

# Empowering a **SMART FUTURE** Avalue IoT Ready



- Healthcare
- Retail
- Transportation
- Manufacturing
- Surveillance
- Factory Automation
- Gaming

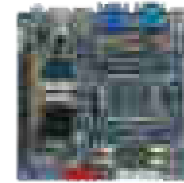
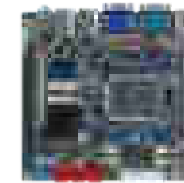
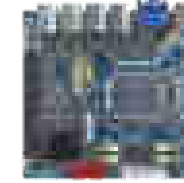
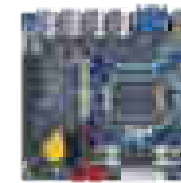
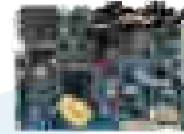
# 3.5" Single Board Computer



Model Number	ECM-CFS	ECM-KBLH	ECM-SKLH	ECM-WHL	ECM-KBLU	ECM-SKLU	ECM-EHL	ECM-EHL3	ECM-TGU	ECM-APL
<b>Processor</b>	8/7th Gen Intel® Core™ i7/i5/i3/Celeron® rPGA processor	7th Gen Intel® Core™ i7/i5/i3/Celeron® processor	6th Gen Intel® Core™ i7/i5/i3/Celeron® processor	8th Gen Intel® Core™ i7/i5/i3/Celeron® Processor (with CPU Bottom Mounted)	7th Gen Intel® Core™ i7/i5/i3/Celeron® Processor	6th Gen Intel® Core™ i7/i5/i3/Celeron® processor	Onboard Intel® Pentium®/Celeron®/Atom™ SoC BGA Processor (Elkhart Lake Platform 4.5-12W)- (with CPU Bottom Mounted)	Onboard Intel® Pentium®/Celeron®/Atom™ SoC BGA Processor (Elkhart Lake Platform 4.5-12W) (with CPU Bottom Mounted)	Onboard 11th Gen Intel® Tiger Lake U Core™ & Celeron® BGA Processor (with CPU Bottom Mounted)	Intel® Pentium®/Celeron®/Atom™ SoC Processor
<b>System Chipset</b>	Intel® Q370/H310 Express Chipset	Intel® QM175 Express Chipset	Intel® QM170 Express Chipset	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>System Memory</b>	1x 260-Pin DDR4 2400MHz SO-DIMM up to 32 GB	1x 260-Pin DDR4 2400MHz SO-DIMM up to 16 GB	1x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	2X 260-pin DDR4 2400MHz SO-DIMM up to 64GB	1x 260-Pin DDR4 2133MT/s SO-DIMM Up to 16 GB	1x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	1x 260-pin DDR4 SODIMM, supports Up to 32GB DDR4 3200MTs SDRAM (non ECC Supported)	1x 260-pin DDR4 SODIMM, supports Up to 32GB DDR4 3200MTs SDRAM (non ECC Supported)	1x 260-pin DDR4 SODIMM, supports Up to 8 GB SDRAM (non ECC Supported)	1x 204-pin DDR3L 1600 & 1333MHz SO-DIMM supports up to 8 GB SDRAM (Non-ECC)
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec.	H/W Reset, 1sec. ~ 65535sec.	H/W Reset, 1sec. ~ 65535sec.	H/W Reset, 1sec. ~ 65535sec.	H/W Reset, 1sec. ~ 65535sec.	H/W Reset, 1sec. ~ 65535sec.	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
<b>Expansion</b>	1x Mini PCIe Supports mSATA (Q370 support mPCIe/mSATA/USB2.0 device, H310 support mSATA/USB2.0 device)	1x Mini PCIe Supports mSATA 1x M.2 (2242) B-Key	1x Mini PCIe Supports mSATA 1x M.2 (2242) B-Key	1x M.2 (2242/3042) B Key, (SATA, USB3.0/2.0, SIM Slot) 1x M.2 E Key 2230, (PCIe, USB2.0, CNVi)	1x Full Size mPCIe, 1x M.2 (2242/3042) B Key	1x Mini PCIe Supports mSATA 1x M.2 (2242) B-Key	1x M.2 (2242) B-Key 1x M.2 (2230) E-Key	1x M.2 (2242) B-Key 1x M.2 (2230) E-Key 1x M.2 (2260) M-Key	1x M.2 (2242) B-Key 1x M.2 (2230) E-Key 1x M.2 (2260) M-Key	1x Mini PCIe (for PCIe & USB2.0) 1x M.2 (2242) B-Key
<b>Storage</b>	1x mSATA Supported from Mini PCIe	1x mSATA Supported from Mini PCIe, 1x M.2 (M.2 support SATA or PCIe x1/USB)	1x mSATA Supported from Mini PCIe, 1x M.2 (M.2 support SATA or PCIe x1/USB)	1x SATA III 1x M.2 B Key (2242)	1x mSATA support from Mini PCIe, 1x M.2 (M.2 support SATA or PCIe x1/USB)	1x mSATA Supported from Mini PCIe 1x M.2 (M.2 support SATA or PCIe x1/USB)	1x M.2 (2242) B-Key 1x SATA III	1x M.2 (2242) B-Key 1x SATA III	1x M.2 (2242) B-Key 1x SATA III	1x M.2 (M.2 support SATA or PCIe x1/USB)
<b>I/O</b>	2x USB 2.0, 4x USB 3.1, 2x SATA III, 2x RS-232, 1x 8bit GPIO, 1x LPC, 1x SPI	2x USB 2.0, 4x USB 3.0, 2x SATA III, 1x RS-232, 1x RS-232/422/485, 1x 8bit GPIO, 1x LPC, 1x SPI	2x USB 2.0, 4x USB 3.0, 2x SATA III, 1x RS-232, 1x RS-232/422/485, 1x 8bit GPIO, 1x LPC, 1x SPI	2x USB 2.0, 4x USB 3.1, 1x SATA III, 1x 8-bit GPIO, 1x LPC, 1x SPI	2x USB 2.0, 4x USB 3.0, 1x SATA III, 5x RS-232, 1x RS-232/422/485, 1x 8bit GPIO, 1x LPC, 1x SPI	2x USB 2.0, 4x USB 3.0, 1x SATA III, 5x RS-232, 1x RS-232/422/485, 1x 8bit GPIO, 1x LPC, 1x SPI	4x USB 2.0, 2x USB 3.1 Gen2 1x SATA III, 3x RS-232, 1x RS-422/485 1x 8bit GPIO, 1x e-SPI	6x USB 2.0, 2x USB 3.1 Gen2 1x SATA III, 4x RS-232, 2x RS-232/422/485 1x 8bit GPIO, 1x e-SPI, 1x SPI	4x USB 2.0, 4x USB 3.1 Gen2 1x SATA III, 4x RS-232, 2x RS-232/422/485 1x 8bit GPIO, 1x LPC, 1x SPI	1x USB 2.0, 4x USB 3.0, 1x SATA III, 5x RS-232, 1x RS-232/422/485, 1x Micro SIM Card Slot, 1x 8bit GPIO, 1x LPC, 1x SPI
<b>Display Chipset</b>	Intel® UHD Graphics 630 Intel® UHD Graphics 610 H310 only support Dual Display: LVDS+HDMI1(default LVDS enable) or HDMI1+HDMI2 (LVDS disabled) Q370 support Triple Display	Intel® Kaby lake SoC integrated Graphics Supports triple display	Intel® Skylake SoC integrated Graphics Supports triple display	Intel® UHD Graphics 620 (i7-8665UE, i5-8365UE, i3-8145UE), Intel® UHD Graphics 610 (4305UE) support triple display	Intel® HD Graphics 620 (i7-7600U, i5-7300U, i3-7100U), Intel® HD Graphics 610 (Celeron 3965U) support triple display	Intel® Skylake U SoC integrated Graphics Supports triple display	Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics HDMI, DP, eDP Supports triple display	Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics 2x DP++, 1x 2CH LVDS/eDP (default LVDS) Supports triple display	Intel® Tiger Lake UP3 SoC Processor integrated Gen12 graphics 2x DP++, 1x 2CH LVDS, 1x eDP Supports four display	Intel® Apollo Lake SoC integrated Gen9 LP Graphics Supports triple display
<b>Resolution</b>	Dual HDMI: Max. resolution 4096 x 2304 @ 30Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	Dual HDMI: Max. resolution 4096 x 2160 @ 24Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	Dual HDMI: Max. resolution 4096 x 2160 @ 24Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	Dual HDMI: Max. Resolution 4096 x 2160 @ 24/30Hz, LVDS: Max. Resolution 1920 x 1080 @ 60Hz	Dual HDMI: Max. Resolution 4096 x 2160 @ 24Hz, LVDS: Max. Resolution 1920 x 1080 @ 60Hz	Dual HDMI: Max. resolution 4096 x 2160 @ 24Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	HDMI: Max. resolution 4096 x 2160 @ 24Hz DP: Max. resolution 4096 x 2160 @ 60Hz eDP: Max. resolution 4096 x 2160 @ 60Hz	2x DP++: Max. resolution 4096 x 2304 @ 60Hz Dual Channel 18/24bits LVDS Max. resolution 1920 x 1080 @ 60Hz eDP Max. resolution 4096 x 2160 @ 60Hz	2x DP++: Max. resolution 4096 x 2304 @ 60Hz Dual Channel 18/24bits LVDS Max. resolution 1920 x 1080 @ 60Hz eDP Max. resolution 4096 x 2160 @ 60Hz	Dual HDMI: Max. resolution 3840 x 2160 @ 30Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz
<b>Audio Chipset</b>	Realtek Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Audio Amp.:2W	Realtek Audio code Audio Amp.:2W	Realtek Audio code Mic-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out	Tempo Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out	Tempo Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out
<b>Ethernet Chipset</b>	1x Intel® I211AT 1x Intel® I219LM	1x Intel® I210AT 1x Intel® I219LM	1x Intel® I210AT 1x Intel® I219LM	1x Intel® I210AT 1x Intel® I219LM	1x Intel® I211AT 1x Intel® I219LM	1x Intel® I225LM/IT 1x Intel® I210AT/IT	1x Intel® I225LM 2x Intel® I210AT	1x Intel® I225LM 2x Intel® I210IT	2x Intel® I211AT (Intel I210IT for WT)	
<b>Power Requirement</b>	+12V	+12V	+12V	+12V	+12V ~ +26V	+12V ~ +26V	+9V ~ +36V	+9V ~ +36V	+12V ~ +24V	+12V ~ +26V
<b>Power Type</b>	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
<b>Operating Temperature</b>	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)	0°C ~ 60°C (32°F ~ 140°F) -40°C ~ 85°C (-40°F ~ 185°F)-For wide temperature CPU SKU	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F) -20 ~ 60°C (-4 ~ 140°F) For wide temperature CPU SKU	0°C ~ 60°C (32°F ~ 140°F) -40°C ~ 85°C (-40°F ~ 185°F) (Optional for Wide Temp.)
<b>Dimension (L x W)</b>	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)

# 3.5" Single Board Computer

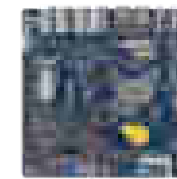
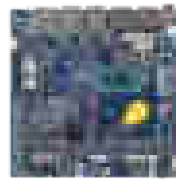
# Mini-ITX



Model Number	ECM-APL2-A	ECM-BSWA	ECM-BYT2	ECM-BYT	ECM-KA
<b>Processor</b>	Intel® Pentium®/Celeron®/Atom™ SoC Processor (with CPU Bottom Mounted)	Intel® Pentium®/Celeron® processor	Intel® Atom™/Celeron® processor (with CPU Bottom Mounted)	Intel® Atom™/Celeron® processor	AMD G-Series processor
<b>System Chipset</b>	N/A	N/A	N/A	N/A	N/A
<b>System Memory</b>	1 x 204-pin DDR3L 1600 & 1333MHz SO-DIMM supports up to 8 GB SDRAM (Non-ECC)	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	1 x 204-Pin DDR3 1600MHz SO-DIMM up to 8 GB
<b>Watchdog Timer</b>	H/W Reset, 1sec. ~ 65535sec. and 1sec./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	H/W Reset, 1sec. ~ 65535sec.
<b>Expansion</b>	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	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	1 x Mini PCIe Supports mSATA
<b>Storage</b>	1 x mSATA Supported from Mini PCIe	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	1 x CompactFlash Type I/II Socket 1 x mSATA Supported from Mini PCIe
<b>I/O</b>	2 x USB 2.0, 4 x USB 3.0, 1 x SATA III, 2 x RS-232/422/485, 1 x 8bit GPIO, 1 x LPC, 1 x SPI	2 x USB 2.0, 4 x USB 3.0, 1 x SATA III, 5 x RS-232, 1 x RS-232/422/485, 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, 1 x RS-232/422/485, 1 x 8bit GPIO, 1 x LPC	5 x USB 2.0, 1 x USB 3.0, 1 x SATA II, 3 x RS-232, 1 x RS-232/422/485, 1 x 8bit GPIO, 1 x LPC, 1 x PS2/ KB & MS	6 x USB 2.0, 2 x USB 3.0, 2 x SATA III, 1 x RS-232, 1 x RS-232/422/485, 1 x 8bit GPIO, 1 x LPC, 1 x SPI, 1 x PS2/ KB & MS
<b>Display Chipset</b>	Intel® Apollo Lake SoC integrated Gen9 LP Graphics Supports triple display	Intel® Braswell SoC integrated Graphics Supports triple display	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Valleyview SoC integrated Graphics Supports dual display	AMD SoC Integrated Graphics Supports dual display
<b>Resolution</b>	Dual HDMI: Max. resolution 3840 x 2160 @ 30Hz VGA: 1920 x 1200 @ 60Hz	HDMI: Max. resolution 1920 x 1080 @ 30Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	VGA: Max. resolution 2560 x 1080 @ 60Hz HDMI: Max. resolution 1920 x 1200 @ 60Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	VGA: Max. resolution 2560 x 1080 @ 60Hz HDMI: Max. resolution 1920 x 1080 @ 60Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz	VGA: Max. resolution 1920 x 1200 @ 60Hz HDMI: Max. resolution 1920 x 1080 @ 60Hz LVDS: Max. resolution 1920 x 1080 @ 60Hz
<b>Audio Chipset</b>	Realtek Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out	Realtek Audio code Mic-In, Line-In, Line-Out
<b>Ethernet Chipset</b>	2 x Intel® I211AT (Intel I210IT for WT)	2 x Intel I211AT	2 x Realtek 8111E	2 x Intel® I211AT	2 x Realtek 8111E
<b>Power Requirement</b>	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V	+12V ~ +26V
<b>Power Type</b>	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
<b>Operating Temperature</b>	0°C ~ 60°C (32°F ~ 140°F) -40°C ~ 85°C (-40°F ~ 185°F) (Optional for Wide 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) (Optional for Wide Temp.)	0°C ~ 60°C (32°F ~ 140°F)
<b>Dimension (L x W)</b>	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)	5.7" x 4" (146 mm x 101 mm)

Model Number	EMX-H310P	EMX-C246P	EMX-Q170KP	EMX-Q170P	EMX-H110KP	EMX-H110P
<b>Processor</b>	Intel® LGA1151 Socket Supports 8/9th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors	Intel® LGA1151 Socket Supports 8/9th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors	Intel® LGA1151 Socket Supports 6/7th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6/7th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors (Max. TDP at 95W)
<b>System Chipset</b>	Intel® H310 Chipset	Intel® C246 Chipset	Intel® Q170 Chipset	Intel® H110 Chipset		
<b>System Memory</b>	2 x 260-pin DDR4 2400/2666MHz SO-DIMM supports up to 64GB	2 x 260-pin DDR4 2400/2666MHz SO-DIMM supports up to 64GB (ECC memory supported by CPU)	2 x 260-pin DDR4 2400MHz SO-DIMM supports up to 32GB	2 x 260-pin DDR4 2400MHz SO-DIMM supports up to 32GB		
<b>Expansion</b>	1 x PCI-e x16 1 x M.2 B-Key 1 x M.2 E-Key	1 x PCI-e x16 1 x M.2 M-Key 1 x M.2 E-Key	1 x PCI-e x16 1 x Full Size Mini PCI-e 1 x Half Size Mini PCI-e	1 x PCI-e x16 1 x Full Size Mini PCI-e 1 x Half Size Mini PCI-e		
<b>Display</b>	Intel® 8/9th Gen. CPU integrated VGA + LVDS, VGA + HDMI, VGA + DP, HDMI + LVDS, HDMI + DP, LVDS + DP	Intel® 8/9th Gen. CPU integrated VGA + HDMI + LVDS	Intel® 6/7th Gen. CPU integrated VGA + LVDS, VGA + HDMI, VGA + DP, HDMI + LVDS, HDMI + DP, LVDS + DP	Intel® 6/7th Gen. CPU integrated VGA + LVDS, VGA + HDMI, VGA + DP, HDMI + LVDS, HDMI + DP, LVDS + DP		
<b>Resolution</b>	VGA: 2048 x 1536 @ 60Hz HDMI: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz DP++: 4096x2160@30Hz Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS) By BOM option	VGA: 2048 x 1536 @ 60Hz HDMI: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz DP: 4096 x 2304 @ 60Hz (Chrontel CH7511B eDP to LVDS)	VGA: 2048 x 1536 @ 50Hz HDMI: 4096 x 2160 @ 24Hz, 2560 x 1600 @ 60Hz DP: 4096 x 2304 @ 60Hz Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS)	VGA: 2048 x 1536 @ 50Hz HDMI: 4096 x 2160 @ 24Hz, 2560 x 1600 @ 60Hz DP: 4096 x 2304 @ 60Hz Dual channel 18/24-bits LVDS (Chrontel CH7511B eDP to LVDS)		
<b>Audio</b>	Realtek Audio code 6W Audio Amplifier	Realtek Audio code 6W Audio Amplifier	Realtek Audio code Mic-in, Line-out, Line-in 6W Audio Amplifier	Realtek Audio code Mic-in, Line-out, Line-in 6W Audio Amplifier		
<b>Ethernet</b>	1 x Intel® I219LM 3 x Intel® I210AT	1 x Intel® I219LM 3 x Intel® I210AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT		
<b>USB/SATA/COM/LAN</b>	12/3/6/4	13/4/6/4	12/6/6/2	8/4/6/2		
<b>Power Requirement</b>	+12V/+5V/5VSB/+3.3V/-12V	+12V/+5V/5VSB/+3.3V/-12V	+12V/+5V/5VSB/+3.3V/-12V	+12V/+5V/5VSB/+3.3V/-12V		
<b>Power Type</b>	AT/ATX	AT/ATX	AT/ATX	AT/ATX		
<b>Operating Temp.</b>	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)		
<b>Dimension (L x W)</b>	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)		
<b>Weight</b>	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)		

# Thin Mini-ITX



Model Number	EMX-TGLP	EMX-WHLGP	EMX-SKLP
<b>Processor</b>	Onboard 11th Gen Intel® Tiger Lake U Core™ & Celeron® BGA Processor	Onboard 8th Gen Intel® Whiskey Lake U Core™ SoC i7/i5/i3 & Celeron® BGA Processor	Onboard 6th Gen. Intel® Core™ & Celeron® BGA Processor
<b>System Chipset</b>	N/A	N/A	N/A
<b>System Memory</b>	2 x 260-pin DDR4 3200MHz SO-DIMM supports up to 64GB	2 x 260-pin DDR4 2400MHz SO-DIMM supports up to 32GB	2 x 260-pin DDR4 2133MHz SO-DIMM supports up to 32GB
<b>Expansion</b>	1 x M.2 B-Key 1 x M.2 E-Key	1 x M.2 B-Key 1 x M.2 A-Key	1 x PCI-e x1 1 x M.2 B-Key, 1 x M.2 A-Key, 1 x SD card slot
<b>Display</b>	Intel® 12th Gen. CPU integrated 2 x DP++, 2 x DP, eDP, LVDS (Maximum: 6 for quadruple independent displays)	Intel® 8th Gen. CPU integrated HDMI/LVDS, HDMI, HDMI	Intel® 6th Generation CPU integrated Triple Display
<b>Resolution</b>	2 x DP++: 4096 x 2304 @ 60 Hz, DP: 4096 x 2304 @ 60 Hz, (2 x DP++, 2 x DP, eDP, LVDS) Dual Channel 18/24bits LVDS 1920 x 1080 Hz eDP 4096 x 2304 @ 60 Hz	3 x HDMI 1.4b: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz, (1 x HDMI/LVDS, 1 x HDMI, 1 x HDMI) Dual Channel 18/24bits LVDS 1920 x 1080	HDMI 1.4b: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz 2 x DP 1.2a: 4096 x 2160 @ 60Hz (1 x HDMI/DP, 1 x DP++), Dual channel 18/24-bits LVDS, Co-layer eDP 1.3: 4096 x 2160 BOM optional
<b>Audio</b>	Realtek/Tempo Audio code 2 x 6W Audio Amplifier	Realtek Audio code Mic-in, Line-out, Line-in 2 x 6W Audio Amplifier	Realtek Audio code Mic-in, Line-out 2 x 6W Audio Amplifier
<b>Ethernet</b>	1 x Intel® I255LM 1 x Intel® I219LM 2 x Intel® I210IT	1 x Intel® I219LM 2 x Intel® I210IT	1 x Intel® I219LM 1 x Intel® I211AT
<b>USB/SATA/COM/LAN</b>	8/2/6/4	8/1/6/3	8/2/6/2
<b>Power Requirement</b>	+12V-24V	+12V-24V	+12V-24V
<b>Power Type</b>	AT/ATX	AT/ATX	AT/ATX
<b>Operating Temp.</b>	0 ~ 60°C (32°F ~ 140°F) -20 ~ 60°C (-4 ~ 140°F) - For wide temperature CPU SKU	-20 ~ 60°C (-4 ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
<b>Dimension (L x W)</b>	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)
<b>Weight</b>	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)

Model Number	EMX-EHLP	EMX-APLP	EMX-BYT2	EMX-C246DP	EMX-H310DP
<b>Processor</b>	Intel® Pentium®/ Celeron®/ Atom™ SoC Processor	Intel® Celeron®/ Atom™ SoC Processor	Intel® Celeron® Processor J1900 (2M Cache, Up to 2.42 GHz)	Intel® LGA1151 Socket Supports 8/9th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors	Intel® LGA1151 Socket Supports 8/9th Gen. Core™ i7/ i5/ i3/ Pentium®/ Celeron® Processors
<b>System Chipset</b>	N/A	N/A	N/A	Intel® C246 Chipset	Intel® H310 Chipset
<b>System Memory</b>	1 x 260-pin DDR4 3200MHz SO-DIMM supports up to 32GB (Only Atom® x6000 Series Processors support IBCEC)	2 x 204-pin DDR3L 1333/1600MHz SO-DIMM supports up to 16GB	2 x 204-pin DDR3L 1333MHz SO-DIMM supports up to 8GB	2 x 260-pin DDR4 2400/2666MHz SO-DIMM supports up to 64GB (ECC memory supported by CPU)	2 x 260-pin DDR4 2400/2666MHz SO-DIMM supports up to 64GB
<b>Expansion</b>	1 x M.2 B-Key 1 x M.2 E-Key	1 x PCI-e 2 x Mini PCI-e 1 x SD card slot 1 x SIM card slot	1 x PCI-e 2 x Mini PCI-e, 1 x SD card slot, 1 x SIM card slot	1 x PCI-e x16 1 x M.2 M-Key 1 x M.2 E-Key 1 x M.2 B-Key	1 x PCI-e x16 1 x M.2 E-Key 1 x M.2 B-Key
<b>Display</b>	Intel® Elkhart Lake SoC Processor integrated Triple Display DP++, HDMI, LVDS (eDP by BOM option)	Intel® Apollo Lake SoC integrated Gen Graphics Triple Display HDMI + LVDS, HDMI/DP + DP, HDMI + LVDS	Intel® Atom™/ Celeron® SoC Integrated Graphics HDMI + LVDS, HDMI + VGA, VGA + LVDS	Intel® 8/9th Gen. CPU integrated HDMI + HDMI + LVDS	Intel® 8/9th Gen. CPU integrated HDMI + HDMI + LVDS
<b>Resolution</b>	1 x HDMI 2.0b: 4096 x 2160 @ 60 Hz 1 x DP++: 4096 x 2160 @ 60 Hz Dual Channel 18/24bits LVDS 1920 x 1080 1 x eDP 4096 x 2160 @ 60Hz (BOM optional)	HDMI 1.4b: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz; LVDS: 1920 x 1080 @ 60Hz; 2 x DP 1.2a: 4096 x 2160 @ 60Hz (1 x HDMI/DP, 1 x DP)	VGA: 2560 x 1600 @ 60Hz HDMI: 1920 x 1200 @ 60Hz LVDS 1920 x 1080 @ 60Hz	3 x HDMI 1.4b: 3840 x 2160 @ 30 Hz 2560 x 1600 @ 30 Hz	3 x HDMI 1.4b: 3840 x 2160 @ 30 Hz 2560 x 1600 @ 30 Hz
<b>Audio</b>	Realtek Audio code Mic-in, Line-out 2 x 6W Audio Amplifier	Realtek Audio code Mic-in, Line-out 2 x 3W Audio Amplifier	Realtek Audio code Mic-in, Line-out 2 x 3W Audio Amplifier	Realtek Audio code 6W Audio Amplifier	Realtek Audio code 6W Audio Amplifier
<b>Ethernet</b>	4 x Intel® I225LM	2 x Intel® I211AT	2 x Intel® I211AT	1 x Intel® I219LM 2 x Intel® I210AT	1 x Intel® I219LM 2 x Intel® I210AT
<b>USB/SATA/COM/LAN</b>	8/2/6/4	9/2/6/2	6/2/6/2	10/2/4/3	8/2/4/3
<b>Power Requirement</b>	+12V ~ 24V	+12V ~ 24V	+12V	+12V ~ 28V	+12V ~ 28V
<b>Power Type</b>	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
<b>Operating Temp.</b>	0 ~ 60 °C (32 ~ 140 °F) -40 ~ 85°C (-40 ~ 185°F) - For wide temperature CPU SKU	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)
<b>Dimension (L x W)</b>	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)	6.69" x 6.69" (170 mm x 170 mm)
<b>Weight</b>	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)	0.88 lbs (0.4 kg)

# ATX/ Micro ATX

## ATX



Model Number	EAX-W480P	EAX-C246P	EAX-C246BP	EAX-Q170KP (C236KP)	EAX-Q170P	EAX-H110KP
<b>Processor</b>	Intel® LGA1120 Socket Supports 10th Gen. Intel® Xeon® (Workstation)/Core™, Pentium®/ Celeron® Processors	Intel® LGA1151 Socket Supports 8/9th Gen. Intel® Xeon® (Workstation)/Core™, Pentium®/ Celeron® Processors	Intel® LGA1151 Socket Supports 8/9th Gen. Intel® Xeon® (Workstation)/Core™, Pentium®/ Celeron® Processors	Intel® LGA1151 Socket Supports 6/7th Gen. Core™, Pentium®/ Celeron® Processors (Max. TDP at 95W) *C236KP support Intel® Xeon® (Workstation)	Intel® LGA1151 Socket Supports 6th Gen. Core™, Pentium®/ Celeron® Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6/7th Gen. Core™, Pentium®/ Celeron® Processors (Max. TDP at 95W)
<b>System Chipset</b>	Intel® W480E Chipset	Intel® C246 Chipset	Intel® C246 Chipset	Intel® Q170 Chipset (Co-lay C236 Chipset)	Intel® Q170 Chipset	Intel® H110 Chipset
<b>System Memory</b>	4 x 288-pin DDR4 2400/2666/2933MHz DIMM supports up to 128GB (ECC memory supported by CPU)	4 x 288-pin DDR4 2400/2666MHz DIMM supports up to 128GB (ECC memory supported by CPU)	4 x 288-pin DDR4 2400/2666MHz DIMM supports up to 128GB (ECC memory supported by CPU)	4 x 288-pin DDR4 2400MHz DIMM supports up to 64GB *C236: (ECC memory supported by CPU)	4 x 288-pin DDR4 2400MHz DIMM supports up to 64GB	2 x 288-pin DDR4 2400MHz DIMM supports up to 32GB
<b>Expansion</b>	1 x PCI-e x16 or 2 x PCI-e x8, 4 x PCI-e x4	1 x PCI, 1 x PCI-e x16 or 2 x PCI-e x8 by BOM, 1 x PCI-e x4, 3 x PCI-e x1, 1 x M.2 M-Key, 1 x M.2 A-Key=	1 x PCI, 1 x PCI-e x16 or 2 x PCI-e x8 by auto switch, 3 x PCI-e x4	4 x PCI, 1 x PCI-e x16 1 x PCI-e x4, 1 x PCI-e x1 1 x M.2 Key-A, 1 x SIM card slot, 1 x Full/Half Size Mini-PCIe	4 x PCI, 1 x PCI-e x16 1 x PCI-e x4, 1 x PCI-e x1 1 x M.2 Key-A, 1 x SIM card slot, 1 x Full/Half Size Mini-PCIe	4 x PCI, 1 x PCI-e x16, 2 x PCI-e x4
<b>Display</b>	Intel® 10th Gen. CPU Integrated DVI-D + DP++ + DP++	Intel® 8/9th Gen. CPU Integrated VGA + HDMI + DP	Intel® 8/9th Gen. CPU Integrated DVI-I + DP++ + DP++	Intel® 6/7th Gen. CPU Integrated VGA + HDMI + DP	Intel® 6th Gen. CPU Integrated VGA + HDMI + DP	Intel® 6/7th Gen. CPU Integrated VGA + HDMI + DP
<b>Resolution</b>	DVI-D: 2048 x 1536 @ 60Hz DP++: 3840 x 2160 @ 60Hz	VGA: 2048 x 1536 @ 60 Hz HDMI: 3840 x 2160 @ 30 Hz, 2560 x 1600 @ 30 Hz DP: 4096 x 2304 @ 60Hz	DVI-I: 2048 x 1536 @ 60 Hz 2 x DP++: 4096 x 2304 @ 60Hz	VGA: 2048 x 1536 @ 50Hz HDMI: 4096 x 2160 @ 24Hz, 2560 x 1600 @ 60Hz DP: 4096 x 2304 @ 60Hz	VGA: 2048 x 1536 @ 50Hz HDMI: 4096 x 2160 @ 24Hz, 2560 x 1600 @ 60Hz DP: 4096 x 2304 @ 60Hz	VGA: 2048 x 1536 @ 50Hz HDMI: 4096 x 2160 @ 24Hz, 2560 x 1600 @ 60Hz DP: 4096 x 2304 @ 60Hz
<b>Audio</b>	N/A	Realtek Audio code Mic-in, Line-in, Line-out 1 x 6W Audio Amplifier	Realtek Audio code Mic-in, Line-in, Line-out 1 x 6W Audio Amplifier	Realtek Audio code Mic-in, Line-in, Line-out 2 x 6W Audio Amplifier	Realtek Audio code Mic-in, Line-in, Line-out 2 x 6W Audio Amplifier	Realtek Audio code Line-in, Mic-in, Line-out 1 x 2W Amplifier
<b>Ethernet</b>	1 x Intel® I225V 1 x Intel® I219LM 1 x Intel® I210AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I210AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT	1 x Intel® I219LM 1 x Intel® I211AT
<b>USB/SATA/COM/LAN</b>	12/4/10/3	14/6/10/2	16/4/10/2	12/6/6/2	12/6/6/2	10/4/10/2
<b>Power Requirement</b>	+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	+12V/+5V/5VSB/+3.3V/-12V
<b>Power Type</b>	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX	AT/ATX
<b>Operating Temp.</b>	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)
<b>Dimension (L x W)</b>	12" x 9.6" (304.8 mm x 243.84 mm)	12" x 9.6" (304.8 mm x 243.84 mm)	12" x 9.6" (304.8 mm x 243.84 mm)	12" x 9.6" (304.8 mm x 243.84 mm)	12" x 9.6" (304.8 mm x 243.84 mm)	12" x 9.6" (304.8 mm x 243.84 mm)
<b>Weight</b>	1.32 lbs (0.6 kg)	1.32 lbs (0.6 kg)	1.32 lbs (0.6 kg)	1.32 lbs (0.6 kg)	1.32 lbs (0.6 kg)	1.32 lbs (0.6 kg)

