mounting	1 x SATA II, 1 x WiFi	1 x SATA II, 1 x WiFi	1 x SATA II, 1 x WiFi	1 x SATA II, 1 x WiFi	
Display Chipset	Intel® Valleyview SoC integrated Graphics Supports optional dual display	Intel® Valleyview SoC integrated Graphics Supports optional dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	
Display Resolution	HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1200 @ 60Hz					
Audio	Realtek ALC892	Realtek ALC892	Realtek ALC892	Realtek ALC892	Realtek ALC892	Realtek ALC892	
Audio Interface	2 x 1W Speaker Out	2 x 1W Speaker Out	2 x 5W Speaker Output	2 x 5W Speaker Output	2 x 5W Speaker Output	2 x 5W Speaker Output	
Ethernet	2 x Intel® I210IT	2 x Intel® I210IT	1 x Intel® I210IT	1 x Intel® I210IT	1 x Intel® I210IT	1 x Intel® I210IT	
Power Connector	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Waterproof DC Jack, +12V ~ +26V	Waterproof DC Jack, +12V ~ +26V	Waterproof DC Jack, +12V ~ +26V	Waterproof DC Jack, +12V ~ +26V	
Power Type	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	
Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (24V @ 2.5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (24V @ 2.5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (24V @ 2.5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (24V @ 2.5A Adapter) AC-DC Adapter	
Construction (Front, Rear)	Silver Aluminum, Black	Silver Aluminum, Black	Front & Rear Silver Stainless, Black	Front & Rear Silver Stainless, Black	Front & Rear Silver Stainless, Black	Front & Rear Silver Stainless, Black	
Dimension	284 x 222 x 46mm	350 x 274 x 49.8mm	311 x 272 x 58mm	371 x 308 x 63.6mm	405 x 353 x 66.6mm	546 x 378 x 69mm	
Weight	2.4 Kgs	3.7 Kgs	4.23 Kgs	6.42 Kgs	7.5 Kgs	9 Kgs	
Operating Temperature	-30°C ~ 60°C (-22°F ~ 140°F)	-30°C ~ 60°C (-22°F ~ 140°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	
Storage Temperature	-30°C ~ 70°C (-22°F ~ 158°F)	-30°C ~ 70°C (-22°F ~ 158°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	
OS Information	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	



AID Series

- Fantastic Entertaining Experiences
- Easy to Stay in Touch with Friends and Family
- Convenient to Access and Surf the Internet

LCD, Touch Screen

- 17.3" 16:9 Full HD 1920 x 1080
- Touch Screen for easy, intuitive interaction with application

RFID, Smart Card Reader Magnetic Stripe Card Reader

- Identifying user, loyalty card schemes
- Accessing restricted information
- Credit or debit card payment

Gigabit Ethernet, WIFI Capability

- Intel® PCI-E Gigabit Ethernet
- IEEE 802.11 b/g/n Network connection

1.3/ 2.0 Megapixel Camera

Camera is integrated to make the video transmission and telecommunication perfect

Direct Control keys

Direct control keys are direct GPIO signals to super I/O chip which is programmable to your needs.

VOIP Telephony

Making and receiving calls to specific terminals

Fanless Design

- Silent operation
- Minimal venting holes
- Increased MTBF - Improved reliability

