Heavy Industrial Panel PC Solution

The Next Era IoT Panel PC Solution

IEI offers complete robust panel solutions for harsh industrial environments. The product portfolio varies from sizes and performance. To catch the wave of cloud computing and intelligent solutions, IEI introduces the iRIS remote management solution to enhance efficiency for system integration. With all these benefits, IEI is your solid solution for industrial computing.

» Heavy Industrial Panel PC Product Line

General Purpose Panel PC

Size	Intel® Bay Trail	Intel® H81	Intel® ULT5
8"	PPC-F08B-BT		
10.4"	PPC-F10B-BT		
12.1"	PPC-F12B-BT		
15"	PPC-F15B-BT	PPC-F15A-H81	PPC-F15D-ULT5
15.6"			PPC-FW15D-ULT5
17"	PPC-F17B-BT	PPC-F17A-H81	PPC-F17D-ULT5
18.5"			PPC-FW19D-ULT5

Verticak Market Panel PC

Solutions	Marine Series	
Size	Intel® QM87 (PPC)	Embedded Box
12"		
15"		SBOX-100-QM87
19"	S19A-QM87	

PPC-F-ULT5 Series

≫ 8th GEN. Intel® Core™ Mobile Processor

Powered by 8th Generation Intel® Whiskey Lake U-Series Processors, PPC-FxxD-ULT5 Series Panel PC not only delivers improved graphics performance but also supports passive cooling design without fans. In addition, it is equipped with HDMI port, allowing users to easily clone or extend screen to a second monitor.

CPU Mark

WIN: 8217 — Intel® Core i5-8365UE

4365 — Intel® Core i5-6300U
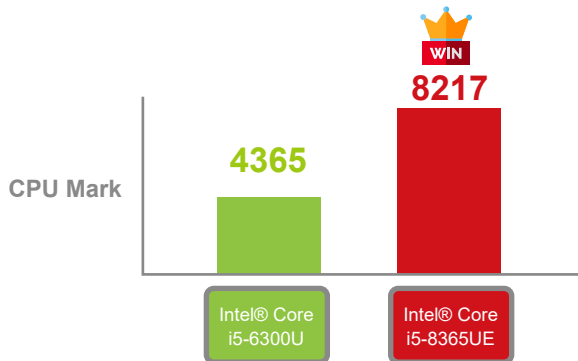
	Intel® Core™ i5-6300U	Intel® Core™ i5-8365UE
Cores	2	4
Threads	4	8
Process	14nm	14nm
TDP	15W	15W
Cache	3MB	6MB
Base Clock	2.4GHz	1.6GHz
Boost Clock	3.0GHz	4.1GHz

≫ 802.3bt PoE PD Supported

The PPC-FxxD-ULT5 industrial Power-over-Ethernet (PoE) modular panel PCs use a totally fanless cooling system and energy efficient CPU for optimal performance. The PoE-powered panel PC has been designed for use in Machine-to-Machine (M2M), Industrial Internet of Things (IIoT), and smart building automation.

PoE technology enables a facility to safely transfer electrical power, along with data, to touchscreen PCs over a standard category 5 cable in an Ethernet network. Thus, the panel PCs do not require modification of existing Ethernet cabling infrastructure and do not require a dedicated power source; making deployment fast, simple, and highly cost-effective. For added convenience and versatility, the PPC-FxxD-ULT5 panel PC with PoE function and P-CAP touchscreen can be mounted in panel, on wall or desktop.

GPOE-PD-BT01-R10
- Support PoE IEEE802.3 af/at/bt
- Support up to 71watt PD
- PCIe Mini form factor (IEI defined pinouts)

115mm

30mm

Modular Architecture

High Flexibility

The panel modules (available in 6 sizes) installed on the box PC can be swapped to provide up to 7 platform solutions for diverse applications

Quick Maintenance

The defective module can be separated and replaced with a new module on site; there is no need to unmount the whole system, guaranteeing minimum downtime.

Faster Time to Market

Build the system upon specific hardware (CPU, memory, add-on-card, etc.) requirement with faster time-to-market, reducing total cost of ownership for solution providers.

NEW!

FLEX-BX100 Series

FLEX-PLKIT Series
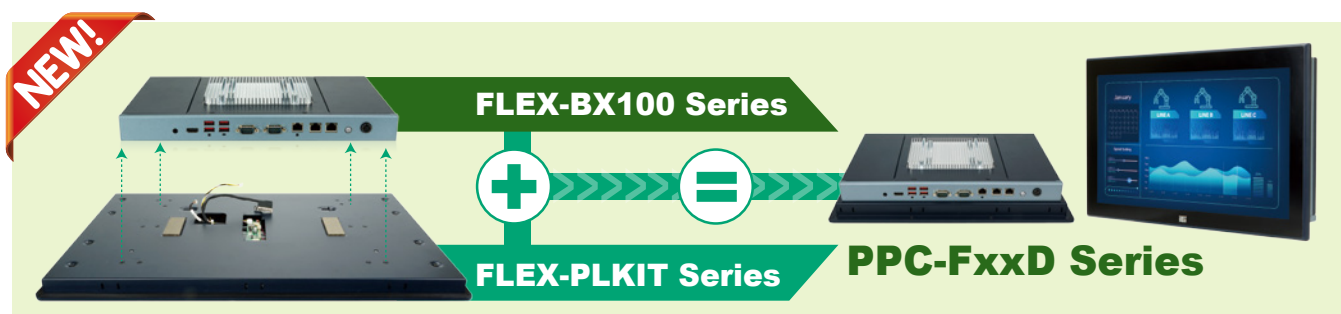
PPC-FxxD Series
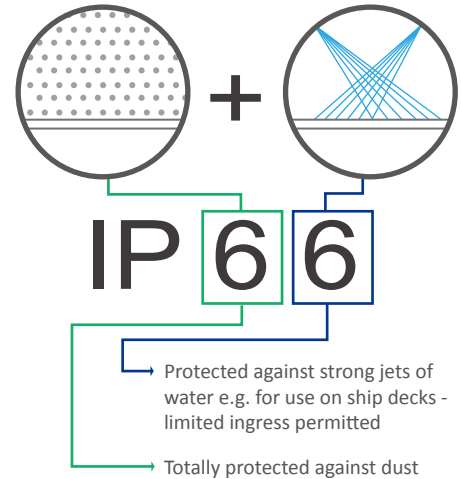
Backward-Compatible with PPC-F series

The cutout size of PPC-FxxD series is backward compatible with PPC-F series in panel mounting. There is no need to build a new fixture to integrate the PPC-FxxD series and it is easy to upgrade the performance from 4th Gen Intel® Core™ to 8th Gen Intel® Core™ with existing fixture.
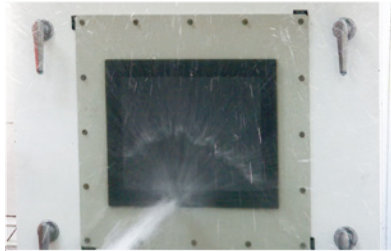
Cut-out dimensions

Customer's fixture
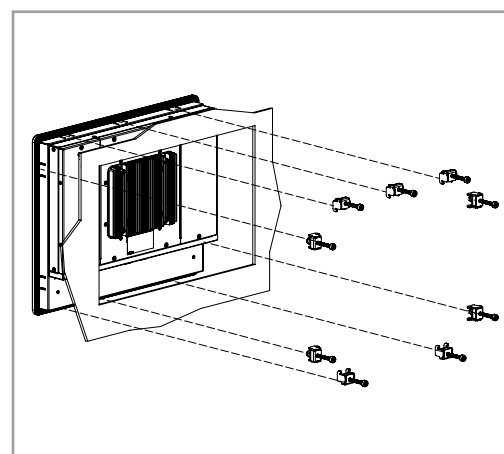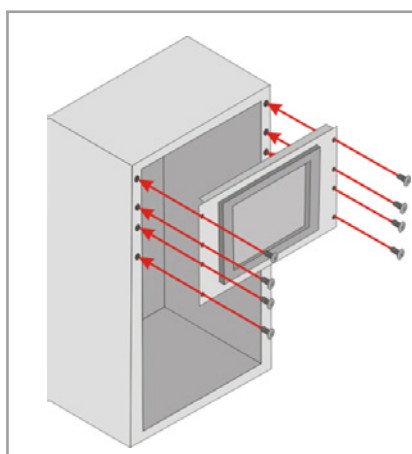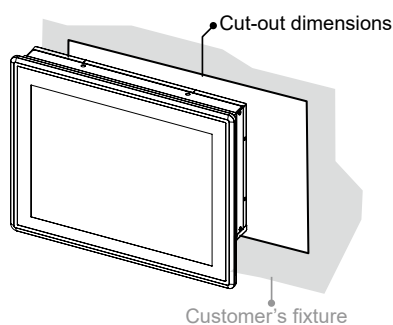
⟫ IP66 Front Panel Protection

PPC-FxxC series provides front mechanical IP dust and water resistant design. The sealing concept of PPC-FxxC contains the following product sealing to offer rugged IP66 front protection:

● PCAP touchscreen to front aluminum bezel with waterproof glue dispensing
● Internal dust sealing poron from LCD to the touchscreen
● Rubber sealing for mounting to the equipment

IP 6 6

→ Protected against strong jets of water e.g. for use on ship decks - limited ingress permitted

→ Totally protected against dust

Test for protection against dust

Test for protection against water

⟫ Anti-glare and UV-resistant Touch Screen Ideal for Outdoor Applications
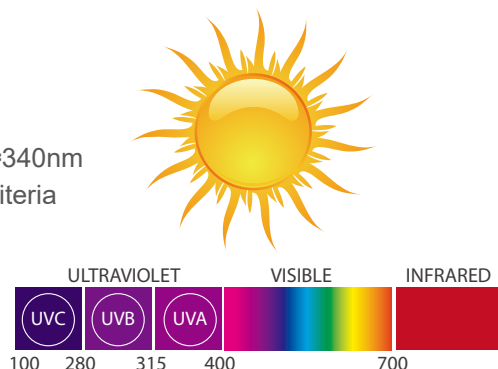
Etching anti-glare, never peel off!

The PPC-FxxC series is built with anti-glare touch screen, which has lower reflection compared to normal touch screen. The reflection will reduce from 8% to 1% and it will eliminate the interference of shine and lights on displays and improve the screen clarity.

Without AG

With AG

UV-resistant ensures reliable continuous operation for mission critical applications

Outdoor applications exposing to direct sunlight and long-term ultraviolet (UV) light will affect PCAP panel appearance such as PCAP top glass hard coat cracking and hazing, or varying degrees of yellowing and bubbling. Thus, IEI offers a UV resistant PCAP touch solution to equip outdoor industrial systems exposed to direct long-term sunlight with anti-UV characteristics.

● Blocks UV wavelengths less than ≈340nm
● Meets ASTM G154 performance criteria Cycle 1 for 1000 hours

ULTRAVIOLET   VISIBLE   INFRARED

UVC UVB UVA

100   280   315   400   700

PPC-F-ULT5 Series Selection Guide

LCD Size		15"	15.6"
Model		PPC-F15D-ULT5	PPC-FW15D-ULT5
TFT LCD	LCD Size	15"	15.6"
	Max. Resolution	1024 x768	1366x768
	Brightness (cd/m²)	450	400
	Contrast Ratio	800:1	500:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H/V)	160°/150°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating	
	Touch Controller	EETI EXC3000	
System	CPU	8th Genertion Intel® Core™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 2.00GHz	
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode	
	Ethernet	2 x Intel® I211,1 x Intel® I219	
Storage		2.5" HDD/SSD SATA 6Gb/s bay	
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)	
Thermal Solution		Fanless	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	Dimensions (mm) (W x H x D)	378.5 x 303 x 75	400.1 x 253.3 x 77.1
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3
	Net Weight (kg)	6.1	7.1
	Color	PANTONE 296 C	
	Front Frame	Aluminum die-casting	
	Rear Cover	Sheet metal	
	Mounting	Wall mount, Panel mount, Rack mount	
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)	
	Storage Temp.	-20°C ~ 60°C	
	Humidity	10% ~ 95% (non-condensing)	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	
	Safety & EMC	CE / FCC class A	
Power Input		12V DC input	

PPC-F-ULT5 Series Selection Guide

LCD Size		17"	18.5"
Model		PPC-F17D-ULT5	PPC-FW19D-ULT5
TFT LCD	**LCD Size**	17"	18.5"
	Max. Resolution	1280 x 1024	1366 x 768
	Brightness (cd/m²)	350	400
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3
	Viewing Angle (H/V)	170°/160°	170°/160°
	Backlight MTBF (Hrs)	50,000	50,000
Touch Screen	**Touchscreen Type**	Projected capacitive type with 10-point multitouch and anti-glare coating	
	Touch Controller	EETI EXC3000	
System	**CPU**	8th Genertion Intel® Core™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 2.00GHz	
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode	
	Ethernet	2 x Intel® I211, 1 x Intel® I219	
Storage		2.5" HDD/SSD SATA 6Gb/s bay	
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)	
Thermal Solution		Fanless	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	**Dimensions (mm) (W x H x D)**	408.4 x 341.4 x 75.6	469.8 x 289.2 x 76.9
	Cutout Dimensions (mm)	391 x 324	447.8 x 257.2
	Net Weight (kgs)	7.2	7.3
	Color	PANTONE 296 C	
	Front Frame	Aluminum die-casting	
	Rear Cover	Sheet metal	
	Mounting	Wall mount, Panel mount, Rack mount	
Environmental	**Operating Temp.**	-10°C ~ 50°C (with air flow)	
	Storage Temp.	-20°C ~ 60°C	
	Humidity	10% ~ 95% (non-condensing)	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	
	Safety & EMC	CE / FCC class A	
Power Supply		12V DC input	

PPC-F-ULT5

15"/15.6" Panel PC Based on Intel® Whiskey Lake ULT Processor

Features

- 15"~17" Panel PC with Intel® Whiskey Lake Core™ i5-8365UE, Intel® Celeron® 4305UE
- Low power consumption and fanless design
- IP66-rated front panel for water and dust resistance
- Modular architecture
- VESA 100 mm standard mounting holes for varied mounting demands
- Support PoE PD power
- Support NVMe SSD

Fanless | USB 3.2 GEN2 | 10 Point Multi-touch | PoE | Modular | NVME

Specifications

Model		PPC-F15D-ULT5	PPC-FW15D-ULT5
TFT LCD	**LCD Size**	15"	15.6"
	Max. Resolution	1024 x 768	1366 x 768
	Brightness (cd/m²)	450	400
	Contrast Ratio	800:1	500:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H/V)	160°/150°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000
Touch Screen	**Touchscreen Type**	Projected capacitive type with 10-point multitouch and anti-glare coating	
	Touch Controller	EETI EXC3000	
System	**CPU**	8th Genertion Intel® Core™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 2.00GHz	
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode	
	Ethernet	2 x Intel® I211,1 x Intel® I219	
	TPM	On-board TPM2.0	
Storage		2.5" HDD/SSD SATA 6Gb/s bay	
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)	
Thermal Solution		Fanless	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	**Dimensions (mm) (W x H x D)**	378.5 x 303 x 75	400.1 x 253.3 x 77.1
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3
	Net Weight (kg)	6.1	7.1
	Color	PANTONE 296 C	
	Front Frame	Aluminum die-casting	
	Rear Cover	Sheet metal	
	Mounting	Wall mount, Panel mount, Rack mount	
Environmental	**Operating Temp.**	-10°C ~ 50°C (with air flow)	
	Storage Temp.	-20°C ~ 60°C	
	Humidity	10% ~ 95% (non-condensing)	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	
	Safety & EMC	CE / FCC class A	
Power Input		12V DC input	