## Micro ATX



Model Number	ERX-W480P	ERX-C236KP
<b>Processor</b>	Intel® LGA1151 Socket Supports 10th Gen. Intel® Xeon® (Workstation)/Core™, Pentium®/Celeron® Processors (Max. TDP at 95W)	Intel® LGA1151 Socket Supports 6/7th Gen. Intel® Xeon® (Workstation)/Core™, Pentium®/Celeron® Processors (Max. TDP at 95W)
<b>System Chipset</b>	Intel® W480E Chipset	Intel® C236 Chipset
<b>System Memory</b>	4 x 288-pin DDR4 2400-2933MHz DIMM supports up to 128GB (ECC memory supported by CPU)	4 x 288-pin DDR4 2400MHz DIMM supports up to 64GB (ECC memory supported by CPU)
<b>Expansion</b>	2 x PCI-e x16 (1 x PCI-e x16 or 2 x PCIe-x8), 2 x PCI-e x4,	1 x PCI-e x16, 1 x PCI-e x4, 2 x PCI, 1 x SIM card slot, 1 x Full Size Mini-PCIe
<b>Display</b>	Intel® 10th Gen. CPU Integrated VGA / HDMI /DP++ / LVDS Triple display	Intel® 6/7th Gen. CPU Integrated HDMI + HDMI, HDMI + VGA, VGA + HDMI
<b>Resolution</b>	VGA: 2048 x 1536 @ 60Hz HDMI 2.0a: 4096 x 2304 @ 60Hz DP++: 4096 x 2304 @ 60Hz LVDS: 1920 x 1080 Dual channel 18/24-bits	VGA: 2048 x 1536 @ 50Hz HDMI 1.4: 4096 x 2160 @ 24Hz, 2560 x 1600 @ 60Hz
<b>Audio</b>	Realtek Audio code Line-in, Mic-in, Line-out 6W Amplifier	Realtek Audio code Line-in, Mic-in, Line-out 2 x 3W Amplifier
<b>Ethernet</b>	1 x Intel® I219LM 1 x Intel® I210AT 2 x Intel® I225LM 1 x Intel® X550-AT2 (BOM option)	1 x Intel® I219LM 3 x Intel® I211AT
<b>USB/SATA/COM/LAN</b>	14/4/6/4 or 6	13/6/10/4
<b>Power Requirement</b>	+12V/+5V/5VSB/+3.3V/-12V	+12V/+5V/5VSB/+3.3V/-12V
<b>Power Type</b>	AT/ATX	AT/ATX
<b>Operating Temp.</b>	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
<b>Dimension (L x W)</b>	9.6" x 9.6" (243.84 mm x 243.84 mm)	9.6" x 9.6" (243.84 mm x 243.84 mm)
<b>Weight</b>	1.35 lbs (0.6 kg)	1.35 lbs (0.6 kg)

# Pico ITX / 1.8" SBC

## Pico ITX



Model Number	EPX-EHLP	EPX-APLP
<b>Processor</b>	Intel® Pentium®/ Celeron®/ Atom™ SoC Processor	Intel® Pentium®/ Celeron®/ Atom™ SoC Processor
<b>System Chipset</b>	N/A	N/A
<b>System Memory</b>	1x 260-pin DDR4 3200MHz SO-DIMM supports up to 32 GB	1x 204-pin DDR3L 1600 & 1333MHz SO-DIMM supports up to 8 GB
<b>Expansion</b>	1x M.2 Key-B, 1x M.2 Key-E, 1x Micro SIM to SIM adapter by option	1x M.2 Key-B, 1x M.2 Key-A, 1x Micro SIM to SIM adapter by option
<b>Display</b>	Intel® Atom™/ Celeron®/Pentium® SoC Integrated Graphics DP++/HDMI/LVDS	Intel® Atom™/ Celeron®/Pentium® SoC Integrated Graphics HDMI + LVDS, HDM/DPI + DP, HDMI + LVDS
<b>Resolution</b>	HDMI 2.0b: 4096 x 2160 @ 60 Hz DP++: 4096 x 2160 @ 60Hz LVDS: 1920 x 1080 (1x HDMI, 1x DP++, LVDS)	HDMI 1.4b: 3840 x 2160 @ 30Hz, 2560 x 1600 @ 30Hz LVDS: 1920 x 1800 @ 60Hz 2x DP 1.2a: 4096 x 2160 @ 60Hz (1x HDMI/DP, 1x DP)
<b>Audio</b>	Realtek Audio code 2x 3W Audio Amplifier	Realtek Audio code Mic-in, Line-out 2x 3W Audio Amplifier
<b>Ethernet</b>	2x Intel® I225LM 1x Intel® I210IT	2x Intel® I211AT
<b>USB/SATA/COM/LAN</b>	6/1/2/2	6/1/6/2
<b>Power Requirement</b>	+12V	+12V
<b>Power Type</b>	AT/ATX	ATX
<b>Operating Temp.</b>	0 ~ 60 °C (32 ~ 140 °F) -40 ~ 85°C (-40 ~ 185°F) - For wide temperature CPU SKU	-5 ~ 60°C (23 ~ 140°F)
<b>Dimension (L x W)</b>	3.93" x 2.83" (100 mm x 72 mm)	3.93" x 2.83" (100 mm x 72 mm)
<b>Weight</b>	0.88 lbs (0.4 Kg)	0.88 lbs (0.4 Kg)

## 1.8" SBC



Model Number	EZX-EHLP
<b>Processor</b>	Intel® Pentium®/ Celeron® / Atom™ Processor
<b>System Chipset</b>	N/A
<b>System Memory</b>	Single channel LPDDR4 2/4/8GB memory down
<b>Expansion</b>	1x M.2 Key-B, 1x Micro SIM to SIM adapter by option onboard eMMC
<b>Display</b>	Intel® Atom™/ Celeron®/Pentium® SoC Integrated Graphics Mini DP/ eDP
<b>Resolution</b>	mini DP++ : 4096 x 2160@60 Hz eDP: 4096 x 2160@60 Hz LVDS: 1920 x 1080
<b>Audio</b>	N/A
<b>Ethernet</b>	1x Intel® I211AT
<b>USB/SATA/COM/LAN</b>	6/0/1/1
<b>Power Requirement</b>	+12V
<b>Power Type</b>	AT/ ATX
<b>Operating Temp.</b>	0 ~ 60 °C (32 ~ 140 °F) -40 ~ 85°C (-40 ~ 185°F) - For wide temperature CPU SKU
<b>Dimension (L x W)</b>	3.3" x 2.5" (85 mm x 65 mm)
<b>Weight</b>	0.66 lbs (0.3 Kg)

# COM Service

We convert complex COM development into easy tasks so our customers can better meet new market challenges. COM Design-in Service is focused on real-time response to customers' issues. We offers proactive services with pre-valid technology to ensure project success and time-to-market.

## COM Sizes Overview



## COM Express Type 10

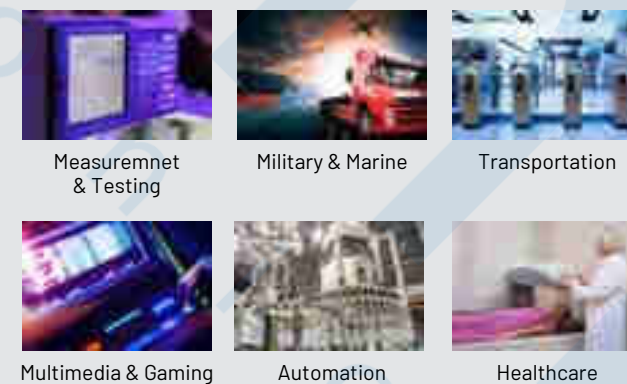


Model Number	ESM-APLM
<b>Processor</b>	Intel® Celeron®/ Pentium®/ Atom™ SoC Processor
<b>System Memory</b>	1x 204-pin DDR3L 1600/1333MHz SO-DIMM up to 8GB
<b>Expansion</b>	1x PCIe x4
<b>USB</b>	6 x USB 2.0 2 x USB 3.0
<b>SATA</b>	2 x SATA III
<b>COM Port</b>	N/A
<b>MIO</b>	1x SMBus 1x LPC
<b>Display Chipset</b>	Intel® Apollo lake SoC integrated Graphics
<b>Display</b>	LVDS, DDI
<b>Audio</b>	Intel® High Definition Audio
<b>Ethernet</b>	1x Intel® WGI211AT
<b>Power Requirement</b>	+4.75V ~ +20V
<b>Operating Temperature</b>	0°C ~ 60°C (32°F ~ 140°F)
<b>Dimension (L x W)</b>	3.31" x 2.17" (84mm x 55mm)
<b>Certification</b>	CE, FCC Class B

## COM Competence Service for Design-Win



## COM Application



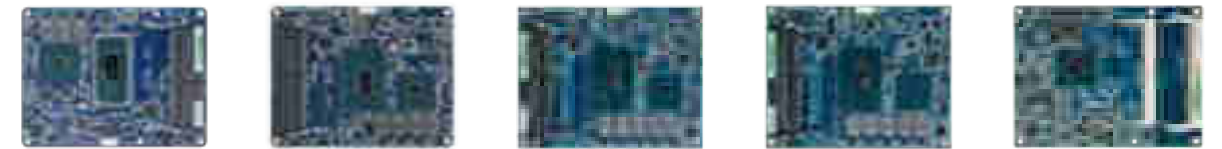
# COM Express Type 6

## COM Express Type 6 - Compact Module



Model Number	ESM-EHLC	ESM-APLC	ESM-BYT2	ESM-KBLU	ESM-SKLU
<b>Processor</b>	Intel® Atom™ x6000E Series and Intel® Pentium® and Celeron® J and N Series processors	Intel® Pentium®/ Celeron® SoC Processor	Intel® Atom™/Celeron® processor	7th Gen Intel® Core™ i7/i5/i3/Celeron® processor	6th Gen Intel® Core™ i7/i5/i3/Celeron® processor
<b>System Memory</b>	Two 260-pin SODIMM DDR4 3200 SDRAM slot up to 32GB	1 x 204-pin DDR3L 1600/1333MHz SO-DIMM up to 8GB	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)	2 x 260-pin DDR4 2133MHz SO-DIMM up to 32 GB	2 x 260-pin DDR4 2133MHz SO-DIMM up to 32 GB
<b>Expansion</b>	3 x PCIe1	3 x PCIe1	3 x PCIe1	8 x PCIe1	8 x PCIe1
<b>USB</b>	8 x USB 2.0 4 x USB 3.2 Gen2x1 (10 Gbps)	8 x USB 2.0 4 x USB 3.0	7 x USB 2.0 1 x USB 3.0	8 x USB 2.0 4 x USB 3.0	8 x USB 2.0 4 x USB 3.0
<b>SATA</b>	2 x SATA III	2 x SATA III	2 x SATA II	3 x SATA III	4 x SATA III
<b>COM Port</b>	2 x UART	1 x UART	2 x UART	2 x UART	2 x UART
<b>MIO</b>	1 x SMBus 1 x LPC/eSPI (default) 1 x I <sup>2</sup> C 1 x SPI	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C 1 x SPI	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C 1 x SPI
<b>Display Chipset</b>	Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics	Intel® Apollo lake SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Kabylake SoC integrated Graphics	Intel® Skylake Processor integrated Graphics
<b>Display</b>	VGA, LVDS, DDI	VGA, LVDS, DDI	VGA, LVDS, DDI	VGA, LVDS, DDI	VGA, LVDS, DDI
<b>Audio</b>	Intel® High Definition Audio	Intel® High Definition Audio	Intel® Valleyview SoC integrated	Intel® High Definition Audio	Intel® High Definition Audio
<b>Ethernet</b>	1 x Intel® I225LM	1 x Intel® WGI211AT	1 x Intel® I211AT	1 x Intel® I219LM	1 x Intel® I219LM
<b>Power Requirement</b>	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V
<b>Operating Temperature</b>	0°C ~ 60°C (32°F ~ 140°F) (Standard) Extend: -40°C ~ 85°C (-40°F ~ 185°F) on request	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F) (Standard) Extend: -40°C ~ 85°C (-40°F ~ 185°F) on request	0°C ~ 60°C (32°F ~ 140°F) (Standard) Extend: -20°C ~ 70°C (-4°F ~ 158°F) on request	-20°C ~ 80°C (-4°F ~ 176°F) (Standard) Extend: -20°C ~ 70°C (-4°F ~ 158°F) on request
<b>Dimension (L x W)</b>	3.7" x 3.7" (95 mm x 95 mm)	3.7" x 3.7" (95 mm x 95 mm)	3.7" x 3.7" (95 mm x 95 mm)	3.7" x 3.7" (95 mm x 95 mm)	3.7" x 3.7" (95 mm x 95 mm)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

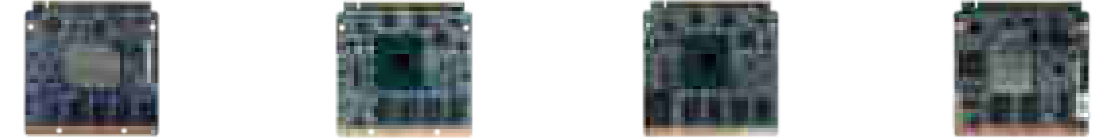
## COM Express Type 6 - Basic Module



Model Number	ESM-TGH	ESM-CFH	ESM-KBLH	ESM-SKLH	ESM-BYT
<b>Processor</b>	11th Gen Intel® Xeon®/Core™/ Celeron® BGA 10nm Processor	9/8th Gen Intel® Xeon®/ Core™ i7/i5/i3 processor	7th Gen Intel® Core™ i7/i5/i3 processor	6th Gen Intel® Core™ i7/i5/i3 processor	Intel® Atom™/Celeron® processor
<b>System Memory</b>	3x 260-pin DDR4-3200MHz SO-DIMM with up to 96 GB with ECC (ECC is supported with specific SKU) *3rd socket on rear side by request	3 x 260-pin DDR4 2400/2133MHz SO-DIMM up to 96 GB	2 x 260-pin DDR4 2400/2133MHz SO-DIMM up to 32 GB	2 x 260-pin DDR4 SO-DIMM up to 32GB	2 x 204-pin DDR3L 1066MHz SO-DIMM (for Bay trail-I E3826/ E3825/E3815) or 204-pin DDR3L 1333MHz SO-DIMM up to 8 GB (E3845 & J1900 only support 1333MHz)
<b>Expansion</b>	1 PEGx16 (Gen4, 16.0 GT/s) 8 PCIe1 (Gen3, 8.0 GT/s)	1 x PCIe x16 Gen3 8 x PCIe x1	8 x PCIe1	8 x PCIe1	3 x PCIe1
<b>USB</b>	8 x USB 2.0 4 x USB 3.2 Gen2x1 (10Gbps)	8 x USB 2.0 4 x USB 3.1	8 x USB 2.0 4 x USB 3.0	8 x USB 2.0 4 x USB 3.0	7 x USB 2.0 1 x USB 3.0
<b>SATA</b>	4 x SATA III	4 x SATA III	4 x SATA III	4 x SATA III	2 x SATA II
<b>COM Port</b>	2 x UART	2 x UART	2 x UART	2 x UART	1 x UART
<b>MIO</b>	1 x SMBus 1 x LPC (eSPI default) 1 x I <sup>2</sup> C	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C 1 x SPI	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C	1 x SMBus 1 x LPC 1 x I <sup>2</sup> C
<b>Display Chipset</b>	Intel® Tiger Lake-H Processor integrated Graphics	Intel® Coffee Lake Processor integrated Graphics	Intel® Kabylake SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics
<b>Display</b>	VGA LVDS, DDI	VGA, LVDS, DDI	VGA, LVDS, DDI	VGA, LVDS, DDI	VGA, LVDS, DDI
<b>Audio</b>	Intel® High Definition Audio	Intel® High Definition Audio	Intel® High Definition Audio	Intel® High Definition Audio	Intel® Valleyview SoC integrated
<b>Ethernet</b>	1 x Intel® I225LM	1 x Intel® I219LM	1 x Intel® I219LM	1 x Intel® I219LM	1 x Intel® I211AT
<b>Power Requirement</b>	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V	+9V ~ +19V
<b>Operating Temperature</b>	0°C ~ 60°C (32°F ~ 140°F) (Standard) Extend: -40°C ~ 85°C (-40°F ~ 185°F) on request	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) Extend: -40°C ~ 85°C (-40°F ~ 185°F) on request
<b>Dimension (L x W)</b>	5" x 3.7" (125 mm x 95 mm)	5" x 3.7" (125 mm x 95 mm)	5" x 3.7" (125 mm x 95 mm)	5" x 3.7" (125 mm x 95 mm)	5" x 3.7" (125 mm x 95 mm)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

# ARM-based SBC

# Qseven Module



Model Number	RSC-IMX8M	RSC-IMX61	ACP-IMX6POS	RSC-BCX6
<b>Processor</b>	NXP i.MX8M Cortex-A53 Quad Core 1.3GHz; Cortex-M4 core processor	NXP i.MX6 Dual Lite NXP i.MX6 Quad Core	NXP i.MX6 Dual Lite NXP i.MX6 Quad Core	NXP i.MX6 Solo
<b>System Memory</b>	2GB DDR4	1GB DDR3 expandable to 2 GB	1GB DDR3 (Dual Lite) 2GB DDR3 (Quad Core) expandable to 2 GB	512 MB DDR3 expandable to 1 GB
<b>Storage</b>	8GB eMMC	eMMC 4GB	eMMC 4GB	N/A
<b>External I/O Connector</b>	1 x USB 3.0 Type A (Vertical type) 1 x USB 3.0 Type C 2 x Gigabit LAN 1 x HDMI (Vertical type) 1 x Micro SD socket 1 x Hand Phone 1 x Reset 1 x Power LED (Green)	1 x USB2.0 Type A x2 (Double deck) 1 x HDMI with screw lock 1 x 10/100/1000 LAN Optional Powered LAN support (IEEE 802.3at), 1 x Micro SD socket, 1 x Jack for I/R extender cable, co-design (Optional) with on board I/R sensor (Optional)	1 x USB2.0 Type A x2 (Double deck) 1 x 10/100/1000 LAN Optional 2nd 1 x 10/100/1000 LAN (RJ45x1), 1 x HDMI Connector (Vertical Type) 1 x Mini USB Connector 1 x RJ11 Connector for Cash Drawer 2 x DB9 Male Connector (COM 1 & 2 can be select from RS232/422/485) 1 x DC 12V Power Input by Power DC Jack 1 x Micro SD socket	1 x Line-Out 2 x USB 2.0 1 x Micro USB Connector (USB OTG) 1 x HDMI 1 x RJ-45 1 x Barrel Type Connector 1 x DC-in Jack
<b>Internal I/O Connector</b>	1 x Front Panel 2 x MIPI CSI, 1 x MIPI DSI 1 x DC in 1 x LVDS, 1 x Black Light 1 x I <sup>2</sup> C, 1 x USB 2 x M.2 socket 1 x SIM Socket 1 x Extend connector	1 x USB2.0, 1 x USB OTG 1 x 2x5 GPIO, 1 x LVDS 24bit x2 1 x Backlight control 1 x Line-out, speaker-out Mic-in, 1 x Mini-PCIe (half size) 1 x I <sup>2</sup> C, 1 x SATA (i.MX6 Quad only) 1 x Battery connector for RTC 1 x debug port, 1 x RS232	2 x RS232, 1 x debug port 1 x LVDS 24bit x2, 1 x Backlight control 1 x VGA, 1 x I <sup>2</sup> C 3 x 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 (Full size) 1 x SIM Socket 1 x Front Panel Connector with Power Button & Indicate LED for Power & WIFI 1 x Battery connector for RTC	1 x LVDS, 1 x Backlight control 1 x USB 2.0, 1 x RS232 1 x 8 bits GPIO 1 x Front Panel, 1 x Battery connector for RTC 1 x Dual Channel 24-bit LVDS 1 x CAN Bus, 1 x Mic-in, 1 x Line-out (Optional), 1 x Micro SD socket 1 x Mini PCIe (Half size) 1 x SIM Socket
<b>Power Requirement</b>	12 ~ 24V DC input, Terminal block	12 ~ 26V DC input, 2.5mm DC Jack, typical 19V input With brownout detection or Powered LAN	12 ~ 24V DC input	5V DC input
<b>Operating Temperature</b>	-40°C ~ 85°C (-40°F ~ 185°F)	-20°C ~ 85°C (-4°F ~ 185°F)	A Version 0°C ~ 60°C (32°F ~ 140°F) B Version -20°C ~ 85°C (-4°F ~ 185°F)	0°C ~ 60°C (32°F ~ 140°F)
<b>Storage Temperature</b>	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C	-40°C ~ 85°C (-40°F ~ 185°F)	-20°C ~ 80°C (-4°F ~ 176°F)
<b>Dimension (L x W)</b>	146 mm x 102 mm	146 mm x 102 mm	175 mm x 110 mm	120 mm x 78 mm
<b>Weight</b>	0.15 kg	0.15 kg	0.16 kg	0.1 kg
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class A
<b>Software Support</b>	Android 9.0 Yocto 2.5	Android 4.4 / 6.0 Ubuntu 12.04 Yocto 2.1	Android 4.4 Ubuntu 14.04 Yocto 1.7	Android 4.3, 4.4 and 5.0 can be supported if upgraded to 1G DDR3 memory Linux Ubuntu 14.04 Linux Yocto 1.7

Model Number	EQM-APL	EQM-BYT	EQM-BYT2	ROM-IMX6
<b>Processor</b>	Intel® Pentium®/ Celeron® processor	Intel® Atom™/ Celeron® processor	Intel® Atom™ Processor (E3825/ E3845)	NXP i.MX6 Solo/ Quad
<b>System Memory</b>	Onboard DDR3L 1600 & 1333MHz 4GB Up to 8GB	Onboard DDR3L 2GB up to 4 GB (Processor E3845 only support 1333MHz)	2GB DDR3 (E3825) 4GB DDR3 (E3845)	1GB RAM (Solo) 1GB RAM (Quad)
<b>Expansion</b>	3 x PCIe1	3 x PCIe1	3 x PCIe1	3 x PCIe1
<b>USB</b>	6 x USB 2.0, 2 x USB 3.0	5 x USB 2.0, 1 x USB 3.0	5 x USB 2.0, 1 x USB 3.0	4 x USB 2.0, 1 x USB OTG
<b>SATA</b>	2 x SATA III	2 x SATA II	2 x SATA II	1 x SATA II (Quad only)
<b>UART</b>	1 x UART	1 x UART	1 x UART	1 x UART
<b>MIO</b>	1 x SMBus, 1 x LPC, 1 x I <sup>2</sup> C, 1 x SPI	1 x LPC, 1 x SMBus, 1 x I <sup>2</sup> C	1 x LPC, 1 x SMBus, 1 x I <sup>2</sup> C	3 x I <sup>2</sup> C
<b>Display Chipset</b>	Apollo lake SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics	NXP
<b>Display</b>	(HDMI or DP) + (eDP or LVDS)	DDI (HDMI or DP) + LVDS	DDI (HDMI or DP) + LVDS	1 x HDMI/ LVDS
<b>Audio</b>	Intel® Apollo lake SoC integrated	Intel® Valleyview SoC integrated	Intel® Valleyview SoC integrated	Supports I <sup>2</sup> C interface
<b>Ethernet Chipset</b>	1 x Intel® I210 (N4200/N3350) Industrial 1 x Intel® I211 (N4200/N3350) commercial	1 x Intel® I211 (commercial)	1 x Intel® I210 for Industrial 1 x Intel® I211 for commercial	1 x KSZ9031
<b>Power Requirement</b>	+5V	+5V	+5V	+5V
<b>Others</b>	N/A	N/A	N/A	Support Mipi CSI Camera
<b>Operating Temperature</b>	0°C ~ 70°C (32°F ~ 140°F) (Standard) Extend: -20°C ~ 70°C (-4°F ~ 158°F) on request	0°C ~ 60°C (32°F ~ 140°F) (Standard)	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)
<b>Dimension (L x W)</b>	2.8" x 2.8" (70 mm x 70 mm)	2.8" x 2.8" (70 mm x 70 mm)	2.8" x 2.8" (70 mm x 70 mm)	2.8" x 2.8" (70 mm x 70 mm)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
<b>Software Support</b>	Win 10 Linux Android	Win 10 Win 7 Win 8 Linux	Ubuntu 12.04 Win 7/ 8/ 10	Android 6.0 Yocto 2.1



# SMARC/ SMARC Eval Carrier Board

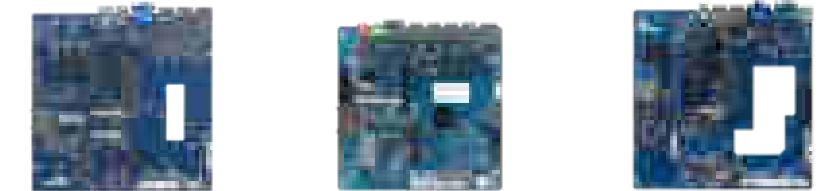
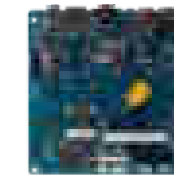
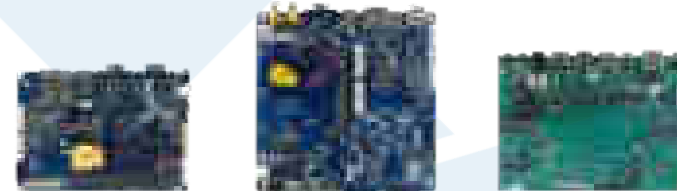
# Qseven Carrier Board/ Eval Carrier Board

## SMARC

## SMARC Eval Carrier Board

## Qseven Carrier Board

## Eval Carrier Board



Model Number	SMA-X81	SMA-IMX6
<b>Processor</b>	NXP i.MX 8M Mini	NXP i.MX 6 Solo NXP i.MX 6 Dual Lite NXP i.MX 6 Dual NXP i.MX 6 Quad Core
<b>System Memory</b>	1GB DDR3	1GB DDR3 expandable to 2 GB
<b>Storage</b>	eMMC 8GB	eMMC 4GB
<b>External I/O Connector</b>	1x USB 2.0 Port (One OTG) 3x I <sup>2</sup> C 1x I <sup>2</sup> S 1x SPI 8x GPIO 1x UART 1x MIPI CSI 1x MIPI DSI 1x LVDS 3x PCIe 4x USB 2.0 1x Giga Lan	2x USB 2.0 Port (One OTG) 2x RX/TX (Ser1/3) 2x UART (Ser0/2) 3x PCIe x1 1x MLB150 12x GPIOs, 1x SDIO, 1x SATA eMMC, 2x SPI, 3x I <sup>2</sup> C, 1x SPDIF, 1x WDT, 2x CAN, 1x JTAG
<b>Internal I/O Connector</b>	N/A	N/A
<b>Power Requirement</b>	12~24V	3V to 5.25V - Operates Directly from Single Level Lithium Ion Cells, or Fixed 3.3V or 5V Power Supplies
<b>Operating Temperature</b>	Optional Commercial Temp.: 0°C ~ 85°C (32°F ~ 185°F) Industrial Temperature: -40°C ~ 85°C (-40°F ~ 185°F)	Optional Commercial Temp.: 0°C ~ 60°C (32°F ~ 140°F) Industrial Temperature: -40°C ~ 85°C (-40°F ~ 185°F)
<b>Storage Temperature</b>	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Dimension (L x W)</b>	82 mm x 50 mm	82 mm x 50 mm
<b>Weight</b>	0.06 kg	0.06 kg
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B
<b>Software Support</b>	Android 9.0 Yocto 2.5	Android 4.4 Ubuntu 12.04 Yocto 2.0