IP65

Sealed against the ingress of fluids and dust

Certifications

IEC60601, CE/ FCC Class B

Various OS

- Windows 7 • Windows 8.1
- Windows Embedded • Linux

	HID Series	AID Series		
Model Number	HID-2132	AID-173SHR	AID-173SHW	AID-173M
LCD Size	21.5"	17.3"	17.3"	17.3"
Display Type	Full HD	Full HD	Full HD	Full HD
Resolution	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
Pixel pitch	0.24795 (H) x 0.24795 (V)	0.1989 (H) x 0.1989 (V) mm	0.1989 (H) x 0.1989 (V) mm	0.1989 (H) x 0.1989 (V) mm
Luminance	250 cd/m ²	300 cd/m ²	300 cd/m ²	300 cd/m ²
Contrast ratio	3000	500~650	500~650	500~650
Viewing angle	178 (V), 178 (H)	Horizontal 60-70; Vertical 50-60 Deg.	Horizontal 60-70; Vertical 50-60 Deg.	Horizontal 60-70; Vertical 50-60 Deg.
Response time	5 ms	TR 2-8 ms; TF 6-12 ms	TR 2-8 ms; TF 6-12 ms	TR 2-8 ms; TF 6-12 ms
Backlight	LED	LED	LED	LED
Touch Type	USB	5 Wires resistive	5 Wires resistive & Projective Capacitive	5 Wires resistive
Touch Light Transmission	86%	80% +/- 3%	80% +/- 3%	80% +/- 3%
Touch Controller	EETI	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)
SBC	EBM-SKLU	AID-173SHR	AID-173SHW	AID-173M
Processor	Intel® Core™ i7/ i5/ i3 /Celeron® Series Processor	Intel® Core™ i7/ i5/ i3 Processor Celeron® Series	Intel® Core™ i7/ i5/ i3 Processor	
System Chipset	intel® QM170 Express Chipset	Intel® QM67 Express Chipset	Intel® QM87 Express Chipset	
I/O Chipset	EC (IT8528E)	Nuvoton NTC6776F		
System Memory	1 x 260-pin DDR4 SODIMM (non ECC) support up to 16GB	2 x 204-Pin SO-DIMM up to 4 GB	1 x 204-Pin SO-DIMM up to 8 GB	
Expansion	1 x Mini PCIe connector (for PCIe & USB2.0 & SIM Card) 1 x Mini PCIe connector (for mSATA)	3 x Mini PCIe	1 x Mini PCIe 1 x Mini PCIe Supports mSATA	2 x Mini PCIe
Storage	1 x 2.5" Drive Bay	1 x 2.5" Drive Bay	1 x 2.5" Drive Bay	
USB	4 x USB3.0, 2 x USB2.0 (Isolation by IET module)	4 x USB 2.0	1 x USB 3.0, 3 x USB 2.0	3 x USB 2.0, 1 x USB Type B
COM Port	1 x RS232/422/485, 1 x RS232, 1 x RS232 (Isolation by IET module)	1 x RS-232, 1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485	1 x RS-232, 1 x RS-232/422/485
Other	1 x HDMI Output, 1 x Line out Cable Cover (optional) LED Reading Light Bar NFC/ RFID module (optional) 1 x Backup Battery module (optional)	1 x HDMI Output 1 x Display Output 1 x MSR/ SCR/ RFID/ Barcode Scanner 1 x Earphone 1 x Mic	1 x HDMI Output 1 x Display Output 1 x MSR/ SCR/ RFID/ Barcode Scanner 1 x Earphone 1 x Mic	1 x HDMI Output 1 x Earphone 1 x Mic 2 x Mini Card
Display Chipset	Intel® Skylake U Processor Integrated Graphics	Intel® QM67 Chipset Integrated Supports dual display	Intel® QM87 Chipset Integrated Supports triple display	
Display Resolution	HDMI: 3840x2160 @ 24Hz	DP: Max. resolution 2560x1600 HDMI: Max. resolution 1920x1080	VGA: Max. resolution 2048x1536 LVDS: Max. resolution 1920x1200	HDMI: Max. resolution 1920x1080
Audio	Realtek ALC892	Realtek ALC892	Realtek ALC892	
Audio Interface	Line-Out 2 x 2W Speaker Output	Mic-In and Line-Out 2 x 2W Speaker Output	Mic-In and Line-Out 2 x 2W Speaker Output	2 x 2W Speaker Output
Ethernet	1 x Intel® I211AT, 1 x Intel® I219LM, 1 x Intel® I211AT (Isolation by IET module)	1 x Intel® 82579LM	1 x Intel® WGI1218LM	
Power Connector	Lockable DC Jack, +12V ~ +26V	DC Jack, +12V ~ +19V	DC Jack, +12V ~ +19V	DC Jack, +12V ~ +19V
Power Type	AT / ATX	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
Adapter	Input: 100 ~ 240 Vac / 50~ 60Hz; Output 90W Adapter (19V / 4.74A Adapter)	Input: 100 ~ 240 Vac / 50~ 60Hz; Output 65W Adapter (19V / 3.43A Adapter)	Input: 100 ~ 240 Vac / 50~ 60Hz; Output 65W Adapter (19V / 3.43A Adapter)	Input: 100 ~ 240 Vac / 50~ 60Hz; Output 65W Adapter (19V / 3.43A Adapter)
Construction (Front, Rear)	White Plastic	White Plastic	White Plastic	White Plastic
Finishing	Anti-microbial	Anti-microbial	Anti-microbial	Anti-microbial
Dimension	526.7 x 331 x 45 mm	505 x 336 x 54.5mm	505 x 336 x 54.5mm	505 x 336 x 54.5mm
Weight	5kgs	4.7Kgs	4.7Kgs	4.5Kgs
Certification	CE, FCC Class B, UL60601-1	CE, FCC Class B, UL60601-1	CE, FCC Class B	CE, FCC Class B

24 Ultra Slim Panel PC

The Panel PC that Re-Defines the Industry

Benefits of Consumer Products

- Stylish Design
- Affordable Price

Advantage of Industrial Products

- Durability
- Longevity Support

Ultra Slim

Cost Effective

High Quality

Front IP65

Shock & Vibration Resistive

Customization Ability

PPC Series

Flexible, Scalable, Cost-Effective Solutions for Your Interactive Clients

MSR
(Magnetic Stripe Reader)

- User Identification
- Information Acquiring
- Cash Flow

Programmable Function Keys

- User Friendly
- Programmable Front Panel Keys
- Drivers Installed
- Evaluation Kit

RFID
(Radio Frequency Identification; Internal & External Type)