PPC-F-ULT5

17"/18.5" Panel PC Based on Intel® Whiskey Lake ULT Processor

Features

- 17"~18.5" Panel PC with Intel® Whiskey Lake Core™ i5-8365UE, Intel® Celeron® 4305UE
- Low power consumption and fanless design
- IP66-rated front panel for water and dust resistance
- Modular architecture
- VESA 100 mm standard mounting holes for varied mounting demands
- Support PoE PD power
- Support NVMe SSD

Fanless | **USB 3.2 GEN2** | **10 Point Multi-touch** | **PoE** | **Modular** | **NVME**

Specifications

Model		PPC-F17D-ULT5	PPC-FW19D-ULT5
TFT LCD	LCD Size	17"	18.5"
	Max. Resolution	1280 x 1024	1366 x 768
	Brightness (cd/m²)	350	400
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3
	Viewing Angle (H/V)	170°/160°	170°/160°
	Backlight MTBF (Hrs)	50,000	50,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating	
	Touch Controller	EETI EXC3000	
System	CPU	8th Genertion Intel® Core™ i5-8365UE 4.10GHz 8th Genertion Intel® Celeron® 4305UE 2.00GHz	
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode	
	Ethernet	2 x Intel® I211, 1 x Intel® I219	
	TPM	On-board TPM2.0	
Storage		2.5" HDD/SSD SATA 6Gb/s bay	
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)	
Thermal Solution		Fanless	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	Dimensions (mm) (W x H x D)	408.4 x 341.4 x 75.6	469.8 x 289.2 x 76.9
	Cutout Dimensions (mm)	391 x 324	447.8 x 257.2
	Net Weight (kgs)	7.2	7.3
	Color	PANTONE 296 C	
	Front Frame	Aluminum die-casting	
	Rear Cover	Sheet metal	
	Mounting	Wall mount, Panel mount, Rack mount	
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)	
	Storage Temp.	-20°C ~ 60°C	
	Humidity	10% ~ 95% (non-condensing)	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	
	Safety & EMC	CE / FCC class A	
Power Supply		12V DC input	

Ordering Information

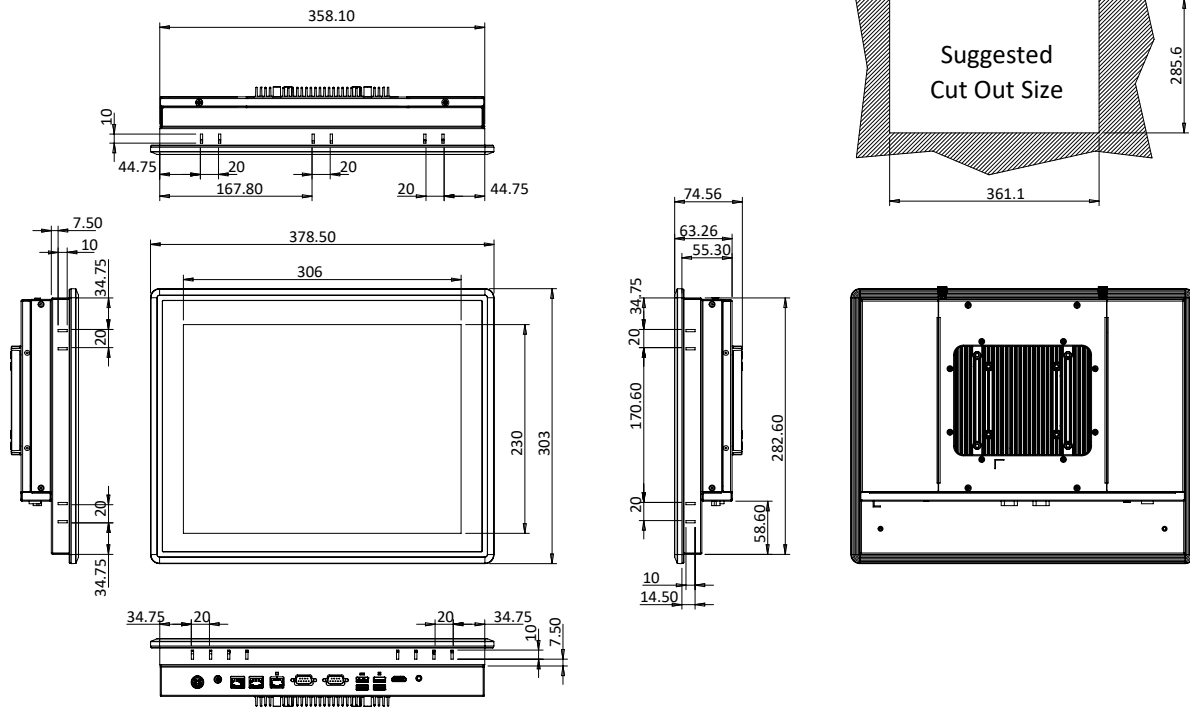| Part No.		Description
15"	**PPC-F15D-ULT5-i5/4G/PC-R10**	15" 450 cd/m² 1024 x 768 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-F15D-ULT5-C/4G/PC-R10	15" 450 cd/m² 1024 x 768 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Celeron® 4305UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
15.6"	**PPC-FW15D-ULT5-C/4G/PC-R10**	15.6" 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Celeron® 4305UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
17"	**PPC-F17D-ULT5-i5/4G/PC-R10**	17" 350 cd/m² 1280 x 1024 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-F17D-ULT5-C/4G/PC-R10	17" 350 cd/m² 1280 x 1024 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Celeron® 4305UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
18.5"	**PPC-FW19D-ULT5-i5/4G/PC-R10**	18.5" 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Core™ i5-8365UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10
	PPC-FW19D-ULT5-C/4G/PC-R10	18.5" 400 cd/m² 1366 x 768 Panel PC with 14nm 8th gen. Intel® Whiskey Lake Celeron® 4305UE TDP 15W on-board Processor (ULT), 4GB DDR4 RAM x1, 12VDC input, PCAP touch with AG, R10

Options

Item	PPC-F15D	PPC-FW15D	PPC-F17D	PPC-FW19D
Arm	ARM-31-RS			
Stand	STAND-A21-R10 STAND-C19-R10			
Wall Mount Kit	WK-190MS-R10			
Panel Mount Kit	FPK-12-R10	FPK-14-R10	FPK-13-R10	FPK-13-R10
Rack Mount Kit	-	FRKW15C-R10	-	FRKW19C-R10
PoE PD Kit	GPOE-PD-BT01-R10 (PoE IEEE802.3 af/at/bt, 71W)			

Fully Integrated I/O

Easy-access HDD · HDMI · 4 x USB 3.2 Gen 2 · RS-232 · GbE LAN · Power Switch with Blue LED Indicator

Line Out · Reset · AT/ATX Switch · RS-232/422/485 · Clear CMOS · 2 x PoE GbE LAN · 12V DC Input
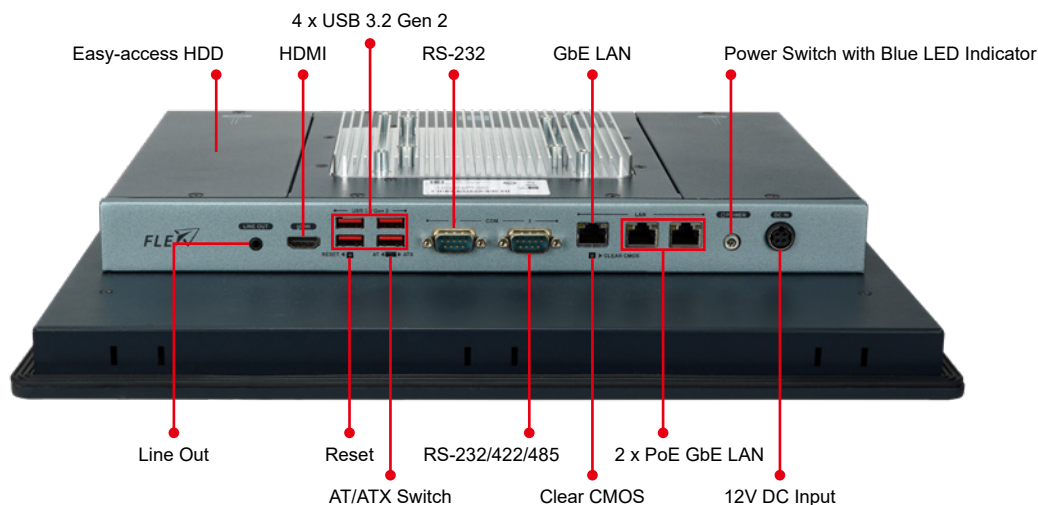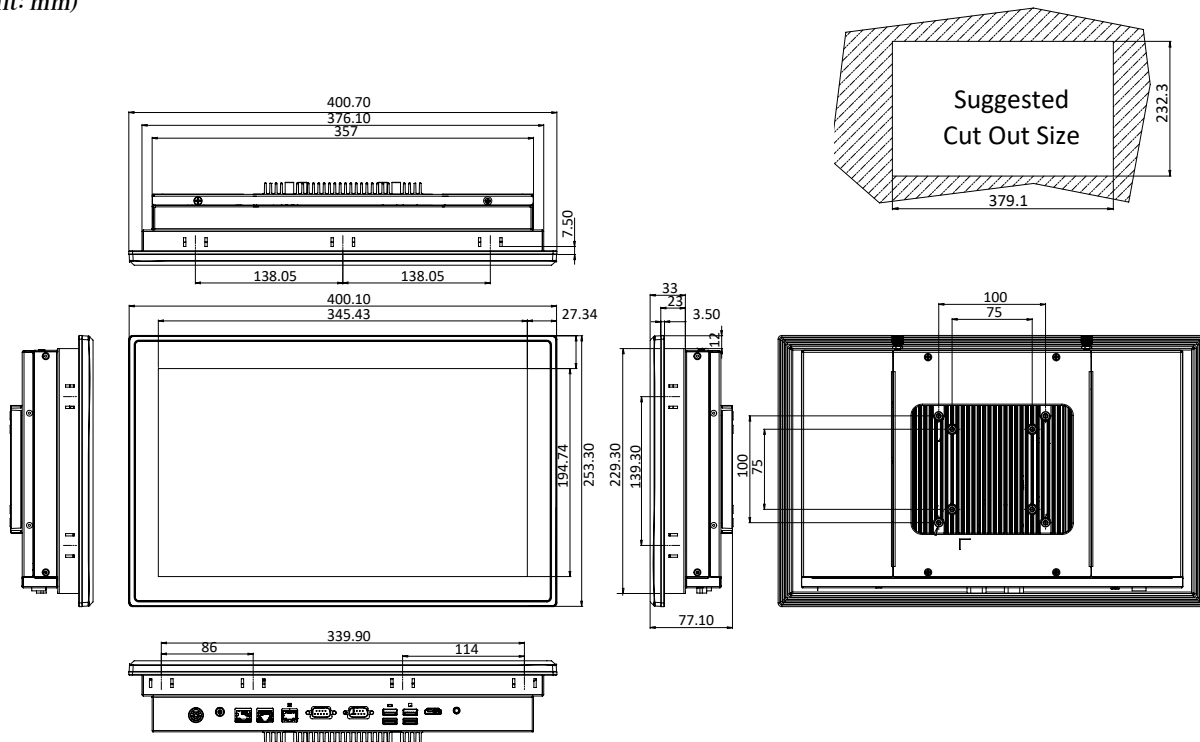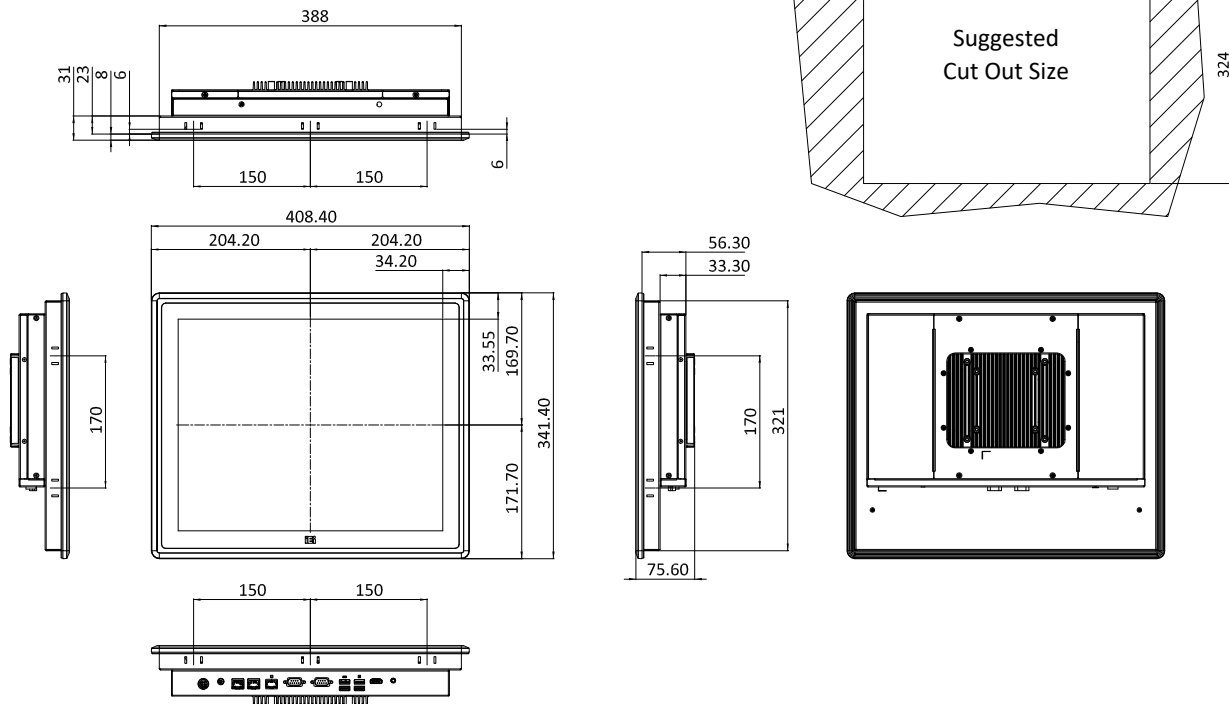
PPC-F15D-ULT5 Dimensions
(Unit: mm)