Model Number	REV-SA01	REV-SA02	REV-SA03
<b>Processor</b>	N/A	N/A	N/A
<b>System Memory</b>	N/A	N/A	N/A
<b>Storage</b>	N/A	N/A	N/A
<b>External I/O Connector</b>	1x HDMI, 1x VGA, 2x RJ45, 1x DB9, 1x Mini-USB, 2x USB Type A	1x LAN, 2x RCA, 1x Micro SD socket, 1x Mini USB (OTG), 1x USB Type A 2.0 double deck, 1x HDMI, 1x VGA, 1x Display port, 2x RS232, 1x RST Switch, 1x Power Switch, 1x Power LED, 1x DIP SW	1x Power Key 1x Reset Key 1x DC Jack 1x USB 2.0 Type A 1x USB Type C 1x Giga Ethernet 1x Headphone 1x Micro SD Socket 1x SIM Socket
<b>Internal I/O Connector</b>	1x LVDS, 1x Backlight, 1x SD Socket, 1x USB Connector, 2x CAN BUS, 1x Speaker-out/Mic-in, 1x RS-232, 1x GPIO, 1x SATA, 1x RTC Battery, 1x 2 Cell Li Battery Connector	1x Camera, 2x Speaker, 1x D-MIC, 1x Mini PCIe (SATA), 1x Mini PCIe (USB), 1x Sim Card, 1x GPIO, 1x I <sup>2</sup> C, 1x USB2.0, 1x PCIe-1, 1x LVDS, 1x Battery charger connect, 1x Inverter, 2x RS485, 2x CAN	1x USB 2.0 4P Header 1x Mic Phone 2P Header 1x Speaker 2P Header 1x RTC-Battery (CR2032) 1x M.2 key E for WIFI /BT 1x M.2 key B for LTE 1x M.2 key M for SSD 1x BackLight 4P Header 1x I2C Touch Screen connector 1x MIPI DSI Screen connector 1x MIPI CSI Screen connector 1x LVDS Screen connector 1x GPIO 16 bit 1x CAN Bus
<b>Power Requirement</b>	+9V ~ 36V DC-in (REV-SA01-02-A1R) +9V ~ 24V DC-in (REV-SA01-03-A1R)	DC +12V	DC +12V
<b>Operating Temperature</b>	0°C ~ 60°C (32°F ~ 140°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Storage Temperature</b>	-20°C ~ 80°C (-40°F ~ 176°F)	-40°C ~ 85°C (-40°F ~ 185°F)	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Dimension (L x W)</b>	146 mm x 101 mm	170 mm x 170 mm	165 mm x 120 mm
<b>Weight</b>	0.13 kg	0.024 kg	0.024 kg
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
<b>Software Support</b>	N/A	N/A	N/A

Model Number	REV-0703 (A/B)
<b>USB</b>	4x USB 2.0, 2x USB 3.0 (2x USB on board, 2x USB 3.0/1x USB external)
<b>SATA</b>	2x SATA (On board)
<b>COM Port</b>	1x RS-232
<b>Video</b>	1x HDMI, 1x LVDS, 1x DP, 1x eDP (1x LVDS & 1x eDP on board)
<b>Other</b>	External I/O Connector 1x Ethernet, 1x SD socket, 3x Audio phone jack Internal I/O connector 1x GPIO, 1x PCIe x1, 1x mPCIe, 1x SPI, 1x CAN, 1x LPC, 1x JFP (Miscellaneous Setting Connector), 1x PWM CPU Fan Header 1x PWR Header
<b>DIO</b>	1x 16 bit GPIO
<b>MIO</b>	1x SD socket for version A 1x Micro SD socket for version B
<b>Expansion</b>	1x Mini PCIe Supports SIM Card
<b>Audio Chipset</b>	ALC892/ WM8962
<b>Audio Interface</b>	Mic-In, Line-In, Line-Out
<b>Power Requirement</b>	DC +12V
<b>Operating Temperature</b>	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Dimension (L x W)</b>	6.69" x 6.69" (170 mm x 170 mm)
<b>Certification</b>	CE, FCC Class B

Model Number	EEV-EX16-B1	EEV-EX15	EEV-EX14
<b>USB</b>	4x USB 2.0, 4x USB 3.2 (Gen2/10Gbps)	8x USB 2.0, 2x USB 3.0 (2 USB External)	8x USB 2.0, 4x USB 3.0 (4 USB External)
<b>SATA</b>	4x SATA III (On Board)	2x SATA III (On Board)	4x SATA II (On Board)
<b>COM Port</b>	N/A	N/A	1x RS-232/422/485, 1x RS-232, 1x LPT (1x RS232/422/485 external, 1x RS232 on board)
<b>Video</b>	3x Display Port, 1x VGA, 3x HDMI, 1x LVDS (1x LVDS on board) 1x eDP	1x Display Port, 1x HDMI, 1x LVDS (1x LVDS on board)	1x Display Port, 1x VGA, 1x HDMI, 1x LVDS (1x LVDS on board)
<b>Other</b>	1x SDIO 1x LAN (support 2.5G)	1x LAN	1x PS2/ KB & MS, 1x SDIO, 2x LAN
<b>DIO</b>	1x 8bit GPIO	1x 8bit GPIO	1x 8bit GPIO
<b>MIO</b>	N/A	N/A	1x IrDA
<b>Expansion</b>	2x PCIe Slot x4 1x PCIe x16 1x IET 1x SDIO/DIO (optional, depend on module board)	1x PCIe x4 1x IET 1x SDIO/DIO (optional, depend on module board)	1x PCIe x16 1x PCIe x4 1x PCIe x1 1x Express Card 1x Mini PCIe
<b>Audio Chipset</b>	ALC888	ALC892	ALC892
<b>Audio Interface</b>	Mic-In and Line-Out	Mic-In and Line-Out	Mic-In, Line-In and Line-Out
<b>Power Requirement</b>	ATX	ATX	AT/ATX
<b>Operating Temperature</b>	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)	0°C ~ 60°C (32°F ~ 140°F)
<b>Dimension (L x W)</b>	9.6" x 9.6" (243.84 mm x 243.84 mm)	6.7" x 6.7" (170 mm x 170 mm)	9.6" x 9.6" (243.84 mm x 243.84 mm)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

# Peripherals & Accessories

## Peripheral Vertical-Market

In the IoT new era, we are moving toward automation future instead of human operation. Furthermore, an exponentially growing interconnected devices are applied to unbridled industrial demands.



Marine

Factory Automation

Transportation



### Quality

All our peripherals have been tested compatible with Avalue boards and systems during development. We would like to enhance the product quality and recommend to customer.



### Longevity

We design our products using components with a long lifecycle to ensure our modules are available in the long term for the market's needs.



### Variety

We provide the various peripherals for different usage. Such as the marine power board, I/O board, Display board.

Peripherals & Accessories		
	Embedded Peripherals	Description
1	Power Board	EPM-1712 Vehicle 100Watt Smart DC/DC Converter
		EPM-1715 Super Cap Power Module
		EPM-1718 60W DC to DC Marine Power Module
2	Display Board	EPM-1522 18/24-bit TTL/LVDS to DVI transmitter
		EPM-1534 1 LVDS to 4 LVDS Module
3	IO Board	EPM-1601 mPCIe to 4-RS-232 Module
		EPM-1602 mPCIe to 4-RS-422/485 Module
		EPM-1603 USB to 4-RS-232/422/485 Module
		EPM-1604 4 Port USB 2.0 Hub
		EPM-1605 USB to mPCIe Module
		EPM-1606 mPCIe to M.2 Transfer Board
		EPM-1607 M.2 2242/2260/2280 to 4 -RS-232 Module
		EPM-1608 M.2 2242/2260/2280 Dual GbE LAN module
4	Industrial Storage	SSD: 2.5", mSATA, M.2, CFAST, CF, DOM HDD: 2.5", 3.5"
5	Industrial Module	Type: SO-DIMM, Long-DIMM Capacity: Max. Up to 32GB Temperature: Standard or Industrial temperature
6	Wi-Fi Module	Form Factor: mPCIe/ M.2 Bluetooth supported
7	3G/4G/5G Module	Type: 3G/ 4G / 5G Module Interface: mCPIE, M.2
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-1601

#### mPCIe to 4-RS-232 Module

- Input Interface PCI-Express. 2.0
- Output Interface 4 x RS-232
- Industrial temperature (W/T temp. -40°C to 85°C) operation
- Support Ring Wake function (optional)

### EPM-1602

#### mPCIe to 4-RS-422/485 Module

- Input Interface PCI-Express. 2.0
- Output Interface 4 x RS-422/285
- Industrial temperature (W/T temp. -40°C to 85°C) operation
- Support auto flow control
- Cable for mPCIe to four DB-9 connectors

### EPM-1603

#### USB to 4-RS-232/422/485 Module

- Input Interface USB2.0
- Output Interface 4 x RS232/422/485
- 2 x USB 2.0 w/type A connector
- Industrial temperature (W/T temp. -40°C to 85°C) operation

### EPM-1604

#### 4-Port USB 2.0 Hub

- 4 x Port USB Hub, open bare-board design
- 4 x Internal USB2.0 type A female connector for down port
- 1 x Internal wafer 2pin connector for DC-input (+12V, Max 1A)
- Compliant with Universal Serial Bus Specification Revision 2.0 (Data Rate 1.5/12/480 Mbps), USB1.1 compatible

### EPM-1605

#### USB to mPCIe Module with USIM

- Input Interface USB 2.0
- Output Interface USB 2.0
- Operation temperature : 0 °C to 60°C
- 1 x USIM Slot expansion

### EPM-1606

#### mPCIe to M.2 A/E key Transfer Board

- M.2 Wi-Fi & Bluetooth Module (PCIe and USB Base) to Mini PCIe Converter
- Support Windows, MAC and Linux
- Multiple plated-holes support M.2 type 2230 / 2242
- Operating temperature:-40 ~ 80°C

### EPM-1607

#### M.2 2242/2260/2280 to 4 -RS-232 Module

- Input Interface PCI-Express. 2.0
- Output Interface 4 x RS-232
- Support M.2 type 2242/2260/2280 plated-holes
- Industrial temperature (W/T temp. -40°C to 85°C) operation
- Support Ring Wake function (optional)

### EPM-1608

#### M.2 2242/2260/2280 Dual GbE LAN module

- 3-in-1 form factor 2280/2260/2242
- Ultrafast Transfer Speeds via 2-Native PCIe Lane
- Quickly adds two independent Gigabit Ethernet ports (with 2kV isolation) to embedded systems
- Industrial-grad design (-40°C ~ +85°C) for harsh environments
- Supports Wake-on LAN ensures unhindered remoting

### EPM-1712

#### Vehicle 100Watt Smart DC/DC Converter

- Wide Range DC Input: Typical 12/24Vdc (+9V ~ +36V)
- Intelligent system on/off control via jumper setting
- 6 selectable power on/off timing modes
- Load Down/Over Voltage/Short Circuit/Over current Protection
- Battery voltage monitor

### EPM-1715

#### Supercap Power Module

- 500'000 Charge & Discharge Cycling
- 4 x 400F Supercapacitor up to 6-Cell and 8-Cell
- AP for the Parameter Selecting
- Wide Temperature Range: 0°C ~ +60°C
- Wide DC Input: +12 ~ 24Vdc
- Over Temperature Protection

### EPM-1718

#### Marine 60W 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
- Dimension: 100mm x 80mm

With a full line of products, Avalue peripherals can provide everything that you need to build a system or solution. If the item is not covered by our standard product offerings, our purchasing team can help source any part based on a customer's specified vendor and product.

In short, the ultimate goal of us is to provide customers the most efficient services, the best quality products, and the shortest shipment lead time.

# VM System - Automation

## Avalue Factory Automation Solutions

- key points, advantages, focused segments, and applications

Manufacturers today are looking for efficiencies in production, and the way to transform our business through Industry 4.0. Realizing that Industry 4.0 doesn't have to replace a major infrastructure overhaul that costs a lot of money. Intelligent factory solutions able to connect compute device and visualize the data for management and data-driven digital transformation. We are pleased to introduce Avalue Factory Automation Solution to help you and your customers to achieve below key features.

### Essential Professional Capabilities



Throughput enhanced by 20-30% Over legacy non-ECAT solution



Time-deterministic control for wide variety of automation usage



Avalue offers easy to use utilities which enable quick installation of the entire system.

### Solutions Highlights

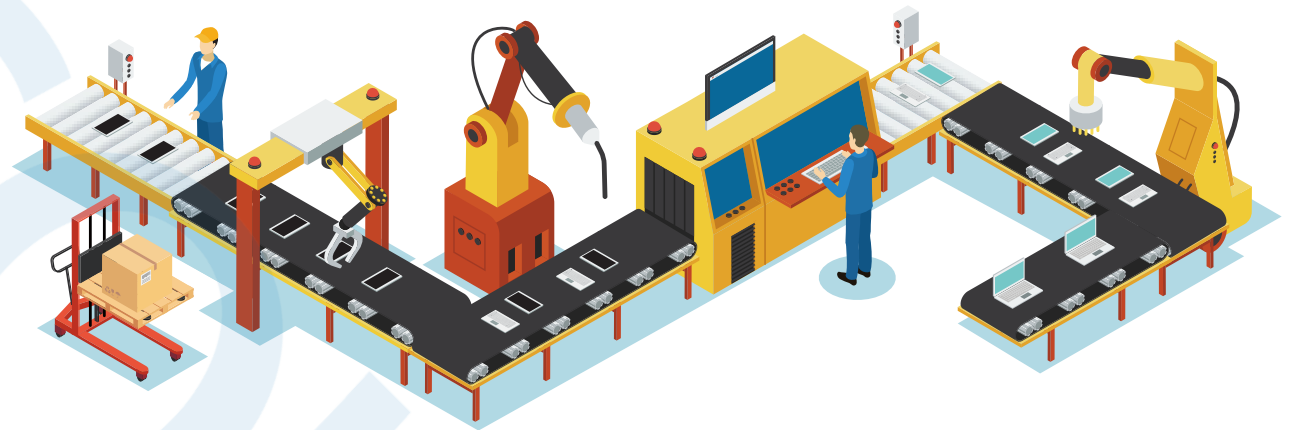


<b>Computing Platform</b> 	 Panel PC	 Embedded PC	 Motherboard	 HPC Server	 EtherCat/ IET

## EtherCAT Solution

- **Factory Automation**
- **Throughput enhanced by 20-30% Over legacy non-ECAT solution**
- **Non- stop Producing Factory**
- **Robotic Production**

Industrial Automation	
Challenge	Solution
PCIe Expansion	Barebone System w/PCIe Expansion
Low Cycle Time	Less than 250 μs
High Cost Issue	Low cost of implementation



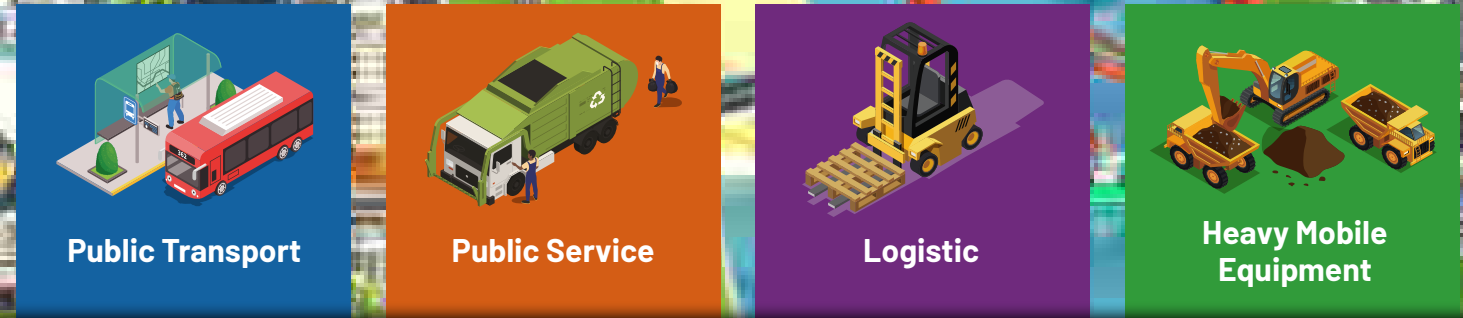
## Machine Vision Solution

- **Factory Automation**
- **4 PoE Smart Camera Support**
- **Din Rail Design Support**
- **Powerful Edge Computing System**

Industrial Automation	
Challenge	Solution
Wide Voltage	9-32V
Harsh Environment	Fanless and Rugged Design
Power Requirement	44-bit GPIO, Supports 1.5KV Isolation

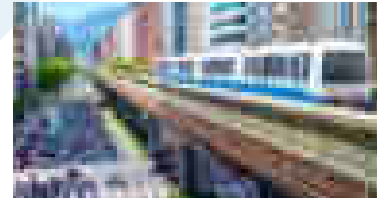


# Transportation



## How Avalue will shape transportation in smart cities?

We support our customers with innovative solutions in fields of public transport, first response, logistic and related infrastructure in a smart city. We also help our customers to achieve faster time-to-market within our ideal solutions, how to make this world smarter, at the same time, with the best quality, performance and support.



## Essential Professional Capabilities



Wide Range of Product Series Selection



Domain Know-How in Transportation Market



Solution-Build Thinking



Dedicated Teams to Support



Win/ Linux/ Android OS Support

## Transportation Product Highlights

Application Layer						
Computing platform						
	Ruggedized Box PC	Transportation System	Panel PC	Industrial-grade Monitor	E Ink	Ruggedized Tablet
Software layer						
	Remote Management Device	Positioning System	Vehicle Power Management	OS Build (Win/ Linux/ Android)	API/ SDK	Ignition Control

### Marine



### Railway



### Vehicle



Model Number	EMS-SKLU-Marine	VMS-EHLR	VMS-CFS	VMS-CFS-PSE	VMS-APL
<b>Processor</b>	i7-6600U, i5-6300U, i3-6100U, Celeron 3955U	Intel Atom X6425E, 2.0 GHz (up to 3.0GHz), 12W	i7-8700T, i7-9700TE, i5-8500T, i5-9500TE, i3-8100T, i3-9100TE, G5400T, G4900T	i7-8700T, i7-9700TE, i5-8500T, i5-9500TE, i3-8100T, i3-9100TE, G5400T, G4900T	N4200, N3350, x7-E3950, x5-E3940, x5-E3930
<b>System Memory</b>	1x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	1x 260-pin SODIMM socket Max. up to 32GB DDR4 3200MT/s	2x 260-pin SODIMM socket Max. up to 64GB DDR4 2666MT/s	2x 260-pin SODIMM socket Max. up to 64GB DDR4 2666MT/s	1x 204-Pin DDR3L 1866MHz SO-DIMM up to 8 GB
<b>Expansion</b>	1x M.2 Key-B 2242/ 3042 (SATA/ PCIe/ USB 3.0) 1x Mini PCIe (PCIe/ USB 2.0)	1x M.2 Key-B 2242/ 3042/ 3052 (PCIe/ USB 3.1 Gen.2), w/SIM slot1 (external) 1x M.2 Key-E 2230 (PCIe/ USB 2.0) 1x mPCIe (PCIe/ USB 2.0), w/ SIM slot2 (external)	1x Avalue 80-Pin IET Interface 1x Mini PCIe (PCIe/ USB 2.0), w/ SIM1 Slot (external) 1x M.2 Key-E 2230 (PCIe/ USB 2.0) 2x M.2 Key-B 2242/ 3042/ 2280 (PCIe/ USB 3.1/ SATA), w/ SIM2, 3 Slot (external) 1x CANBus Module Interface	1x Mini PCIe (PCIe/ USB 2.0), w/ SIM1 Slot (external) 1x M.2 Key-E 2230 (PCIe/ USB 2.0) 2x M.2 Key-B 2242/ 3042/ 2280 (PCIe/ USB 3.1/ SATA), w/ SIM2, 3 Slot (external) 1x CANBus Module Interface	1x Avalue 80-Pin IET Interface 1x Mini PCIe (PCIe/ USB2.0), w/ SIM1 Slot (external) 1x Mini PCIe (PCIe/ USB2.0), w/ SIM2 Slot (external) 1x CANBus module Interface
<b>Storage</b>	1x 2.5" Drive Bay, 1x M.2 (SATA III), external w/9.5 mm height; 1x M.2 2242 (SATA III)	1x 2.5" SSD/HDD drive Bay (SATA III), external w/9.5 mm height; 1x M.2 2242 (SATA III)	2x 2.5" Drive Bay (Front Access) 2x M.2 Key-B SSD (2242/2280)	2x 2.5" Drive Bay (Front Access) 2x M.2 Key-B SSD (2242/2280)	1x 2.5" Drive Bay (SATA III) 1x M.2 (SATA III, 2242) 1x SD (3.0)
<b>USB</b>	4 x USB 3.0, 2 x USB 2.0	2x USB 3.1 Gen.2 (10Gbps), Type A 1x USB 2.0 (w/ M12 A-coded)	6x USB 3.1	6x USB 3.1, 2 x USB 2.0	4 x USB 3.0
<b>COM Port</b>	2 x RS-232/422/485 (Jumper) 4 x RS-232/422/485 (BIOS, 2.5KV isolation)	2 x COM RS232/422/485 (auto flow control via HW, via BIOS and Jumper)	1x RS232, 2 x RS-232/422/485	1x RS232, 2 x RS-232/422/485	2 x RS-232/422/485 (Jumper)
<b>Other</b>	2 x SIM Card Slot, 1x SMBus, 2 x PS2/ KB & MS 2 x Antenna mounting w/ cover	2 x SIM Card Slot (external), 9 x Antenna with dust cover, 1x CAN2.0B (DB9), optional	1x DC-Out (12V/4A), 3 x SIM Card Slot (External Accessible) 5x Antenna Mounting w/ Dust Cover	3 x SIM Card Slot (External Accessible) 5x Antenna Mounting w/ Dust Cover	1x DC-Out (12V/6A), 2 x SIM Card Slot (External Accessible) 5x Antenna Mounting w/ Dust Cover
<b>DIO</b>	1x 12-bit GPIO	1x DB9 GPIO - 4 x DI and 4 x DO with 2.5KV isolation	1x 8-Bit GPIO, w/ 1.5KV isolation	1x 8-Bit GPIO, w/ 1.5KV isolation	1x 8-Bit GPIO
<b>Display Chipset</b>	Intel® HD Graphics 520/ 510	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® UHD Graphics 630/610	Intel® UHD Graphics 630/610	Intel® HD Graphics 505/500
<b>Display Resolution</b>	DP: Max. resolution 4096x2304 @ 60Hz	DP++ 1.4: 4096x2304 @ 60Hz HDMI 2.0 : Max. resolution 4096 x 2304 @ 60Hz VGA: 1920x1080 @ 60Hz(optional)	DP 1.2: 4096 x 2160 @ 60Hz w/HDR HDMI 1.4: 4096 x 2160 @ 30Hz LVDS: 1920 x 1200 @ 60Hz, supports 2 channels 18/24-bit	DP 1.2: 4096 x 2160 @ 60Hz w/HDR HDMI 1.4: 4096 x 2160 @ 30Hz LVDS: 1920 x 1200 @ 60Hz, supports 2 channels 18/24-bit	DP: Max. Resolution 4096 x 2160 @ 60Hz LVDS: Max. Resolution 1920 x 1200 @ 60Hz
<b>Audio Interface</b>	Mic-In, Line-In and Line-Out	Mic-In, Line-Out, Line-in (DB15)	2 x Mic-In, 2 x Line-Out	2 x Mic-In, 2 x Line-Out	2 x Mic-In, 2 x Line-Out
<b>Ethernet Chipset</b>	2 x Intel® I211AT	2 x Intel® I210-IT	1x Intel® I211-AT GbE Controller, 1x Intel® I219-LM GbE PHY	1x Intel® I211-AT GbE Controller, 1x Intel® I219-LM GbE PHY	2 x Intel® I211AT
<b>Ethernet Interface</b>	2 x RJ45	2 x M12, X-coded	2 x RJ45; 4 x Port RJ45/ M12, supports 802.3af PoE (optional)	2 x RJ45 (LAN); 4 x RJ45/ M12 (PoE), supports 802.3af PoE.	2 x RJ45
<b>Power Requirement</b>	Typical 12/24Vdc (+9V ~ +36V), w/ isolation	Typical 12/24Vdc (+9V ~ +36V), w/ isolation	Typical 12/24Vdc (+9V ~ +36V), w/ isolation	Typical 12/24Vdc (+9V ~ +36V), w/ isolation	Typical 12/24Vdc (+9V ~ +36V), w/ isolation
<b>Power Mode</b>	AT/ATX (ATX is the default setting)	AT/ATX (AT default), w/ignition control and power management	AT/ATX (AT default), w/ignition control and power management	AT/ATX (AT default), w/ignition control and power management	AT/ATX (AT default), w/ignition control and power management
<b>Dimension (L x W x H)</b>	(240 x 151.5 x 75 mm)	240 mm x 150 mm x 55mm	(210 x 240 x 110 mm)	(210 x 240 x 110 mm)	(239 x 186 x 62 mm)
<b>Operating Temperature</b>	(w/SSD), ambient w/ air flow -20°C ~ 60°C (-4°F ~ 140°F)	-40°C ~ 70°C (w/SSD) ambient w/ air flow. Follow EN50155, Class OT4 -40 ~ 70°C, 85°C for 10 minutes	With extended temperature peripherals, w/ air flow: -40°C ~ 70°C (-40°F ~ 158°F)	With extended temperature peripherals, w/ air flow: -40°C ~ 60°C (-40°F ~ 140°F)	With extended temp. peripherals N4200/N3350: -20°C ~ 70°C (-4°F ~ 158°F) w/ air flow ; E3950/E3940/E3930: -40°C ~ 70°C (-40°F ~ 158°F) w/ air flow
<b>Certification Information</b>	CE, FCC Class A, IEC 60945	CE, FCC Class A, EN50155 (24Vdc in), EN50121-3-2, EN45545-2	CE, FCC Class A, E13 Mark, ISO7637-2, IP50 Rating	CE, FCC Class A, E13 Mark, ISO7637-2, IP50 Rating	CE, FCC Class B, E13 Mark, ISO7637-2, IP50 Rating

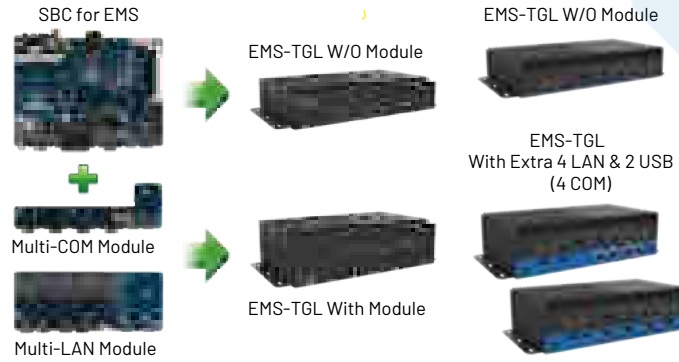
# Modular System with IET Modules



# Expandable Fanless System



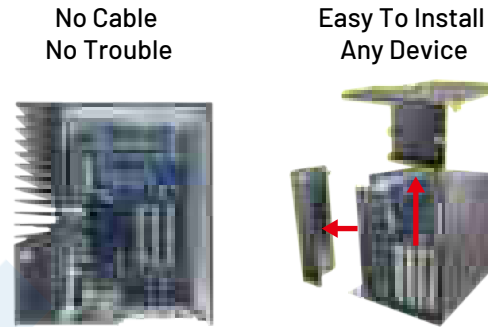
## Modularization via IET Module



## IET Module Family

<b>AUX-M01</b> 4 x COM, 2 x USB	<b>AUX-M03</b> 8 x COM, 2 x USB
<b>IET-BYPASSB</b> 4 x LAN, 2 x USB	<b>IET-PSEB</b> 4 x PoE, 2 x USB
<b>EBM-CDVS DB-A</b> DVI-D + 2 x USB	<b>EBM-BYTS DB-E</b> 4 x USB 3.0, 3 x USB 2.0
<b>EBM-BYTS DB-A</b> HDMI, 2 x USB, 2 x COM, 2 x LAN	<b>EBM-BYTV DB-B</b> 2 x Mini PCIe w/ 2 SIM + DVI-D
<b>AUX-M08</b> 4 x PoE, 32 x GPIO	<b>EBM-CFSV DB-B</b> 4 x PoE (M12)

## Fanless & Easy Maintenance



## Expansion - Avalue IET Module



Model Number	EMS-EHL	EMS-TGL	EMS-SKLU
<b>Board</b>	EBM-EHLS	EBM-TGLS	EBM-SKLUS
<b>Processor</b>	Intel® Celeron® Processor J6413 Intel® ATOM® Processor X6425E	i7-1185GRE/ i5-1145GRE/ i3-1115GRE (WT) i7-1185G7E/i5-1145G7E/i3-1115G4E (ST)	i7-6600U/ i5-6300U/ i3-6100U/3955U
<b>System Memory</b>	1 x 260-pin DDR4 3200MHz SO-DIMM up to 32GB	2 x 260-pin DDR4 3200MHz SO-DIMM up to 64GB	1 x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB
<b>Expansion</b>	1 x IET interface (1 x DDI, 2 x PCIeIII x2, 3 x USB2.0, 1 x Line-Out(R/L), 1 x SMBus, LPC) 1 x M.2 Key-B 2242/3042/3052 support SATA3/ PCIe III/ USB2.0 and SIM slot1 (internal) 1 x M.2 Key-E 2230 for Wi-Fi & BT Module (USB2.0/ PCIe III)	1 x Avalue 80-Pin IET Module Interface 1 x M.2 Key-B 2242/3042/3052 (SATA/ PCIe/ USB3.1) 1 x M.2 Key-E 2230 for Wi-Fi & BT Module (CNVi)	1 x Avalue 80-Pin IET Module Interface 1 x M.2 Key B, Size 2242/ 3042 (SATA/ PCIe/ USB3.0) 1 x Mini PCIe
<b>Storage</b>	1 x M.2 Key-B 2242/2280, support SATA 1 x M.2 Key-B 2242, support SATA (share with expansion slot)	1 x M.2 Key-M 2280, support PCIe Gen. III x4 (NVMe SSD) 1 x M.2 Key-B 2242 (SATA), share with expansion slot	1 x 2.5" Drive Bay 1 x M.2 (SATA)
<b>USB</b>	4 x USB 3.1 Gen.2 (10Gbps)	2 x USB 3.1 Gen.2 (10Gbps) 2 x USB 3.1 Gen.1 (5Gbps)	4 x USB 3.0
<b>COM Port</b>	2 x COM RS232/422/485 (select via BIOS, auto flow control via HW)	2 x RS-232/422/485 (BIOS), supports auto-flow	2 x RS-232/422/485 (BIOS + DIP Switch), supports auto-flow
<b>Other</b>	1 x SIM Card Slot (internal) 8 x Antenna with dust cover (6 x LTE+GPS/ 2 x Wifi)	1 x SIM Card Slot (internal) 8 x Antenna with dust cover (6 x LTE+GPS/ 2 x Wifi)	2 x SIM Card Slot, 1 x SMBus, 2 x PS2/ KB & MS, 2 x Antenna mounting w/ cover
<b>DIO</b>	1 x 8-bit GPIO (DB9), optional	1 x 8bit GPIO	1 x 12bit GPIO
<b>Display Chipset</b>	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® Iris® Xe Graphics (i7-1185GRE/i5-1145GRE) Intel® UHD Graphics (i3-1115GRE)	Intel® HD Graphics 520/510
<b>Display Resolution</b>	DP++ 1.4: 4096x2304 @ 60Hz HDMI 2.0b : Max. resolution 4096x2304 @ 60Hz	1 x DP 1.4 Max. resolution 4096 x 2304 @ 60Hz 1 x HDMI 2.0b Max. resolution 4096 x 2304 @ 60Hz	DP: Max. resolution 4096 x 2304 @ 60Hz
<b>Audio Chipset</b>	Realtek Audio code	Realtek Audio code	Realtek Audio code
<b>Audio Interface</b>	Mic-In, Line-Out	Mic-In, Line-out	Mic-In, Line-In, Line-Out
<b>Ethernet Chipset</b>	1 x Intel I225-LM, 1 x Intel I219-LM	1 x Intel I225-LM, w/ TSN (need SW support for TSN) 1 x Intel I219-LM, w/ vPro (w/ i5 and i7 CPU)	1 x Intel® I211AT, 1 x Intel® I219LM
<b>Ethernet Interface</b>	2 x RJ45	2 x RJ45	2 x RJ45
<b>Power Connector</b>	3-Pin Terminal Block	3-Pin Terminal Block	3-Pin Terminal Block
<b>Power Requirement</b>	Typical +12 ~ +24Vdc (+9V ~ +32Vdv)	Typical +12 ~ +24Vdc (+9V ~ +32Vdv)	Typical +12 ~ +24Vdc (+9V ~ +32Vdv)
<b>ACPI</b>	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 Support S0, S3, S4, S5; ACPI 5.0 Compliant
<b>Power Mode</b>	AT/ ATX (ATX is default setting)	AT/ ATX (ATX is default setting)	AT/ ATX (ATX is default setting)
<b>Adapter</b>	Optional AC-DC Adapter (60W)	Optional AC-DC Adapter (60W)	Optional AC-DC Adapter (60W)
<b>Construction</b>	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
<b>Dimension (L x W x H)</b>	240mm x 150mm x 48 mm (Standard) 240mm x 150mm x 69 mm (w/ IET module)	Standard: 240mm x 150mm x 48mm w/ IET module: 240mm x 150mm x 69mm	Standard: 240mm x 151.5mm x 45mm w/ IET module: 240mm x 151.5mm x 60mm
<b>Operating Temperature</b>	-40°C ~ 75°C (w/SSD) ambient w/ 0.5 air flow, WT sku -40°C ~ 65°C (w/SSD) ambient w/ 0.2 air flow, WT sku 0°C ~ 75°C (w/SSD) ambient w/ 0.5 air flow, ST sku 0°C ~ 65°C (w/SSD) ambient w/ 0.2 air flow, ST sku	-40°C ~ 70°C (w/SSD) ambient w/ air flow, WT sku, 15W CPU 0°C ~ 70°C (w/SSD) ambient w/ air flow, ST sku, 15W CPU	(w/SSD), ambient w/ air flow -20°C ~ 60°C (-4°F ~ 140°F)
<b>Certification Information</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class A