- Supply Chain Management
- Health Care
- Bio-identification
- Tracking



PPC Series	PPC-1529	PPC-1729	PPC-2129	SID Series	SID-10W9	SID-15W9	SID-21W9
Model Number	PPC-1529	PPC-1729	PPC-2129	SID-10W9	SID-15W9	SID-21W9	
LCD Size	15", 4:3	17", 4:3	21.5"	10.1", 16:10	15.6" 16:9	21.5" 16:9	
Display Type	XGA	SXGA	Full HD	WXGA	HD	Full HD	
Resolution	1024 x 768	1280 x 1024	1920 x 1080	1280 x 800	1366 x 768	1920 x 1080	
Pixel pitch	0.297mm (H) x 0.297mm (V)	0.264mm (H) x 0.264mm (V)	0.248mm (H) x 0.248mm (V)	0.1695 x 0.1695 mm	0.252 x 0.252 mm	0.24795 x 0.24795 mm	
Luminance	250 cd/m ²	350 cd/m ²	250 cd/m ²	350 cd/m ²	220 cd/m ²	250 cd/m ²	
Contrast ratio	700	800	1000	800	500	2000	
Viewing angle	70 (U), 70 (D), 80 (L), 80 (R)	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 85 (L), 85 (R)	85 (U), 85 (D), 85 (L), 85 (R)	20 (U), 45 (D), 45 (L), 45 (R)	89 (U), 89 (D), 89 (L), 89 (R)	
Response time	16 ms	30 ms	5 ms	30 ms	7 ms	35 ms	
Backlight	LED	LED	LED	LED	LED	LED	
Touch Type	5 Wires resistive	5 Wires resistive	5 Wires resistive	Projective Capacitive	Projective Capacitive	Projective Capacitive	
Touch Light Transmission	80 %	80 %	80 %	86 %	86 %	86 %	
Touch Controller				USB touch	USB touch	USB touch	
SBC	EBM-BYT	EBM-BYT	EBM-BYT	BCX12	BCX11	BCX11	
Processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Atom™ Z3735F 1.33GHz processor	Intel® Atom™ Z3735F 1.33GHz processor	Intel® Atom™ Z3735F 1.33GHz processor	
System Chipset	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC				
I/O Chipset	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	ENE IO3737LU	ENE IO3737LU	ENE IO3737LU	
System Memory	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB	Onboard DDR3L 2GB	Onboard DDR3L 2GB	Onboard DDR3L 2GB	
Expansion	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Line-Out	1 x Line-Out	1 x Line-Out	
Storage	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x Onboard 32GB eMMC	1 x Onboard 32GB eMMC	1 x Onboard 32GB eMMC	
USB	1 x USB 3.0, 3 x USB 2.0	1 x USB 3.0, 3 x USB 2.0	1 x USB 3.0, 3 x USB 2.0	2 x USB 2.0	2 x USB 2.0	2 x USB 2.0	
COM Port	1 x RS-232/422/485	1 x RS-232/422/485	1 x RS-232/422/485	N/A	1 x RS-485	1 x RS-485	
Other				1 x HDMI Output 1 x Onboard WiFi 802.11 b/g/n	1 x HDMI Output 1 x Onboard WiFi 802.11 b/g/n	1 x HDMI Output 1 x Onboard WiFi 802.11 b/g/n	
Display Chipset	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Gen7 HD Graphic	Intel® Gen7 HD Graphic	Intel® Gen7 HD Graphic	
Display Resolution	DP: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	DP: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	DP: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	HDMI: Max. resolution 1920x1080 @ 60Hz	HDMI: Max. resolution 1920x1080 @ 60Hz	HDMI: Max. resolution 1920x1080 @ 60Hz	
Audio	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC5645-CGT	Realtek ALC5645-CGT	Realtek ALC5645-CGT	
Audio Interface	Line-Out 2 x 2W Speaker Output	Line-Out 2 x 2W Speaker Output	Line-Out 2 x 2W Speaker Output	Line-Out 2 x 1W (Optional)	Line-Out 2 x 1W (Optional)	Line-Out 2 x 1W (Optional)	
Ethernet	2 x Intel® I210IT	2 x Intel® I210IT	2 x Intel® I210IT	1 x Microship LAN9512	1 x Microship LAN9512	1 x Microship LAN9512	
Power Connector	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	DC Jack, +19V	DC Jack, +19V	DC Jack, +19V	
Power Type	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	ATX	ATX	ATX	
Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz; Output: 65W Adapter (19V @ 3.42A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz; Output: 65W Adapter (19V @ 3.42A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz; Output: 65W Adapter (19V @ 3.42A Adapter)	
Construction (Front, Rear)	White Plastic, Gray Plastic	White Plastic, Gray Plastic	White Plastic, Gray Plastic	Metal	Metal	Metal	
Dimension	351 X 319 X 54mm	391.5 X 364.5 X 59mm	542 X 382 X 63mm	255.2 x 169.4 x 33.3mm	391 x 249 x 37mm	505 x 303.3 x 41.7mm	
Weight	4.9Kgs	5.9Kgs	7.2Kgs	1.5kgs	4Kgs	6Kgs	
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	
Storage Temperature	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 60°C (14°F ~ 140°F)	-10°C ~ 60°C (14°F ~ 140°F)	-10°C ~ 60°C (14°F ~ 140°F)	
Certification	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	
OS Information	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 7, Win 8, Linux	Win 8, Android, Linux	Win 8, Android, Linux	Win 8, Android, Linux	



Rity POS Solution

An All-in-One Intelligent Fanless Point of Sale System for Small Retail Business

- 1 Optional secondary Display via HDMI or VGA
- 2 MSR Card Reader (optional) for processing ID cards or credit cards
- 3 5-wire Resistive Touch (Optional Multi-touch P-Cap)
- 4 Front IP-65 & Back IP-41 Panel
- 5 1 x RJ-11 at rear I/O for Cash Drawer control, 4 x USB 2.0, optional 2 x USB on Left Side
- 6 Stand (optional) is designed for this POS system to fit an environment with limited space