PPC-FW15D-ULT5 Dimensions
(Unit: mm)

PPC-F17D-ULT5 Dimensions
(Unit: mm)

Suggested Cut Out Size

PPC-FW19D-ULT5 Dimensions
(Unit: mm)

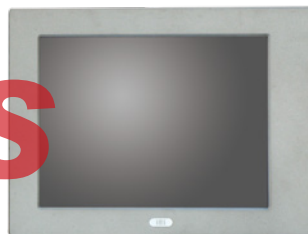Suggested Cut Out Size

VESA MOUNT M4 SCREW
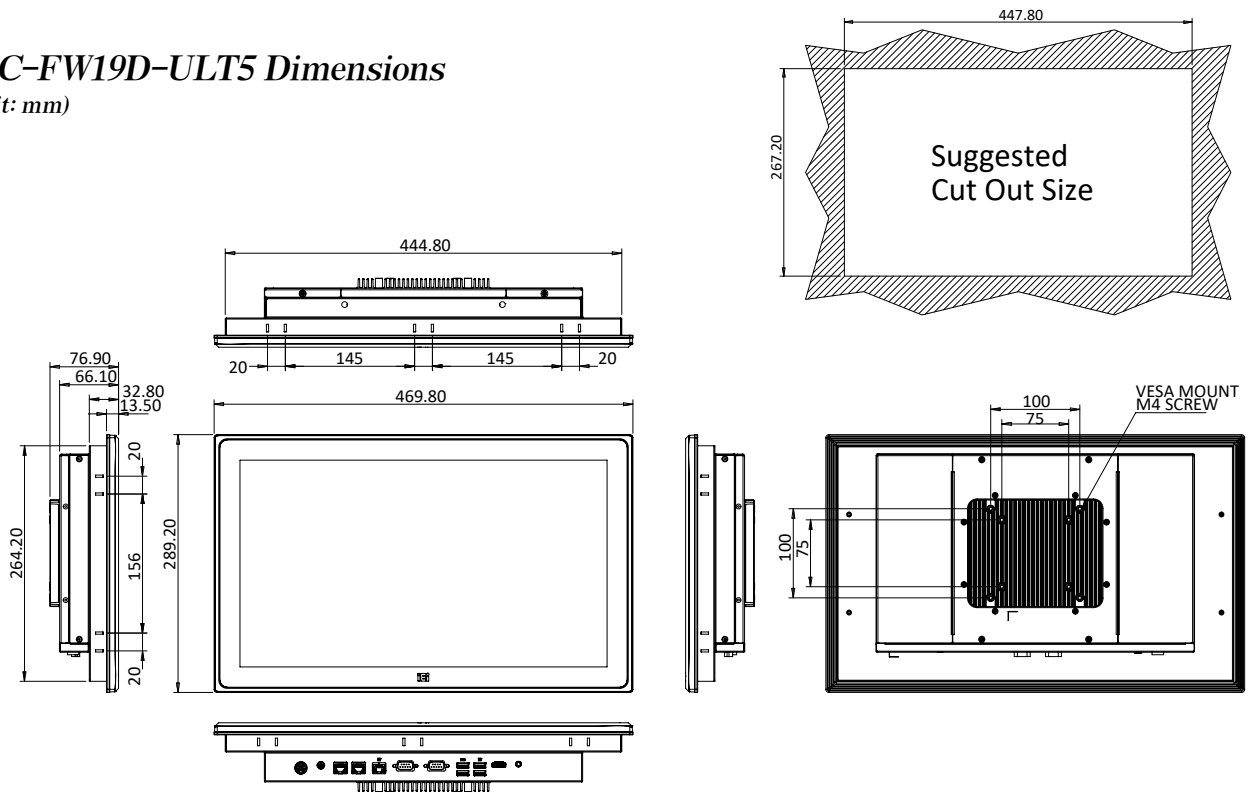
PPC-F Series

IEI is dedicated to developing impeccable industrial panel PC products.The PPC and PPC-F series industrial panel PCs not only keep rugged design of IP65 protection but also enrich aesthetic experience by implementing the seamless mounting method. The projected capacitive touch option is added to these new series of products to provide up to 2 points multi-touch solution! Additionally, we also provide high performance H81 series and low power consumption Bay Trail series to meet customers' requests.

■ PPC-F Industrial Panel PC Series

The PPC-F series aims at slim and compact design. Therefore, this new series makes a huge improvement in mechanical design to achieve the goal.

PPC-F15A-H81
262.2 x 322.2 mm

PPC-5150A-H61
309 x 410 mm

PPC-F15A-H81 vs.PPC-5150A-H61

5.8 KG | 17% lighter | 7 KG
41% thinner on depth | 65.5mm | 110.5mm

■ 8mm Ultra Thin Bezel Design

To enhance aesthetic experience in industrial automation applications, the depth of the front bezel of the PPC-F is only 8mm to minimize the gap between the wall and the system in wall/panel mounting, which is neat and simple during integration.

8mm

■ 10-Point Multi Touch

The PPC series supports 10-point projected capacitive touch, enhancing smooth operations! IEI also provides 12" to 24" resistive single type and projected capacitive type touchscreen options to enrich simple and intuitive user experience.

■ Impeccable Front Panel

6H Anti-scratch Touch
The PPC-F series equipped with projected capacitive touchscreen uses 6H hardness vandal proof strengthened glass to prevent damages from physical impact.

Front Bezel IP65 Protection
Designed for harsh environments, the PPC-F series provides front bezel IP65 protection to resist dust and water jet.

■ Built-in 80-Plus Silver Power Supply

The 80-plus silver power supply is implemented into the PPC-F H81 series, which reduces power loss and increases efficiency during power transition. With the certified power supply, the power transition between AC source and DC source couldmaintain up to 85% efficiency, and the power loss is only 15% or less. For customers, the high efficiency of power transition could reduce not only cost but also heat loss.. Furthermore, it could make a friendly environment. (For PPC-F H81 series only)

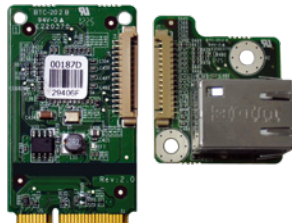| Parameters	Loading	Gold	Silver	Bronze	80 Plus
		80 PLUS GOLD	80 PLUS SILVER	80 PLUS BRONZE	80 PLUS
Efficiency	20%	87%	85%	82%	80%
	50%	90%	88%	85%	80%
	100%	87%	85%	82%	80%
Power Factor	50%	90% (across the full range)			90% (@100% Load)

■ PCIe Mini Card Expansion

Two full-size PCIe Mini card expansion slots are reserved in the PPC-F series (Depends on models). With a wide variety of IEI PCIe Mini card solutions, it is flexible and easy to add extra functions in the system.
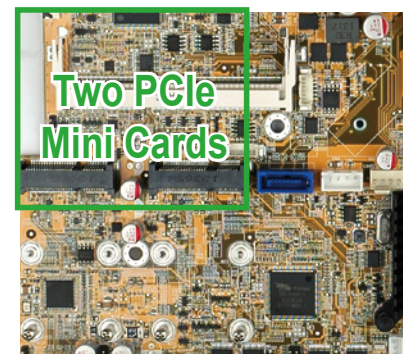
WiFi Module

LAN Module

Two PCIe Mini Cards

EMB-WIFI-KIT01-R20

MPCIE-LAN-R10

MPCIE-CAN-R10

PPC-F Series Selection Guide

LCD Size		8"	10.4"	12"
Model		PPC-F08B-BT	PPC-F10B-BT	PPC-F12B-BT
Display	LCD Size	8" (4:3)	10.4"	12" (4:3)
	Max. Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)	1024 (W) x 768 (H)
	Brightness (cd/m²)	500	400	600
	Contrast Ratio	500 : 1	700 : 1	700 : 1
	LCD Color	16.2M	16.2M	16.2M
	Pixel Pitch (mm) (HxV)	0.2025 x 0.0675	0.264 x 0.264	0.24 x 0.24
	Viewing Angle (V/H)	140° / 120°	160° / 140°	160° / 140°
	Backlight MTBF (hrs)	50000	30000	50000
Touch	TouchScreen	5-wire resistive type flat touchscreen, 3H	5-wire resistive type flat touchscreen, 3H	5-wire resistive single touch window, 3H (Anti-glare Surface) 10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)
	Touch Controller	PenMount DMC9000	PenMount DMC9000	Penmount DMC 9000 EETI EXC3188
Motherboard	CPU	Intel® Celeron® J1900 on-board SoC, quad-core, 2GHz	Intel® Celeron® J1900 on-board SoC, quad-core, 2GHz	Intel® Celeron® quad-core J1900 SoC, 2GHz
	Chipset	N/A	N/A	N/A
	RAM	1 x 204-pin DDR3L SO-DIMM slot (max. 8GB)	1 x 204-pin DDR3L SO-DIMM slot (max. 8GB)	2 x 204-pin 1066/1333 MHz DDR3L SO-DIMM supported (max. 8GB)
	Ethernet	2 x RTL 8111HN	2 x RTL 8111HN	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller
	Audio Codec	REALTEK ALC888S	REALTEK ALC888S	REALTEK ALC888S
I/O Ports and Switches		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Power switch
Drive Bay	HDD Driver Bay	N/A	1 x 2.5" HDD bay	1 x 2.5" HDD bay
	SSD	mSATA		
Expansion Slot		1 x Full-size PCIe Mini slot (with mSATA/PCIe/USB signal) 1 x Half-size PCIe Mini slot for Wi-Fi modules		1 x Full-size PCIe Mini card slot 1 x Full-size PCIe Mini card slot colay mSATA
System Cooling		Fanless	Fanless	Fanless
Environment	Operating Temperature	-10°C~50°C (14°F~122°F)		
	Storage Temperature	-20°C~60°C (-4°F~140°F)		

PPC-F Series Selection Guide

LCD Size		15"		17"	
Model		PPC-F15A-H81	PPC-F15B-BT	PPC-F17A-H81	PPC-F17B-BT
Display	**LCD Size**	15'' (4:3)	15'' (4:3)	17"	17"
	Max. Resolution	1024 (W) x 768 (H)		1280 (W) x 1024 (H)	
	Brightness (cd/ m²)	450		350	
	Contrast Ratio	800 : 1		1000 : 1	
	LCD Color	16.2M		16.7M	
	Pixel Pitch (mm) (HxV)	0.297 x 0.297		0.26 x 0.26	0.26 x 0.26
	Viewing Angle (V/H)	160° / 150°		170° / 160°	170° / 160°
	Backlight MTBF (hrs)	70000		50000	
Touch	**Touchscreen**	5-wire resistive single touch window, 3H (Anti-glare Surface) 10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)			
	Touch Controller	Penmount DMC 9000 EETI EXC3188			
Motherboard	**CPU**	4th generation Intel® Core™ i7/ i5, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz	4th generation Intel® Core™ i7/ i5, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz
	Chipset	N/A	Intel® H81	Intel® H81	N/A
	RAM	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	2 x 204-pin 1066/1333 MHz DDR3L SO-DIMM supported (max. 8GB)	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	2 x 204-pin 1066/1333 DDR3L SO-DIMM supported (max. 8GB)
	Ethernet	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller			
	Audio Codec	Realtek ALC888S			
I/O Ports and Switches		2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out 1 x Power switch	2 x RJ-45 ：LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x DC jack (4-pin) 1 x Terminal block 1 x Microphone & speaker 1 x power switch
Drive Bay	**HDD Driver Bay**	1 x 2.5" HDD bay		1 x 2.5" SATA HDD bay with anti-shook	
	SSD	mSATA			
Expansion Slot		1 x Full-size PCIe Mini card 1 x Full-size PCIe Mini card co-lay mSATA			
System Cooling		Active fan	Fanless	Active fan	Fanless
Environment	**Operating Temperature**	-10°C~50°C (14°F~122°F)			
	Storage Temperature	-20°C~60°C (-4°F~140°F)			

PPC-F H81 Series

Intelligent Industrial Panel PC

5 YEARS 5-YEAR SUPPLY GUARANTEE

Features

- Scalable Intel® H81 chipset supports LGA1150 Intel® 4th generation Core™ i7/i5, Pentium® or Celeron® processor with up to 65W TDP
- Robust IP65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Projected capacitive multi-touch
- Dual full-size PCIe Mini card expansion

FHD | Multi-touch | IP65 | PCIe Mini | USB 3.2 | MOUNT

Specifications

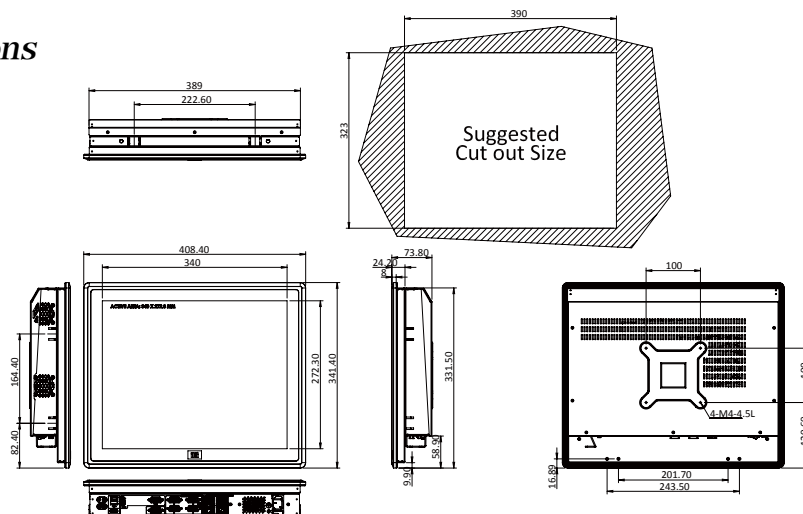| Model		PPC-F15A	PPC-F17A
LCD	LCD Display	15" (4:3)	17" (5:4)
	Max. Resolution	1024 (W) x 768 (H)	1280 (W) x 1024 (H)
	Brightness (cd/m²)	450	350
	Contrast Ratio	800 : 1	800 : 1
	LCD Color	16.2M	16.7M
	Pixel Pitch (mm)	0.297 x 0.297	0.26 x 0.26
	Viewing Angle (H-V)	160° / 150°	170° / 160°
	Backlight MTBF (hrs)	70000	50000
Motherboard	SBC Model	FPPCMB-H81-R10	
	CPU	LGA1150 Intel® 4th generation Core™ i7/i5, Pentium® or Celeron® processor with up to 65W TDP	
	Chipset	Intel® H81	
	RAM	Support 2 x 204-pin 1066/1333/1600 MHz dual-channel DDR3 SO-DIMM slots (max. 16GB)	
Touch	Touchscreen & Controller	5-wire resistive single touch window, 3H/Penmount 9000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)	
Input Interfaces	I/O Ports & Switch	2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output	4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out
	Expansion	1 x Full-size/half-size PCIe Mini card (PCIe and USB signal) 1 x Full-size/half-size PCIe Mini card (PCIe , USB and mSATA signal)	
Wireless LAN		802.11 b/g/n (optional)	
Storage		1 x 2.5" HDD/SSD drive bay 1 x mSATA	
Physical	Construction Material	Aluminum front cover and sheet metal rear cover	
	Mounting	Panel mount, rack mount, 100x100 VESA mount	
	Enclosure Color	Black C	
	Dimensions (mm)	303 x 378.5 x 68.7	341.4 x 408.4 x 73.8
	Cutout Dimensions (mm)	285.6 x 361.1	323 x 390
	Net/ Gross Weight (kg)	5.6/ 8.3	7.5/10.7
Environment	Operating Temperature (with air flow)	-10°C ~ 50°C	
	Storage Temperature	-20°C ~ 60°C	
	Humidity	10% to 95% (non-condensing)	
	IP Level	Front IP 65	
	Safety and EMC	CE & FCC certified	
Power Supply	AC Input	AC input ATX power supply - P/N: 63030-010220-100-RS - 220W power supply - Input: 90VAC-264VAC, 50/60Hz - Output (max.): 3.3V@10A, 5V@14A, 12V@14A, -12V@0.3A	
Power Consumption		80W	100W