Model Number	SLP-WHG	SLP-SKL	SLP-SKLB	SLP-SKG
<b>Processor</b>	Onboard 8th Gen Intel® Core™ SoC i7-8665UE/ i5-8365UE/ i3-8145UE & Celeron® 4305UE BGA Processor	Onboard 6th Gen Intel® Core™ i7-6700TE/ i5-6500TE/ i3-6100TE Processor & Celeron® G3900TE Processor	Onboard 6th Gen Intel® Core™ i7-6700TE/ i5-6500TE / i3-6100TE Processor & Celeron® G3900TE Processor	Onboard 6th Gen Intel Core SoC i7-6600U/ i5-6300U/ i3-6100U & Celeron 3955U BGA Processor
<b>System Chipset</b>	N/A	Intel® Q170 Chipset	i5-6500TE / i3-6100TE Processor & Celeron® G3900TE Processor	N/A
<b>System Memory</b>	2 x 260-pin SODIMM socket Max. up to 32GB DDR4 2133MT/s	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB (Default: 1 x 4GB DDR4)	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB (Default: 1 x 4GB DDR4)	2 x 260-Pin DDR4 2133MHz SO-DIMM up to 32 GB (Default: 1 x 4GB DDR4)
<b>Expansion</b>	1 x PCIe x1 slot 1 x PCIe x4 slot 1 x M.2 Key-E 2230 for Wi-Fi & BT Module	1 x PCI-e x16 3 x PCI	1 x PCI-e x8 2 x PCI-e x4 1 x PCI	3 Slot : 2 x PCI, 1 x PCI-e-1 2 Slot : 1 x PCI, 1 x PCI-e-1 1 Slot : 1 x PCI-e-4 1 x Key A M.2 2230
<b>Storage</b>	1 x M.2 Key-B 3042/2242/2260/2280, support SSD 1 x 2.5" Drive Bay (internal)	1 x Mini PCI-e Supports mSATA 2 x 2.5" Drive Bay support RAID 0, 1 1 x CFast™	1 x Mini PCI-e Supports mSATA 2 x 2.5" Drive Bay support RAID 0, 1 1 x CFast™	1 x 2.5" Drive Bay
<b>USB</b>	3 x USB3.1 Gen1 1 x USB Type C w/o ALT mode	6 x USB 3.0	6 x USB 3.0	4 x USB 3.0
<b>COM Port</b>	4 x RS-232	2 x RS-232 2 x RS-232/422/485	2 x RS-232 2 x RS-232/422/485	4 x RS232
<b>Other</b>	1 x Power on/off switch with LED 1 x Reset button 1 x HDD LED 1 x Internal USB 2.0 (Type-A) 1 x PS/2 Keyboard/ Mouse	1 x Power on/off switch with 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/ Mouse 1 x 16CH isolated DIO	1 x Power on/off switch with 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/ Mouse	1 x Power on/off switch with LED 1 x Reset button 1 x HDD LED 1 x Internal USB 2.0 (Type-A) 1 x PS/2 Keyboard/ Mouse
<b>Display</b>	3 x HDMI 1.4b: 3840 x 2160 @ 30 Hz	DP + DVI-I	DP + DVI-I	HDMI + VGA
<b>Audio</b>	N/A	Mic-In, Line-In and Line-Out	Mic-In, Line-In and Line-Out	Mic-In and Line-Out
<b>Ethernet</b>	1 x Intel® I219-LM 1 x Intel® I210-IT	1 x Intel® I219LM 1 x Intel® I210AT	1 x Intel® I219LM 1 x Intel® I210AT	1 x Intel® I219LM 1 x Intel® I211AT
<b>Power Connector</b>	Phoenix Connector	Phoenix Connector	Phoenix Connector	Phoenix Connector Mini Din connector
<b>Power Requirement</b>	DC in +12V ~ +24V, wide voltage	Built-in 9-36 VDC wide-range DC input	Built-in 9-36 VDC wide-range DC input	+12-24 VDC input
<b>Power Mode</b>	AT/ ATX (ATX is default setting)	ATX	ATX	ATX / AT
<b>Adapter</b>	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 180W Adapter (24V @ 7.5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 180W Adapter (24V @ 7.5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 180W Adapter (24V @ 7.5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 180W Adapter (24V @ 7.5A)
<b>Operating Temperature</b>	-20~50°C (-4°F ~ 122°F) w/WT SSD, ambi- ent w/ 0.5m/s air flow	(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/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)	-5°C ~ 45°C (23°F ~ 113°F) w/ HDD, ambient w/ air flow -5°C ~ 55°C (23°F ~ 131°F) w/ Industrial SSD/ RAM, ambient w/ air flow
<b>Storage Temperature</b>	-40°C ~ 75°C (-40°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)
<b>Construction</b>	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
<b>Mounting Kit</b>	NA	Wall Mount VESA (Optional)	Wall Mount VESA (Optional)	N/A
<b>Dimension (L x W x H)</b>	217 mm x 115 mm x 220 mm	200 x 225 x 218 mm	200 x 225 x 218 mm	221.8 x 135 x 232.85 mm
<b>Weight</b>	2.6 kg	4.5 kg	4.5 kg	3.6 kg

# Fanless Embedded System



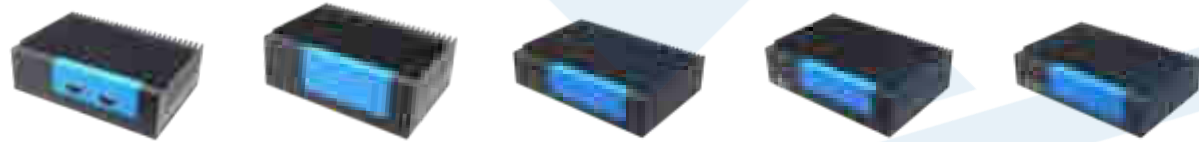
Model Number	EPS-ADS	EPS-CFS	EPS-CFS2	EPS-KBLHE
<b>Board</b>	ECM-ADS	ECM-CFS	ECM-CFS	ECM-KBLH
<b>Processor</b>	i9-12900TE, i7-12700TE, i5-12500TE, i3-12100TE	i7-8700T, i7-9700TE, i5-8500T, i5-9500TE, i3-8100T, i3-9100TE, G5400T, G4900T	i7-8700T, i7-9700TE, i5-8500T, i5-9500TE, i3-8100T, i3-9100TE, G5400T, G4900T	i7-7820E0, i5-7440E0, i3-7100E
<b>System Chipset</b>	Intel® Q670E Express Chipset Intel® H610E Express Chipset	Intel® Q370 Express Chipset Intel® H310 Express Chipset	Intel® Q370 Express Chipset Intel® H310 Express Chipset	Intel® QM175 Express Chipset
<b>System Memory</b>	2 DIMM Dual Channel DDR5 4800MHz Up to 128GB	1 x 260-Pin DDR4 2400/2666MHz SO-DIMM up to 32 GB	1 x 260-Pin DDR4 2400/2666MHz SO-DIMM up to 32 GB	1 x 260-Pin DDR4 2400MHz SO-DIMM up to 16 GB
<b>Expansion</b>	1 x mPCIe (default) 1 x M.2 Key-B 2242/3042/3052 support SATA3/PCIeIII x1/ USB3.1 Gen. 1/USB 2.0 (for Q670E) 1 x M.2 Key-B 2242/3042/3052 support SATA3/PCIeIII x1/ USB 2.0 (for H610E) 1 x M.2 Key-E 2230 PCIeIII x 1/USB2.0 for Wi-Fi & BT Modules	1 x mPCIe (default) (Q370 - PCIe/SATA/USB 2.0) (H310 - SATA/USB 2.0) 1 x mPCIe, support USB 2.0 (factory option)	1 x mPCIe (default) (Q370 - PCIe/SATA/USB 2.0) (H310 - SATA/USB 2.0)	1 x mPCIe Supports mSATA 1 x M.2 (B-Key, 2242)
<b>Storage</b>	2 x 2.5" Drive Bay 1 x M.2 (B-Key, 2242/2280), support PCIe Gen IV x 4 (NVMe SSD)	2 x 2.5" Drive Bay 1 x mSATA	2 x 2.5" Drive Bay 1 x mSATA	2 x 2.5" Drive Bay 1 x M.2 (B-Key, 2242) 1 x mSATA
<b>USB</b>	2 x USB 2.0, 6 x USB 3.1	2 x USB 2.0, 4 x USB 3.1	2 x USB 2.0, 4 x USB 3.1	2 x USB 2.0, 4 x USB 3.0
<b>COM Port</b>	2 x RS232 4 x RS232/422/485	2 x RS-232	2 x RS-232	1 x RS-232 1 x RS-232/422/485
<b>Display Chipset</b>	Intel® 12th Generation CPU integrated	Intel® UHD Graphics 630/610	Intel® UHD Graphics 630/610	Intel® HD Graphics 630
<b>Display Resolution</b>	HDMI: Max. resolution 4096 x 2304 @ 30Hz	HDMI: Max. resolution 4096 x 2304 @ 30Hz	HDMI: Max. resolution 4096 x 2304 @ 30Hz	HDMI: Max. resolution 4096 x 2160 @ 24Hz
<b>Audio Chipset</b>	Realtek Audio code	Realtek Audio code	Realtek Audio code	Realtek Audio code
<b>Audio Interface</b>	Mic-In and Line-Out	Mic-In and Line-Out	Mic-In and Line-Out	Mic-In and Line-Out
<b>Ethernet Chipset</b>	1 x Intel® I219LM 1 x Intel® I225-LM	1 x Intel® I211AT 1 x Intel® I219LM	1 x Intel® I211AT 1 x Intel® I219LM	1 x Intel® I210AT 1 x Intel® I219LM
<b>Ethernet Interface</b>	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
<b>Power Connector</b>	3-Pin Terminal Block	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
<b>Power Requirement</b>	DC in typical 12/24V, +9V ~ +32V, wide voltage	+12V	+12V	+12V +9V ~ +36V (optional w/ EPM-1712)
<b>ACPI</b>	Single Power ATX Support S0, S1, S3, S4, S5; ACPI 5.0 Compliant	Single Power ATX Support S0, S1, S3, S4, S5; ACPI 5.0 Compliant	Single Power ATX Support S0, S1, S3, S4, S5; ACPI 5.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 5.0 Compliant
<b>Power Mode</b>	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
<b>Dimension (L x W x H)</b>	149 x 216 x 75 mm	212 x 240 x 85 mm	170 x 195 x 85 mm	240 x 229 x 66 mm
<b>Operating Temperature</b>	With extended temperature peripherals w/ air flow: -10°C ~ 60°C (14°F ~ 140°F)	With extended temperature peripherals w/ air flow: -10°C ~ 50°C (14°F ~ 122°F)	With extended temperature peripherals w/ air flow: -10°C ~ 45°C (14°F ~ 113°F)	With extended temperature peripherals w/ air flow: -10°C ~ 50°C (14°F ~ 122°F)
<b>Certification</b>	CE, FCC Class A (DC-in)	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

Model Number	ECS-APCL	NUC-TGU	NUC-APL	NUC-APL-Slim
<b>Processor</b>	Intel® Celeron® J3455E Processor	11th Gen. Intel® Core™ i7/i5/i3 BGA Processor	Intel® Celeron® J3455/N3350 Processor	Intel® Celeron® J3455/N3350 Processor
<b>System Memory</b>	1 x 204-pin SO-DIMM Socket, Max. Up to 8GB DDR3L 1600MHz	1 x 260-pin SODIMM socket Max. up to 64GB DDR4 3200 MT/s	1 x 204-pin SO-DIMM Socket, Max. Up to 8GB DDR3L 1866MHz	1 x 204-pin SO-DIMM Socket, Max. Up to 8GB DDR3L 1866MHz
<b>Expansion</b>	1 x M.2 (Key-B, 3042/2242/2260) 1 x M.2 (Type A, 2230)	1 x M.2 (Key-M, 2242/2280) 1 x M.2 (Key-B, 2242/3024/3052, w/SIM Slot) 1 x M.2 (Key-E 2230)	1 x M.2 (Key-B, 2242/3042, w/ SIM Slot) 1 x M.2 (Key-E, 2230)	1 x M.2 (Key-B, 2242/3042) 1 x M.2 (Key-E, 2230, PCIe, USB2.0)
<b>Storage</b>	1 x M.2 (Key-B, 3042/2242/2260)	1 x M.2 (Key-M, 2242/2280, NVMe) 1 x M.2 (Key-B, 2242)	1 x 2.5" Drive Bay (7mm) 1 x M.2 (Key-B, 2242)	1 x M.2 (Key-B, 2242)
<b>USB</b>	2 x USB 3.0, 2 x USB 2.0	4 x USB 3.1 Gen.2, 2 x USB 2.0	4 x USB 3.0 (5Gbps)	4 x USB 3.0 (5Gbps)
<b>COM Port</b>	1 x RS-232	2 x RS232/422/485 (BIOS)	1 x RS-232/422/485 (BIOS & Cable) 1 x RS-232	1 x RS-232/422/485 (BIOS&Cable)
<b>Other</b>	1 x Power on/off Button 1 x Storage LED 2 x SMA Connector (Optional)	1 x Power on/off Button w/ LED 1 x LED for HDD/ WLAN/ WWLAN 4 x Antenna Mounting with Dust Cover	1 x Power on/off Button w/ LED 1 x Storage LED 2 x Antenna Mounting w/ Dust Cover	1 x Power on/off Button w/ LED 1 x Storage LED 2 x Antenna Mounting w/ Dust Cover
<b>Display</b>	1 x DP++: Max. Resolution 4096 x 2160 @ 60Hz 1 x HDMI: Max. Resolution 3840 x 2160 @ 30Hz	2 x DP++ 1.4a: Max. Resolution 4096x2304@60Hz	2 x HDMI 1.4b: Max. Resolution 3840 x 2160 @ 30Hz 1 x DP/ DVI-I/ VGA (Factory Option): Max. Resolution 1920 x 1080 @ 60Hz	2 x HDMI 1.4b: Max. Resolution 3840 x 2160 @ 30Hz *1 x DP/ DVI-I/ VGA (Factory Option): Max. Resolution 1920 x 1080 @ 60Hz *DP/ DVI-I/ VGA is an option which will replace the location of COM
<b>Audio</b>	Realtek Audio code 1 x Line-out	1 x Mic-in, 1 x Line-out	Realtek Audio code 1 x Audio Jack (Mic-in + Line-out Combo)	Realtek Audio code 1 x Audio Jack (Mic-in + Line-out Combo)
<b>Ethernet</b>	2 x Intel I211AT	1 x Intel I225LM, 1 x Intel I219LM	2 x Realtek RTL8111E Gigabit	2 x Realtek RTL8111E Gigabit
<b>Power Connector</b>	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
<b>Power Requirement</b>	+12V	+12V	+12V	+12V
<b>Power Mode</b>	ATX	ATX	ATX	ATX
<b>Adapter</b>	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vdc/50 ~ 60Hz Output: 120W Adapter (12V @ 10A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A)
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F) (w/HDD) ambient w/air flow.	<b>Fanless Mode:</b> 0°C ~ 40°C (32°F ~ 104°F) with 0.2m/s air flow; 0°C ~ 50°C (32°F ~ 122°F) with 0.5m/s air flow <b>Fan Kit Mode:</b> 10~15°C increased while the Fan kit be installed: -10°C ~ 60/ 65°C (32°F ~ 104/ 149°F) with 0.5m/s air flow	With extended temperature peripherals -10°C ~ 50°C (14°F ~ 122°F), 0.2m/s air flow With extended temperature peripherals -10°C ~ 60°C (14°F ~ 140°F), 0.5m/s air flow	-10°C ~ 40°C (14°F ~ 104°F), 0.2m/s air flow -10°C ~ 50°C (14°F ~ 122°F), 0.5m/s air flow
<b>Storage Temperature</b>	-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)
<b>Construction</b>	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
<b>Mounting Kit</b>	Wall Mount (Optional)	Stand (default), Dina Rail/ VESA (Optional)	VESA/ Din rail	VESA/ Din rail
<b>Dimension (L x W x H)</b>	4.75" x 3.75" x 1.96" (120.6 x 95.2 x 49.8 mm)	6.69" x 4.92" x 1.42" (170 x 125 x 36 mm)	4.53" x 4.37" x 2.28" (115mm x 111mm x 58mm)	4.53" x 4.37" x 1.77" (115mm x 111mm x 45mm)
<b>Weight</b>	1.2 kg	1 kg	0.85 kg	0.72kg
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class A	CE, FCC Class A

# Fanless Embedded System

# ARM-based System

## Fanless Embedded System



Model Number	EPC-TGU	EPC-EHL	EPC-WHL	EPC-SKLU	EPC-APL
<b>Board</b>	ECM-TGU	ECM-EHL	ECM-WHL	ECM-SKLU	ECM-APL2
<b>Processor</b>	11th Gen. Intel® Core™ i7/i5/i3 BGA Processor	Intel® ATOM® Processor x6211E/x6413E/x6425E Processor	8th Generation Intel® Core™ i7/ i5/ i3/ Celeron® Processor	6th Generation Intel® Core™ i7/ i5/ i3/ Celeron® Processor	Intel® Pentium® N4200 Processor Intel® Celeron® J3455/N3350 Processor
<b>System Memory</b>	1x 260-Pin SO-DIMM Socket, Max. Up to 32GB DDR4 3200MHz	1x 260-Pin SO-DIMM Socket, Max. Up to 32GB DDR4 3200MHz	2 x 260-Pin DDR4 2400MHz SO-DIMM Socket Up to 64GB	1 x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	1 x 204-Pin DDR3L 1866MHz SO-DIMM up to 8 GB
<b>Expansion</b>	1 x M.2 (Key-M, 2242) 1 x M.2 (Key-B, 2242/3042/3052, w/ SIM Slot) 1 x M.2 (Key-E, 2230)	1 x M.2 (Key-B, 2242/3042, w/ SIM Slot) 1 x M.2 (Key-E, 2230)	1 x M.2 (Key-B, 2242/3042, w/ SIM Slot) 1 x M.2 (Key-E, 2230, CNVi)	1 x Full Size Mini PCIe (mSATA) 1 x M.2 (B-KEY, 2242, w/ SIM Slot)	1 x Full size Mini PCIe Supports mSATA 1 x Half size Mini PCIe Supports Wi-Fi Module
<b>Storage</b>	1 x 2.5" Drive Bay (7mm) 1 x M.2 (Key-M, 2242, NVMe) 1 x M.2 (Key-B, 2242)	1 x 2.5" Drive Bay (7mm) 1 x M.2 (Key-B, 2242)	1 x 2.5" Drive Bay (7mm) 1 x M.2 (Key-B, 2242)	1 x 2.5" Drive Bay (7mm) 1 x M.2 (Key-B, 2242) 1 x mSATA	1 x 2.5" Drive Bay 1 x mSATA
<b>USB</b>	4 x USB 3.1 Gen.2 2 x USB 2.0	2 x USB 3.1, 2 x USB2.0	4 x USB 3.1	2 x USB 2.0, 4 x USB 3.0	4 x USB 3.0
<b>COM Port</b>	2 x RS232/422/485 (BIOS)	4 x RS232	1 x RS232 (Factory Option)	1 x RS-232 1 x RS-232/422/485 (Cable & BIOS)	1 x RS-232/422/485 (Jumper)
<b>Other</b>	2 x Antenna Mounting with Dust Protection Cove	2 x Antenna Mounting with Dust Protection Cove	2 x Antenna Mounting with Dust Protection Cove	2 x Antenna Mounting with Dust Protection Cover	2 x Knockouts for Antenna Mounting
<b>Display Chipset</b>	Intel® Iris® Xe Graphics (i7/ i5) Intel® Iris® UHD Graphics (i3)	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® UHD Graphics 620	Intel® HD Graphics 520/ 510	Intel® HD Graphics 505/500
<b>Resolution</b>	DP++ 1.4a: 4096x2304@60Hz	1 x HDMI 2.0b Max resolution 4096x2160@60Hz 1 x DP 1.4a Max resolution 4096x2160@60Hz	2 x HDMI 1.4: Max. Resolution 4096 x 2160 @ 24Hz	2 x HDMI: Max. Resolution 4096 x 2160 @ 24Hz	1 x VGA: Max. resolution 1920 x 1200 @ 60Hz 1 x HDMI: Max. resolution 3840 x 2160 @ 30Hz
<b>Audio Chipset</b>	Tempo 92HD73C	Tempo 92HD73C	Realtek Audio code	Realtek Audio code	Realtek Audio code
<b>Audio Interface</b>	1 x Combo Jack (Mic-In + Line-Out)	1 x Line-Out 1 x Mic-In	1 x Line-Out 1 x Mic-In	Mic-in/ Line-out (Factory Option)	Mic-in/ Line-out (Factory Option)
<b>Ethernet Chipset</b>	Intel® I225-LM Intel® I210-AT	1 x Intel® I225-IT, 1 x Intel® I210-IT	1 x Intel® I211AT 1 x Intel® I219LM	1 x Intel® I211AT 1 x Intel® I219LM	2 x Intel® I211AT
<b>Ethernet Interface</b>	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45	2 x RJ45
<b>Power Connector</b>	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack	Lockable DC Jack
<b>Power Requirement</b>	+12V	+12V	+12V	+12V ~ +26V	+12V ~ +26V
<b>ACPI</b>	Single Power ATX Support S0, S3	Single Power ATX Support S0, S3	Single Power ATX Support S0, S3	Single Power ATX Support S0, S3, S4, S5; ACPI 5.0 Compliant	Single Power ATX Support S0, S3, S4, S5; ACPI 5.0 Compliant
<b>Power Mode</b>	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)
<b>Adapter</b>	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 120W Adapter (12V @ 10A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter) AC-DC Adapter	Input: 100 ~ 240Vdc/ 50 ~ 60Hz Output: 120W Adapter (12V @ 10A 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
<b>Construction</b>	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal	Aluminum + Metal
<b>Dimension (L x W x H)</b>	6.97" x 4.84" x 2.17" (177mm x 123mm x 55mm)	6.97" x 4.84" x 2.2" (177mm x 123mm x 65mm)	6.97" x 4.84" x 2.17" (177mm x 123mm x 55mm)	7" x 4.8" x 2.0" (177mm x 123mm x 50mm)	6.97" x 4.84" x 1.77" (177mm x 123mm x 45mm)
<b>Operating Temperature</b>	With extended temp. peripherals w/ air flow: -10°C ~ 50°C (32°F ~ 122°F) with air flow	With extended temp. peripherals w/ air flow: -40°C ~ 70°C (-40°F ~ 158°F)	With extended temp. peripherals w/ air flow: -10°C ~ 40°C (14°F ~ 104°F)	With extended temp. peripherals w/ air flow: -10°C ~ 50°C (14°F ~ 122°F)	With extended temp. peripherals w/ air flow: -10°C ~ 50°C (14°F ~ 122°F)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B

## ARM-based System



Model Number	AIB-IMX6	AIB-IMX6A	AIB-IMX8M
<b>Processor</b>	NXP i.MX6 Cortex-A9 Dual Lite/ Quad 1GHz CPU	NXP i.MX6 Cortex-A9 Quad 1GHz CPU	NXP i.MX8M Cortex-A53 Quad Core 1.3GHz; Cortex-M4 core processor
<b>System Memory</b>	Onboard DDR3 1GB	Onboard DDR3 1GB	Onboard DDR4 2GB
<b>Storage</b>	1 x On board 4GB eMMC	1 x On board 8GB eMMC	1 x On board 8GB eMMC
<b>External I/O Connector</b>	1 x USB2.0 Type A (Double deck) 1 x HDMI 1 x 10/100/1000 LAN RJ45 Optional Powered LAN support (IEEE 802.3at) 1 x Micro SD socket	2 x USB 2.0 (Double deck) 1 x Mini-USB Connector 4 x COM Port COM1/2 on board-DB9 (RS232/422/485) COM3 Cable-DB9 (RS232) Debug Port 1 x HDMI 2 x Gigabit LAN 1 x Micro SD socket	1 x USB 3.0 Type A (Vertical type) 1 x USB 3.0 Type C 2 x Gigabit LAN 1 x HDMI (Vertical type) 1 x Micro SD socket 1 x Hand Phone 1 x Reset 1 x Power LED (Green)
<b>Power Requirement</b>	12 ~ 26V DC input, 2.5mm DC Jack, typical 19V input With brownout detection or Powered LAN (optional)	12 ~ 24V DC input, 2.5mm DC Jack, typical 19V input With brownout detection	12 ~ 24V DC input, Terminal block
<b>Operating Temperature</b>	-20°C ~ 70°C (-4°F ~ 158°F)	-20°C ~ 50°C (-4°F ~ 122°F)	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Storage Temperature</b>	-40°C ~ 70°C (-40°F ~ 158°F)	-20°C ~ 70°C (-4°F ~ 158°F)	-40°C ~ 85°C (-40°F ~ 185°F)
<b>Dimension (L x W x H)</b>	153 mm x 107.8 mm x 30 mm	186 mm x 121.35 mm x 37 mm	177 mm x 112 mm x 53.5 mm
<b>Weight</b>	1.5 kg	1.0 kg	2.0 kg
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
<b>Software Support</b>	Android 4.4 or 6.0 Ubuntu 12.04 Yocto 2.1	Yocto 1.7 / 2.5	Android 9.0 Linux Yocto 2.5

# High Performance Computing Solution



Time-to-solutions



IPMI 2.0 Supported



Extended Lifecycle

**Healthcare**  
Precision Diagnosis/  
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**Medical**  
Advanced Medical  
Imaging Technology