RityPOS Series								
Model Number	Rity82	Rity102	Rity122	Rity152	RITY8R1	RITY10R1	RITY12R	RITY15R
LCD Size	8", 16:9	10.1"	12.1", 4:3	15", 4:3	8" (16:9)	10.1" (16:9)	12.1" (4:3)	15" (4:3)
Display Type	WSVGA	WXGA	XGA	XGA	WSVGA	WXGA	XGA	XGA
Resolution	1024 x 600	1366 x 768	1024 x 768	1024x768	1024 x 600	1366 x 768	1024 x 768	1024 x 768
Pixel pitch	262K color by 6 bit RGB signal	262K color by 6 bit RGB signal	16.2M	16.2M	262K color by 6 bit RGB signal	262K color by 6 bit RGB signal	16.2M	16.2M
Luminance	500 cd/m ²	200 cd/m ²	600 cd/m ²	400 cd/m ²	500 cd/m ²	200 cd/m ²	600 cd/m ²	400 cd/m ²
Contrast ratio	700	1300	700	700	700	1300	700	700
Viewing angle	75(H) x 65(V)	85(H) x 85(V)	80(H) X 70(V)	80(H) X 70(V)	75 (H) x 65 (V)	85 (H) x 85 (V)	80 (H) x 70 (V)	80 (H) x 70 (V)
Response time	8 ms	8 ms	8 ms	8 ms	8 ms	8 ms	8 ms	8 ms
Backlight	LED	LED	LED	LED	LED	LED	LED	LED
Touch Type	5 Wires resistive /PCT	5 Wires resistive /PCT	5 Wires resistive /PCT	5 Wires resistive /PCT	5-wire RES/ PCAP	5-wire RES/ PCAP	5-wire RES/ PCAP	5-wire RES/PCAP
Touch Light Transmission	RES 75 % / PCT 90%	RES 75 % / PCT 90%	RES 75 % / PCT 90%	RES 75 % / PCT 90%	RES 75%/ PCAP 90%	RES 75% / PCAP 90%	RES 75% / PCAP 90%	RES 75%/ PCAP 90%
Touch Controller	Onboard USB touch (PenMount)/ USB touch (EETI)		Onboard USB touch (PenMount) / USB touch (EETI)		EETI/ PenMount	EETI/ PenMount	EETI/ PenMount	EETI/ PenMount
Processor	Intel® Atom™ E3845 4-Core 1.91GHz processor		Intel® Atom™ E3845 4-Core 1.91GHz processor		Freescale i.MX6 Cortex-A9 Dual lite/ Quad 1GHz CPU			
System Chipset	Intel® Valleyview SoC		Intel® Valleyview SoC		Freescale i.MX6 Cortex-A9 Dual lite/ Quad 1GHz CPU			
System Memory	1 x 204-Pin DDR3L 1066MHz SO-DIMMup to 8 GB		1 x 204-Pin DDR3L 1066MHz SO-DIMMup to 8 GB		1GB RAM (Dual Lite), up to 2GB RAM (Quad)			
Expansion	1 x Mini PCIe Supports mSATA							
Storage	1 x mSATA	1 x optional SATA Slim SSD 1 x mSATA	1 x 2.5" Drive Bay, 1 x mSATA		4GB eMMC, up to 8GB			
I/O	1 x USB 2.0, 3 x USB 3.0 2 x RS-232/422/485 (BIOS)	1 x USB 2.0, 3 x USB 3.0 2 x RS-232/422/485 (BIOS), 1 x RS-232	3 x USB 2.0, 3 x USB 3.0 2 x RS-232/422/485 (BIOS), 1 x RS-232		External I/O Connector 2x USB2.0, 1x Micro USB OTG, 2x RS232, 1x Gb Ethernet, 1x Micro SD slot, 1x HDMI, 1x RJ11, 1xDC Jack Internal I/O Connector 3x USB header, 1x mPCIe, 1x SIM card slot, 2x Speaker header(4ohm/0.5W)			
Display Chipset	Intel® Pineview Integrated Graphics Supports dual display	Intel® Cedarview Integrated Graphics Supports dual display	Intel® Cedarview Integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	Dual Lite(LVDS+HDMI), Quad(VGA+HDMI/ LVDS+HDMI/ VGA+LVDS) 1x Dual Channel 24-bit LVDS/ 1x VGA			
Audio	Intel® Valleyview SoC integrated supports 2-CH		Intel® Cedarview SoC integrated supports 2-CH	Intel® Valleyview SoC integrated supports 5.1-CH	Wolfson WM8962			
Audio Interface	2 x 2W Speaker Output		Line-Out 2 x 2W Speaker Output					
Ethernet	2 x Intel® I210AT		2 x Intel® I210AT		LAN1: From i.MX6 MAC, PHY is Micrel KSZ9031RNX/ LAN2: Intel 82574L by PCIe Interface (Optional)			
Power Connector	Mini-DIN 4P for DC in w/ lock type +19V ~ +24V		Mini-DIN 4P for DC in w/ lock type +19V ~ +24V		12~24V DC Input			
Power Type	AT/ATX (ATX is default setting)		AT/ATX (ATX is default setting)		2.5mm DC Jack			
Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)		Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)					
Construction (Front, Rear)	Black Coverlens, Black		Black Coverlens, Black		Black Coverlens, Black			
Operating Temp	0°C ~ 35°C (32°F ~ 95°F)		0°C ~ 35°C (32°F ~ 95°F)		0°C ~ 40°C (32°F ~ 104°F)			
Storage Temp	-10°C ~ 60°C (14°F ~ 140°F)		-10°C ~ 60°C (14°F ~ 140°F)		-10°C ~ 60°C (14°F ~ 140°F)			
Dimension (L x W x H)	231.7 X 149.5 X 42mm	260 X 178 X 42mm	322 X 250 X 47mm	362.1 X 290.08 X 51mm	231.7 x 149.5 x 42mm	260 x 178 x 42mm	322 x 250 x 47mm	362.1 X 290.08 X 51mm
Weight	4.9Kgs	4.9Kgs	5Kgs/with Stand	6Kgs/with Stand	1.48 Kgs	1.8 Kgs	2.35 Kgs	6Kgs/with Stand
Certifications	CE, FCC Class A, VCCI		CE, FCC Class B, VCCI		CE Class A/ FCC Class A			
OS Information	Win 8, Win 7, POS Ready, Linux, Android		Win 8, Win 7, POS Ready, Linux, Android		Android 4.4.2/ Ubuntu 12.04/ Yocto 1.5.1			