Ordering Information

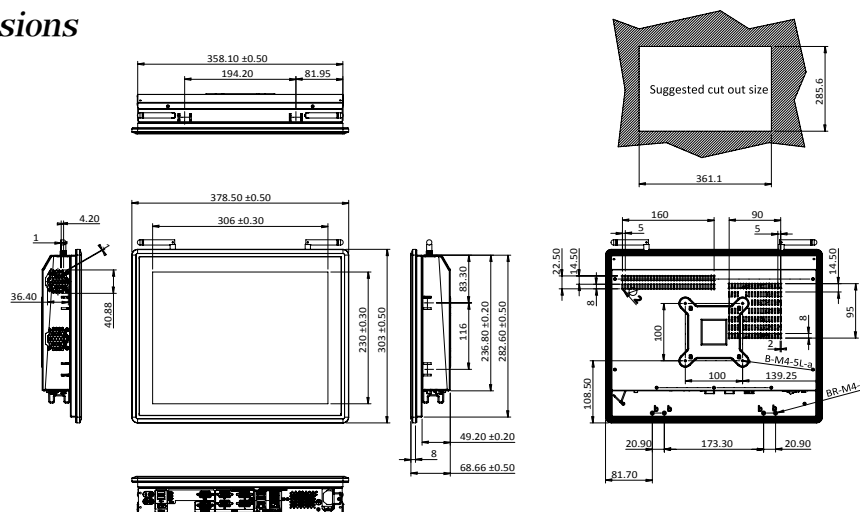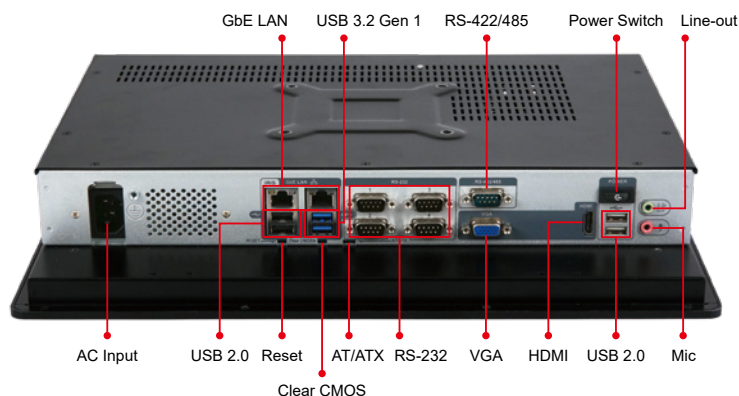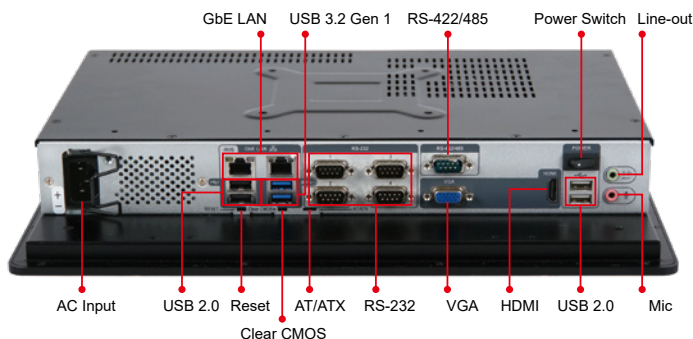| Part No.		Description
15"	PPC-F15AA-H81i-P/4G/PC-R23	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, black color, PSU ACE-A622C, projective capacitive touch window with AG coating, R23
	PPC-F15AA-H81i-P/4G/R-R23	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, black color, PSU ACE-A622C, resistive touch window with AG coating, R23
	PPC-F15AA-H81i-i5/4G/R-R23	15" 450 cd/m² XGA Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60GHz), TDP 65W, 2GB RAM*2, black color, PSU ACE-A622C, resistive touch window with AG coating, R23
17"	PPC-F17AA-H81i-P/4G/PC-R14	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, black color, PSU ACE-A622C, projective capacitive touch window with AG coating, R14
	PPC-F17AA-H81i-i5/4G/PC-R14	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Core i5 Quad Core i5-4570S Processor(6M Cache,up to 3.60GHz),TDP 65W, 2GB RAM*2, black color, PSU ACE-622C, projective capacitive touch window with AG coating, R14
	PPC-F17AA-H81i-P/4G/R-R14	17" 350 cd/m² SXGA Panel PC with Intel® H81 chipset, Intel® Pentium® Processor G3420 (3M Cache, 3.20 GHz), TDP 53W, 2GB RAM*2, black color, PSU ACE-A622C, resistive touch window with AG coating, R14
	PPC-F17AA-H81i-i5/4G/R-R14	17" 350 cd/m² SXGA Panel PC with Intel® H811 chipset, Core i5 Quad Core i5-4570S Processor (6M Cache, up to 3.60 GHz), TDP 65W, 2GB RAM*2, black color, PSU ACE-622C, resistive touch window with AG coating, R14

Options

Item	PPC-F15A	PPC-F17A
Arm	ARM-31-RS	ARM-31-RS
Stand	STAND-A21 STAND-C19-R10	STAND-C19-R10 STAND-A21-R10
Wall Mount Kit	WK-190MS-R10	
Panel Mount Kit	FPK-04-R10	
Rack Mount Kit	FRK15-R10	FRK17-R10

Packing List

Item	Q'ty	Remark
Power Cord	1	Depends on shipping region
Screw Kit	1	

PPC-F15A
Fully Integrated I/O

GbE LAN   USB 3.2 Gen 1   RS-422/485   Power Switch   Line-out

AC Input   USB 2.0   Reset   AT/ATX   RS-232   VGA   HDMI   USB 2.0   Mic

Clear CMOS

PPC-F17A
Fully Integrated I/O

GbE LAN   USB 3.2 Gen 1   RS-422/485   Power Switch   Line-out

AC Input   USB 2.0   Reset   AT/ATX   RS-232   VGA   HDMI   USB 2.0   Mic

Clear CMOS

PPC-F15A Dimensions
(Unit: mm)

PPC-F17A Dimensions
(Unit: mm)

PPC-F Bay Trail Fanless Series

8"/10.4" Fanless Intel® Bay Trail Solution

Features

- 8" and 10.4" fanless industrial panel PC
- 2.0 GHz Intel® Celeron® J1900 quad-core processor or 1.58 GHz Intel® Celeron® N2807 dual-core processor
- Low power consumption DDR3L memory supported
- IP 65 compliant front panel
- 9 V~30 V wide DC input
- mSATA SSD suppoted
- Dual GbE for backup
- -10°C~50°C extended operating temperature

Fanless | Multi-touch | IP65 | USB 3.2 | MOUNT

Specifications

	Model	PPC-F08B-BT	PPC-F10B-BT
LCD	**LCD Display**	8" (4:3)	10.4"
	Max. Resolution	800 (W) x 600 (H)	800 (W) x 600 (H)
	Brightness (cd/m²)	500	400
	Contrast Ratio	500:1	700:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.2025 (H) x 0.0675 (V)	0.264 (H) x 0.264 (V)
	Viewing Angle (H-V)	140° / 120°	160° / 140°
	Backlight MTBF (hrs)	50000	30000
Motherboard	**CPU**	Intel® Celeron® J1900 quad-core on-board SoC, 2GHz	
	RAM	1 x 204-pin DDR3L SO-DIMM slots (max. 8GB)	
Touch	**Touchscreen & Controller**	5-wire resistive type flat touchscreen, PenMount DMC9000	
	Surface Hardness	3H	3H
Input Interfaces	**I/O Ports & Switches**	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack
Expansion		1 x Full-size/half-size PCIe Mini slot (mSATA/PCIe/USB signal) 1 x Half-size PCIe Mini slot (PCIe signal only)	
Wireless LAN		802.11 b/g/n (optional)	
Storage	**SSD**	mSATA	mSATA
	HDD	N/A	1 x 2.5" HDD bay
Physical	**Construction Material**		
	Mounting	Stand, panel mount, rack mount, VESA 75x75	Stand, panel mount, rack mount, VESA 75x75/100x100
	Enclosure Color		
	Dimensions (mm)	182.2 x 222.2 x 44	232.4 x 285.2 x 44
	Net Weight	1.17 kg	1.77 kg
	Cut-out Dimensions (mm)	207 x 154	267.2 x 214.4
Environment	**Operating Temperature (with air flow)**	-10°C~50°C (14°F~122°F)	
	Storage Temperature	-20°C~60°C (-4°F~140°F)	
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 65 compliant front panel	
	Safety and EMC	CE & FCC Class A certified	
Power	**Power Adapter**	P/N: 63040-010036-210-RS 36W Power Adapter Input: 90 - 264V AC, 50/60Hz Output: 12V DC	
	Power Requirement	9 ~ 30V DC	
	Power Consumption	28W	34W

Ordering Information

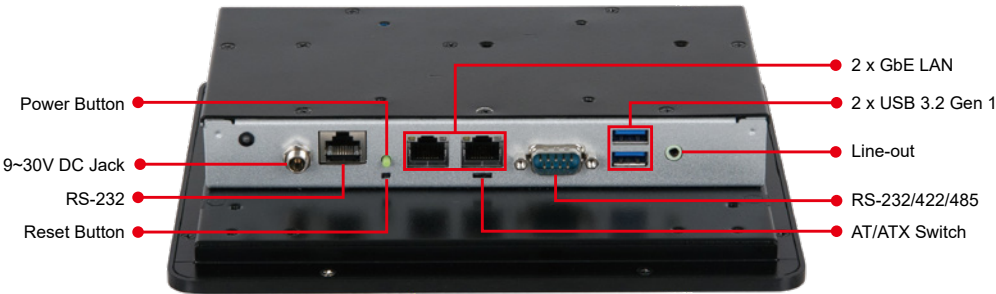| Part No.	Description
PPC-F08B-BT-J1/2G/R-R11	8" 500 cd/m² SVGA panel PC with Intel® Celeron® processor J1900, TDP 10W, 2GB DDR3L RAM, black color, 9-30V DC input, resistive touch window, R11
PPC-F10B-BT-J1/2G/R-R11	10.4" 400 cd/m² SVGA panel PC with Intel® Celeron® processor J1900, TDP 10W, 2GB DDR3L RAM, black color, 9-30V DC input, resistive touch window, R11

Options

Item	PPC-F08B	PPC-F10B
Arm	ARM-11-RS	ARM-11-RS
Stand	STAND-C12-R10	STAND-C12-R10
Wall Mount Kit	AFLWK-12	AFLWK-12
Panel Mount Kit	FPK-07-R10	FPK-09-R10
Wi-Fi Kit	EMB-WIFI-KIT01-R20	

Packing List

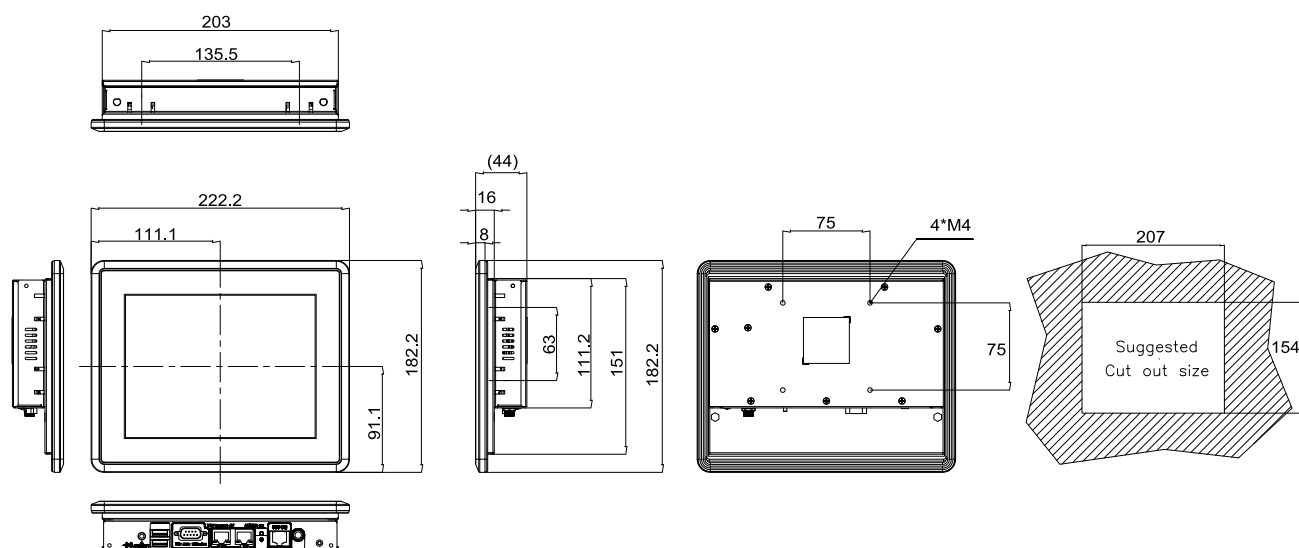| Item	Q'ty	Remark
PPC-FxxB-BTi Panel PC	1	
Power Cord	1	Part numbers vary by regions
Screw Pack	1	Including necessary screws
Power Adapter	1	9V~30V DC P/N: 63040-010036-210-RS

PPC−F08B
Fully Integrated I/O

Power Button
9~30V DC Jack
RS-232
Reset Button
2 x GbE LAN
2 x USB 3.2 Gen 1
Line-out
RS-232/422/485
AT/ATX Switch