**Communication**  
Superior Accelerated  
Workstation

**Smart Manufacturing**  
Visualization Machine Vision/  
Transformative Analytics

**Smart City**  
Smart Public Safety and  
Enforcement Technology

## High Performance Computing System



Model Number	HPS-246U4A	HPS-621D4A	HPS-621U4A	HPS-246UTA	HPS-621DTA	HPS-621UTA
<b>Processor (CPU Type)</b>	Intel® LGA1151 Socket supports 8th/9th Gen. Core i7/i5/i3/Pentium/Celeron/Xeon E Processors (Max. TDP at 95W)	Dual Intel® FCLGA3647 Sockets support 1st and 2nd Gen. Intel® Xeon Scalable Processors (Max. TDP at 150W each)	Intel® FCLGA3647 Sockets supports 1st and 2nd Gen. Intel® Xeon Scalable Processors (Max. TDP at 150W)	Intel® LGA1151 Socket supports 8th/9th Gen. Core i7/i5/i3/Pentium/Celeron/Xeon E Processors (Max. TDP at 95W)	Dual Intel® FCLGA3647 Sockets support 1st and 2nd Gen. Intel® Xeon Scalable Processors (Max. TDP at 150W each)	Intel® FCLGA3647 Sockets supports 1st and 2nd Gen. Intel® Xeon Scalable Processors (Max. TDP at 150W)
<b>Chipset</b>	Intel® C246 Chipset	Intel® C621 Chipset	Intel® C621 Chipset	Intel® C246 Chipset	Intel® C621 Chipset	Intel® C621 Chipset
<b>Memory</b>	4 x DDR4 2666MHz ECC and Non-ECC DIMM support up to 128GB (ECC memory supported by specific CPU SKUs)	12 x DDR4 2933/ 2666/ 2400/ 2133 MHz RDIMM/ LRDIMM up to 1.5TB	6 x DDR4 2933/ 2666/ 2400/ 2133 MHz RDIMM/ LRDIMM up to 768GB	4 x DDR4 2666MHz ECC and Non-ECC DIMM support up to 128GB (ECC memory supported by specific CPU SKUs)	12 x DDR4 2933/ 2666/ 2400/ 2133 MHz RDIMM/ LRDIMM up to 1.5TB	6 x DDR4 2933/ 2666/ 2400/ 2133 MHz RDIMM/ LRDIMM up to 768GB
<b>Storage</b>	External: 1 x 5.25" storage bay 3 x Front accessible 2.5" storage bay	External: 1 x 5.25" storage bay 3 x Front accessible 2.5" storage bay	External: 1 x 5.25" storage bay 3 x Front accessible 2.5" storage bay	External: 1 x 5.25" storage bay 3 x Front accessible 2.5" storage bay	External: 1 x 5.25" storage bay 3 x Front accessible 2.5" storage bay	External: 1 x 5.25" storage bay 3 x Front accessible 2.5" storage bay
<b>IPMI</b>	IPMI 2.0	IPMI 2.0	IPMI 2.0	IPMI 2.0	IPMI 2.0	IPMI 2.0
<b>Expansion Slots</b>	1 x PCIe Gen 3.0 x16 slot 1 x PCIe Gen 2.0 x 8 slot 1 x PCIe Gen 3.0 x 4 slot 1 x PCIe Gen 3.0 x 1 slot 1 x PCI 3.0 slot	Slot 1, PCIe 3.0 x16 from CPU1 Slot 2, PCI 3.0 Slot 3, PCIe 3.0 x16 from CPU1 Slot 4, PCIe 3.0 x16 from CPU2 Slot 5, PCIe 3.0 x16 from CPU2 Slot 6, PCIe 3.0 x8 from CPU1 Slot 7, PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU)	Slot 1, PCI 3.0 slot Slot 2, PCIe 3.0 x8 Slot 3, PCIe 3.0 x16 Slot 4, PCIe 3.0 x8 Slot 5, PCIe 3.0 x16 Slot 6, PCIe 3.0 x8 from CPU1 Slot 7, PCIe 3.0 x16 (Slot 7 is the slot closest to CPU, x16 will switch to x8 automatically when Slot 6 is used)	1 x PCIe Gen 3.0 x16 slot 1 x PCIe Gen 2.0 x 8 slot 1 x PCIe Gen 3.0 x 4 slot 1 x PCIe Gen 3.0 x 1 slot 1 x PCI 3.0 slot	Slot 1, PCIe 3.0 x16 from CPU1 Slot 2, PCI 3.0 Slot 3, PCIe 3.0 x16 from CPU1 Slot 4, PCIe 3.0 x16 from CPU2 Slot 5, PCIe 3.0 x16 from CPU2 Slot 6, PCIe 3.0 x8 from CPU1 Slot 7, PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU)	Slot 1, PCI 3.0 slot Slot 2, PCIe 3.0 x8 Slot 3, PCIe 3.0 x16 Slot 4, PCIe 3.0 x8 Slot 5, PCIe 3.0 x16 Slot 6, PCIe 3.0 x8 Slot 7, PCIe 3.0 x16 (Slot 7 is the slot closest to CPU, x16 will switch to x8 automatically when Slot 6 is used)
<b>LAN</b>	7 x RJ45 Gigabit Ethernet Ports, IPMI shared LAN1 Port	4 x RJ45 Gigabit Ethernet Ports, IPMI shared LAN1 Port	4 x RJ45 Gigabit Ethernet Ports, IPMI shared LAN1 Port	7 x RJ45 Gigabit Ethernet Ports, IPMI shared LAN1 Port	4 x RJ45 Gigabit Ethernet Ports, IPMI shared LAN1 Port	4 x RJ45 Gigabit Ethernet Ports, IPMI shared LAN1 Port
<b>USB</b>	Front: 2 x USB 3.2 Gen1 Port Rear: 2 x USB 3.2 Gen2 Port	Front: 2 x USB 3.2 Gen1 Port Rear: 4 x USB 3.2 Gen1 Port	Front: 2 x USB 3.2 Gen1 Port Rear: 4 x USB 3.2 Gen1 Port	Front: 2 x USB 3.2 Gen1 Port Rear: 2 x USB 3.2 Gen2 Port	Front: 2 x USB 3.2 Gen1 Port Rear: 4 x USB 3.2 Gen1 Port	Front: 2 x USB 3.2 Gen1 port Rear: 4 x USB 3.2 Gen1 Port
<b>Display</b>	Intel® 8/9th Gen. CPU Integrated AST 2500 BMC Controller	AST 2500 BMC Controller	AST 2500 BMC Controller	Intel® 8/9th Gen. CPU Integrated AST 2500 BMC Controller	AST 2500 BMC Controller	AST 2500 BMC Controller
<b>Display Resolution</b>	3 x DP++ Port DP: 4096 x 2304 @ 60Hz HDMI : 4096 x 2160 @ 30Hz VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA Port VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA Port VGA: 1920 x 1200 @ 60Hz 32bpp	3 x DP++ Port DP: 4096 x 2304 @ 60Hz HDMI : 4096 x 2160 @ 30Hz VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA Port VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA Port VGA: 1920 x 1200 @ 60Hz 32bpp
<b>Cooling Fan</b>	2x 80 x 25mm Rear Fan	1x 120 x 25mm Front Fan 2x 80 x 25mm Rear Fan	1x 120 x 25mm Front Fan 2x 80 x 25mm Rear Fan	2x 80 x 25mm Rear Fan	1x 120 x 25mm Front Fan 2x 80 x 25mm Rear Fan	1x 120 x 25mm Front Fan 2x 80 x 25mm Rear Fan
<b>Power Supply</b>	1 x 500W PS2 ATX PSU	1 x 1300W PS2 ATX PSU	1 x 1300W PS2 ATX PSU	1 x 500W PS2 ATX PSU	1 x 1300W PS2 ATX PSU	1 x 1300W PS2 ATX PSU
<b>Operating Temp.</b>	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
<b>Dimension (W x H x D)</b>	482.6mm x 174.8mm x 528mm with ear mount	482.6mm x 174.8mm x 528mm with ear mount	482.6mm x 174.8mm x 528mm with ear mount	340mm x 488mm x 528mm with external handles & pedestal stand	340mm x 488mm x 528mm with external handles & pedestal stand	340mm x 488mm x 528mm with external handles & pedestal stand
<b>Form Factor</b>	19" 4U Rackmount	19" 4U Rackmount	19" 4U Rackmount	Tower Chassis	Tower Chassis	Tower Chassis
<b>OS</b>	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019	Windows 10 IoT Enterprise 64-bit Windows Server 2016 Windows Server 2019

## High Performance Computing Server Board



Model Number	HPM-246UA	HPM-621DE	HPM-621UA	HPM-SRSUA
<b>Processor</b>	Intel® LGA1151 Socket supports 8th/9th Gen. Core i7/i5/i3/Pentium/Celeron/Xeon E Processors (Max. TDP at 95W)	Dual Intel® FCLGA3647 Sockets support 1st and 2nd Gen. Intel® Xeon Scalable Processors (Max. TDP at 150W each)	Intel® FCLGA3647 Socket supports 1st and 2nd Gen. Intel® Xeon Scalable Processors (Max. TDP at 150W)	Intel® LGA4677 Socket supports 4th Gen. Intel® Xeon Scalable Processor (Max. TDP at 250W)
<b>System Chipset</b>	Intel® C246 Chipset	Intel® C621 Chipset	Intel® C621 Chipset	Intel® Emmitsburg Chipset
<b>System Memory</b>	4 x DDR4 2666MHz ECC and Non-ECC DIMM support up to 128GB (ECC memory supported by specific CPU SKUs)	12 x DDR4 2933/ 2666/ 2400/ 2133 MHz RDIMM/ LRDIMM up to 1.5TB	6 x DDR4 2933/ 2666/ 2400/ 2133 MHz RDIMM/ LRDIMM up to 768GB	6 x DDR5 4800/ 4400 MHz RDIMM/ LRDIMM up to 768GB
<b>Expansion</b>	1 x PCIe Gen 3.0 x16 slot 1 x PCIe Gen 2.0 x 8 slot 1 x PCIe Gen 3.0 x 4 slot 1 x PCIe Gen 3.0 x 1 slot 1 x PCI 3.0 slot	Slot 1, PCIe 3.0 x16 from CPU1 Slot 2, PCI 3.0 Slot 3, PCIe 3.0 x16 from CPU1 Slot 4, PCIe 3.0 x16 from CPU2 Slot 5, PCIe 3.0 x16 from CPU2 Slot 6, PCIe 3.0 x8 from CPU1 Slot 7, PCIe 3.0 x8 from CPU1 (Slot 7 is the slot closest to CPU, x16 will switch to x8 automatically when Slot 6 is used)	Slot 1, PCI 3.0 slot Slot 2, PCIe 3.0 x8 Slot 3, PCIe 3.0 x16 Slot 4, PCIe 3.0 x8 Slot 5, PCIe 3.0 x16 Slot 6, PCIe 3.0 x8 Slot 7, PCIe 3.0 x16 (Slot 7 is the slot closest to CPU, x16 will switch to x8 automatically when Slot 6 is used)	Slot 1, PCIe 5.0 x16 Slot 2, PCIe 5.0 x4 Slot 3, PCIe 5.0 x16 Slot 4, PCIe 5.0 x4 Slot 5, PCIe 5.0 x16 Slot 6, PCIe 5.0 x4 Slot 7, PCIe 5.0 x16 (Slot 7 is the slot closest to CPU)
<b>Display</b>	Intel® 8/9th Gen. CPU Integrated AST 2500 BMC Controller	AST 2500 BMC Controller	AST 2500 BMC Controller	AST 2600 BMC Controller
<b>Resolution</b>	3 x DP++ port DP: 4096 x 2304 @ 60Hz HDMI : 4096 x 2160 @ 30Hz 1 x VGA port VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA port VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA port VGA: 1920 x 1200 @ 60Hz 32bpp	1 x VGA port VGA: 1920 x 1200 @ 60Hz 32bpp
<b>Ethernet</b>	7 x Intel® I210AT Giga-bit Ethernet	4 x Intel® I210AT Giga-bit Ethernet	4 x Intel® I210AT Giga-bit Ethernet	1 x Intel® I210AT Giga-bit Ethernet 1 x Intel® I225V 2.5Giga-bit Ethernet 1 x Intel® X550-AT2 10Giga-bit Ethernet (Option)
<b>USB/SATA/COM/LAN</b>	8/4/2/7	8/10/2/4	8/9/2/4	12/5/2/4
<b>Power Requirement</b>	1 x Std. 24 pin ATX Connector 1 x 8 Pin SSI 12V Connector	1 x Std. 24 Pin ATX Connector 2 x 8 Pin SSI 12V Connectors	1 x Std. 24 Pin ATX Connector 3 x 8 Pin SSI 12V Connectors	1 x Std. 24 Pin ATX Connector 3 x 8 Pin SSI 12V Connector
<b>IPMI</b>	IPMI 2.0	IPMI 2.0	IPMI 2.0	IPMI 2.0
<b>Operating Temp.</b>	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 ~ 60°C (32 ~ 140°F)
<b>Dimension (L x W)</b>	12" x 9.6" (304.8 mm x 243.84 mm) PCB thickness is 2.0mm	12" x 13" (304.8mm x 330.2mm) PCB thickness is 2.0mm	12" x 9.6" (304.8mm x 243.84mm) PCB thickness is 2.0mm	12" x 9.6" (304.8mm x 243.84mm) PCB thickness is 2.54mm
<b>Weight</b>	1.54 lbs (0.7 kg)	3.96 lbs (1.8 kg)	2.14 lbs (0.97 kg)	2.62 lbs (1.19 kg)



# Barebone System

# Rackmount System

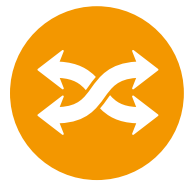
## Desktop Chassis

Avalue offers several different kinds of desktop chassis to create custom-made products according to exact specifications of clients for mother boards, PSUs, coolers, add on cards and accessories. Most of our chassis may provide enclosure for Mini-ITX form factor and even Micro ATX Motherboard. We also provides relatively internal AC/DC power supply which have standard ATX power output interface. Customer may choose suitable one to fulfill the application.

### Essential Professional Capabilities and Key Attributes



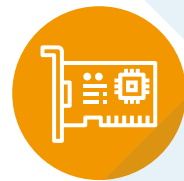
Configure to order



Flexible customer service



Multiple combination



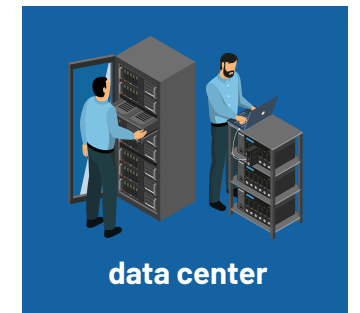
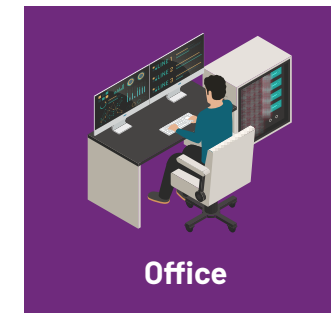
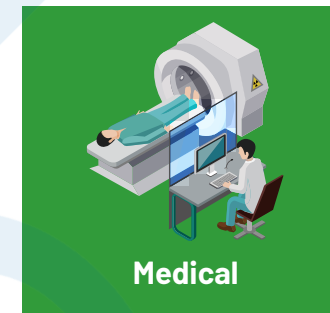
PCIe Expansion



Supplier	Desktop Chassis	Desktop Chassis	Medical Box
Model name	<b>BMX-T550</b>	<b>BMX-T540</b>	<b>MAB-T600</b>
M/B Form Factor	Up to 6.7"(W)x 6.7"(D) Mini ITX compliant MB	Up to 6.7"(W)x 6.7"(D) Mini ITX compliant MB	Up to 9.6"(W)x 9.6"(D) Micro ATX and Mini ITX compliant MB
Color	Black	Black	White
Dimension (W x D x H)	280 x 75 x 265 mm	372 x 307 x 107 mm	330.2 x 341 x 160 mm
Drive Bay	Internal 2 x 2.5"	Internal 2 x 2.5"	Internal 2 x 2.5"
Peripheral Bay	-	-	-
Expansion Slot	1 full height via riser card	2 full height via riser card	2 full height via riser card
System Cooling	60 x 60 x 25mm fan	70 x 70 x 15mm fan	70 x 70 x 15mm fan (TBD)
Front I/O	2 x USB ports	2 x USB ports	2 x USB ports
Button	System power on/off System reset	System power on/off	System power on/off
LED	Power LED HDD LED	Power LED HDD LED LAN LED	Power LED
Security	Depend on M/B	Depend on M/B	Depend on M/B
Limitation of CPU Cooler	Depend on CPU TDP	Depend on CPU TDP	Depend on CPU TDP
Power Supply	220W 1U Flex ATX Power Supply	400W ATX Power Supply	500W ATX Power Supply (Medical grade)
Operating Temperature	0 ~ 40°C (32°F ~ 104°F) w/ SSD, ambient w/ 0.5m/s air flow	0 ~ 40°C (32°F ~ 104°F) w/ SSD, ambient w/ 0.5m/s air flow	0°C ~ 35°C (32°F ~ 95°F), (w/HDD), ambient w/ air flow
Gross Weight	3.5kg	6.4kg	TBD

## Rackmount Chassis

Avalue can provide several standard chassis including rackmount series such as 1U, 1U, 4U etc. for customer to choose. We offer many different features. Such as 5.25" bays allows user to install CDs, DVDs and drive bays as well as full length cards supported even at shortened depth for performance demanding application. Since the configure to order process is fully customizable, it creates products that are tailored exactly to customer requirements.



Supplier	1U Racmount Chassis	2U Racmount Chassis	4U Racmount Chassis
Model name	<b>BCC-CASE-R1U0-01R</b>	<b>BCC-CASE-R2U0-01R</b>	<b>BCC-CASE-R4U0-02R</b>
M/B Form Factor	Up to 12"(W)x 9.6"(D) ATX compliant MB	Up to 12"(W)x 9.6"(D) ATX compliant MB	Up to 12"(W)x 9.6"(D) ATX compliant MB
Color	Black	Black	Black
Dimension (W x D x H)	381 x 482.6 x 44.4 mm	504 x 482.6 x 88.9 mm	504 x 482.6 x 88.9 mm
Drive Bay	2 x 3.5" Drive Bay	2 x 5.25" + 4 x 3.5" Drive Bay	2 x 5.25" + 4 x 3.5" Drive Bay
Peripheral Bay	1 x Slim ODD	1 x Slim DVD-ROM	1 x Slim DVD-ROM
Expansion Slot	1 full height via riser card	7 low profile	7 low profile
System Cooling	2 x 40 x 28mm fans	2 x 80x25mm fans 1 x 97mm blower (rear)	2 x 80x25mm fans 1 x 97mm blower (rear)
Front I/O	2 x USB ports	2 x USB ports	2 x USB ports
Button	System power on/off System reset	System power on/off System reset	System power on/off System reset
LED	Power LED HDD LED LAN 1 LAN 2	Power status LAN activity Drive activity	Power status LAN activity
Security	Depend on M/B	Depend on M/B	Depend on M/B
Limitation of CPU Cooler	Depend on CPU TDP	Depend on CPU TDP	Depend on CPU TDP
Power Supply	315W 1U Flex 100-240Vac (included)	500W PS2 100-240Vac Power Supply	500W PS2 100-240Vac Power Supply
Operating Temperature	0°C ~ 35°C (32°F ~ 95°F), (w/HDD), ambient w/ air flow	0°C ~ 35°C (32°F ~ 95°F), (w/HDD), ambient w/ air flow	0 ~ 40°C (32°F ~ 104°F) w/ SSD, ambient w/ 0.5m/s air flow
Gross Weight	7.5kg	18kg	20kg

# Wireless Sensor Node/ ARM-based Panel PC

## Wireless Sensor Node



## ARM-based Panel PC



Model Number	ASN-NBIOT
Processor	STMicroelectronics STM32L476ZGT6
Flash Memory	1MB Flash Memory
SRAM	128KB SRAM
LPWAN Module	Quectel BC95-G Support LTE Band : 1/3/5/8/20/28
GPS Module	Quectel L70B-M39
Indicate LED	LED for Power & NBIOT connection status Power: Green OK; Orange Charging; Red Lower battery NBIOT: Green Connected; Red Disconnected
Battery	1S2P 18650 Rechargeable Battery
External I/O Connector	1x IP65 M12 connector for power input and sensors I/O interface include with UART/SPI/I2C/ADC/DAC
Internal I/O Connector	Micro USB : Firmware update interface for STM32L476ZGT6 Micro SD : Micro SD socket for storage extension Micro Sim : Micro Sim socket for NBIOT J101 : 20 Pins I/O interface for sensors, include with UART/SPI/I2C/ADC signals Antenna 1 : Antenna connector for NBIOT module Antenna 2 : Antenna connector for GPS module
Power Requirement	8V ~ 18V Wide Range DC IN (Typical : 12V DC IN)
IP Level	IP65
Mounting Method	DIN 35 rail or wall mount
Operating Temperature	-20°C ~ 60°C (-4°F ~ 140°F) w/o battery 15°C ~ 40°C (59°F ~ 104°F) w/ battery
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F) w/o battery -20°C ~ 20°C (-4°F ~ 68°F) w/ battery
Dimension (L x W x H)	38.7mm x 94mm x 148 mm
Weight	w/o Battery : 0.23 KG w/ Battery : 0.33 KG

Model Number	BFC-07R1
Resolution	1024 x 800
Pixel Pitch	0.117(H) x 0.117(V)
Luminance	400 cd/m <sup>2</sup>
Touch Type	Projective Capacitive
Touch Light Transmission	85 %
Touch Controller	USB touch (SIS)
Processor	NXP i.MX6 Quad
System Memory	1x Onboard DDR3 1GB
Storage	1x On board 4GB eMMC
External I/O Connector	1x USB2.0 Type A(Double deck), 1x HDMI, 1x 10/100/1000 LAN RJ45, Optional Powered LAN support (IEEE 802.3at), 1x Micro SD socket 1x RS232, or Optional Debug port 1x speaker 1x MIC
Power Requirement	12 ~ 26V DC input, 2.5mm DC Jack, typical 19V input With brownout detection or Powered LAN (optional)
Operating Temperature	-20°C ~ 55°C (-4°F ~ 131°F)
Storage Temperature	-30°C ~ 70°C (-22°F ~ 158°F)
Dimension (L x W x H)	184.3 x 124.3 x 30.5 mm
Weight	1.5 kg
Certification	CE, FCC Class B
Software Support	Android 6.0

# E Ink Display



## Communication Board

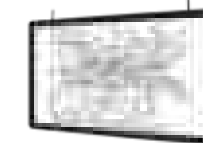
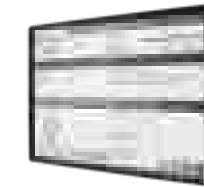
- Built-in touch screen
- Very low power consumption
- High performance i.MX 7Dual processor
- No power needed to maintain display image

## Digital Signal Display

- High performance
- Low power consumption
- Comfortable display experiences
- Multi OS support
- Easy installation & light weight design

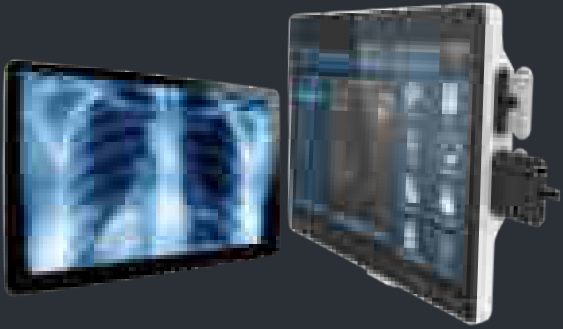
## Bedside Card

- Patient info
- Instant status
- Multiple pages
- Mobility with bed
- Green technology



Model Number	EPD-42T	EPD-3133	ENT-13T1	EBC-05B1
LCD Size	42"	31.2"	13.3"	5.65"
Resolution	H: 2160 x V: 2880	H: 2560 x V: 1440	H: 2200 x V: 1650	H: 600 x V: 448
Viewing Angle	180 (U), 180 (D), 180 (L), 180 (R)	180 (U), 180 (D), 180 (L), 180 (R)	180 (U), 180 (D), 180 (L), 180 (R)	180 (U), 180 (D), 180 (L), 180 (R)
Touch Type	Projective Capacitive	Projective Capacitive	Projective Capacitive	Cover Lens only
Processor	NXP i.MX 7Dual Processor / Dual Arm® Cortex®-A7 Cores And Cortex-M4	Onboard Intel® Celeron® SoC BGA Processor N3350 (Apollo Lake Platform)	Cortex-A53 1.2GHz x 4 core	MDBT50Q - U1MV2 (nRF52840)
System Memory	On-Board 2GB DDR3L	1 x 204-Pin DDR3L 1866MTs SO-DIMM up to 8GB	2GB LPDDR3	1MB flash / 256KB RAM
Wireless	M.2 Wi-Fi/ Bluetooth module (Optional)	mPCIe Wi-Fi/ Bluetooth module (Optional)	Wi-Fi/ Bluetooth module	BT 5.0
Storage	On-Board 8GB eMMC	2.5" SATA3 SSD 64GB	16GB eMMC NAND Flash	N/A
External I/O Connector	2 x USB 2.0 (Edge I/O) 1 x Micro USB for USB OTG 1 x RJ-45 connector for Gigabit Ethernet	4 x USB 3.1 (Gen1 5Gbps) 1 x DB-9 male connector for COM1 2 x RJ45 LAN port 2 x HDMI (1.4b): Max. Resolution 3840 x 2160 @ 30Hz	1 x Micro USB connector (USB2.0 / High-speed)	N/A
Power Requirement	DC +12V	DC +19V	USB power/ 5V recharging (USB cable)	AAAA Alkaline batteries * 4
Power Type	AT	AT/ATX	ATX	AT
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0 ~ 50°C (32 ~ 122°F)	5 ~ 35°C (41 ~ 95°F)	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)	-20 ~ 60°C (-4 ~ 140°F)
Operating Humidity	40°C @ 95% Relative Humidity, Noncondensing	40°C @ 95% Relative Humidity, Noncondensing	40°C @ 95% Relative Humidity, Noncondensing	40°C @ 95% Relative Humidity, Non-condensing
Software Support	Android 5.1 (default)/ Linux 4.15 (Yocto 2.1)	Android 8.1 (default)/ Windows 10 IoT	Android 5.1	Windows 10 IoT/ Linux
Dimension	918.8 x 704.6 x 37.6 mm	750 x 445 x 36.7 mm	302.6 x 224 x 5.7 mm	159 x 113 x 15 mm
Weight	6.5 kg	7.2 kg	0.349 kg	0.152 kg
Certification	CE, FCC Class B	CE, FCC Class A	FCC, VCCI	CE, FCC

# Medical Panel PC



## Interactive

Leading edge touchscreen technologies are integrated on all healthcare terminals.



## Multimedia

The interactive patient solution utilizes many multimedia features; video, voice over IP, web camera/video, and stereo audio.



## Communication

The voice over IP handset utilizes digital telephony and incorporates a membrane keypad and an optional 2D barcode scanner.



## Connectivity

Power controlled USB ports and audio connectivity (for headphones) are provided for system users. A variety of external peripherals can be adapted to the docking areas of the terminals.



## Security

The smart technology solution utilizes a RFID reader to activate a secure portal for healthcare staff to access patient clinical records. Smartcard readers are incorporated for unique patient login, or payment credit for selected entertainment services.



## Environmental

Front face IP65 sealing is provided to protect against the ingress of fluids and dust that may be encountered. The rear design of the healthcare terminals is compliant to IP54 Standards.



Model Number	HID-2132	HID-2138	HID-2232	HID-2432	HID-2334
<b>LCD Size, Display Type</b>	21.5", Full HD	21.5", Full HD	21.5", FHD	23.8", Full HD	23.8", FHD
<b>Resolution</b>	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
<b>Pixel Pitch</b>	0.248 x 0.248	0.248 x 0.248	0.248 x 0.248	0.274 x 0.274	0.274 x 0.274
<b>Luminance</b>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	3000	1000	3000	3000	3000
<b>Viewing Angle</b>	89 (U), 89 (D), 89 (L), 89 (R)	89 (U), 89 (D), 89 (L), 89 (R)	89 (U), 89 (D), 89 (L), 89 (R)	89 (U), 89 (D), 89 (L), 89 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	18 ms	22 ms	18 ms	N/A	16 ms
<b>Backlight</b>	LED	LED	LED	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	89%	89%	89%	89%	86%
<b>Touch Controller</b>	USB interface, EETI	USB interface, EETI	USB interface, EETI	USB touch (EETI)	USB interface, EETI
<b>SBC</b>	ARC-SKLU	HID TGLP Mother Board	ARC-SKLU	ARC-SKLU	HID-2334 M/B + Charger board
<b>Processor</b>	6th Gen Intel® Core™ i7/i5/i3/Celeron processor	11th Gen Intel® Core™ i7/i5/i3/Celeron Processor	6th Gen Intel® Core™ i5-6300U, 2-Core, 2.4GHz processor	6th Gen Intel® Core™ i5-6300U, 2-Core, 2.4GHz processor	7th Generation Intel® Kaby Lake Core™ i7/i5/i3/ Celeron® Processor
<b>I/O Chipset</b>	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8518E
<b>System Memory</b>	1 x 260pin SODIMM socket up to 16GB DDR4 2133 SDRAM	2 x 260-pin DDR4 3200 MHz SO-DIMM socket up to 64GB Max (non ECC only)	1 x 260pin SODIMM socket up to 16GB DDR4 2133 SDRAM	1 x 260pin SODIMM socket up to 16GB DDR4 2133 SDRAM	2 x 260pin SODIMM socket up to 32GB DDR4 2400 SDRAM
<b>Expansion</b>	1 x Full Size (support half size, Auto switch for mSATA, USB, PCIe signal)	Optional PCIe low profile card x1 Optional M.2 storage x1 or M.2 5G Module x1 Optional M.2 Wifi x1	1 x Full Size (support half size, Auto switch for mSATA, USB, PCIe signal)	1 x Full Size (support half size, Auto switch for mSATA, USB, PCIe signal)	1 x M.2 (Key E, 2230) with PCIe x1, CNVI and USB2.0 for Wireless 1 x mini PCIe with SATA or PCIe x1, mSATA
<b>Storage</b>	1 x 2.5" SATA3 SSD	1 x 2.5" SATA3 SSD	1 x 2.5" SATA3 SSD	1 x 2.5" SATA3 SSD	1 x 2.5" SATA3 SSD
<b>USB</b>	4 x USB 3.0, 4 x USB 2.0 by pin header 1 x USB 2.0 (Isolated 5KV)	2 x USB 2.0 2 x USB type C	4 x USB 3.0, 4 x USB 2.0 by pin header 2 x USB 2.0 (Isolated 5KV)	4 x USB 3.0, 4 x USB 2.0 by pin header 2 x USB 2.0 (Isolated 5KV)	4 x USB 3.0
<b>COM Port</b>	1 x RS-232/422/485, 1 x RS-232 1 x RS-232 (Isolated 5KV)	N/A	1 x RS-232/422/485, 1 x RS-232, 1 x RS-232/422/485 (Isolated 5KV) on IET module	1 x RS-232/422/485, 1 x RS-232 1 x RS-232/422/485 (Isolated 5KV) on IET module	N/A
<b>Other</b>	Dual LED Reading Light Bar, I/O Cover	N/A	HDMI Video out on IET module, DICOM pre-set	HDMI Video out on IET module, DICOM pre-set	Dual LED Reading Light Bar, I/O Cover Option for 2x 6900mAh hot swappable batteries and 4 slot charging bay Option for 5.0M auto focus camera with cover
<b>Display Chipset</b>	Intel® HD Graphics 520	Intel® 11th Generation CPU integrated	Intel® HD Graphics 520	Intel® HD Graphics 520	Intel® HD Graphics 620
<b>Audio</b>	Realtek ALC892	Realtek ALC888S	Realtek ALC892	Realtek ALC892	Realtek ALC892
<b>Audio Interface</b>	2 x 0.5W	Line-out, Mic-in, 2 x 2W Speaker	Line Out, Mic in, 2 x 0.5W	Line Out, Mic in, 2 x 0.5W	2 x 2W
<b>Ethernet</b>	1 x Intel® I219LM, 1 x Intel® I211AT 1 x Intel® I210AT (Isolated 5KV) on IET module	1 x Intel® I219LM Gigabit Ethernet PHY	1 x Intel® I219LM, 1 x Intel® I211AT 2 x Intel® I210AT (Isolated 5KV) on IET module	1 x Intel® I219LM, 1 x Intel® I211AT 2 x Intel® I210AT (Isolated 5KV) on IET module	1 x Intel® I211AT, 1 x Intel® I219LM
<b>Adapter</b>	AC/ DC medical power adapter Output: 90W Adapter (19V/4.74A Adapter)	AC/ DC medical power adapter Output: 90W Adapter (19V/4.74A Adapter)	AC/ DC medical power adapter +24Vdc, 3.75A max. (90W) Output Voltage	AC/ DC medical power adapter +24Vdc, 3.75A max. (90W) Output Voltage	Medical grade; Input: 100-240 Vac/ 50-60Hz; Output: 120W/24V
<b>Construction (Front, Rear)</b>	Plastic, Plastic	Plastic, Plastic	Plastic, Plastic	Plastic, Plastic	Plastic, Plastic
<b>Dimension</b>	539.6 x 342.6 x 45.2 mm	539.6 x 342.6 x 45.4 mm	521.0 x 326.0 x 56.5 mm	587.0 x 367.5 x 59.0 mm	380 x 587 x 45.5mm
<b>Weight</b>	6.2 kg	6.0 kg	7.5 kg	8.5 kg	6.9 kg (without batteries)
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0 ~ 35° C (32 ~ 95° F)	0 ~ 35° C (32 ~ 95° F)	0°C ~ 40°C (32°F ~ 104°F)
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)	-10°C ~ 60°C (14°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-30°C ~ 70°C (-22°F ~ 158°F)
<b>Certification</b>	CE, FCC Class B, UL60601-1 4th edition	CE, FCC Class B, UL60601-1	DIN 6868157/ CE, FCC Class B, UL60601-1 4th edition	DIN 6868157/ CE, FCC Class B, UL60601-1 4th edition	CE, FCC Class B, UL60601-1 4th edition
<b>OS Information</b>	Win 7/ 10/ Linux	Win 10/ Linux	Win 7/ 10/ Linux	Win 7/ 10/ Linux	Win 10/ Linux