Mini POS Terminal

- 10.1" 16:9 with PCT Touch
- Integrated 58/80mm Thermal Printer (Optional)
- Integrated NFC Compliant with RFID/Felica
- Integrated 5" 2nd Customer Screen
- 4 Full Speed USB 2.0
- RJ-11 for Cash Drawer
- 2 Powered COM in DB9
- Multiple OS Supported

Semi-Rugged Tablet

- Multiple OS Supported
- Battery Hot-Swappable
- 4-Foot Drop Resistance
- Optional Data Collecting Accessories

Retail | Hospitality | Warehousing

Open Frame Tablet
High Performance Bezel-Free Tablet
For Easy Installation

Multi-OS Support

- Windows 8.1, Windows 10
- Android 4.4, Android 5.1
- Ubuntu 14.04

Easy Installation

- Intel® Atom™ Z3735F with low TDP -> Simple Thermal Solution
- Slim Design -> Easily Fit into Different Consoles
- Bezel-free -> Design Flexibility

More Scalability with Internal I/O

- RS 232 or RS 485
- GPIO
- Micro SD Card Slot



Mini POS Terminal	
Model Number	RiPac-10P1
Processor	Intel® Atom™ Z3735F 1.33GHz Processor
System Memory	2GB DDR3L SDRAM
Storage	32G (Default)/64G (Optional) eMMC
Operating System	Windows 10, Linux, Android
LCD Panel	10.1" LCD, 5" LCD (customer facing)
Resolution	1280 x 800 (10.1"), 1280 x 720 (5")
Touch Screen	Projected Capacitive Touch
Wireless LAN	Built-in IEEE 802.11 b/g/n
Bluetooth	Built-in Bluetooth 4.0 + Class 1
Serial Port	2 x RS-232 in DB9, Powered with 5/12V
USB Port	4 x USB2.0
LAN Port	1 x RJ45
Cash Drawer	1 x RJ11
NFC	ISO/IEC 14443 A/B, 15693/18092
Thermal Printer	Printing Method: Thermal Dot Line Printing Resolution: (W) 8 Dots/mm, (H) 8 Dots/mm Maximum Print Speed: 200mm/s Maximum Print Width: 72mm Maximum Paper Width: 80mm Type of Paper Cutting: Full Cut & Partial Cut
Power Type	19.5V/6.15A 120W
Dimensions	299 (L) x 316.2 (W) x 148.9 (H)mm
Weight	3KG±10%
Operating Temperature	5°C~40°C
Storage Temperature	-10°C~60°C
Operating Humidity	0~95% non-condensing
Certifications	CE/FCC

Semi-Rugged Tablet	
Model Number	RiTab-10T1
Processor	Intel® Atom™ Z3735F 1.33GHz Processor
System Memory	Onboard 2GB DDR3L
Storage	Onboard 32GB eMMC, Optional 64GB
Operating System	Win 10 / Android 4.4
LCD Size/Resolution	10.1", WXGA/1280x800
Luminance	350 cd/m²
Touch Screen	10 Points Projective Capacitive
Wireless LAN	802.11 b/g/n
Bluetooth	Bluetooth 4.0 Dual Mode
WWAN	Optional 3G (WCDMA/HSDPA/HSUPA/HSPA+)
Camera	5MP Rear Camera with Auto Focus
NFC	ISO/IEC 14443 A/B, 15693/18092
Barcode Scanner	Full: 2D Barcode Scanner (Support 1D, PDF417 and 2D Bar Codes); Basic: N/A
Smart Card Reader	Full: Half-Slot, Reads ISO 7816-1,2,3&4, T=0 & T=1; 5V Smart Card; Basic: N/A
MSR	Full: 3 Track Reader, Triple DES and AES Encryption, DUKPT Key Management; Basic: N/A
Downside I/O Connectors	1 x Audio Jack, 1 x USB 2.0 Type A, 1 x Micro SD, 1 x DC Jack, 1 x Micro HDMI Output, 1 x Micro SIM Card Slot
Control Button	1 x Power Button, 1 x G Sensor Lock Button, 2 x Barcode Scanner Trigger
LED Indicator	1 x Power/Battery
Power Requirement	DC Jack +19V
Battery	Hot-Swappable 27.75W Li-Polymer Battery (3S1P) Internal 3.7W Li-Polymer Battery (2S1P)
Battery Operating Time	8 hours
Construction	Rubber + Plastic
Dimensions	281.9mm x 201mm x 20.8mm
Weight	1Kg
Operating Temperature	0°C~40°C (32°F~104°F)
Storage Temperature	-10°C~60°C (14°F~140°F)
IP Rating	IP54 (Without MSR & SCR)
Certifications	CE, FCC Class B, VCCI