PPC−F10B
Fully Integrated I/O

Power Button
2 x USB 2.0
9~30V DC Jack
RS-232
Reset Button
AT/ATX Switch
RS-232/422/485
2 x GbE LAN
Line-out
2 x USB 3.2 Gen 1
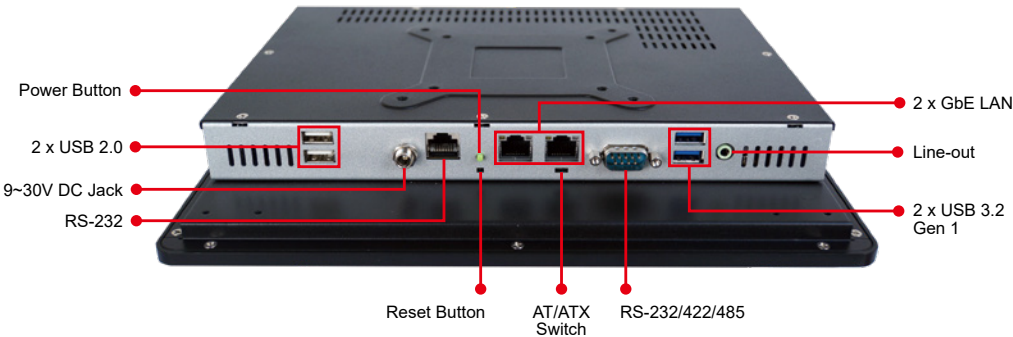
PPC-F08B-BT
Dimensions (Unit: mm)

PPC-F10B-BT
Dimensions (Unit: mm)
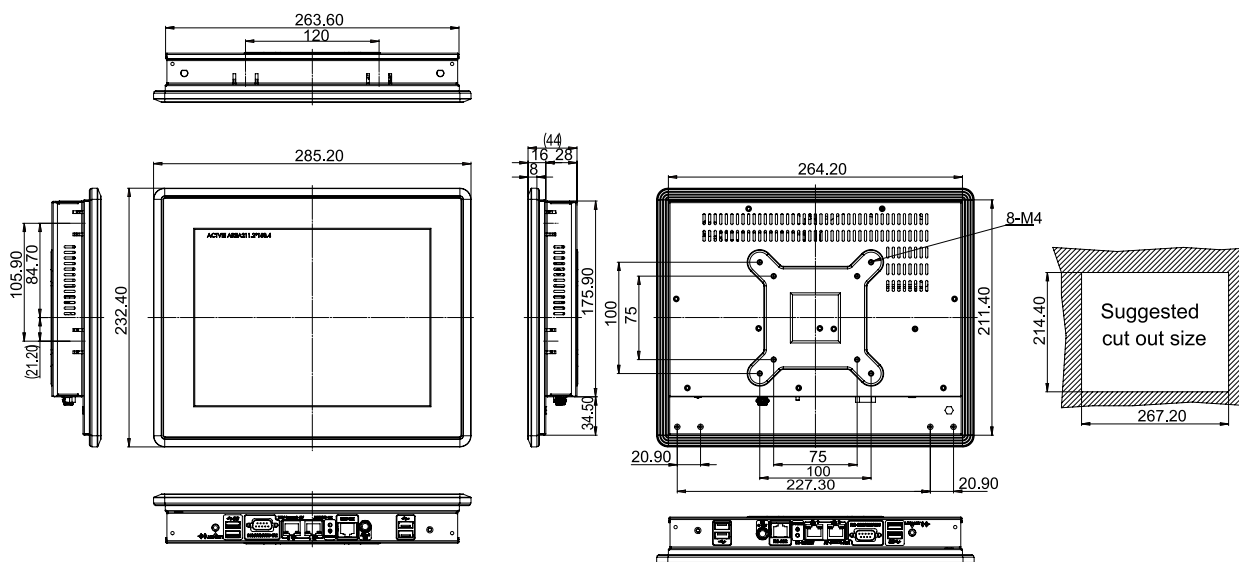
PPC-F Bay Trail Fanless Series

12"/15"/17"/19" Fanless Intel® Bay Trail Solution

Features

- Intel® Celeron® J1900 quad-core SoC
- Robust IP65 aluminum front bezel
- Aesthetic ultra-thin bezel for seamless panel mount installation
- Projected capacitive multi-touch and resistive single touch options
- Dual full-size PCIe Mini card expansion
- 9V~36V DC wide range DC input

Fanless	Multi-touch	IP65	PCIe Mini	USB 3.2	MOUNT

Specifications

Model		PPC-F12B-BT	PPC-F15B-BT	PPC-F17B-BT
LCD	LCD Display	12.1" (4:3)	15" (4:3)	17" (5:4)
	Max. Resolution	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1280 (W) x 1024 (H)
	Brightness (cd/m²)	600	450	350
	Contrast Ratio	700 : 1	800 : 1	800 : 1
	LCD Color	16.2M	16.2M	16.7M
	Pixel Pitch (mm)	0.24 x 0.24	0.297 x 0.297	0.26 x 0.26
	Viewing Angle (H-V)	160° / 140°	160° / 150°	170° / 160°
	Backlight MTBF (hrs)	50000	70000	50000
Motherboard	CPU	Intel® Celeron® processor J1900 (2M cache, up to 2.42 GHz)		
	RAM	2 x 204-pin DDR3L SO-DIMM slot (max. 8GB), pre-installed with 2GB		
Touch	Touchscreen & Controller	5-wire resistive single touch window, 3H/Penmount DMC9000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)		
Input Interfaces	I/O Ports & Switches	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out (PPC-F15B & PPC-F17B & PPC-F19B only) 1 x Power switch		
	Expansion	1 x Full-size PCIe Mini slot (mSATA/PCIe/USB signal) 1 x Full-size/half-size PCIe Mini slot (PCIe/USB signal)		
Wireless LAN		802.11 b/g/n (optional)		
Drive Bay		1 x 2.5" HDD/SSD drive bay		
Physical	Construction Material	Aluminum front panel and sheet metal rear cover		
	Mounting	Panel mount, rack mount, VESA 100x100		
	Enclosure Color	Black C		
	Dimensions (mm) (W x L x D)	262.2 x 322.2 x 47.2	303 x 378.5 x 46.2	341.4 x 408.4 x 51.8
	Weight (Net)	3.2 kg	4.1 kg	5 kg
	Cutout Dimensions (mm)	244.8 x 304.8	285.6 x 361	323 x 390
Environment	Operating Temperature (with air flow)	-10°C~50°C (14°F~122°F)		
	Storage Temperature	-20°C~60°C (-4°F~140°F)		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 65 compliant front panel		
	Safety and EMC	CE & FCC Class A certified		
Power	Power Adapter	P/N: 63040-010060-220-RS 60W Power Adapter Input: 90 ~ 264V AC, 50/60Hz Output: 12V DC		
	Power Requirement	9 V~36 V DC		
	Power Consumption	40W	41W	42W

Ordering Information

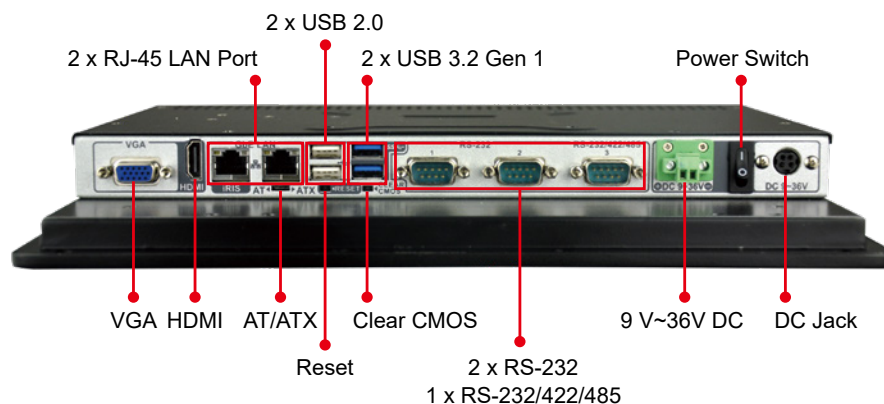| Part No.	Description
PPC-F12B-BTi-J1/2G/PC-R13	12.1" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, projected capacitive touch window with AG coating, R13
PPC-F12B-BTi-J1/2G/R-R13	12.1" 600 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, resistive touch window with AG coating, R13
PPC-F15B-BTi-J1/2G/R-R23	15" 450 cd/m² XGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, resistive touch window with AG coating, R23
PPC-F17B-BTi-J1/2G/R-R13	17" 350 cd/m² SXGA Panel PC with Intel® Celeron® Processor J1900, TDP 10W, 2GB RAM*1, black color, 9-36V DC input, resistive touch window with AG coating, R13

Options

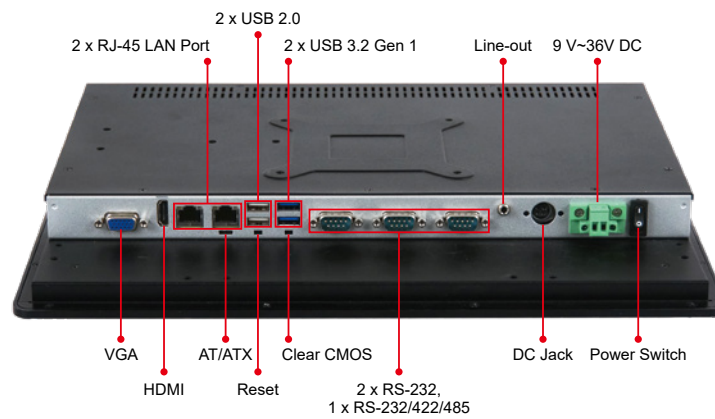| Item	PPC-F12B	PPC-F15B	PPC-F17B
Arm	ARM-31-RS		
Stand	STAND-C12-R10	STAND-C19-R10	STAND-C19-R10
Wall Mount Kit	WK-190MS-R10		
Panel Mount Kit	FPK-09-R10	FPK-10-R10	FPK-10-R10
Rack Mount Kit	FRK12-R10	FRK15-R10	FRK17-R10
Wi-Fi Kit	EMB-WIFI-KIT01-R20	EMB-WIFI-KIT11-R20	EMB-WIFI-KIT11-R20
iRIS (IEI Remote Intelligent System) Kit	iRIS-2400-RS		

Packing List

Item	Q'ty	Remark
PPC-FxxB-BTi Panel PC	1	
Power Cord	1	Part numbers vary by regions
Screw Pack	1	Including necessary screws
Power Adapter	1	9V~36V DC (P/N: 63040-010060-220-RS)

PPC-F12B
Fully Integrated I/O

2 x USB 2.0
2 x RJ-45 LAN Port
2 x USB 3.2 Gen 1
Power Switch

VGA   HDMI   AT/ATX   Clear CMOS   9 V~36V DC   DC Jack

Reset

2 x RS-232
1 x RS-232/422/485

PPC-F15B
Fully Integrated I/O

2 x USB 2.0

2 x RJ-45 LAN Port   2 x USB 3.2 Gen 1   Line-out   9 V~36V DC

VGA   AT/ATX   Clear CMOS   DC Jack   Power Switch

HDMI   Reset   2 x RS-232,
1 x RS-232/422/485

PPC-F17B
Fully Integrated I/O

2 x USB 2.0

2 x RJ-45 LAN Port   2 x USB 3.2 Gen 1   Line-out   9 V ~ 36V DC

VGA   HDMI   AT/ATX   Clear CMOS   DC Jack   Power Switch

Reset   2 x RS-232,
1 x RS-232/422/485
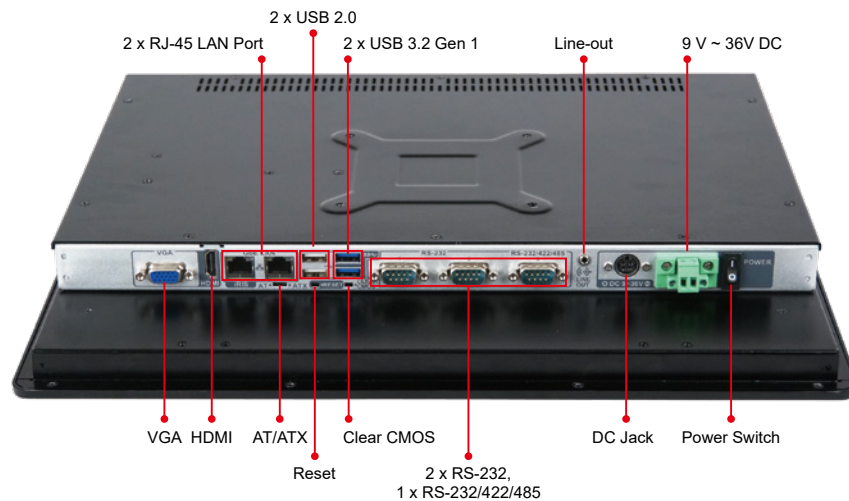
PPC-F12B
Dimensions (Unit: mm)