Model Number	EPB-1001
<b>SBC</b>	EPB-1001 Battery Board
<b>MCU</b>	IT8911
<b>Charger IC</b>	LTC1760
<b>Power IC</b>	LTC3789 for Vout1
<b>DC Input</b>	19Vdc - 24Vdc
<b>Charge Current</b>	4A Max. for 2 batteries
<b>Charge Voltage</b>	16.8 V
<b>Output Current Per Battery</b>	6.8A
<b>Output Voltage Per Battery</b>	14.4V
<b>Output Power</b>	12/19V DC-out 80W
<b>USB Port</b>	Type A
<b>Indicator Light</b>	Power/ Battery/ Battery 2
<b>Power Connector</b>	DC jack with lock
<b>Power Type</b>	DC in
<b>Color</b>	Black/ White
<b>Dimension</b>	235 x 182 x 43 mm
<b>Weight</b>	1.2 kg
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F)
<b>Storage Temperature</b>	-40°C ~ 75°C (-40 ~ 167°F) (Without Battery Pack)
<b>Certification</b>	CE/ FCC ANSI/ AAMI ES 60601 CAN/ CSA C22.2 No. 60601-1

# Open Frame Monitor Industrial Monitor/ Display

## Open Frame Monitor



Model Number	OFM-15W00	OFM-21W00
<b>LCD Size</b>	15.6", 16:9	21.5", 16:9
<b>Display Type</b>	Full HD	Full HD
<b>Resolution</b>	1920 x 1080	1920 x 1080
<b>Pixel Pitch</b>	0.17925(H)x 0.17925(V)	0.24795(H)x 0.24795(V)
<b>Luminance</b>	220 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	800	2000
<b>Viewing Angle</b>	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	30 ms	35 ms
<b>Backlight</b>	LED	LED
<b>Touch Type</b>	Projective Capacitive Multi-Touch supports up to 10 points	Projective Capacitive Multi-Touch supports up to 10 points
<b>Touch Light Transmission</b>	89 %	89 %
<b>Touch Controller</b>	USB Type (EETI)	USB Type (EETI)
<b>Input Connector</b>	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys
<b>Power Connector</b>	DC Jack (Option for Phoenix connector)	DC Jack (Option for Phoenix connector)
<b>Power Type</b>	+12V DC in (option for 9~36V DC in)	+12V DC in (option for 9~36V DC in)
<b>Adapter</b>	By Option	By Option
<b>Construction (Front, Rear)</b>	Metal	Metal
<b>Option Features</b>	Support WiFi6 Media Server function Bi-direction image transfer and USB signal Available Panel mount kits, Wall mount kits by option	Support WiFi6 Media Server function Bi-direction image transfer and USB signal Available Panel mount kits, Wall mount kits by option
<b>Dimension</b>	387 x 235 x 46 mm	501.9 x 294.2 x 53.4 mm
<b>Weight</b>	2.5 kg	4.1 kg
<b>Operating Temperature</b>	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 45°C (32°F ~ 113°F)
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)

## Industrial Monitor/ Display



Model Number	ARC-10W00	ARC-1200	ARC-1500	ARC-15W00	ARC-1700	ARC-21W00
<b>LCD Size</b>	10.1"	12.1"	15"	15.6"	17"	21.5"
<b>Display Type</b>	WXGA	XGA	XGA	WXGA	SXGA	FHD
<b>Resolution</b>	1280 x 800	1024 x 768	1024 x 768	1366 x 768 (Optional for 1920x1080)	1280 x 1024	1920 x 1080
<b>Pixel Pitch</b>	0.1695 x 0.1695 mm	0.240 x 0.240 mm	0.297 x 0.297 mm	0.252 x 0.252 mm	0.264 x 0.264 mm	0.24795 x 0.24795
<b>Luminance</b>	350 cd/m <sup>2</sup>	600 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	800	1000	2000	500	800	3000
<b>Viewing Angle</b>	85 (U), 85 (D), 85 (L), 85 (R)	88 (U), 88 (D), 88 (L), 88 (R)	88 (U), 88 (D), 88 (L), 88 (R)	80 (U), 80 (D), 80 (L), 80 (R)	60 (U), 88 (D), 88 (L), 88 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	25 ms	11 ms	16 ms	8 ms	30 ms	25 ms
<b>Backlight</b>	LED	LED	LED	LED	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	88%	88%	88%	88%	88%	88%
<b>Touch Controller</b>	USB Type	USB Type	USB Type	USB Type	USB Type	USB Type
<b>Input Connector</b>	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys, line In	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys, line In	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys, line In	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys, line In	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys, line In	HDMI, Display Port, VGA, USB Type B for Touch Function, OSD Keys, line In
<b>Power Connector</b>	DC Jack (Option for Phoenix connector)	DC Jack (Option for Phoenix connector)	DC Jack (Option for Phoenix connector)	DC Jack (Option for Phoenix connector)	DC Jack (Option for Phoenix connector)	DC Jack (Option for Phoenix connector)
<b>Power Type</b>	+12V DC in (option for 9~36V DC in)	+12V DC in (option for 9~36V DC in)	+12V DC in (option for 9~36V DC in)	+12V DC in (option for 9~36V DC in)	+12V DC in (option for 9~36V DC in)	+12V DC in (option for 9~36V DC in)
<b>Adapter</b>	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)	input: 100 ~ 240Vac/ 50 ~ 60Hz/ Output: 60W Adapter (12V @ 5A Adapter)
<b>Construction (Front, Rear)</b>	Full Flat Die Casting with Cover Lens/ Metal Default with Panel mount kits	Full Flat Die Casting with Cover Lens/ Metal Default with Panel mount kits	Full Flat Die Casting with Cover Lens/ Metal Default with Panel mount kits	Full Flat Die Casting with Cover Lens/ Metal Default with Panel mount kits	Full Flat Die Casting with Cover Lens/ Metal Default with Panel mount kits	Full Flat Die Casting with Cover Lens/ Metal Default with Panel mount kits
<b>Option Features</b>	Support WiFi6 Media Server function Bi-direction image transfer and USB signal	Support WiFi6 Media Server function Bi-direction image transfer and USB signal	Support WiFi6 Media Server function Bi-direction image transfer and USB signal	Support WiFi6 Media Server function Bi-direction image transfer and USB signal	Support WiFi6 Media Server function Bi-direction image transfer and USB signal	Support WiFi6 Media Server function Bi-direction image transfer and USB signal
<b>Dimension</b>	282.36 x 201 x 61.4 mm	293.77 x 226.31 x 61.5 mm	350.5 x 274.5 x 63.5 mm	391.21 x 239.21 x 68 mm	392.72 x 325.32 x 70.25 mm	538.05 x 341.05 x 71 mm
<b>Weight</b>	2 kg	2.5 kg	3.7 kg	3.2 kg	4.6 kg	5.9 kg
<b>Operating Temperature</b>	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F), Option -20°C ~ 70°C	-10°C ~ 50°C (14°F ~ 122°F), Option -20°C ~ 70°C	-10°C ~ 50°C (14°F ~ 122°F), Option -10°C ~ 60°C	-10°C ~ 50°C (14°F ~ 122°F), Option -20°C ~ 70°C	-10°C ~ 50°C (14°F ~ 122°F)
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F), Option -30°C ~ 70°C	-20°C ~ 60°C (-4°F ~ 140°F), Option -30°C ~ 70°C	-20°C ~ 60°C (-4°F ~ 140°F), Option -30°C ~ 70°C	-20°C ~ 60°C (-4°F ~ 140°F), Option -30°C ~ 70°C	-20°C ~ 60°C (-4°F ~ 140°F)

# Rugged Human Machine Interface



Model Number	ARC-1238	ARC-1538	ARC-21W38	ARC-1235	ARC-1535	ARC-21W35
<b>LCD Size</b>	12.1"	15"	21.5"	12.1", 4:3	15", 4:3	21.5"
<b>Display Type</b>	XGA	XGA	Full HD	XGA	XGA	Full HD
<b>Resolution</b>	1024 x 768	1024 x 768	1920 x 1080	1024 x 768	1024 x 768	1920 x 1080
<b>Pixel Pitch</b>	0.240 x 0.240 mm	0.297 x 0.297 mm	0.248 x 0.248	0.240 x 0.240 mm	0.297 x 0.297 mm	0.248 x 0.248
<b>Luminance</b>	600 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	600 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	1000	2000	3000	1000	2000	3000
<b>Viewing Angle</b>	88 (U), 88 (D), 88 (L), 88 (R)	88 (U), 88 (D), 88 (L), 88 (R)	89 (U), 89 (D), 89 (L), 89 (R)	88 (U), 88 (D), 88 (L), 88 (R)	88 (U), 88 (D), 88 (L), 88 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	11 ms	16 ms	20 ms	11 ms	16 ms	20 ms
<b>Backlight</b>	LED	LED	LED	LED	LED	LED
<b>Touch Type</b>	A Model: 5-Wire Resistive Touch B Model: Projective Capacitive Multi-Touch (Full Flat design)			A Model: 5-Wire Resistive Touch B Model: Projective Capacitive Multi-Touch (Full Flat design)		
<b>Touch Light Transmission</b>	5-Wire Resistive Touch: 80%, Projective Capacitive Multi-Touch: 89%			5-Wire Resistive Touch: 80%, Projective Capacitive Multi-Touch: 89%		
<b>Touch Controller</b>	A Model: Onboard USB touch (PenMount); B Model: External USB controller			A Model: Onboard USB touch (PenMount); B Model: External USB controller		
<b>SBC</b>	ARC-TGL			ARC-EHL		
<b>Processor</b>	On board 11th Gen. Intel®Core™ i7/i5/i3/Celeron BGA Processor			Onboard Intel® Pentium®/Celeron®/Atom™ SoC BGA Processor		
<b>I/O Chipset</b>	EC (IT8528VG-I/FX)			EC ITE IT5571		
<b>System Memory</b>	Single 260-pin DDR4 SODIMM Socket, Supports Up to 32GB DDR4 3200MTs SDRAM			Single 260-pin DDR4 SODIMM Socket, Supports Up to 32GB DDR4 3200MTs SDRAM		
<b>Expansion</b>	1 x M.2 Key-E 2230 for for Wi-Fi & BT Module 1 x M.2 Key-B 2242/3042/3052 for SATA3/ PCIeIII x1/ USB3.1			1 x M.2 Key-E 2230 for for Wi-Fi & BT Module 1 x M.2 Key-B 2242/3042/3052 for SATA3/ PCIeIII x1/ USB3.1		
<b>Storage</b>	1 x M.2 Key-B 2242/3042/3052 for SATA3/ PCIeIII x1/ USB3.1 or 1 x 2.5" Drive Bay (7mm HDD Restricted)			1 x M.2 Key-B 2242/3042/3052 for SATA3/ PCIeIII x1/ USB3.1 or 1 x 2.5" Drive Bay (7mm HDD Restricted)		
<b>USB</b>	4 x USB 3.1 Gen.2			4 x USB 3.1 Gen.2		
<b>COM Port</b>	1 x RS-232/422/485, selectable by BIOS, RS-485 supports Auto Flow, Pin-9 selected by Ring/+5V/+12V); 1 x RS-232			1 x RS-232/422/485, selectable by BIOS, RS-485 supports Auto Flow, Pin-9 selected by Ring/+5V/+12V); 1 x RS-232		
<b>Other</b>	3 x Knockouts for Antenna Mounting			3 x Knockouts for Antenna Mounting		
<b>Display Chipset</b>	Intel® 11th Generation CPU integrated			Intel® Elkhart Lake SoC Processor integrated Gen11 LP graphics		
<b>Display Resolution</b>	HDMI: Max. resolution 4096 x 2160 @ 60Hz (optional by IET module)			HDMI: Max. resolution 4096 x 2160 @ 60Hz (optional by IET module)		
<b>Audio</b>	Realtek ALC897			Realtek ALC897		
<b>Audio Interface</b>	2 x 2W Speakers			2 x 2W Speakers		
<b>Ethernet</b>	1 x Intel® I219LM PCI-e Gigabit Ethernet, 1 x Intel® I225LM 2.5 Gigabit Ethernet			2 x Intel® I225-IT 2.5 Gigabit Ethernet (wide temperature)		
<b>Power Connector</b>	Lockable DC Jack, +12 ~ 26V			Lockable DC Jack, +12 ~ 26V		
<b>Power Type</b>	AT/ATX (ATX is default setting)			AT/ATX (ATX is default setting)		
<b>Adapter</b>	input: 100 ~ 240Vac/ 50 ~ 60Hz/ Output: 60W Adapter (12V @ 5A Adapter)			input: 100 ~ 240Vac/ 50 ~ 60Hz/ Output: 60W Adapter (12V @ 5A Adapter)		
<b>Construction (Front, Rear)</b>	A Model: Front Metal, Rear Aluminum Die Casting B Model: Aluminum Die Casting			A Model: Front Metal, Rear Aluminum Die Casting B Model: Aluminum Die Casting		
<b>Operating Temperature</b>	-10°C ~ 50°C (14°F~122°F)			A Model: -20°C ~ 60°C (-4°F~140°F), B Model: -10°C ~ 50°C (14°F~122°F)		
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F~140°F)			-30°C ~ 70°C (-22°F~158°F)		
<b>Certification</b>	CE, FCC Class B			CE, FCC Class B		
<b>OS Information</b>	Windows 10, Linux			Windows 10, Linux		
<b>Dimension</b>	284 x 223 x 46mm	350 x 274 x 53.1 mm	537.9 x 329.4 x 55.9 mm	284 x 223 x 46 mm	350 x 274 x 53.1 mm	537.9 x 329.4 x 55.9 mm
<b>Weight</b>	2.4Kg	3.7 Kg	7.3 Kg	2.4 Kg	3.7 Kg	7.3 Kg



Model Number	ARC-1033	ARC-1533	ARC-10W33	ARC-15W33	ARC-21W33
<b>LCD Size</b>	10.4", 4:3	15", 4:3	10.1", 16:10	15.6", 16:9	21.5"
<b>Display Type</b>	XGA	XGA	WXGA	WXGA	Full HD
<b>Resolution</b>	1024x768	1024 x 768	1280 x 800	1366 x 768	1920 x 1080
<b>Pixel Pitch</b>	0.0685mm (H) x 0.2055mm (V)	0.297mm (H) x 0.297mm (V)	0.1695mm x 0.1695mm	0.252mm (H) x 0.252mm (V)	0.248 x 0.248
<b>Luminance</b>	500 cd/m <sup>2</sup>	400 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	1200	700	800	500	3000
<b>Viewing Angle</b>	88 (U), 88 (D), 88 (L), 88 (R)	70 (U), 70 (D), 80 (L), 80 (R)	85 (U), 85 (D), 85 (L), 85 (R)	80 (U), 80 (D), 80 (L), 80 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	25 ms	16 ms	25 ms	8 ms	18 ms
<b>Backlight</b>	LED	LED	LED	LED	LED
<b>Touch Type</b>	A Model: 5-Wire Resistive Touch B Model: Projective Capacitive Multi-Touch (Full Flat design)		Projective Capacitive	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	5-Wire Resistive Touch: 80% Projective Capacitive Multi-Touch: 89%		88%	88%	89%
<b>Touch Controller</b>	A Model: Onboard USB touch (PenMount); B Model: EETI External USB controller		USB touch (EETI)	USB touch (EETI)	USB interface, EETI
<b>SBC</b>	ARC-APL		ARC-APL		
<b>Processor</b>	Onboard Intel® Apollo Lake I/M processor		Intel® Celeron® N3350/J3455 Processor		
<b>I/O Chipset</b>	EC ITE IT8528E		EC ITE IT8528E		
<b>System Memory</b>	1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB		1 x 204-Pin DDR3L 1333MHz SO-DIMM up to 8 GB		
<b>Expansion</b>	1 x Mini PCIe Supports mSATA, 1 x Optional 80-pin Expansion		1 x Mini PCIe Supports mSATA, 1 x Optional 80-pin Expansion		
<b>Storage</b>	1 x 2.5" Drive Bay (7mm HDD Restricted)		1 x 2.5" Drive Bay (7mm HDD Restricted)		
<b>USB</b>	4 x USB 3.0		4 x USB 3.0		
<b>COM Port</b>	1 x RS-232/422/485 (Factory Optional), 1 x RS-232		1 x RS-232/422/485, 1 x RS-232		
<b>Other</b>	1 x WiFi (Option), 3 x Knockouts for Antenna Mounting		1 x WiFi (Option), 3 x Knockouts for Antenna Mounting		
<b>Display Chipset</b>	Intel® Apollo Lake SoC Processor Integrated Gen9 LP graphics Supports optional dual display		Intel® HD Graphics 500		
<b>Display Resolution</b>	HDMI: Max. resolution 3840 x 2160 @ 30Hz (optional by IET module)		HDMI: Max. resolution 3840 x 2160 @ 30Hz (Optional by IET module)		
<b>Audio</b>	Realtek ALC892		Realtek ALC892		
<b>Audio Interface</b>	2 x 2W Speaker out		2 x 2W Speaker Out		
<b>Ethernet</b>	2 x Intel® I210IT (Apollo Lake I), 2 x Intel® I211AT (Apollo Lake M)		2 x Intel® I211AT		
<b>Power Connector</b>	Lockable DC Jack, +9V ~ +36V		Lockable DC Jack, +9V ~ +36V		
<b>Power Type</b>	AT/ATX (ATX is default setting)		AT/ATX (ATX is default setting)		
<b>Adapter</b>	Input: 100 ~ 240Vac/ 50 ~ 60Hz, Output: 60W Adapter (12V @ 5A Adapter)		Input: 100 ~ 240Vac/ 50 ~ 60Hz, Output: 60W Adapter (12V @ 5A Adapter)		
<b>Construction (Front, Rear)</b>	Aluminum Die Casting		Metal with cover lens, Black Diet Casting		
<b>Operating Temperature</b>	(N3350/N4200/J3455 CPU) -10°C ~ 50°C (14°F ~ 122°F) (E3900 CPU) -20°C ~ 60°C (-4°F ~ 140°F)		-10°C ~ 50°C (14°F ~ 122°F)		
<b>Storage Temperature</b>	(N3350/N4200/J3455 CPU) -20°C ~ 60°C (-4°F ~ 140°F) (E3900 CPU) -30°C ~ 70°C (-22°F ~ 158°F)		-20°C ~ 60°C (-4°F ~ 140°F)		
<b>Certification</b>	CE, FCC Class B		CE, FCC Class B		
<b>OS Information</b>	Win 10, Linux		Win 10, Linux		
<b>Dimension</b>	259.6 x 195.8 x 46 mm	350 x 274 x 53.1 mm	282.29 x 200.93 x 50.9 mm	391.2 x 239.2 x 57.5 mm	537.9 x 329.4 x 55.9 mm
<b>Weight</b>	1.67 kg	3.7 kg	2 kg	4 kg	7.3 kg

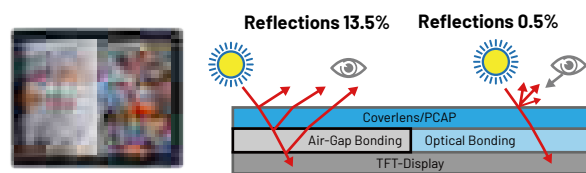
# Customization Service for Panel PC

- SBC**
  - Remove Unused I/Os
  - Add Extra I/Os
  - Mainboard Coating
  - Customized BIOS
- Panel**
  - Brightness Enhancement
  - Sunlight Readable
  - Anti-Scratch
  - Privacy Filter
- Bonding**
  - Air Bonding
  - Direct Bonding
- Touch**
  - Customization Touch Mode
  - Change Color of Cover lens
  - Glass only
  - Add Customer Logo
  - Change Cover Len Thickness
  - Anti-Vandal
- Mounting**
  - Panel Mount
  - Wall Mount
  - Flush Mount
- Coating/Film**
  - Anti-Reflective
  - Anti-Glare
  - Anti-Finger Print
  - Anti-UV
  - Anti-Bacteria (AG+)

# Light Industrial Panel PC



## Bonding Technology

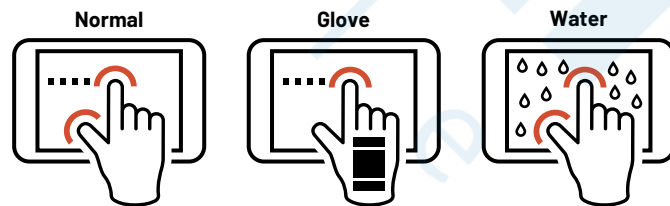


## Sunlight Readable

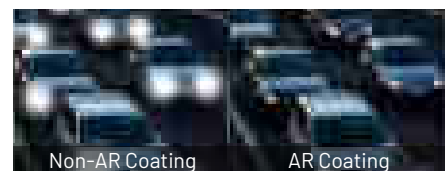


## Touch Mode Change for PCAP

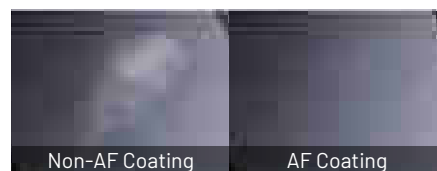
PCAP touch mode change UI under Windows operating system, user can easily change touch mode just one click, no reboot require for the change, Maximum 3 different kinds of touch mode for user like water, snow, glove...etc. This customized service has increased the working efficiency for customer who need to install their Panel PC at different places.



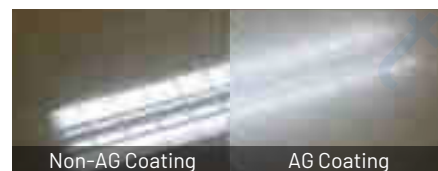
## Surface Coating Treatment



An Anti-Reflection (AR) coating is a type of optical coating applied to the surface to reduce reflection by vacuum evaporation process. With AR coating the transmittance can increase up to 95% even 99% by double side coating.

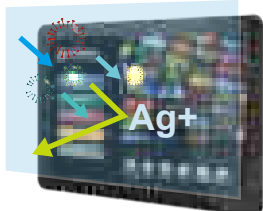


The Anti-Fingerprint (AF)/ Anti-Smudge (AS) constructions of the preferred embodiments advantages like user is prevented from being imprinted on the surface and it remain clean and aesthetically pleasing.



There are 2 different kind of AG treatment, by coating process or etching process. Both have their advantage depend on various application, the haze ratio and gloss unit will make the different of AG effect

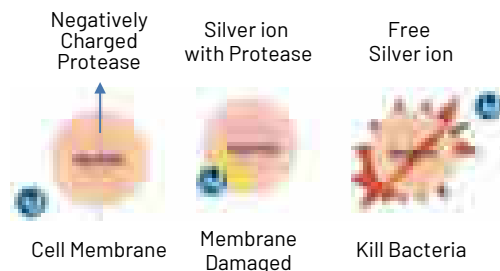
## AG+ Etching Treatment



**Ag Silver ion is antibacterial**  
Kill 99.9% of surface bacteria



## How Silver ion Works



Model Number	FPC-08W29	FPC-10W09
LCD Size	8"	10.1"
Display Type	WSVGA	WSVGA
Resolution	1024 x 600	1024 x 600
Pixel Pitch	0.1725mm (W) x 0.1656mm (H)	0.2175mm (W) x 0.2088mm (H)
Luminance	500 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>
Contrast Ratio	700	500
Viewing Angle	70 (U), 75 (D), 75 (L), 75 (R)	70 (U), 70 (D), 70 (L), 70 (R)
Response Time	20 ms	20 ms
Backlight	LED	LED
Touch Type	5-Wire Resistive	5-Wire Resistive
Touch Light Transmission	80 %	80 %
Touch Controller	Onboard USB touch (PenMount)	Onboard USB touch (PenMount)
SBC	ECM-BYT	ECM-BYT
Processor	Intel® Atom™ E3845 4-Core 1.91GHz processor	Intel® Atom™ E3845 4-Core 1.91GHz processor
System Chipset	Intel® Valleyview SoC	Intel® Valleyview SoC
I/O Chipset	Nuvoton W83627DHG-P	Nuvoton W83627DHG-P
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
Expansion	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA
Storage	1 x CompactFlash Type I/II Socket (CF-SATA optional)	2.5" SSD/HDD or Type I/II CF card
I/O	3 x USB 2.0, 1 x USB 3.0 1 x RS-232/422/485, 1 x RS-232	4 x USB 2.0, 1 x USB 3.0 1 x RS-232/422/485
Display Chipset	Intel® Valleyview SoC Integrated Graphics Supports dual display	Intel® Valleyview SoC Integrated Graphics Supports dual display
Display Resolution	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz	VGA: Max. resolution 2560x1080 @ 60Hz HDMI: Max. resolution 1920x1200 @ 60Hz
Audio	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH
Ethernet	2 x Intel® I211AT	2 x Intel® I211AT
Power Type	AT/ATX (ATX is default setting), Lockable DC Jack, +12V ~ +26V (12V @ 5A Adapter)	AT/ATX (ATX is default setting), Lockable DC Jack, +12V ~ +26V (12V @ 5A Adapter)
Construction (Front, Rear)	Metal, Aluminum + Metal	Metal, Aluminum + Metal
Dimension	225 x 129 x 43.4 mm	300 x 195 x 56 mm
Weight	1.27 Kg	1.50 Kg
Operating Temperature	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)
Certification	CE, FCC Class B	CE, FCC Class B
OS Information	Win 7, Win 8, Linux, Win10	Win 7, Win 8, Linux, Win10

# Light Industrial Panel PC



Model Number	APC-1733	APC-18W9	APC-2132	APC-2334
<b>LCD Size, Display Type</b>	17.3", Full HD	18.5", WXGA	21.5", Full HD	23.8", Full HD
<b>Resolution</b>	1920 x 1080	1366 x 768	1920 x 1080	1920 x 1080
<b>Pixel Pitch</b>	0.1989mm (H) x 0.1989mm (V)	0.300mm (H) x 0.300mm (V)	0.248mm (H) x 0.248mm (V)	274.5um (H) x 274.5um (V)
<b>Luminance</b>	300 cd/m <sup>2</sup>	300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	600	1000	1000	1000
<b>Viewing Angle</b>	60 (U), 60 (D), 70 (L), 70 (R)	80 (U), 80 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	8 ms	5 ms	14 ms	14ms
<b>Backlight</b>	LED	LED	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	≥ 87%	≥ 83%	≥ 85%	89%
<b>Touch Controller</b>	USB touch (EETI)	USB touch (ACDC)	USB touch (ACDC)	USB touch (EETI)
<b>SBC</b>	EMX-APLP	EBM-BYT	ARC-SKLU	EMX-KBLUP
<b>Processor</b>	Intel® Apollo Lake N4200 Processor	Intel® Celeron® J1900 4-Core 2.0GHz	Intel® Core™ i7/ i5/ i3 / Celeron Processor	Intel® Core™ i7/ i5/ i3 / Celeron Processor
<b>System Chipset</b>	Intel® Pentium® SoC integrated	Intel® Valleyview SoC	Intel® Skylake U SoC integrated	Intel® Kabylake U SoC integrated
<b>I/O Chipset</b>	EC ITE IT8528	EC ITE IT8528E	EC ITE IT8518E	EC ITE IT8518E
<b>System Memory</b>	2 x 204-pin DDR3L 1600 & 1333MHz SO-DIMM supports up to 16GB	1 x 204-Pin DDR3L 1066/1333MHz SO-DIMM up to 8 GB	1 x 260-Pin DDR4 2133MHz SO-DIMM up to 16 GB	2 x 260-pin DDR4 2133MHz SO-DIMM supports up to 32GB
<b>Expansion</b>	1 x Mini PCIe Supports mSATA	1 x Mini PCIe 1 x Mini PCIe Supports mSATA	1 x Mini PCIe dule	1 x M.2 Type B 3042/2242/2260/2280, 1 x M.2 Type A 2230 support WiFi module
<b>Storage</b>	1 x mSATA	1 x CompactFlash Type I/II Socket 1 x 2.5" Drive Bay	1 x 2.5" Drive Bay 1 x mSATA (by mini PCIe)	1 x 2.5" Drive Bay 1 x M.2 Type B 3042/2242/2260/2280
<b>USB</b>	4 x USB 3.0	1 x USB 2.0, 1 x USB 3.0	4 x USB 3.0, 2 x USB 2.0 (by IET module)	4 x USB 3.0
<b>COM Port</b>	N/A	1 x RS-232/422/485	1 x RS-232/422/485, 1 x RS-232	N/A
<b>Display Chipset</b>	Intel® Pentium® SoC integrated Graphics	Intel® Valleyview SoC integrated Graphics Supports dual display	Intel® Skylake SoC integrated Graphics Supports dual display	Intel® Kabylake SoC integrated Graphics Supports dual display
<b>Audio</b>	Realtek ALC662 supports 2-CH	Realtek ALC888S Support 5.1-CH	Realtek ALC888S Support 5.1-CH	Realtek ALC888S Support 5.1-CH
<b>Audio Interface</b>	Mic-In, Line-In and Line-Out	Line-Out	1 x Line out, 1 x Mic in (by IET module)	1 x Line out, 1 x Mic in
<b>Ethernet</b>	2 x Intel® I211AT Gigabit Ethernet	2 x Intel® I211AT	1 x Intel® I211AT, 1 x Intel® I219LM	1 x Intel® I211AT, 1 x Intel® I219LM
<b>Power Connector</b>	DC Jack, +12V ~ +24V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +24V
<b>Power Type</b>	AT / ATX	AT / ATX	AT / ATX	AT / ATX
<b>Adapter</b>	AC/DC Adapter 100-240V 50-60Hz, 12V/5A	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 60W Adapter (12V @ 5A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 72W Adapter (19V @ 3.78A Adapter)	Input: 100 ~ 240Vac/ 50 ~ 60Hz Output: 72W Adapter (19V @ 3.78A Adapter)
<b>Construction (Front, Rear)</b>	White Plastic	Black Coverlens, Black	Plastic-black	Plastic-black
<b>Dimension</b>	505 x 336 x 54.5 mm	443 x 290 x 59 mm	539.6 x 342.6 x 45.5 mm	592 x 382 x 49.5 mm
<b>Weight</b>	4.7 Kg	4.54 Kg	6.3 Kg	7.2 Kg
<b>Operating Temperature</b>	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)
<b>Storage Temperature</b>	-20°C ~ 65°C (-4°F ~ 149°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)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
<b>OS Information</b>	Win 10	Win 7, Win 8, Linux	Win 7, Win 8.1, Win 10, Linux	Win 10, Linux