OFT Series				
Model Number	OFT-07W01	OFT-10W01	OFT-15W01	OFT-21W01
LCD Size	7"	10.1"	15.6"	21.5"
Resolution	1280 x 800	1280 x 800	1920 x 1080	1920 x 1080
Luminance	300	350	220	250
Viewing angle		170° (H/V)	45°(H+)/45°(H-)/20°(V+)/45°(V-)	178°(H/V)
Touch Type	PCAP	PCAP	PCAP	PCAP
Processor	Intel® Atom™ Processor Z3735F 1.33GHz Quad Core CPU	Intel® Atom™ Processor Z3735F 1.33GHz Quad Core CPU		
System Memory	2GB DDR3L RAM	2GB DDR3L RAM		
Other	Optional 802.11 b/g/n WiFi	Optional 802.11 b/g/n WiFi		
Storage	8GB or 32GB eMMC	8GB or 32GB eMMC		
External I/O Connector	2x USB2.0, 1x micro USB Client(Android only), 1x 10/100 Ethernet, 1x HDMI, 1x Head phone jack, 1x Micro SD slot, 1x DC jack	2 x USB 2.0, 1 x micro USB Client(Android only), 1 x 10/100 Ethernet, 1 x HDMI, 1 x Head phone jack, 1 x Micro SD slot, 1 x DC jack, 1 x RS232(TX/RX) or RS485		
Internal I/O Connector	1x RS232(TX/RX) or RS485, 1x 16 bit GPIO interface, 2x USB interface, 2x speaker interface (1.2W stereo), 1x A-MIC interface, 1x Touch Button connector, 1x DC input 4pin header, 1x I²C interface(optional)	1 x 16 bit GPIO interface, 1 x USB interface, 1 x eDP & Dual channel 24bit LVDS, 1 x backlight control & power, 2 x speaker interface (1.2W stereo), 1 x A-MIC interface, 1 x Touch Button connector, 1 x DC input 4pin header, 1 x I²C interface(optional)		
Power Requirement	19V DC input, Optional 12V or 24V DC input	19V DC input, Optional 12V or 24V		
Power Type	DC Jack, DC input 4pin header	DC Jack, DC input 4pin header, optional Power Over Ethernet 802.3AT	DC Jack, DC input 4pin header	DC Jack, DC input 4pin header
Operating Temp	0°C ~ 40°C	0°C ~ 40°C		
Storage Temp	-20°C ~ 60°C	-20°C ~ 60°C		
Operating Humidity	0% ~ 90% Relative Humidity, Non-condensing	0% ~ 90% Relative Humidity, Non-condensing		
Software Support	Windows 8.1/ Windows 10/ Android 4.4/ Android 5.1/ Ubuntu 14.04	Windows 8.1/ Windows 10/ Android 4.4/ Android 5.1/ Ubuntu 14.04		

- Cost effective and less cable
- Up to 100m Connectivity
- One-to-many display
- Centralized Configuration