304.8

244.8

Suggested cut
out size

Scale 1:2

322.20
295.80
248

47.20
46.50
10.30

301.80

262.20
235.80
186.40

131.10

241.80

5

135   161.10

19.80

4-M4 ▽5

100

100

55
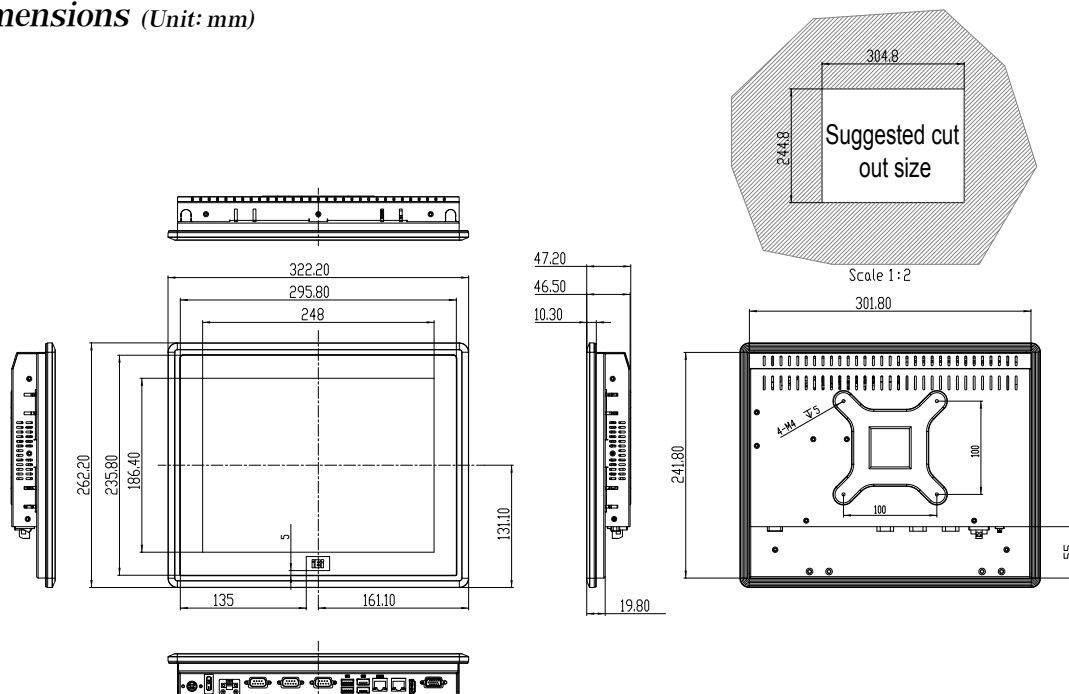
PPC−F15B Dimensions *(Unit: mm)*
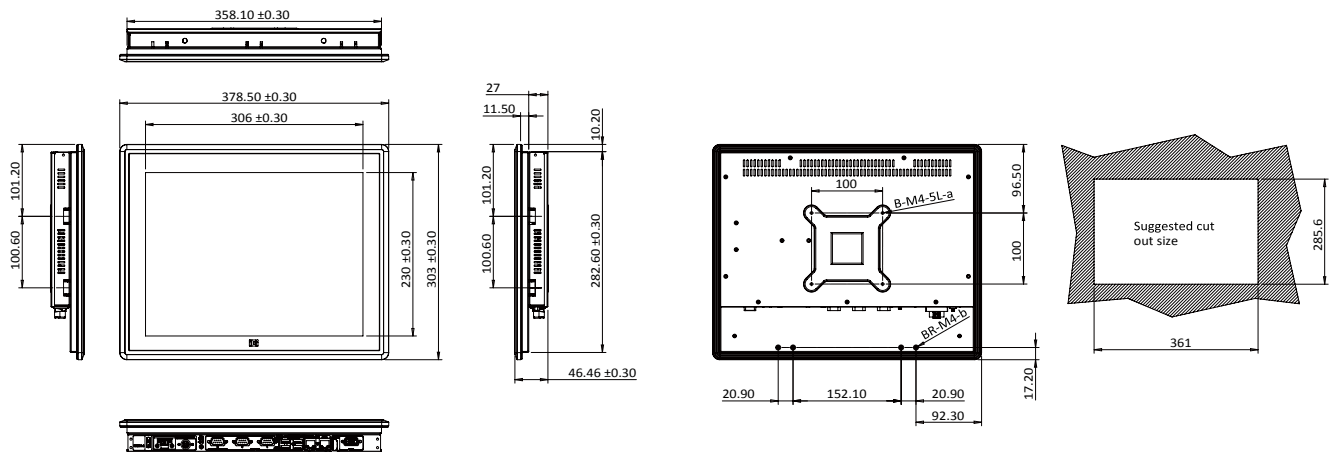
PPC−F17B Dimensions *(Unit: mm)*
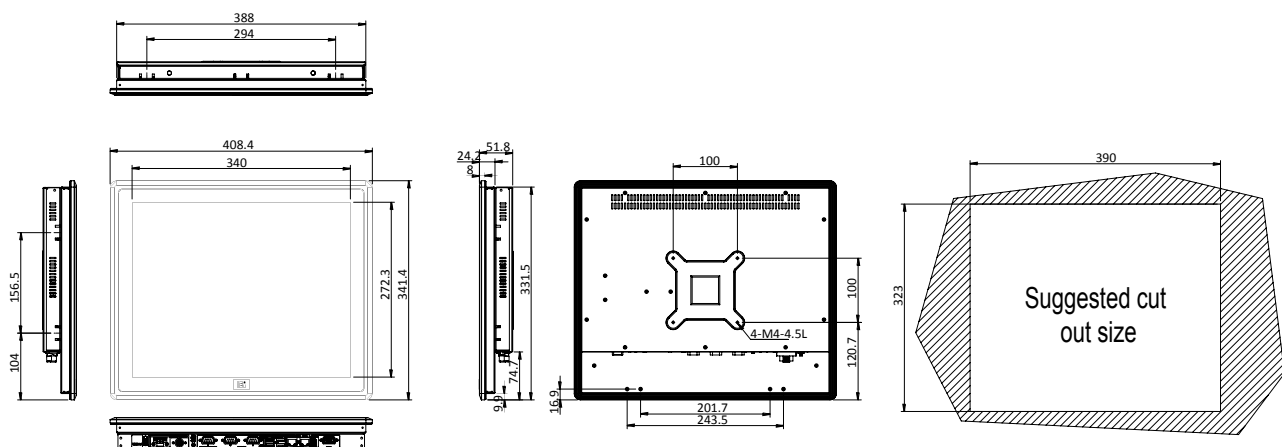
Vertical Market PPC Selection Guide

Marine Series

Model		S19A-QM87	S24A-QM87
Display	**LCD Size**	19"	24"
	Max. Resolution	1280 x 1024	1920 x 1080
	Brightness (cd/m²)	300	300
	Contrast Ratio	2000:1	5000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm) (HxV)	0.294 x 0.294	276.75 x 276.75
	Viewing Angle (V/H)	178° / 178°	178° / 178°
	Backlight MTBF (hrs)	50000	50000
Touch	**Touchscreen**	Projected capacitive touch with USB interface, 6H	
Motherboard	**CPU**	Intel® 22nm 4th Generation Mobile Core™ i5-4400E 2.7GHz processor	
	Chipset	Intel® QM87	Intel® QM87
	RAM	Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM support up to 16GB	
	Ethernet	GbE1: Intel® I217LM with Intel® AMT 9.0 support GbE2: Intel® I210-AT PCIe controller	
	Audio Codec	N/A	N/A
I/O Ports and Switches		3 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x VGA 1 x DVI-D 1 x HDMI 1 x PS/2 (through Y-type cable supporting KB/MS) 2 x CAN-bus 2.0B, 3-pin terminal block (2.5KV isolation protection) 1 x DB-9 RS-232 (non-isolated) , 4 x DB-9 RS-232/422/485 (2.5KV isolation protection) 2 x RJ-45 GbE LAN with teaming support (2KV isolation protection) 1 x Mic-in 1 x Line-out 1 x Line-in 2 x Antenna SMA hole (reserved) 1 x Isolated 9V ~ 36V DC 3-pin terminal block 1 x Power button	
Drive Bay	**HDD Driver Bay**	-	-
	SSD	2 x SSD Bay & 1 x CFast	2 x SSD Bay & 1 x CFast
Expansion Slot		2 x PCIe Mini card	2 x PCIe Mini card
System Cooling		Fanless	Fanless
Environment	**Operating Temperature**	-15°C to 55°C (5% to 95% RH)	
	Storage Temperature	-20°C to 60°C	
IP Rating		Front IP 66 / Rear IP 22	

Marine Series

The maritime field faces critical environmental challenges, making reliable and rugged systems essential. IEI provides maritime professionals and marine-grade panel PCs and monitors and embedded box that use leading technologies and reliable designs which are perfect for applications on the dock, on the open deck, or in the control room or bridge.

iRis™
IPMI 2.0 Compliant

TYPE APPROVED PRODUCT
DNV·GL
MARITIME

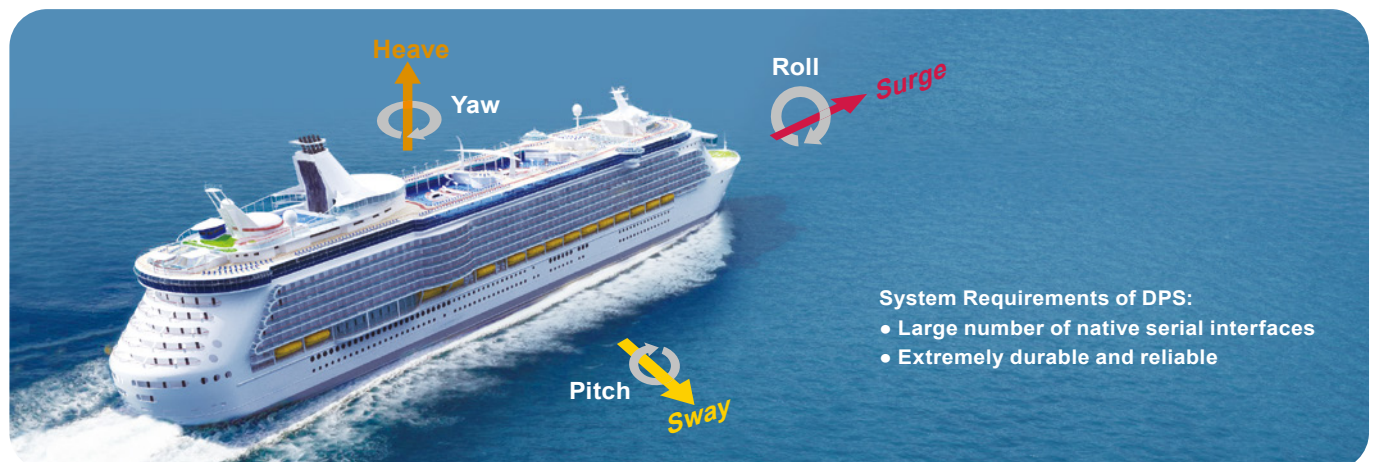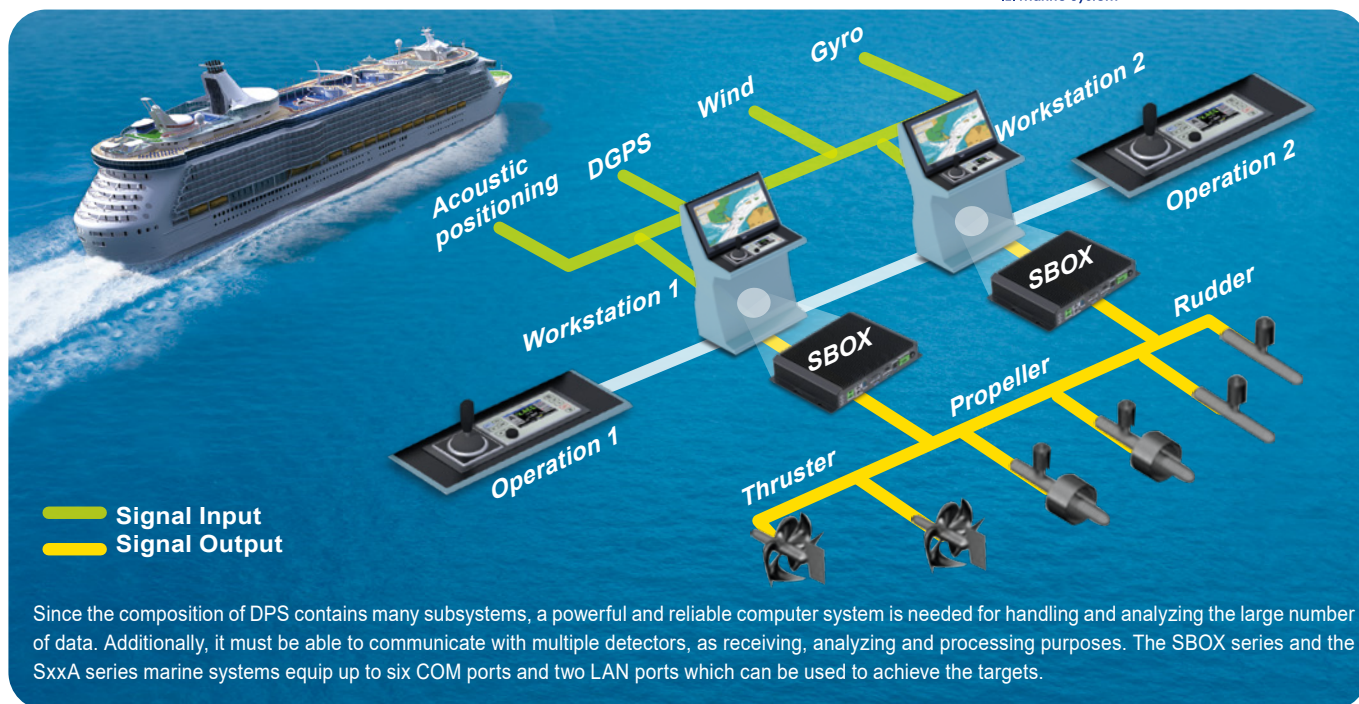IEC 60945

IACS -E10

ECDIS Implementation Schedule
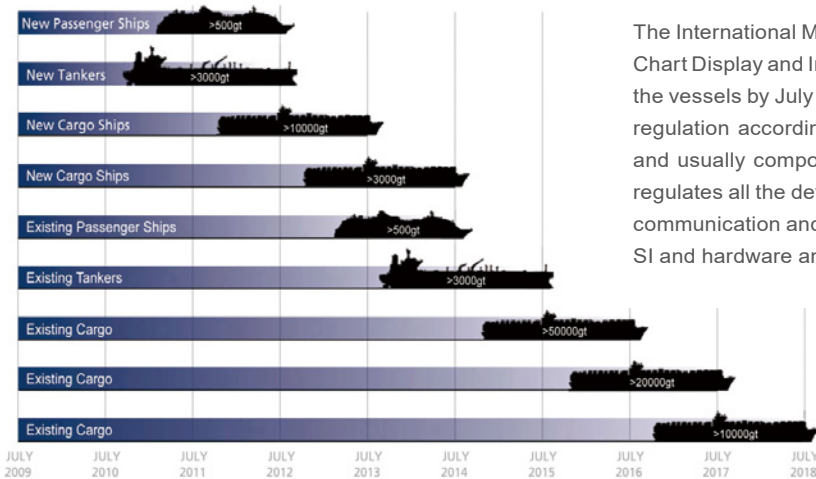
The International Maritime Organization (IMO) has announced that Electronic Chart Display and Information System (ECDIS) should be implemented into all the vessels by July 2018. Both new ships and existing ships should follow this regulation according to the timetable. The bridge systems are complicated and usually composed of multiple sub-systems. ECDIS clearly defines and regulates all the devices and connections, which include data collection, data communication and color calibration. Therefore, this is a huge opportunity for SI and hardware anufacturers.

Dynamic Position System (DPS)

Dynamic Positioning System (DPS) is a closed-loop control system. It is driven by the control system of the ship to counteract the environmental forces to the ship, such as wind, waves and ocean currents. This mechanism could make ship remain in the position on the sea. DPS precisely calculates the propellant force by continuously monitoring the ship position deviation and analyzing the natural forces which could affect ship's navigation direction. This process could make the ship remain in the correct position and maintain the right direction.

DPS is commonly used at various marine applications, such as subsea engineering work, underwater salvage, marine resources survey, marine engineering lifting, marine engineering umbilical laying, deep diving support, underwater engineering operations and marine engineering comprehensive test. DPS consists of measurement systems, control systems, power systems and propulsion systems, and other components. DPS possesses many functions which include maintaining the specified location, targeting, automatic searching for the best bow position, turning point tracking, ROV automatic tracking, changing the center of rotation, automatic navigation, parallel movement and other functions.

System Requirements of DPS:
● **Large number of native serial interfaces**
● **Extremely durable and reliable**

■ Signal Input
■ Signal Output

Since the composition of DPS contains many subsystems, a powerful and reliable computer system is needed for handling and analyzing the large number of data. Additionally, it must be able to communicate with multiple detectors, as receiving, analyzing and processing purposes. The SBOX series and the SxxA series marine systems equip up to six COM ports and two LAN ports which can be used to achieve the targets.