Model Number	PPC-1529	PPC-1729	PPC-2129
<b>LCD Size</b>	15", 4:3	17", 4:3	21.5"
<b>Display Type</b>	XGA	SXGA	Full HD
<b>Resolution</b>	1024 x 768	1280 x 1024	1920 x 1080
<b>Pixel Pitch</b>	0.297mm(H)x0.297mm(V)	0.264mm(H)x0.264mm(V)	0.248mm(H)x0.248mm(V)
<b>Luminance</b>	250 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	700	800	1000
<b>Viewing Angle</b>	70 (U), 70 (D), 80 (L), 80 (R)	80 (U), 80 (D), 85 (L), 85 (R)	80 (U), 80 (D), 85 (L), 85 (R)
<b>Response Time</b>	16 ms	30 ms	5 ms
<b>Backlight</b>	LED	LED	LED
<b>Touch Type</b>	5-Wire Resistive	5-Wire Resistive	5-Wire Resistive
<b>Touch Light Transmission</b>	80 %	80 %	80 %
<b>Touch Controller</b>	Onboard USB touch (EETI)	Onboard USB touch (EETI)	Onboard USB touch (EETI)
<b>SBC</b>	EBM-BYT	EBM-BYT	EBM-BYT
<b>Processor</b>	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor	Intel® Celeron® J1900 4-Core 2.0GHz processor
<b>System Chipset</b>	Intel® Valleyview SoC	Intel® Valleyview SoC	Intel® Valleyview SoC
<b>I/O Chipset</b>	EC ITE IT8528E	EC ITE IT8528E	EC ITE IT8528E
<b>System Memory</b>	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
<b>Expansion</b>	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA	1 x Mini PCIe Supports mSATA
<b>Storage</b>	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
<b>USB</b>	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
<b>COM Port</b>	1 x RS-232/422/485	1 x RS-232/422/485	1 x RS-232/422/485
<b>Display Chipset</b>	Intel® Valleyview SoC Integrated Graphics Supports dual display	Intel® Valleyview SoC Integrated Graphics Supports dual display	Intel® Valleyview SoC Integrated Graphics Supports dual display
<b>Display Resolution</b>	HDMI: Max. resolution 1920 x 1200 @ 60Hz	HDMI: Max. resolution 1920 x 1200 @ 60Hz	HDMI: Max. resolution 1920 x 1200 @ 60Hz
<b>Audio</b>	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH	Realtek ALC892 Support 5.1-CH
<b>Audio Interface</b>	Line-Out	Line-Out	Line-Out
<b>Ethernet</b>	2 x Intel® I210IT	2 x Intel® I210IT	2 x Intel® I210IT
<b>Power Connector</b>	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V	Lockable DC Jack, +12V ~ +26V
<b>Power Type</b>	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)	AT/ATX (ATX is default setting)
<b>Adapter</b>	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)
<b>Construction (Front, Rear)</b>	White Plastic, Gray Plastic	White Plastic, Gray Plastic	White Plastic, Gray Plastic
<b>Dimension</b>	351 x 319 x 54 mm	391.5 x 364.5 x 59 mm	542 x 382 x 63 mm
<b>Weight</b>	4.9 kg	5.9 kg	7.2 kg
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
<b>Storage Temperature</b>	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)	-10°C ~ 50°C (14°F ~ 122°F)
<b>Certification</b>	CE, FCC Class B	CE, FCC Class B	CE, FCC Class B
<b>OS Information</b>	Win 7, Win 10, Linux	Win 7, Win 10, Linux	Win 7, Win 10, Linux

# Light Industrial Panel PC



Model Number	SID-10WR2	SID-21WR2	SID-10WR1	SID-15WR1	SID-21WR1	SID-10W03	SID-15W03	SID-21W03	SID-10W04	SID-15W04	SID-21W04
<b>LCD Size</b>	10.1"	21.5"	10.1"	15.6"	21.5"	10.1"	15.6"	21.5"	10.1"	15.6"	21.5"
<b>Display Type</b>	WXGA	Full HD	WXGA	Full HD	Full HD	WXGA	Full HD	Full HD	WXGA	Full HD	Full HD
<b>Resolution</b>	1280 x 800	1920 x 1080	1280 x 800	1920 x 1080	1920 x 1080	1280 x 800	1920 x 1080	1920 x 1080	1280 x 800	1920 x 1080	1920 x 1080
<b>Pixel Pitch</b>	0.1695 x 0.1695 mm	0.24795 x 0.24795 mm	0.1695 x 0.1695 mm	0.17925 x 0.17925 mm	0.24795 x 0.24795 mm	0.1695 x 0.1695 mm	0.17925 x 0.17925 mm	0.24795 x 0.24795 mm	0.1692 x 0.1692 mm	0.17925 x 0.17925 mm	0.24795 x 0.24795 mm
<b>Luminance</b>	350 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	220 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	220 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>	220 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	800	3000	800	800	3000	800	800	3000	800	800	3000
<b>Viewing Angle</b>	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)	85 (U), 85 (D), 85 (L), 85 (R)	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)	85 (U), 85 (D), 85 (L), 85 (R)	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)	85 (U), 85 (D), 85 (L), 85 (R)	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	30ms	30ms	30ms	30ms	30ms	30 ms	30ms	30ms	30 ms	30ms	30ms
<b>Backlight</b>	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	86%	86%	86%	85%	86%	86%	85%	86%	86%	85%	86%
<b>SBC</b>	ACP-RK3288	ACP-RK3288	ACP-RK3288	ACP-RK3288	ACP-RK3288	ACP-CHT3	ACP-CHT3	ACP-CHT3	ACP-FRIAA	ACP-FRIAA	ACP-FRIAA
<b>Processor</b>	Rockchip RK3568 2.0GHz		Rockchip RK3288 1.6GHz			Intel® Atom™ x5-Z8350 1.44GHz			Intel Celeron J3455 1.5GHz		
<b>I/O Chipset</b>	Rockchip SoC Integrated		Rockchip SoC Integrated			Intel® Atom™ SoC Integrated			Intel Celeron Integrated		
<b>Memory</b>	2GB DDR4 Memory on board		2GB DDR3L Memory on board			2GB / 4GB DDR3L Memory on board			1 x 204 pin SO-DIMM DDR3L		
<b>Storage</b>	32GB eMMC on board		16GB eMMC on board			32GB / 64GB eMMC on board			32GB (eMMC) / M.2 3042 SSD		
<b>Graphics</b>	ARM Mali-G52 GPU core		ARM Mali-T764 GPU core			Intel® Gen8 HD Graphic core			Intel® HD Graphics 500		
<b>HDMI Resolution</b>	HDMI up to 1080p @ 120Hz		HDMI up to 1080p @ 120Hz			HDMI up to 1080p @ 60Hz			HDMI up to 1080p @ 60Hz		
<b>USB Port</b>	2 x USB 3.0 (Type A)		2 x USB 2.0 (Type A)			1 x USB 3.0 (Type A), 1 x USB 2.0 (Type A)			2 x USB 3.0 (Type A)		
<b>Serial Port</b>	1 x RS-232		1 x RS-232			1 x RS-232			1 x RS-232, 1 x RS-485		
<b>Audio Interface</b>	1 x Line-Out		1 x Line-Out			1 x Line-Out			1 x Line-Out		
<b>Ethernet</b>	1 x Gigabit Ethernet, 10/100/1000 Mbps		1 x Gigabit Ethernet, 10/100/1000 Mbps			1 x Fast Ethernet, 10/100 Mbps			1 x Gigabit Ethernet, 10/100/1000 Mbps		
<b>Wi-Fi</b>	802.11 b/g/n Built-in		802.11 b/g/n Built-in			802.11 b/g/n/ac Built-in			1 x M.2 2230 E-Key 802.11 a/b/g/n/ac Wireless LAN		
<b>Bluetooth</b>	Bluetooth 4.0 Built-in		Bluetooth 4.0 Built-in			Bluetooth 5.0 Built-in			Bluetooth 5.0		
<b>Power Connector</b>	DC-in jack, 12 ~ 24V DC Powered LAN optional	DC-in jack, 12 ~ 24V DC	DC-in jack, 12 ~ 24V DC Powered LAN optional	DC-in jack, 12 ~ 24V DC	DC-in jack, 12 ~ 24V DC	DC-in jack, 12 ~ 24V DC			DC-in jack, 12 ~ 24V DC		
<b>Power Type</b>	AT/ATX (AT is default setting)		AT/ATX (AT is default setting)			AT/ATX (AT is default setting)			AT/ATX (AT is default setting)		
<b>Adapter</b>	Input: 100 ~ 240 Vac/ 50 ~ 60Hz; Output: 60W Adapter (12V @ 5A Adapter)		Input: 100 ~ 240 Vac/ 50 ~ 60Hz; Output: 60W Adapter (12V @ 5A Adapter)			Input: 100 ~ 240 Vac/ 50 ~ 60Hz; Output: 60W Adapter (12V @ 5A Adapter)			Input: 100 ~ 240 Vac/ 50 ~ 60Hz; Output: 60W Adapter (12V @ 5A Adapter)		
<b>Construction/Color</b>	Metal, Black		Metal, Black			Metal, Black			Metal, Black		
<b>Mounting</b>	VESA 75 x 75	VESA 100 x 100	VESA 75 x 75	VESA 100 x 100	VESA 100 x 100	VESA 75 x 75	VESA 100 x 100	VESA 100 x 100	VESA 75 x 75	VESA 100 x 100	VESA 100 x 100
<b>Dimension</b>	255.2 x 169.4 x 40.7 mm	509 x 304.8 x 51.3 mm	255.2 x 169.4 x 40.7 mm	391.2 x 239.2 x 48.1 mm	509 x 304.8 x 51.3	255.2 x 169.4 x 40.7 mm	391.2 x 239.2 x 48.1.4 mm	509 x 304.8 x 51.3 mm	258.8 x 182.8 x 49.6 mm	388.8 x 258.8 x 49.6 mm	533.3 x 329.3 x 56.6 mm
<b>Weight</b>	1.36 kg	7.2 kg	1.36 kg	3.59 kg	7.2 kg	1.36 kg	3.59 kg	7.2 kg	1.36 kg	3.59 kg	7.2 kg
<b>IP Rating</b>	Front IP65		Front IP65			Front IP65			Front IP65		
<b>Operating Temperature</b>	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)		
<b>Operating Humidity</b>	5% ~ 90% Relative Humidity, Non-Condensing		5% ~ 90% Relative Humidity, Non-Condensing			5% ~ 90% Relative Humidity, Non-Condensing			5% ~ 90% Relative Humidity, Non-Condensing		
<b>Certification</b>	CE, FCC Class B		CE, FCC Class B			CE, FCC Class B			CE, FCC Class B		
<b>OS Information</b>	Android 11		Linux Debian 9, Android 8.1			Win 10 IoT, Linux Ubuntu 19.04			Win 10 IoT, Linux Ubuntu 20.04		



# Light Industrial Panel PC

# Open Frame Panel PC



Model Number	CCD-07WR2	CCD-10WR2
<b>LCD Size</b>	7"	10.1"
<b>Display Type</b>	WXGA	WXGA
<b>Resolution</b>	1024 x 600	1280 x 800
<b>Pixel Pitch</b>	0.1178 x 0.1178 mm	0.1695 x 0.1695 mm
<b>Luminance</b>	300 cd/m <sup>2</sup>	350 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	500	800
<b>Viewing Angle</b>	85 (U), 85 (D), 85 (L), 85 (R)	85 (U), 85 (D), 85 (L), 85 (R)
<b>Response Time</b>	20ms	30 ms
<b>Backlight</b>	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	75%	86%
<b>SBC</b>	ACP-HR170	ACP-HR170
<b>Processor</b>	Rockchip RK3568 Quad-Core ARM Cortex-A55, up to 2.0GHz	
<b>I/O Chipset</b>	Rockchip SoC Integrated	
<b>Memory</b>	2GB DDR4 Memory on board	
<b>Storage</b>	32GB eMMC on board	
<b>Graphics</b>	ARM G52 2EE	
<b>HDMI Resolution</b>	HDMI up to 1080p @ 30Hz	
<b>USB Port</b>	2 x USB 3.0 (Type A)	
<b>Audio</b>	1 x Line-Out, 2 x Speaker	
<b>Other</b>	1 x Camera, 1 x Microphone	
<b>Ethernet</b>	1 x Fast Ethernet, 10/100/1000 Mbps	
<b>Wi-Fi</b>	802.11 a/b/g/n/ac Built-in	
<b>Bluetooth</b>	Bluetooth 5.0 Built-in	
<b>Power Connector</b>	DC-in jack, 12 ~ 24V DC	
<b>Power Type</b>	AT	
<b>Adapter</b>	Input: 100 ~ 240 Vac / 50 ~ 60Hz; Output: 40W Adapter (19V @ 2.1A Adapter)	
<b>Construction/Color</b>	Plastic, White	
<b>Mounting</b>	VESA 75 x 75	
<b>Dimension</b>	191 x 124 x 33 mm	261 x 181 x 34 mm
<b>Weight</b>	580g	800g
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F)	
<b>Operating Humidity</b>	5% ~ 90% Relative Humidity, Non-Condensing	
<b>Certification</b>	CE, FCC Class B	
<b>OS Information</b>	Linux, Android 11	

Model Number	VNS-10W01	VNS-15W01
<b>LCD Size</b>	10.1"	15.6"
<b>Display Type</b>	WXGA	Full HD
<b>Resolution</b>	1280 x 800	1920 x 1080
<b>Pixel Pitch</b>	0.1695 (H) x 0.1695 (V) mm	0.17925 (H) x 0.17925 (V) mm
<b>Luminance</b>	350 cd/m <sup>2</sup>	220 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	800	500
<b>Viewing Angle</b>	85 (U), 85 (D), 85 (L), 85 (R)	20 (U), 45 (D), 45 (L), 45 (R)
<b>Response Time</b>	30ms	8ms
<b>Backlight</b>	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	86%	86%
<b>Touch Controller</b>	I <sup>2</sup> C interface	USB interface
<b>SBC</b>	DNA 50	DNA 30
<b>Processor</b>	Intel® Atom™ x5-Z8350: 2M Cache, up to 1.92 GHz	
<b>System Chipset</b>	Intel® Atom™	
<b>System Memory</b>	2GB DDR3L RAM / option: 4GB for win 10 & Ubuntu 19.04	
<b>Storage</b>	32GB eMMC / option: 64GB for win 10 & Ubuntu 19.04	
<b>USB</b>	2 x USB 2.0 Type A	
<b>COM Port</b>	1 x RJ45 for RS232 or RS422 or RS485	
<b>Other</b>	Touch Button for Power/ Brightness/ Volume, 1 x 3.5mm Audio Jack, NFC, Cam 2.0 MP, LED indicating bar	Touch Button for Power/ Brightness/ Volume, 1 x 3.5mm Audio Jack, NFC, Cam 2.0 MP, LED indicating bar, Reading Light x2, Smart card reader
<b>Display Chipset</b>	Intel® HD Graphics 400	
<b>Display Resolution</b>	LVDS: Max. resolution 1280 x 800	
<b>Audio</b>	Realtek ALC 5645	
<b>Audio Interface</b>	Mic-In and Line-Out, 2 x 2W Speaker Output	
<b>Ethernet</b>	Realtek RTL8111H-CG	
<b>Power Connector</b>	DC Jack+12-24V DC in / Powered LAN	
<b>Power Type</b>	AT	
<b>Adapter</b>	Input: 100 ~ 240 Vac / 50~ 60Hz; Output: 60W Adapter (12V / 5A Adapter)	
<b>Construction</b>	White Plastic w/ antibacterial	
<b>Dimension</b>	270 x 193 x 28 mm	410 x 269 x 38 mm
<b>Weight</b>	1.1 kg	2.5 kg
<b>Certification</b>	CE, FCC Class B	

Model Number	OFT-07W01	OFT-10W01	OFT-15W01	OFT-15W38	OFT-21W38
<b>LCD Size</b>	7"	10.1"	15.6"	15.6", 16:9	21.5", 16:9
<b>Resolution</b>	800 x 1280	1280 x 800	1920 x 1080	1920 x 1080	1920 x 1080
<b>Luminance</b>	300	350	220	220 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160° (H/V)	170° (H/V)	178° (H/V)	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Touch Type</b>	PCAP	PCAP	PCAP	Projective Capacitive with Multi-Touch	Projective Capacitive with Multi-Touch
<b>Processor</b>	Intel® Atom™ Processor Z3735F 1.33GHz Quad Core CPU	Intel® Atom™ Processor Z3735F 1.33GHz Quad Core CPU	Intel® Atom™ Processor Z3735F 1.33GHz Quad Core CPU	Onboard Tiger Lake U 11th Intel® Core™ SoC i7/i5/i3 BGA Processor or Celeron® BGA Processor	Onboard Tiger Lake U 11th Intel® Core™ SoC i7/i5/i3 BGA Processor or Celeron® BGA Processor
<b>System Memory</b>	2GB DDR3L RAM	2GB DDR3L RAM	2GB DDR3L RAM	4GB DDR4 Memory (Option up to 64GB)	4GB DDR4 Memory (Option up to 64GB)
<b>Wireless</b>	802.11 b/g/n WiFi	802.11 b/g/n WiFi	802.11 b/g/n WiFi	Option by M.2 WIFI/BT Module	Option by M.2 WIFI/BT Module
<b>Storage</b>	32GB eMMC	32GB eMMC	32GB eMMC	Default with 64GB M.2 (Option for SATA interface 2.5" HDD/SSD)	Default with 64GB M.2 (Option for SATA interface 2.5" HDD/SSD)
<b>External I/O Connector</b>	1 x 10/100 LAN port 2 x USB 2.0 type A connector 1 x HDMI 1.4a connector 1 x Head Phone Jack 1 x DC Jack	1 x 10/100 LAN port 2 x USB 2.0 type A connector 1 x HDMI 1.4a connector 1 x Head Phone Jack 1 x DC Jack	1 x 10/100 LAN port 2 x USB 2.0 type A connector 1 x HDMI 1.4a connector 1 x Head Phone Jack 1 x DC Jack	3 x USB 3.1 Gen2, 1 x USB 3.1 Gen1 1 x RS-232 (default)/422/485 1 x Intel® I225IT 2.5 GbE 1 x Intel® I219LM GbE PHY 2 x DP++ 1 x Line-out, 1 x Mic-in 1 x Mini Din 4-pin DC Jack, 1 x Phoenix Connector for DC in 1 x Phoenix Connector for Reset	3 x USB 3.1 Gen2, 1 x USB 3.1 Gen1 1 x RS-232 (default)/422/485 1 x Intel® I225IT 2.5 GbE 1 x Intel® I219LM GbE PHY 2 x DP++ 1 x Line-out, 1 x Mic-in 1 x Mini Din 4-pin DC Jack, 1 x Phoenix Connector for DC in 1 x Phoenix Connector for Reset
<b>Internal I/O Connector</b>	1 x 16 bit GPIO interface 1 x USB interface 1 x LVDS interface 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 I <sup>2</sup> C interface (7" & 10") 1 x RS232 (TX/RX) or RS485 1 x Micro SD slot	1 x 16 bit GPIO interface 1 x USB interface 1 x LVDS interface 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 I <sup>2</sup> C interface (7" & 10") 1 x RS232 (TX/RX) or RS485 1 x Micro SD slot	1 x 16 bit GPIO interface 1 x USB interface 1 x LVDS interface 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 I <sup>2</sup> C interface (7" & 10") 1 x RS232 (TX/RX) or RS485 1 x Micro SD slot	1 x RS232/422/485 (optional) 3 x RS232 (optional) 4 x USB 2.0 (optional) 1 x GPIO 1 x SIM card slot 1 x M.2 (2230) E-Key, support WiFi module/BT 1 x M.2 (2242) B-Key, support storage/5G module	1 x RS232/422/485 (optional) 3 x RS232 (optional) 4 x USB 2.0 (optional) 1 x GPIO 1 x SIM card slot 1 x M.2 (2230) E-Key, support WiFi module/BT 1 x M.2 (2242) B-Key, support storage/5G module
<b>Power Requirement</b>	DC 12 ~ 24V	DC 12 ~ 24V	DC 12 ~ 24V	DC in +12-24V	DC in +12-24V
<b>Power Type</b>	AT	AT (Optional Powered LAN 802.3AT)	AT	AT/ ATX (Default is AT Mode)	AT/ ATX (Default is AT Mode)
<b>Operating Temperature</b>	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 45°C (32°F ~ 113°F)
<b>Storage Temperature</b>	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing
<b>Software Support</b>	Windows 10/ Android 4.4/ Android 5.1/ Ubuntu 16.04	Windows 10/ Android 4.4/ Android 5.1/ Ubuntu 16.04	Windows 10/ Android 4.4/ Android 5.1/ Ubuntu 16.04	Windows 10 IoT, Linux	Windows 10 IoT, Linux
<b>Dimension</b>	116 x 184 x 25 mm	252 x 166 x 38 mm	387 x 235 x 38 mm	387 x 235 x 50 mm	501.9 x 296.2 x 55 mm
<b>Weight</b>	0.5 kg	0.7 kg	1.5 kg	2.9 kg	5.2 kg
<b>Certification</b>	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A

# Open Frame Panel PC



Model Number	OFT-07WR1	OFT-10WR1	OFT-15WR1	OFT-21WR1
<b>LCD Size</b>	7"	10.1"	15.6"	21.5"
<b>Resolution</b>	800 x 1280	1280 x 800	1920 x 1080	1920 x 1080
<b>Luminance</b>	300	350 / 1000	220	250
<b>Viewing Angle</b>	160°(H/V)	170°(H/V)	170°(H/V)	178°
<b>Touch Type</b>	PCAP	PCAP	PCAP	PCAP
<b>Processor</b>	Rockchip RK3288	Rockchip RK3288	Rockchip RK3288	Rockchip RK3288
<b>System Memory</b>	2GB DDR3L RAM	2GB DDR3L RAM	2GB DDR3L RAM	2GB DDR3L RAM
<b>Wireless</b>	802.11 b/g/n Wireless LAN	802.11 b/g/n Wireless LAN	802.11 b/g/n Wireless LAN	802.11 b/g/n Wireless LAN
<b>Storage</b>	16G eMMC	16G eMMC	16G eMMC	16G eMMC
<b>External I/O Connector</b>	1 x Giga Ethernet 2 x USB 2.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset	1 x Giga Ethernet 2 x USB 2.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset	1 x Giga Ethernet 2 x USB 2.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset	1 x Giga Ethernet 2 x USB 2.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset
<b>Internal I/O Connector</b>	1 x LVDS interface, 1 x MIPI interface, 1 x USB Touch interface, 1 x I <sup>2</sup> C Touch interface, 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 1 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x Battery charger connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x Power button connector	1 x LVDS interface, 1 x MIPI interface, 1 x USB Touch interface, 1 x I <sup>2</sup> C Touch interface, 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 1 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x Battery charger connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x Power button connector	1 x LVDS interface 1 x eDP interface 1 x USB Touch interface 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 1 x USB OTG 1 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x Power button connector	1 x LVDS interface 1 x eDP interface 1 x USB Touch interface 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 1 x USB OTG 1 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x Power button connector
<b>Power Requirement</b>	DC 12 ~ 24V	DC 12 ~ 24V	DC 12 ~ 24V	DC 12 ~ 24V
<b>Power Type</b>	AT	AT	AT	AT
<b>Operating Temperature</b>	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C
<b>Storage Temperature</b>	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing
<b>Software Support</b>	Android 8.1	Android 8.1	Android 8.1	Android 8.1
<b>Dimension</b>	115.9 x 183.1 x 33.4 mm	252 x 166 x 32.7 mm / 252 x 166 x 38.2 mm	387 x 235 x 35.3 mm	501.88 x 294.2 x 44.1 mm
<b>Weight</b>	0.45 kg	0.7 kg	1.5 kg	3.4 kg
<b>Certification</b>	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A

Model Number	OFT-07WR2	OFT-10WR2	OFT-21WR2
<b>LCD Size</b>	7"	10.1"	21.5"
<b>Resolution</b>	600 x 1024	800 x 1280	1920 x 1080
<b>Luminance</b>	350	350 / 1000	250
<b>Viewing Angle</b>	170°(H/V)	170°(H/V)	178°
<b>Touch Type</b>	PCAP	PCAP	PCAP
<b>Processor</b>	Rockchip RK3568	Rockchip RK3568	Rockchip RK3568
<b>System Memory</b>	2GB DDR4 RAM	2GB DDR4 RAM	2GB DDR4 RAM
<b>Wireless</b>	802.11 a/b/g/n/ac Wireless LAN	802.11 a/b/g/n/ac Wireless LAN	802.11 a/b/g/n/ac Wireless LAN
<b>Storage</b>	32G eMMC	32G eMMC	32G eMMC
<b>External I/O Connector</b>	1 x Giga Ethernet 2 x USB 3.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset	1 x Giga Ethernet 2 x USB 3.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset	1 x Giga Ethernet 2 x USB 3.0 type A connectors 1 x HDMI 1.4a connector 1 x Head phone jack 1 x DC jack 1 x Reset
<b>Internal I/O Connector</b>	1 x MIPI interface 1 x USB Touch interface, 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 2 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x SIM card slot	1 x MIPI interface 1 x USB Touch interface, 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 2 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x SIM card slot	1 x LVDS interface 1 x USB Touch interface, 1 x Micro USB client (Android only) 1 x USB CAM_DMIC interface 2 x RS232 (TX/RX), 1 x RS485 1 x GPIO (16bit) interface 1 x Speaker interface 1 x A-MIC interface 1 x Micro SD slot 1 x Touch button connector 1 x I <sup>2</sup> C sensor interface 1 x Debug connector 1 x DC input 4-pin header 1 x M.2 B-Key socket 1 x RTC battery 1 x SIM card slot
<b>Power Requirement</b>	DC 12 ~ 24V	DC 12 ~ 24V	DC 12 ~ 24V
<b>Power Type</b>	AT	AT	AT
<b>Operating Temperature</b>	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C
<b>Storage Temperature</b>	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing
<b>Software Support</b>	Android 11	Android 11	Android 11
<b>Dimension</b>	190 x 130 x 31.8 mm	254 x 178 x 33.8 mm	515 x 322 x 44.9 mm
<b>Weight</b>	0.5 kg	0.7 kg	3.6 kg
<b>Certification</b>	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A