Tx Module – EMS-BYT-DOE
Rx Module – IPM-15W0, IPM-1001 and IPM-1201

DoE Solution

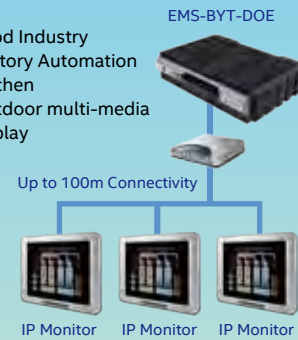
Display Over Ethernet (DoE) Solution

More connectivity
A way to deliver HDMI, Audio and USB signal over LAN cabling

- Food Industry
- Factory Automation
- Kitchen
- Outdoor multi-media display



Ultimate Cable



Offers a convenient and reliable solution for HDMI to DoE

IP-TBOX

Tiny Fanless IP Transmitter Box

- Display over Ethernet
- HDMI Input / USB Ports
- System Fan-Less Design



DoE Solution					
Model Number	IPM-15W0	IPM-1201	IPM-1202	IPM-1001	IPM-1002
LCD Size	15.6"	12.1"	12.1"	10.4"	10.4"
Display Type	WXGA	XGA	XGA	XGA	XGA
Resolution	1366 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768
Pixel pitch	0.252mm (H) x 0.252mm (V)	0.240mm (H) x 0.240mm (V)	0.240mm (H) x 0.240mm (V)	0.0685mm (H) x 0.2055mm (V)	0.0685mm (H) x 0.2055mm (V)
Luminance	300 cd/m ²	600 cd/m ²	600 cd/m ²	500 cd/m ²	500 cd/m ²
Contrast ratio	500	700	700	1000	1000
Viewing angle	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 70 (L), 70 (R)	80 (U), 80 (D), 70 (L), 70 (R)	88 (U), 88 (D), 88 (L), 88 (R)	88 (U), 88 (D), 88 (L), 88 (R)
Response time	8ms	16 ms	16 ms	25 ms	25 ms
Backlight	LED	LED	LED	LED	LED
Touch Type	Projective Capacitive	5-wire Resistive	5-wire Resistive	5-wire Resistive	5-wire Resistive
Touch Light Transmission	88%	80 %	80 %	80 %	80 %
Touch Controller	USB touch (EETI)	USB touch (PenMount)	USB touch (PenMount)	USB touch (PenMount)	USB touch (PenMount)
Processor	Aspeed AST1510 SoC	Aspeed AST1510 SoC	Aspeed AST1510 SoC	Aspeed AST1510 SoC	Aspeed AST1510 SoC
System Memory	on board 1GB DDR2 memory	on board 1GB DDR2 memory	on board 1GB DDR2 memory	on board 1GB DDR2 memory	on board 1GB DDR2 memory
USB	2 x waterproof USB 2.0 connector (optional)	2 x USB 2.0	2 x waterproof USB 2.0 connector	2 x USB 2.0	2 x waterproof USB 2.0 connector
Other	1 x waterproof HDMI Out (optional)	1 x HDMI Input 1 x HDMI Output 1 x Headphone Jack	N/A	1 x HDMI Input 1 x HDMI Output 1 x Headphone Jack	N/A
Resolution	N/A	HDMI Out:1920 x 1200 @ 60Hz	N/A	HDMI Out:1920 x 1200 @ 60Hz	N/A
Audio Interface	2 x 2W Speaker Output	2 x 2W Speaker Output	2 x 2W Speaker Output	2 x 2W Speaker Output	2 x 2W Speaker Output
Ethernet	1 x Realtek 8211	1 x Realtek 8211	1 x Realtek 8211	1 x Realtek 8211	1 x Realtek 8211
LAN Port	1 x Waterproof RJ-45 connector support IEEE 802.at	1 x RJ-45 support IEEE 802.at	1 x Waterproof RJ-45 connector support IEEE 802.at	1 x RJ-45 support IEEE 802.at	1 x Waterproof RJ-45 connector support IEEE 802.at
Power Connector	Waterproof DC in connector (optional)	DC Jack (lockable)	Waterproof DC in connector	DC Jack (lockable)	Waterproof DC in connector
Power Type	+12 ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V
Adapter	N/A	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)
Construction (Front, Rear)	Silver Stainless steel	Silver Aluminum, Black Metal	Silver Aluminum, Black Metal	Silver Aluminum, Black Metal	Silver Aluminum, Black Metal
Dimension	209 x 460 x 43.1 mm	284 x 223 x 40 mm	284 x 223 x 56 mm	265 x 201 x 40 mm	265 x 201 x 56 mm
Weight	6 Kg	2.21 kg	2.4 kg	1.95 kg	2.13 kg
Mounting Kit	VESA 100 x 100	VESA 75 x 75, 100 x 100 / Din rail (Optional)	VESA 75 x 75, 100 x 100 / Din rail (Optional)	VESA 75 x 75, 100 x 100 / Din rail (Optional)	VESA 75 x 75, 100 x 100 / Din rail (Optional)
Operating Temperature	0°C ~ 50°C (32°F~122°F)	0°C ~ 50°C (32°F~122°F)	0°C ~ 50°C (32°F~122°F)	0°C ~ 50°C (32°F~122°F)	0°C ~ 50°C (32°F~122°F)
Storage Temperature	-20°C ~ 60°C (-4°F~140°F)	-30°C ~ 70°C (-22°F ~ 158°F)	-30°C ~ 70°C (-22°F ~ 158°F)	-30°C ~ 70°C (-22°F ~ 158°F)	-30°C ~ 70°C (-22°F ~ 158°F)
Operating Humidity	10% to 95% @ 40°C, Non-condensing	5 ~ 90% Relative Humidity, Non-condensing	5 ~ 90% Relative Humidity, Non-condensing	5 ~ 90% Relative Humidity, Non-condensing	5 ~ 90% Relative Humidity, Non-condensing
IP Rating	Full IP66	IP65 Compliant Front Panel, IP41 Rear Box	Full IP65	IP65 Compliant Front Panel, IP41 Rear Box	Full IP65
Vibration Test	1.5Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis	5 Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis	5 Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis	5 Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis	5 Grms, IEC 60068-2-64, Random, 5 ~ 500Hz, 30min/axis
Shock Test	50Grms, IEC 60068-2-27, Half Sine, 11ms	20 Grms, IEC 60068-2-27, Half Sine, 11ms	20 Grms, IEC 60068-2-27, Half Sine, 11ms	20 Grms, IEC 60068-2-27, Half Sine, 11ms	20 Grms, IEC 60068-2-27, Half Sine, 11ms