Electronic Chart Display and Information System (ECDIS)

The bridge system usually needs to collect and analyze many observation data, including anemometer stations, speed logs, weather stations and GPS signal. In order to precisely observe the changing walruses, the sensors are usually located at the top of ship or in the open deck. Therefore, with the long distance communication, these signals and communication paths should all follow specific regulation such as NEMA 0813. There are large amounts of data received at bridge, and they should be carefully processed and precisely analyzed. A powerful and reliable embedded box or panel PC is necessary for this task. IEI marine embedded box, the SBOX series, equips up to six COM ports which can be used to synchronously handle a large amount of data. The system of ship bridge consists of many sub-systems, which includes navigation system, path control system, radar system, etc. Most of them usually have dual system in order to prevent the failure of primary system. Additionally, dual system could also appear the identical information such as sea chart to the captain and pilot simultaneously. In practical application, dual or more LAN ports are necessary for connecting and controlling multiple monitors. The SBOX series and the S24A/S19A series contain six ports and two LAN ports to fulfill the requirements mentioned above.
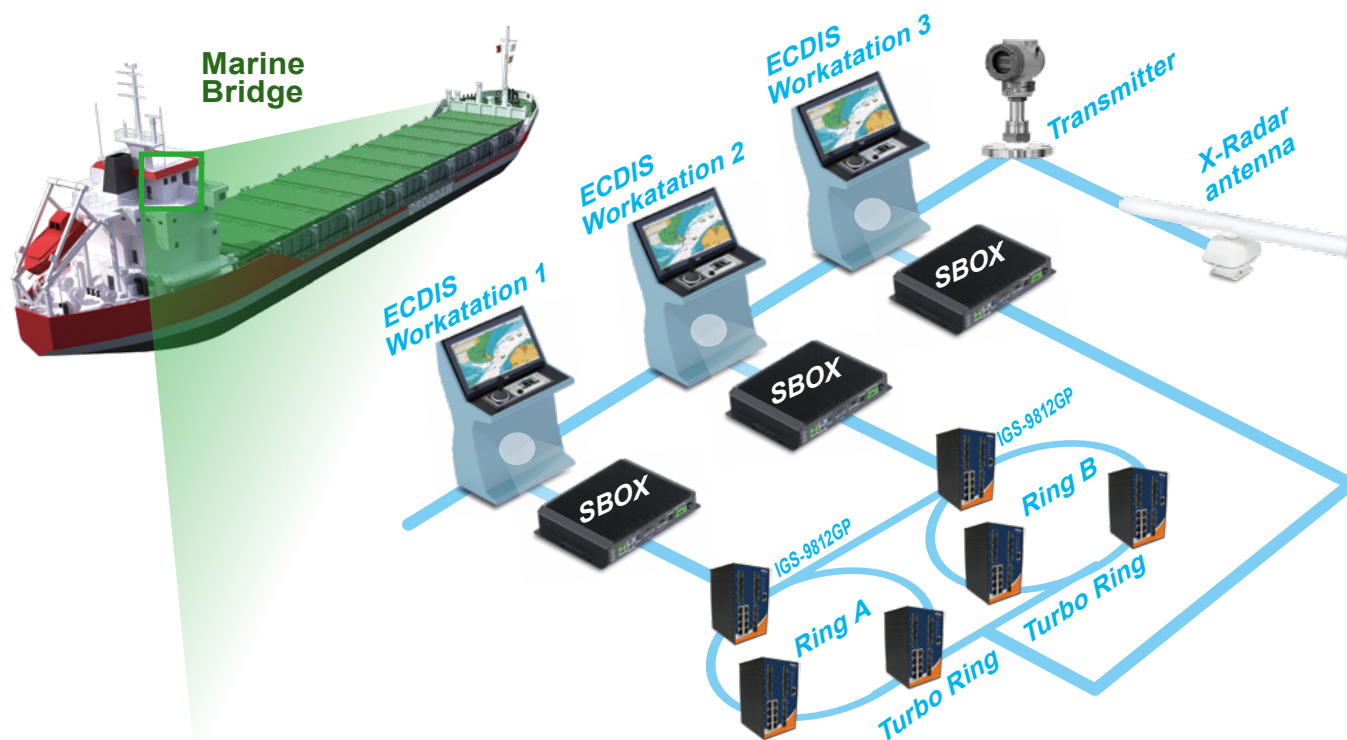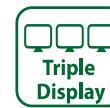
Marine Panel PC Series

S19A-QM87

Intel® Core™ i5 Dual-core Processor

- **19"Fanless Panel PC with 4th Generation Intel® Core™ i5 Dual-core Processor**
- **-15°C ~ +55°C Wide Temperature and IP66 Protection with Flat-bezel Projected Capacitive Touchscreen**
- **Excellent Visual Performance**
  - Three independent displays
  - Full OSD function configuration
  - 0%~100% full range dimming
  - 178°/178° wide viewing angles
  - Optical bonding improves visibility under bright light (optional)
- **Isolation Protection**
  - RS-232/422/485 isolated serial ports
  - Isolated 18V ~ 36V DC input
  - 2 x Isolated CAN-bus 2.0B
- **iRIS Remote Management Module**

DNV·GL MARITIME | TYPE APPROVED PRODUCT | IEC 60945 | IACS-E10 | Fanless | Triple Display | Dual GbE

Specifications

Model		S19A-QM87
LCD	LCD Size	19"
	Panel Type	PMVA
	Max. Resolution	1280 x 1024 (5:4)
	Contrast Ratio	2000 : 1
	Brightness (cd/m²)	300
	LCD Color	16.7M
	Pixel Pitch (um)	294 x 294
	Viewing Angles (H-V)	178° / 178°
	Backlight MTBF (HRs)	50000
Touchscreen & Controller		EEX3188 (10 point), 6H
System	SBC Model	SMB-QM87-R10
	Chipset	Intel® QM87
	CPU	Intel® 22nm 4th generation Mobile Core™ i5-4400E 2.7GHz processor
	RAM	4GB 1600MHz DDR3 SDRAM (2GB*2) Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM support up to 16GB

Input Interfaces	I/O Ports & Switch	2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x VGA 1 x DVI-D 1 x HDMI 1 x Mic-in	1 x Line-out 1 x Line-in 2 x Antenna SMA hole (reserved) 1 x Isolated 18V ~ 36V DC 3-pin terminal block 1 x Power button 1 x PS2 (through Y-type cable supporting KB/MS)	4 x DB-9 RS-232/422/485 (2.5 kv isolation protection) 2 x RJ-45 GbE LAN with teaming support (2KV isolation protection) 2 x CAN-bus 2.0B, 3-pin terminal block (2.5 kv isolation protection) 1 x DB-9 RS-232 (non-isolated)
	Expansion	2 x Full-size PCIe Mini slot		

Ethernet Controller	GbE1: Intel® I217LM with Intel® AMT 9.0 support GbE2: Intel® I210-AT PCIe controller
Sensor	Ambient light sensor (0% ~ 100%)
OSD	Menu, brightness down, brightness up, LCD on/off by cap-sensor (graphics engine: Genesis STDP6038)
Storage	2 x 2.5" SSD bay with RAID 0/1 function 1 x Accessible CFast socket
LED Indicator	Power (power on: green; power off: orange)/storage (red, blinking)/IPMI (blue)
Power Requirement	Isolated 24V DC (18~31.2 V DC), screw-type 3-pin terminal block
Operating Temperature	-15°C ~ 55°C (5°F ~ 131°F)
Storage Temperature	-20°C ~ 60°C (-4°F ~ 140°F)
Humidity	5% to 95% RH
Thermal Design	Fanless
Watchdog Timer	Supports 1~255 sec. system reset
Certifications	EMC: CE, FCC Safety: DNV GL CG-0339, IEC 60945 4th, IACS-E10, IEC 61174 IP rating: IP66 compliant front panel and IP22 compliant rear cover
Housing	Front aluminum sheet metal (Black C)
Cut-out Dimensions (L x W)	442 mm x 373 mm
Dimensions (L x W x H)	463 mm x 394 mm x 113 mm
Net Weight (kg)	9.91
Gross Weight (kg)	13.38
Vibration and Shock	IEC 60945 / DNV GL CG-0339 / IACS-E10
Power Supply (DC Input)	DC Input ATX Power Supply - P/N: 041D710-00-101-RS - 150W power supply	- Input: 24V DC, 8-4A (max.) - Output (max.): 12V @13A
Power Consumption	112W

Ordering Information

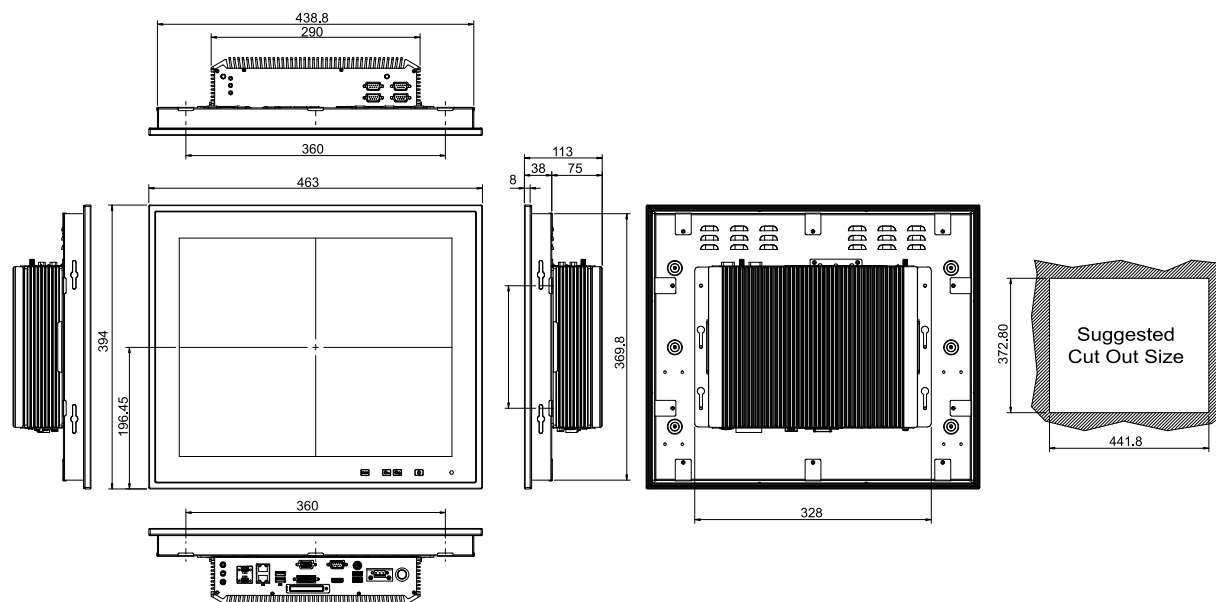| P/N	Description
S19A-QM87i-i5/PC/4G-R11	19" 300cd/m² SXGA marine panel PC with Intel® Mobile Core™ i5-4400E 2.7GHz CPU, 2*2GB DDR3 RAM, projected capacitive touch screen, isolated 18-36V DC, R11

Options

Item	Part No.	Description
Desktop Stand	STAND-S24A-R10	For S19A

Packing List

Item	Q'ty	Remark
S19A-QM87	1	
Screw Pack	1	Including necessary screws
PS/2 Cable	1	Round cable; PS/2 cable
Wire Strain Band	3	Wire strain band

S19A-QM87 Dimensions
(Unit: mm)

CFast Slot   GbE LAN 1

Power Switch   2 x USB 2.0   HDMI   DVI-D   2 x CAN-bus 2.0B   Line-in, Line-out, Mic-in

1 x PS/2   VGA   Combo RJ-45: GbE LAN 2 /IPMI

24V DC   COM 1: RS-232   2 x USB 3.2 Gen 1 (5Gb/s)

2 x Antenna SMA hole

COM 2   COM 4
COM 3   COM 5

LED Indicators:
Power
HDD
IPMI

COM 2~COM 5: RS-232/422/485
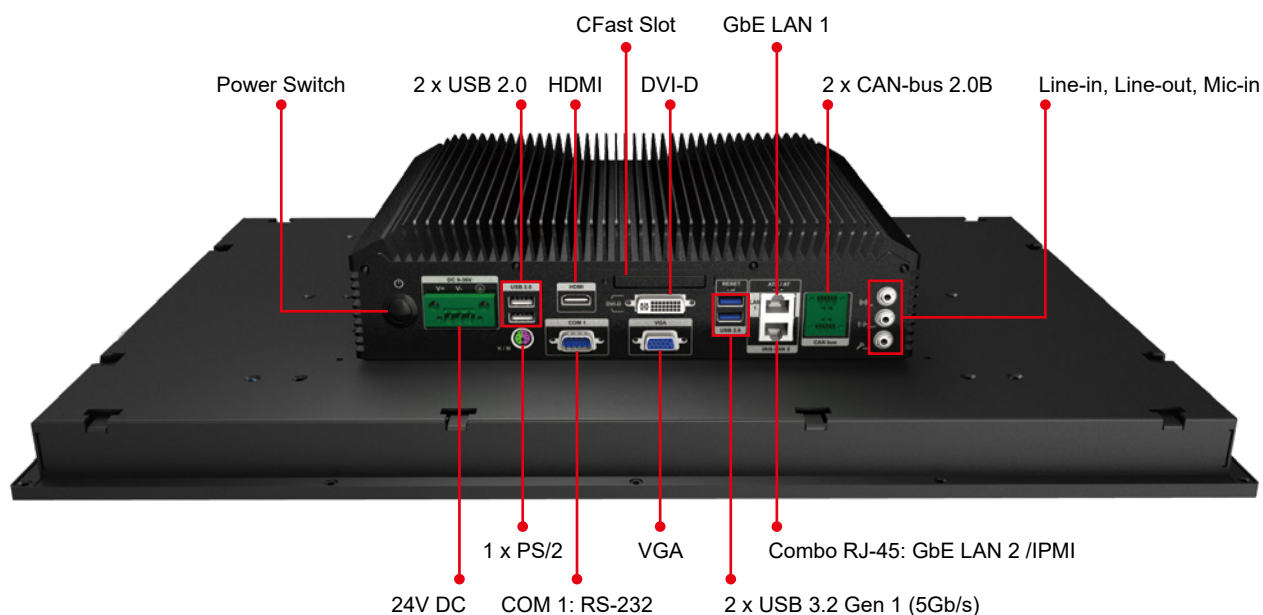
Four OSD Keys by Cap-sensor
(Menu, Brightness down, Brightness up, LCD on/off)