# Open Frame Panel PC



Model Number	OFT-07W03	OFT-10W03	OFT-15W03	OFT-21W03	OFT-10W04	OFT-15W04	OFT-21W04	OFT-07W33	OFT-15W33	OFT-21W33
<b>LCD Size</b>	7"	10.1"	15.6"	21.5"	10.1"	15.6"	21.5"	7", 16:10	15.6", 16:9	21.5", 16:9
<b>Resolution</b>	800 x 1280	1280 x 800	1920 x 1080	1920 x 1080	800 x 1280	1920 x 1080	1920 x 1080	1280 x 800	1920 x 1080	1920 x 1080
<b>Luminance</b>	300	350	220	250	350	220	250	300 cd/m <sup>2</sup>	220 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Viewing Angle</b>	160° (H/V)	170° (H/V)	170° (H/V)	178°	170° (H/V)	170° (H/V)	178° (H/V)	89 (U), 89 (D), 89 (L), 89 (R)	85 (U), 85 (D), 85 (L), 85 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Touch Type</b>	PCAP	PCAP	PCAP	PCAP	P-CAP	P-CAP	P-CAP	Projective Capacitive Multi-Touch supports up to 10 points		
<b>Processor</b>	Intel® Atom™ x5-Z8350: 2M Cache, up to 1.92 GHz	Intel® Atom™ x5-Z8350: 2M Cache, up to 1.92 GHz	Intel® Atom™ x5-Z8350: 2M Cache, up to 1.92 GHz	Intel® Atom™ x5-Z8350: 2M Cache, up to 1.92 GHz	Intel® Celeron® J3455 2M Cache 1.50 GHz	Intel® Celeron® J3455 2M Cache 1.50 GHz	Intel® Celeron® J3455 2M Cache 1.50 GHz	Onboard Intel® Celeron® N3350/J3455 SoC BGA Processor		
<b>System Memory</b>	2G / 4G DDR3L RAM	2G / 4G DDR3L RAM	2G / 4G DDR3L RAM	2G / 4G DDR3L RAM	1 x 204 pin SO-DIMM DDR3L 4GB	1 x 204 pin SO-DIMM DDR3L 4GB	1 x 204 pin SO-DIMM DDR3L 4GB	4GB DDR3L Memory (Option up to 8GB by One SO-DIMM socket)	4GB DDR3L Memory (Option up to 16GB by Two SO-DIMM socket)	4GB DDR3L Memory (Option up to 16GB by Two SO-DIMM socket)
<b>Wireless</b>	802.11a/b/g/n/ac Wireless LAN	802.11a/b/g/n/ac Wireless LAN	802.11a/b/g/n/ac Wireless LAN	802.11a/b/g/n/ac Wireless LAN	802.11a/b/g/n/ac (2230)	802.11a/b/g/n/ac (2230)	802.11a/b/g/n/ac (2230)	Option by Mini PCIe : 802.11a/b/g/n/ac Wireless LAN and Bluetooth 4.0+		
<b>Storage</b>	32G / 64G eMMC	32G / 64G eMMC	32G / 64G eMMC	32G / 64G eMMC	32GB (eMMC) / M.2 3042 SSD	32GB (eMMC) / M.2 3042 SSD	32GB (eMMC) / M.2 3042 SSD	64GB mSATA by mPCIe Slot	64GB mSATA by mPCIe Slot (Option for SATA interface 2.5" HDD/SSD)	64GB mSATA by mPCIe Slot (Option for SATA interface 2.5" HDD/SSD)
<b>External I/O Connector</b>	1x 10/100 Ethernet 1x USB 2.0/ 1x USB 3.0 type A connectors 1x HDMI 1.4a connector 1x Head phone jack 1x DC jack 1x Reset	1x 10/100 Ethernet 1x USB 2.0/ 1x USB 3.0 type A connectors 1x HDMI 1.4a connector 1x Head phone jack 1x DC jack 1x Reset	1x 10/100 Ethernet 1x USB 2.0/ 1x USB 3.0 type A connectors 1x HDMI 1.4a connector 1x Head phone jack 1x DC jack 1x Reset	1x 10/100 Ethernet 1x USB 2.0/ 1x USB 3.0 type A connectors 1x HDMI 1.4a connector 1x Head phone jack 1x DC jack 1x Reset	1x Giga LAN port 2x USB 3.0 1x HDMI 1x HP jack 1x DC jack 1x Power button	1x Giga LAN port 2x USB 3.0 1x HDMI 1x HP jack 1x DC jack 1x Power button	1x Giga LAN port 2x USB 3.0 1x HDMI 1x HP jack 1x DC jack 1x Power button	2x Intel® I211AT 4x USB 3.0 1x HDMI 1x RS-232 1x DC Jack	2x Intel® I211AT, 4x USB 3.0, 1x RS-232/422/485, 1x DP++, 1x DP, 1x HDMI, 1x Line-out, 1x Mic-in, 1x DC Jack, 1x Phoenix Connector for DC in 1x Phoenix Connector for Reset	2x Intel® I211AT, 4x USB 3.0, 1x RS-232/422/485, 1x DP++, 1x DP, 1x HDMI, 1x Line-out, 1x Mic-in, 1x DC Jack, 1x Phoenix Connector for DC in 1x Phoenix Connector for Reset
<b>Internal I/O Connector</b>	1x LVDS interface 1x USB Touch interface 1x I <sup>2</sup> C Touch interface 1x USB CAM_DMIC interface 1x Micro USB (Android only) 1x RS232 (TX/RX), 1x RS485 1x GPIO's (16bit) interface 1x Speaker interface 1x A-MIC interface 1x Micro SD slot 1x Touch button connector 1x I <sup>2</sup> C sensor interface 1x Debug connector 1x DC-in wafer, 1x RTC battery 1x M.2 3042 B-Key socket 1x Power button connector	1x LVDS interface 1x USB Touch interface 1x I <sup>2</sup> C Touch interface 1x USB CAM_DMIC interface 1x Micro USB (Android only) 1x RS232 (TX/RX), 1x RS485 1x GPIO's (16bit) interface 1x Speaker interface 1x A-MIC interface 1x Micro SD slot 1x Touch button connector 1x I <sup>2</sup> C sensor interface 1x Debug connector 1x DC-in wafer, 1x RTC battery 1x M.2 3042 B-Key socket 1x Power button connector	1x eDP interface 1x USB Touch interface 1x I <sup>2</sup> C Touch interface 1x USB CAM_DMIC interface 1x Micro USB (Android only) 1x RS232 (TX/RX), 1x RS485 1x GPIO's (16bit) interface 1x Speaker interface 1x A-MIC interface 1x Micro SD slot 1x Touch button connector 1x I <sup>2</sup> C sensor interface 1x Debug connector 1x DC-in wafer, 1x RTC battery 1x M.2 3042 B-Key socket 1x Power button connector	1x LVDS interface 1x USB Touch interface 1x I <sup>2</sup> C Touch interface 1x USB CAM_DMIC interface 1x Micro USB (Android only) 1x RS232 (TX/RX), 1x RS485 1x GPIO's (16bit) interface 1x Speaker interface 1x A-MIC interface 1x Micro SD slot 1x Touch button connector 1x I <sup>2</sup> C sensor interface 1x Debug connector 1x DC-in wafer, 1x RTC battery 1x M.2 3042 B-Key socket 1x Power button connector	1x MIPI interface 1x Amic 1x USB 1x SPK 1x Touch button 1x RS485/RS232 1x RS232 1x DIO 1x Micro USB (Android only) 1x SD card slot 1x DC-in wafer 1x M.2 3042 B-Key (SSD or WWAN)	1x eDP interface 1x Amic 1x USB 1x SPK 1x Touch button 1x RS485/RS232 1x RS232 1x DIO 1x Micro USB (Android only) 1x SD card slot 1x DC-in wafer 1x M.2 3042 B-Key (SSD or WWAN)	1x LVDS interface 1x Amic 1x USB 1x SPK 1x Touch button 1x RS485/RS232 1x RS232 1x DIO 1x Micro USB (Android only) 1x SD card slot 1x DC-in wafer 1x M.2 3042 B-Key (SSD or WWAN)	1x RS-232/422/485 2x USB2.0 1x GPIO 1x Full Size Mini-PCIe support mSATA 1x Half Size Mini-PCIe for option WiFi/BT	4x RS-232 (optional) 4x USB 2.0 (optional) 1x GPIO 1x full size Mini PCI-e support mSATA 1x SIM card slot 1x M.2 (2230) A-Key, support WiFi module	4x RS-232 (optional) 4x USB 2.0 (optional) 1x GPIO 1x full size Mini PCI-e support mSATA 1x SIM card slot 1x M.2 (2230) A-Key, support WiFi module
<b>Power Requirement</b>	DC 12 ~ 24V	DC 12 ~ 24V	DC 12 ~ 24V	DC 12 ~ 24V	DC 12V~24V	DC 12V~24V	DC 12V~24V	+12V~26V DC in	+12V~24V DC in	+12V~24V DC in
<b>Power Type</b>	AT	AT	AT	AT	AT	AT	AT	AT/ ATX (Default is AT Mode)	AT/ ATX (Default is AT Mode)	AT/ ATX (Default is AT Mode)
<b>Operating Temperature</b>	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 45°C (32°F ~ 113°F)	0°C ~ 45°C (32°F ~ 113°F)
<b>Storage Temperature</b>	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
<b>Operating Humidity</b>	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	40°C @ 95% Relative Humidity, Non-condensing	0% ~ 90% Relative Humidity, Non-condensing	0% ~ 90% Relative Humidity, Non-condensing	0% ~ 90% Relative Humidity, Non-condensing
<b>Software Support</b>	Win 10/ Ubuntu 19.04	Win 10/ Ubuntu 19.04	Win 10/ Ubuntu 19.04	Win 10/ Ubuntu 19.04	Win 10/ Ubuntu	Win 10/ Ubuntu	Win 10/ Ubuntu	Windows 10 IoT, Linux, x86 Android 8.1	Windows 10 IoT, Linux, x86 Android 8.1	Windows 10 IoT, Linux, x86 Android 8.1
<b>Dimension</b>	120 x 180 x 33.45 mm	252 x 166 x 32.7 mm	387 x 235 x 35.3 mm	501.88 x 294.2 x 44.1 mm	254 x 178 x 41.6 mm	384 x 254 x 47.5 mm	515 x 322 x 53.7 mm	183.1 x 115.8 x 51.6 mm	387 x 235 x 46 mm	501.9 x 296.2 x 52.4 mm
<b>Weight</b>	0.5 kg	0.7 kg	1.5 kg	3.4 kg	1.28 kg	2.2 kg	4.3 kg	1.1 kg	2.5 Kg	4.1 Kg
<b>Certification</b>	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A	CE, FCC Class A

# Stainless Steel Panel PC

# Outdoor Panel PC



Model Number	SPC-1533-B1	SPC-2133-B1
<b>LCD Size</b>	15", 4:3	21.5", 16:9
<b>Display Type</b>	XGA	Full HD
<b>Resolution</b>	1024 x 768	1920 x 1080
<b>Pixel Pitch</b>	0.297 x 0.297 mm	0.248 x 0.248 mm
<b>Luminance</b>	300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	2000	3000
<b>Viewing Angle</b>	88 (U), 88 (D), 88 (L), 88 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	16 ms	18 ms
<b>Backlight</b>	LED	LED
<b>Touch Type</b>	Projective Capacitive with Multi-Touch	Projective Capacitive with Multi-Touch
<b>Touch Light Transmission</b>	89%	89%
<b>Touch Controller</b>	USB (EETI)	USB (EETI)
<b>SBC</b>	EMX-APLP	EMX-APLP
<b>Processor</b>	Onboard Intel® Apollo Lake Processor	Onboard Intel® Apollo Lake Processor
<b>I/O Chipset</b>	ITE IT8528	ITE IT8528
<b>System Memory</b>	2 x 204-pin DDR3L 1600MTs up to 16GB	2 x 204-pin DDR3L 1600MTs up to 16GB
<b>Expansion</b>	1 x full size Mini PCI-e support mSATA (SATA III and mSATA By auto switch IC) with 1 x SIM card slot 1 x M.2 (2230) A-Key, support WiFi module	1 x full size Mini PCI-e support mSATA (SATA III and mSATA By auto switch IC) with 1 x SIM card slot 1 x M.2 (2230) A-Key, support WiFi module
<b>Storage</b>	1 x full size Mini PCI-e mSATA 1 x 2.5" SATA3 Drive Bay	1 x full size Mini PCI-e mSATA 1 x 2.5" SATA3 Drive Bay
<b>USB</b>	2 x M12 Connector (USB2.0)	2 x M12 Connector (USB2.0)
<b>COM Port</b>	1 x M12 Connector (RS232/422/485 by Jumper & BIOS Selection)	1 x M12 Connector (RS232/422/485 by Jumper & BIOS Selection)
<b>Display Chipset</b>	Intel® SoC integrated Graphics	Intel® SoC integrated Graphics
<b>Audio</b>	Realtek ALC 888S/897	Realtek ALC 888S/897
<b>Audio Interface</b>	N/A	N/A
<b>Ethernet</b>	1 x M2 Connector (1 x Intel® I211AT PCIe Gigabit Ethernet)	1 x M2 Connector (1 x Intel® I211AT PCIe Gigabit Ethernet)
<b>Power Connector</b>	1 x M12 DC Jack, +12-26V (Option for Phoenix Connector)	1 x M12 DC Jack, +12-26V (Option for Phoenix Connector)
<b>Power Type</b>	AT/ ATX (ATX is Default Setting)	AT/ ATX (ATX is Default Setting)
<b>Adapter</b>	Input: 100-240Vac/50-60Hz/ Output: 60W Adapter (12V@5A Adapter)	Input: 100-240Vac/50-60Hz/ Output: 60W Adapter (12V@5A Adapter)
<b>Construction (Front, Rear)</b>	Aluminum	Aluminum
<b>Operating Temperature</b>	-10°C ~ 50°C (-14°F ~ 122°F)	-10°C ~ 50°C (-14°F ~ 122°F)
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
<b>Certification</b>	CE, FCC Class A	CE, FCC Class A
<b>OS Information</b>	Window 10, Linux, Android x86 8.1	Window 10, Linux, Android x86 8.1
<b>IP Rating</b>	Full IP66, IP69K	Full IP67, IP69K
<b>Dimension</b>	393 x 315.8 x 49mm	562 x 365.8 x 49mm
<b>Weight</b>	5.7 kg	9.4 kg

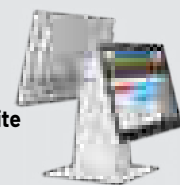
Model Number	ODC-1535	ODC-21W35
<b>LCD Size</b>	15", 4:3	21.5", 16:9
<b>Display Type</b>	XGA	Full HD
<b>Resolution</b>	1024 x 768	1920 x 1080
<b>Pixel Pitch</b>	0.297 x 0.297 mm	0.248 x 0.248 mm
<b>Luminance</b>	1000 cd/m <sup>2</sup> (option for 1500 cd/m <sup>2</sup> )	1000 cd/m <sup>2</sup> (option for 1500 cd/m <sup>2</sup> )
<b>Contrast Ratio</b>	2000	3000
<b>Viewing Angle</b>	88 (U), 88 (D), 88 (L), 88 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	23ms	18ms
<b>Backlight</b>	LED	LED
<b>Touch Type</b>	Projective Capacitive with Multi-Touch with AG Coating	Projective Capacitive with Multi-Touch with AG Coating
<b>Touch Light Transmission</b>	89%	89%
<b>Touch Controller</b>	USB (EETI)	USB (EETI)
<b>SBC</b>	ARC-EHL	ARC-EHL
<b>Processor</b>	Onboard Intel® Elkhart Lake Processor	Onboard Intel® Elkhart Lake Processor
<b>I/O Chipset</b>	ITE IT5571	ITE IT5571
<b>System Memory</b>	1 x 260-pin DDR4 3200MTs up to 32GB	1 x 260-pin DDR4 3200MTs up to 32GB
<b>Expansion</b>	1 x M.2 Key-B 2242/3042/3052 for SATA3/ PCIe1/USB3.1 with SIM Card Slot Support 5G Module, 1 x M.2 Key-E 2230 for WIFI & BT Module (Support WIFI 6)	1 x M.2 Key-B 2242/3042/3052 for SATA3/ PCIe1/USB3.1 with SIM Card Slot Support 5G Module, 1 x M.2 Key-E 2230 for WIFI & BT Module (Support WIFI 6)
<b>Storage</b>	1 x M.2 Key-B 2242 for SATA3 1 x 2.5" SATA3 Drive Bay	1 x M.2 Key-B 2242 for SATA3 1 x 2.5" SATA3 Drive Bay
<b>USB</b>	2 x M12 Connector (USB2.0)	2 x M12 Connector (USB2.0)
<b>COM Port</b>	1 x M12 Connector (RS232/422/485 by BIOS Selection, with Ring/+5V/+12V)	1 x M12 Connector (RS232/422/485 by BIOS Selection, with Ring/+5V/+12V)
<b>Display Chipset</b>	Intel® UHD Graphics	Intel® UHD Graphics
<b>Audio</b>	Realtek ALC 888S/897	Realtek ALC 888S/897
<b>Audio Interface</b>	2 x 5W Speakers	2 x 5W Speakers
<b>Ethernet</b>	2 x M2 Connector (1 x Intel® I210IT PCIe Gigabit Ethernet, 1 x Intel® I225LM 2.5 Gigabit Ethernet)	2 x M2 Connector (1 x Intel® I210IT PCIe Gigabit Ethernet, 1 x Intel® I225LM 2.5 Gigabit Ethernet)
<b>Power Connector</b>	1 x M12 DC Jack, +12-26V	1 x M12 DC Jack, +12-26V
<b>Power Type</b>	AT/ ATX (ATX is Default Setting)	AT/ ATX (ATX is Default Setting)
<b>Adapter</b>	Input: 100-240Vac/50-60Hz/ Output: 60W Adapter (12V@5A Adapter)	Input: 100-240Vac/50-60Hz/ Output: 60W Adapter (12V@5A Adapter)
<b>Construction (Front, Rear)</b>	Aluminum	Aluminum
<b>Operating Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
<b>Storage Temperature</b>	-30°C ~ 70°C (-22°F ~ 158°F)	-30°C ~ 70°C (-22°F ~ 158°F)
<b>Certification</b>	CE, FCC Class A	CE, FCC Class A
<b>OS Information</b>	Window 10, Linux	Window 10, Linux
<b>IP Rating</b>	Full IP67, NEMA 4X, Anti-UV Film, Auto Dimming	Full IP67, NEMA 4X, Anti-UV Film, Auto Dimming
<b>Dimension</b>	TBD	TBD
<b>Weight</b>	TBD	TBD

# Desktop POS



## Sleek & Stylish Design

- Slim & Fanless Design
- Rotatable View Angle
- Hidden cabling design
- Color option in Black & White



- 14 mm
- Intel Atom Apollo Lake

## Flexible & Easy to Buildup

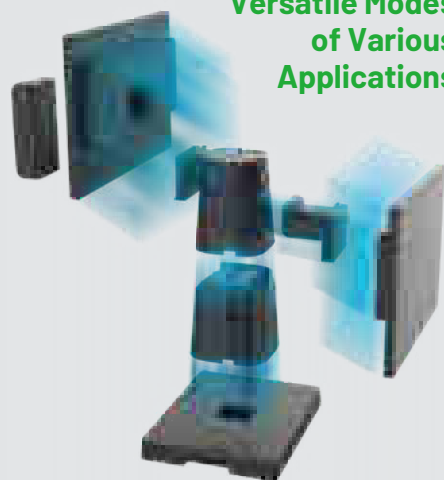
- Quick Rail, Easy Assembly & Maintenance
- Option in MSR, SCR, Finger Printer Reader
- Built-in RFID/NFC
- Integrated Thermal Printer
- Multiple OS Support

Easy Assembly & Maintenance



- 58/80mm
- Auto Cut
- Max Speed 200 mm/sec

## Versatile Modes of Various Applications

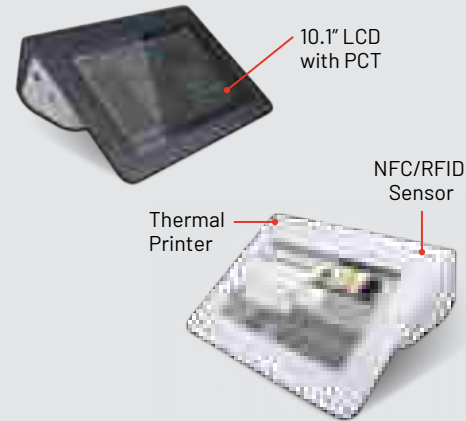


Model Number	RiVar-1501	RiVar-1502
<b>LCD Size, Display Type</b>	15.6", FHD	15.6", FHD
<b>Resolution</b>	1920 x 1080	1920 x 1080
<b>Pixel Pitch</b>	0.179 x 0.179	0.179 x 0.179
<b>Luminance</b>	300cd/m2	300cd/m2
<b>Contrast Ratio</b>	700	700
<b>Viewing Angle</b>	89 (U), 89 (D), 89 (L), 89 (R)	89 (U), 89 (D), 89 (L), 89 (R)
<b>Response Time</b>	14ms	14ms
<b>Backlight</b>	LED	LED
<b>Touch Type</b>	Projective Capacitive	Projective Capacitive
<b>Touch Light Transmission</b>	85%	85%
<b>Processor</b>	Intel® Celeron® Processor N3350/J3455	Intel® Celeron® Processor J3455
<b>I/O Chipset</b>	EC ITE IT8528E	EC ITE 8987E
<b>System Memory</b>	1 x 204-pin DDR3L SODIMM Socket Up to 8GB DDR3L 1600MT/s SDRAM	Default Onboard 4GB DDR4 SDRAM (Option Up to 8GB)
<b>Expansion</b>	1 x M.2 B Key slot for mSATA module 1 x M.2 E Key slot for .2,4/5G WiFi module	1 x M.2 E Key slot for .2,4/5G WiFi module
<b>Storage</b>	M.2 2242 SATA 32GB, 1 x SD Card slot	Default 64GB eMMC (Option Up to 128GB)
<b>USB</b>	2 x USB 3.0 on bottom side of Panel, 4 x USB 3.0 on bottom side of Stand	4 x USB3.0
<b>COM Port</b>	2 x COM ports supported All Pin 9 supported 5V/12V 1A max output	2 x COM supported 5V/12V output
<b>Other</b>	RJ-11 for Cash Drawer 24V Optional for Camera/ NFC/ MSR	RJ-11 for Cash Drawer 12/24V, 1 x HDMI Optional for Camera/ NFC/ MSR
<b>Thermal Printer</b>	SEIKO thermal printer CAPD347D-E	N/A
<b>2nd LCD Panel</b>	15.6" FHD 1920 x 1080 Optioal for PCAP touch	N/A
<b>Display Chipset</b>	Intel® HD Graphics 500	Intel® HD Graphics 500
<b>Audio</b>	Realtek ALC892	ES8316C
<b>Audio Interface</b>	2 x 2W	2 x 2W
<b>Ethernet</b>	1 x RJ45 with Intel® I211AT	2 x RJ45 with Realtek 8111H
<b>Adapter</b>	24V DC in 60W or 120W (Printer SKU)	24V DC in 60W
<b>Construction (Front, Rear)</b>	Plastic	Plastic
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
<b>Storage Temperature</b>	-20°C ~ 60°C (-4°F ~ 140°F)	-20°C ~ 60°C (-4°F ~ 140°F)
<b>IP Rating</b>	IP65 for front Panel, IP41 for Rear	IP65 for front Panel, IP41 for Rear
<b>Certification</b>	CE/FCC/VCCI : Class B	CE/FCC/VCCI : Class B
<b>OS Information</b>	Windows 10, Android 8.x, Linux	Windows 10, Android 8.1
<b>Dimension</b>	253 x 390 x 431 mm	391 x 251 x 44.5 mm
<b>Weight</b>	10 kg (Dual display mode)	2.7 Kg

Model Number	Rity103	Rity123	Rity153
<b>LCD Size</b>	10.1", 16:9	12.1", 4:3	15", 4:3
<b>Display Type</b>	WSVGA	XGA	XGA
<b>Resolution</b>	1024 x 600	1024 x 768	1024 x 768
<b>Pixel Pitch</b>	0.2175 x 0.2088 mm	0.240 x 0.240 mm	0.297 x 0.297 mm
<b>Luminance</b>	350 cd/m <sup>2</sup>	600 cd/m <sup>2</sup>	500 cd/m <sup>2</sup>
<b>Contrast Ratio</b>	500	1000	2500
<b>Viewing Angle</b>	70 (U), 70 (D), 70 (L), 70 (R)	89 (U), 89 (D), 89 (L), 89 (R)	88 (U), 88 (D), 88 (L), 88 (R)
<b>Response Time</b>	25 ms	13 ms	16 ms
<b>Backlight</b>	LED	LED	LED
<b>Touch Type</b>	5-Wire Resistive/ Projective Capacitive Touch	5-Wire Resistive/ Projective Capacitive Touch	5-Wire Resistive/ Projective Capacitive Touch
<b>Touch Light Transmission</b>	RES 75 % / PCT 90%	RES 75 % / PCT 90%	RES 75 % / PCT 90%
<b>Touch Controller</b>	Onboard USB touch (PenMount) / USB touch (EETI)	Onboard USB touch (PenMount) / USB touch (EETI)	Onboard USB touch (PenMount) / USB touch (EETI)
<b>Processor</b>	Intel® Celeron® Processor N3350 1.1GHz	Intel® Celeron® Processor N3350 1.1GHz	Intel® Celeron® Processor N3350 1.1GHz
<b>System Chipset</b>	Intel® Apollo Lake SoC	Intel® Apollo Lake SoC	Intel® Apollo Lake SoC
<b>System Memory</b>	1 x 204-Pin DDR3L 1066MHz SO-DIMMup to 8 GB	1 x 204-Pin DDR3L 1066MHz SO-DIMMup to 8 GB	1 x 204-Pin DDR3L 1066MHz SO-DIMMup to 8 GB
<b>Expansion</b>	1 x M.2 B key slot support	1 x M.2 B key slot support	1 x M.2 B key slot support
<b>Storage</b>	1 x M.2 B key slot	1 x 2.5" Drive Bay 1 x M.2 B key slot	1 x 2.5" Drive Bay 1 x M.2 B key slot
<b>I/O</b>	4 x USB 3.0 2 x RS-232/422/485 (BIOS) 1 x RS-232 1 x HDMI 1.4b 1 x RJ11 for cash drawer	4 x USB 3.0 2 x RS-232/422/485 (BIOS) 1 x RS-232 (or VGA) 1 x HDMI 1.4b 1 x RJ11 for cash drawer 1 x Battery in connector	2 x USB 2.0 4 x USB 3.0 2 x RS-232/422/485 (BIOS) 2 x RS-232 1 x HDMI 1.4b 1 x VGA 1 x RJ11 for cash drawer 1 x Battery in connector
<b>Display Chipset</b>	Intel® HD Graphics 500	Intel® HD Graphics 500	Intel® HD Graphics 500
<b>Audio</b>	Realtek 888S	Realtek 888S	Realtek 888S
<b>Audio Interface</b>	2 x 2W speaker	2 x 2W speaker	2 x 2W speaker
<b>Ethernet</b>	2 x Realtek RTL8111E-VB-GR	2 x Realtek RTL8111E-VB-GR	2 x Realtek RTL8111E-VB-GR
<b>Power Connector</b>	Mini-din 4P for DC in w/ lock type, +19~24V DC in	Mini-din 4P for DC in w/ lock type, +19~24V DC in	Mini-din 4P for DC in w/ lock type, +19~24V DC in
<b>Power Type</b>	AT/ ATX (ATX is Default Setting)	AT/ ATX (ATX is Default Setting)	AT/ ATX (ATX is Default Setting)
<b>Adapter</b>	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)
<b>Construction (Front, Rear)</b>	Black Coverlens, ABS Plastic	Black Coverlens, ABS Plastic	Black Coverlens, ABS Plastic
<b>Operating Temperature</b>	0°C ~ 40°C (32°F ~ 95°F)	0°C ~ 40°C (32°F ~ 95°F)	0°C ~ 40°C (32°F ~ 95°F)
<b>Storage Temperature</b>	-10°C ~ 60°C (14°F ~ 140°F)	-10°C ~ 60°C (14°F ~ 140°F)	-10°C ~ 60°C (14°F ~ 140°F)
<b>Dimension (L x W x H)</b>	260 x 178 x 42 mm	322 x 250 x 47 mm	362.1 x 290.08 x 51 mm
<b>Weight</b>	1.8 kg	3 kg	4 kg
<b>Certifications</b>	CE, FCC Class B, VCCI	CE, FCC Class B, VCCI	CE, FCC Class B, VCCI
<b>OS Information</b>	Win10 IoT, Linux	Win10 IoT, Linux	Win10 IoT, Linux

# Mini POS Terminal

## Stylish Design



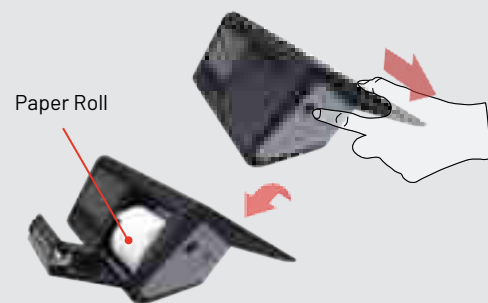
## Customer Display

- 5" 2nd Display for Customer Use
- Adjustable for Best View Angle



## Integrated Printer

- Support 58/80mm with Auto Cut Thermal Printer
- Pain-free Paper Roll Change
- Accessible Printer Module for Easy Replacement



# Medical Semi Rugged Tablet

## CAXA0 Accessories



### CAXA0-DC CAXA0 Desktop Cradle

- Desktop Cradle for CAXA0
- +19V DC input
- Support 3 x USB2.0
- Support 1 x 10/100 LAN
- 180 x 198.2 x 129.2 mm
- 1.05 Kg



### CAXA0-WM CAXA0 Wall Mount kit

- Wall Mount kit for CAXA0
- +19V DC input
- Support 3 x USB2.0
- Support 1 x 10/100 LAN
- VESA mount compliant (75 x 75 mm)
- 143.6 x 218.8 x 48.6 mm
- 0.58 kg



### CAXA0-CS CAXA0 Battery Charging Station

- Battery Charging Station for CAXA0
- +19V DC input
- Support 3 Batteries charging
- 159 x 105 x 57.9 mm
- 0.62 Kg



### CAXA0-SS CAXA0 Shoulder Strap

- Shoulder Strap for CAXA0
- Adjustable shoulder strap with 130cm drop



### CAXA0-HS CAXA0 Hand Strap

- Hand Strap for CAXA0

Model Number	RiPac-10P3
Processor	Intel® Celeron® N3350 1.1GHz Processor
System Memory	4GB LPDDR4 Onboard
Storage	64G eMMC/ Option for 128GB
Operating System	Windows 10, Android 8.1
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 8.0211 a/b/g/n/ac
Bluetooth	Bluetooth 4.2
Serial Port	2 x RS-232 in DB9, Powered with 5/12V
USB Port	4 x USB 3.0
SD card	1 x SD card slot support up to 128GB
LAN Port	2 x RJ45 (Realtek 8111H)
Cash Drawer	1 x RJ11 (12V/24V)
NFC	ISO/IEC 14443 A/B, 15693, 18092 (Optional)
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	+24V/6A 120W
Dimensions	299 (L) x 316.2 (W) x 148.9 (H) mm
Weight	3 kg±10%
Operating Temperature	5°C ~ 40°C (41°F ~ 104°F)
Storage Temperature	-10°C ~ 60°C (14°F ~ 140°F)
Operating Humidity	0 ~ 95% non-condensing
Certifications	CE, FCC, VCCI, CCC

Model Number	CAXA0
Processor	Intel® Celeron® N3350 1.1GHz Processor
System Memory	Onboard 4GB LPDDR4
Storage	64GB M.2 Solid State Drive (Option up to 128GB)
Operating System	Windows 10/ Android 8.1
LCD Size	10.1", WXGA
Resolution	1280 x 800
Luminance	300 cd/m <sup>2</sup>
Touch Screen	10 Points Projective Capacitive
Wireless LAN	802.11 a/b/g/n/ac
Bluetooth	Bluetooth 5.0
Camera	2MP Front Camera 8MP Rear Camera With Auto Focus
NFC	ISO/IEC 14443 A/B, 15693/18092, NFCIP-1, NFCIP-2, Support MIFARE and Felica
Barcode Scanner	1D/2D Barcode Scanner (Optional)
Downside I/O Connectors	1 x Audio Jack, 2 x USB 2.0 Type A, 1 x Micro SD, 1 x DC Jack, 1 x HDMI Output
Control Button	1 x Power Button, 1 x Barcode Scanner Trigger
LED Indicator	1 x Power
Power Requirement	DC Jack +19V
Battery	28.44W Li-Polymer Battery
Battery Operating Time	6 hours
Construction	Rubber + Plastic
Dimensions	281 x 193.3 x 19.95 mm
Weight	1 kg
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
IP Rating	IP65
Certifications	CE, FCC, VCCI, CCC, BSMI, EN60601-1, EN60601-1-2