RISC Panel				
Model Number	RPC-05R1	FPC-08R1	BFC-10R1	RPC-10W1
LCD Size	5.7"	8"	10.1"	10"
Display Type	SVGA	SVGA	WSVGA	WSVGA
Resolution	640 x 480	800 x 600	1024 x 600	1024 x 600
Pixel Pitch	0.06mm (H) x 0.18mm (V)	0.0675mm (H) x 0.2025mm (V)	0.2715mm (H) x 0.2088mm (V)	0.1905mm (H) x 0.189mm (V)
Luminance	300 cd/m ²	250 cd/m ²	200 cd/m ²	200 cd/m ²
Contrast Ratio	400	200	300	500
Viewing Angle	60 (U), 40 (D), 70 (L), 70 (R)	50 (U), 70 (D), 70 (L), 70 (R)	15 (U), 45 (D), 45 (L), 45 (R)	20 (U), 20 (D), 45 (L), 45 (R)
Response Time	15 ms	10 ms	30 ms	3 ms
Backlight	LED	LED	LED	LED
Touch Type	4 Wires resistive	4 Wires resistive	Projective Capacitive	4 Wires resistive
Touch Light Transmission	80 %	80 %	93 %	80 %
Touch Controller	MC13892	MC13892	USB touch (EETI)	MC13892
SBC	RSC-IMX51	RSC-IMX51	RSC-IMX51	RSC-IMX51
Processor	Freescale i.MX51 Multimedia Processor	Freescale i.MX51 Multimedia Processor	Freescale i.MX51 Multimedia Processor	Freescale i.MX51 Multimedia Processor
System Chipset	i.MX51	i.MX51	i.MX51	i.MX51
System Memory	1 x Onboard 512MB DDR2	1 x Onboard 512MB DDR2	1 x Onboard 512MB DDR2	1 x Onboard 512MB DDR2
Storage	1 x On board 4GB eMMC	1 x On board 4GB eMMC	1 x On board 4GB eMMC	1 x On board 4GB eMMC
USB	2 x USB 2.0 1 x Mini-USB Connector	2 x USB 2.0 1 x Mini-USB Connector	2 x USB 2.0 1 x Mini-USB Connector	2 x USB 2.0 1 x Mini-USB Connector
COM Port	1 x RS232(Debug Port) 1 x RS-232/422/485	1 x RS232 (Debug Port) 1 x RS-232/422/485	1 x RS232 (Debug Port) 1 x RS-232/422/485	1 x Debug Port, 1 x RS-232/422/485
Other	2 x Speaker 1 x RJ-45 1 x On/Off Switch 1 x Reset button 1 x SD Socket Support SDHC (eSDHC-2)	2 x Speaker 1 x RJ-45 1 x On/Off Switch 1 x Power-on LED 1 x SD Socket Support SDHC (eSDHC-2)	2 x Speaker 1 x RJ-45 1 x On/Off Switch 1 x Power-on LED 1 x SD Socket Support SDHC (eSDHC-2)	2 x Speaker 1 x RJ-45 1 x On/Off Switch
Display Chipset	IMX51 (Supports optional dual display)	IMX51 (Supports optional dual display)	IMX51 (Supports optional dual display)	IMX51
Display Resolution	HDMI: Max. resolution 720P @ 60Hz LVDS: Max. resolution 640x480 @ 60Hz	HDMI: Max. resolution 720P @ 60Hz LVDS: Max. resolution 800x600 @ 60Hz	HDMI: Max. resolution 720P @ 60Hz LVDS: Max. resolution 1024x600 @ 60Hz	HDMI: Max. resolution 720P @ 60Hz LVDS: Max. resolution 1024x600 @ 60Hz
Audio	SGTL5000	SGTL5000	SGTL5000	SGTL5000
Audio Interface	2 x 2W Speaker Output	2 x 2W Speaker Output	2 x 2W Speaker Output	2 x 2W Speaker Output
Ethernet	1 x SMSC LAN8710A	1 x SMSC LAN8710A	1 x SMSC LAN8710A	1 x SMSC LAN8710A
Power Connector	Lockable DC Jack, +12V	Lockable DC Jack, +12V	Lockable DC Jack, +12V	Lockable DC Jack, +12V
Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter
Construction (Front, Rear)	Black, Black	Black, Black	Silver Aluminum, Black	Black, Black
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
Storage Temp.	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
Dimension	145.8 x 117 x 39.3 mm	192 x 150 x 42.2 mm	252.8 x 164 x 41.3 mm	252.8 x 164 x 41.3mm
Weight	0.61 Kgs	1.9 Kgs	1.53 Kgs	1.53 Kgs
Certification	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A
OS Information	Android 2.3.4 Ubuntu 10.04 WIN CE 6.0	Android 2.3.4 Ubuntu 10.04 WIN CE 6.0	Android 2.3.4 Ubuntu 10.04 WIN CE 6.0	Android 2.3.4 Ubuntu 10.04 WIN CE 6.0

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- Adjustable Speed & Direction, RSS Supported
- Multilingual UI Supported



OPS		
Model Number	SOPM-QM87	SOPM-HM65
Board	EPIC board	EPIC board
Processor	Onboard Intel® 4th Generation Core™ i7/i5/i3, Pentium® and Celeron® Processors. (Max TDP 37W)	Intel® rPGA988 Socket(Socket G2) 2nd/3rd Generation Core™ i7/i5/i3, Pentium® and Celeron® Processors (Max TDP 35W)
System Chipset	Intel® QM87 Express Chipset	Intel® HM65 Express Chipset
System Memory	2 x 204-Pin DDR3L 1333/1600 MHz SO-DIMM supports up to 16 GB	1 x 204-Pin DDR3L 1333/1600 MHz SO-DIMM supports up to 8 GB
Expansion	1 x Half Size Mini PCI-e Support mSATA (Switch Through BIOS)	1 x Half Size Mini PCI-e socket
Storage	1 x 2.5" Drive Bay (7mm)	1 x 2.5" Drive Bay (7mm)
USB	2 x USB 3.0	2 x USB 2.0
Other	1 x Reset 1 x Power Button 1 x HDD LED 2 x SMA connector	1 x Reset 1 x Power Button 1 x HDD LED 2 x SMA connector
Display	Intel® 4th Generation CPU integrated HDMI + DP	Intel® 2nd/3rd Generation CPU integrated HDMI + DP
Audio	Mic-In and Line-Out	Mic-In and Line-Out
Ethernet	1 x Intel® I217LM	1x Realtek RTL8111E
Power Connector	80-pin right angle blind mate plug connector	80-pin right angle blind mate plug connector
Power Requirement	+12 ~ 19V (from monitor)	+12 ~ 19V (from monitor)
Power Mode	ATX	ATX
Operating Temp	(w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)	(w/HDD), ambient w/ air flow 0°C ~ 40°C (32°F ~ 104°F)
Storage Temp	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)
Operating Humidity	0% ~ 90% Relative Humidity, Non-condensing	0% ~ 90% Relative Humidity, Non-condensing
Construction	Metal	Metal
Dimension (L x W x H)	200 x 119 x 30mm	200 x 119 x 30mm

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