Menu   ☼−   ☼+   ⏻

Ambient Light Sensor

www.ieiworld.com

Marine Embedded Box Series

SBOX-100-QM87

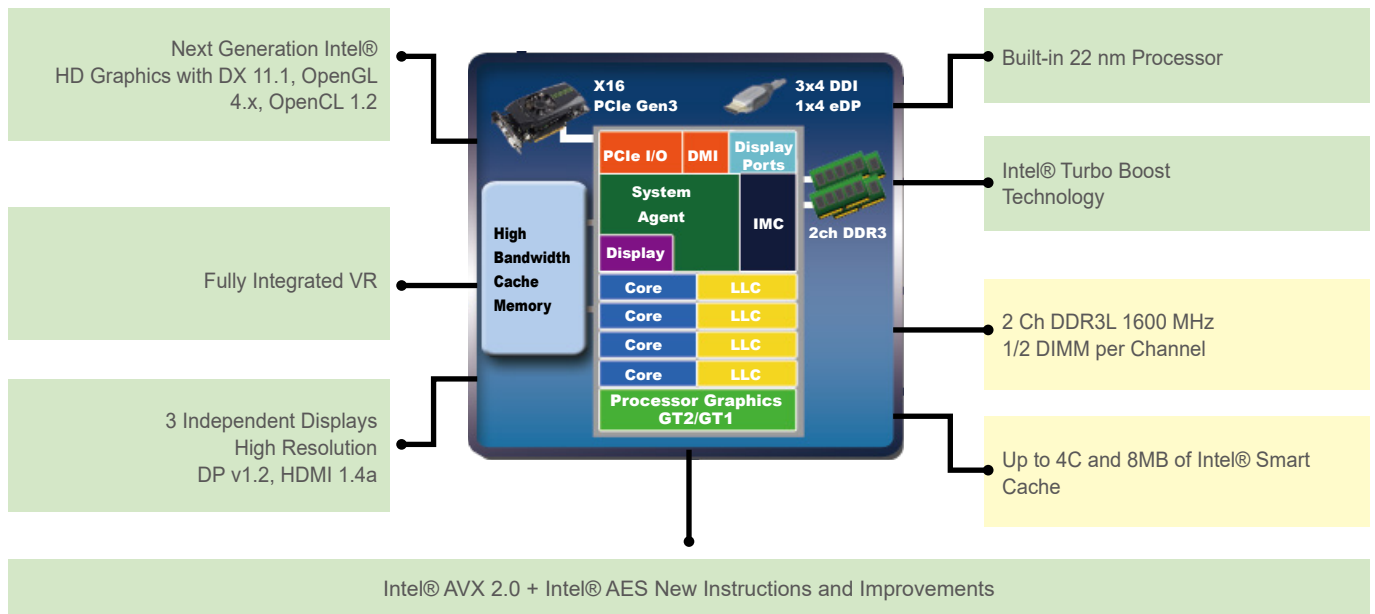Intel® Core™ i5 Dual-core Processor

Features

- Fanless marine computer with 4th Generation Intel® Core™ i5 dual-core processor
- -15°C ~ +55°C wide temperature
- Isolation protection
  - » 4 x RS-232/422/485 isolated serial ports
  - » Isolated 18 V~24 V DC input
  - » 2 x Isolated CAN-bus 2.0B
- 2 x 2.5" SSD bay with RAID 0/1 function

DNV·GL MARITIME | Fanless | CAN-Bus | Triple Display | Dual HDD
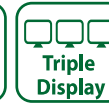
■ Intel® Core™ i5 High Performance Computing Power in a Fanless Design

IEI's high performance marine solutions are built with the powerful Intel® Core™ i5 CPU within a fanless system architecture. No matter your applications are general marine system management, monitoring or conning systems, radar systems, or ECDIS navigation, IEI's marine computers will give you the most stability than ever.

- Improved CPU performance with Intel® 22nm 4th Generation Mobile Core™ i5-4400E 2.7 GHz processor
- Two 204-pin 1600/1333MHz dual-channel DDR3 SDRAM support up to 16 GB

Next Generation Intel® HD Graphics with DX 11.1, OpenGL 4.x, OpenCL 1.2

Built-in 22 nm Processor

Intel® Turbo Boost Technology

Fully Integrated VR

2 Ch DDR3L 1600 MHz 1/2 DIMM per Channel

3 Independent Displays High Resolution DP v1.2, HDMI 1.4a

Up to 4C and 8MB of Intel® Smart Cache

X16 PCIe Gen3 | 3x4 DDI 1x4 eDP | PCIe I/O | DMI | Display Ports | System Agent | IMC | 2ch DDR3 | High Bandwidth Cache Memory | Display | Core | LLC | Core | LLC | Core | LLC | Core | LLC | Processor Graphics GT2/GT1

Intel® AVX 2.0 + Intel® AES New Instructions and Improvements

-15°C ~ 55°C FANLESS!

With IEI's fanless solutions, your vessels can avoid the bothersome of replacement of fan, increasing safety and efficiency for the crew and the entire ship.

Three independent aluminum heat sinks help the heat dissipate averagely, and help the system efficiently achieve wide operating temperature range between -15°C~55°C.

■ 3 independent displays: HDMI, DVI, and VGA

The three simultaneously independent displays are supported via the on-board video output combinations of VGA, DVI and HDMI. This versatile combination of display output options make the marine system ideal for multi-monitor required applications in the bridge room.

HDMI	VGA	DVI
Display**1**	Display**2**	Display**3**
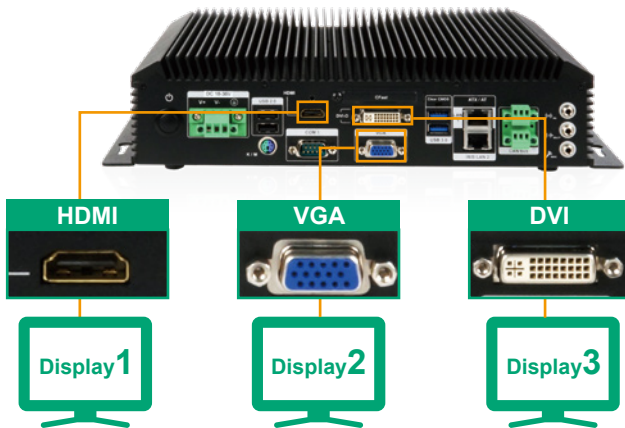
■ Multiple Isolated Ports for Comprehensive Protection against Electrical Surges

Ground loop and electric surges are common in the marine applications of electronic products due to the dense placement of devices. These stray electrical signals can cause equipment damage or malfunction.

■ Isolated 18 V~24 V DC power 2250 V DC Input to Output Basic Insulation

■ 2.5 kV isolation protection on the RS-232/422/485

IEI marine computer is protected from any stray electrical signals from other devices on the ship. Electric surges that were generated from other electronic devices which often passed through serial lines to the marine computer can cause severe damage and malfunction to the computers.

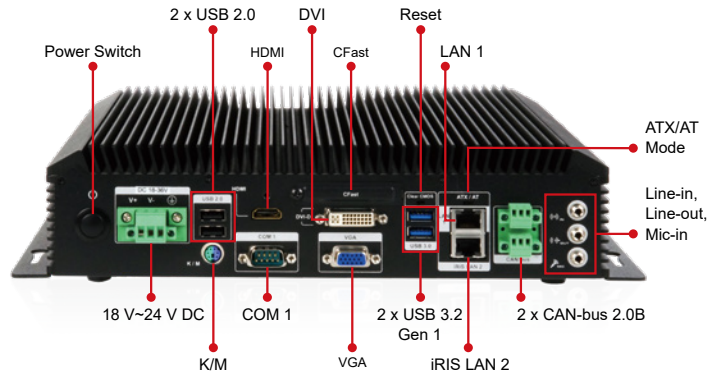### ■ Two independent CAN 2.0B channels with 2.5 kV isolation protection

CAN 2.0B is a kind of marine electronic data network for communication between marine electronic devices such as chart plotters, navigation instruments, GPS receivers, etc.

Echo Sounder

AIS Receiver

Radar

Gyro

Serial

Multiple serial ports for connecting devices and sensors

Serial

SxxA-QM87 Marine Panel PC

VGA/DVI/HDMI

Marine Display

Front view

LED Indicators:
Power, HDD, IPMI

COM 2~COM 5:
RS-232/422/485

Rear view

Power Switch

2 x USB 2.0

HDMI

DVI

CFast

Reset

LAN 1

ATX/AT Mode

Line-in, Line-out, Mic-in

18 V~24 V DC

K/M

COM 1

VGA

2 x USB 3.2 Gen 1

iRIS LAN 2

2 x CAN-bus 2.0B

Specifications

Model		SBOX-100-QM87
Chassis	Color	Black
	Dimensions (WxHxD) (mm)	290 x 75 x 225
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® mobile Core™ i5-4400E (2.7 GHz, 37W)
	Chipset	Intel® QM87
	System Memory	2 x 204-pin DDR3 SO-DIMM slot (system max. 16 GB) Pre-installed 4 GB DDR3 SO-DIMM
IPMI	iRIS Solution	iRIS-2400
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s SSD bay with RAID 0/1 function
	CF Card/CFast	1 x CFast
I/O Interfaces	PS2 (KB/MS)	1
	USB 3.2 Gen 1	2
	USB 2.0	2
	Ethernet	2 x RJ-45 with teaming support 1 x PCIe GbE by Intel® I217LM 1 x PCIe GbE by Intel® I210-AT (2 with 2 kV isolation)
	COM Port	1 x DB-9 (non-isolated) 4 x RS-232/422/485 (with 2.5 kV isolation)
	CAN-bus/OBD-II	2 x CAN-bus (with 2.5 kV isolation)
	Display	1 x VGA, 1 x DVI-D, 1 x HDMI
	Resolution	VGA: Up to 1920 x 1200 @ 60 Hz HDMI: Up to 2500 x 1600 @ 60 Hz DVI-D: Up to 2500 x 1600 @ 60 Hz
	Audio	1 x Line-out, 1 x Line-in, 1 x Mic-in
	Wireless	2 x Antenna SMA hole (reserved)
Expansions	PCIe Mini	2 x Full size*
LED Indicator & Button	Indicator	Power (power on: green, power off: orange), storage (red, blinking), IPMI (blue)
Power	Power Input	Terminal block: Isolated 24V DC (18~31.2 V DC)
	Consumption	100 W (Intel® mobile Core™ i5-4400E with 4 GB DDR3 memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-15°C ~ 55°C (5°F ~131°F) with air flow (SSD)
	Storage Temperature	-20°C ~ 60°C (-4°F ~140°F)
	Humidity	5% ~ 95%, non-condensing
	Operating Shock	IEC 60945 and DNV 2.4 IASC-E10 compliant
	Operating Vibration	
	Weight (Net/Gross)	4.08 kg / 6.03 kg
	Safety/EMC	EMC/CE/FCC/DNV GL CG-0339, IEC 60945 4th, IACS-E10, IEC 61174 compliant IP rating: IP22 compliant rear cover
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

Dimensions (Unit: mm)
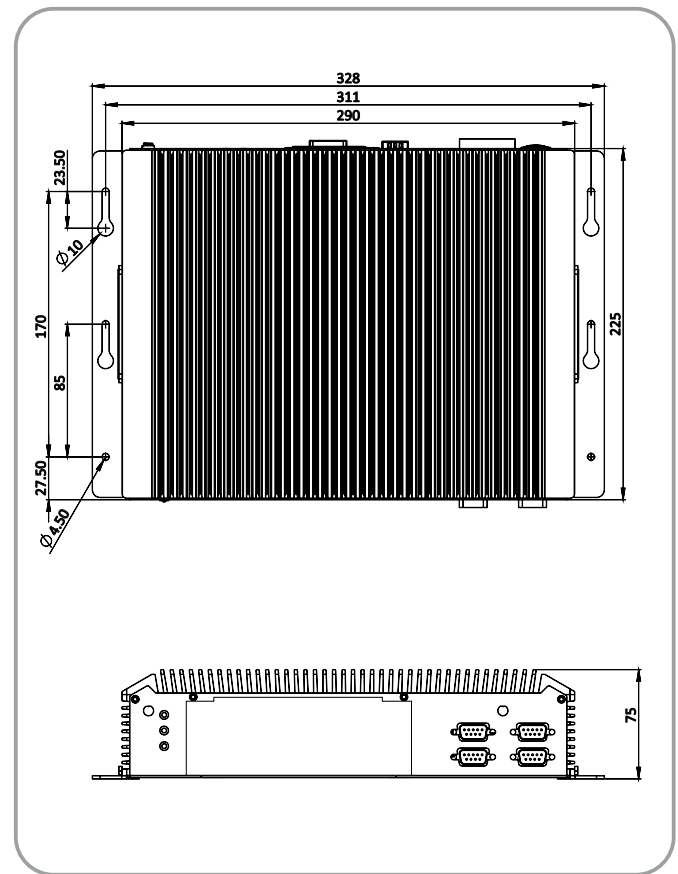
Ordering Information

Part No.	Description
SBOX-100-QM87i-i5/4G-R10	Fanless marine computer with Intel® Mobile Core™ i5-4400E 2.7 GHz processor, 4 GB DDR3 memory, iRIS-2400 supported, isolated 18 V~36 V DC, R10

Packing List

Item	P/N	Qty	Remark
PS/2 cable	32006-000300-100-RS	1	PS/2 cable
Rubber pad & screw pack		1	Rubber pad & screw pack

Waterproof Certification Laboratory

IEI follows standard testing procedures (UL 50) to design ruggedized LCD products with high reliability. We mainly provide IP 64, IP 65 and the latest IP 67 specifications in various dust and water resistant mechanical designs, ideal for outdoor and harsh environment applications.
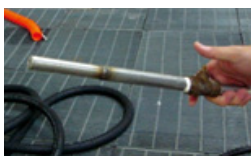
IEI's LCD products are front sealed and tested in the certified house chamber under UL's Witnessed Test Data Program (WTDP).
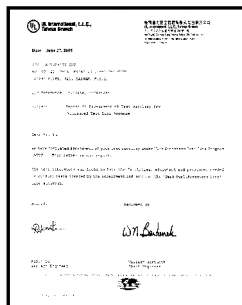
IP 66 / UL 50

IP 69K

UL 50 Certificate
Chamber strickly approved by Underwriters Laboratories Inc.
IEI's in-house water resistance chamber is approved by the UL organization commonly recognized in North America.

IP 64

IP 65

IP 67

The IP Code defined in international standard IEC 60529 classifies the degrees of protection provided against the intrusion of solid objects, dust, accidental contact, and water in electrical enclosures. It consists of the letters IP followed by two digits and an optional letter. The digits indicate conformity with the conditions summarized in the tables below.

First digit

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts

Level	Object size protected against	Effective against
0	-	No protection against contact and ingress of objects
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	>12.5 mm	Fingers or similar objects
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact
6	dust tight	No ingress of dust; complete protection against contact

Second digit

Protection of the equipment inside the enclosure against harmful ingress of water.

Level	Protected against	Details
0	not protected	—
1	dripping water	Dripping water (vertically falling drops) shall have no harmful effect
2	dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position
3	spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect
4	splashing water	Water splashing against the enclosure from any direction shall have no harmful effect
5	water jets	Water projected by a nozzle against enclosure from any direction shall have no harmful effects
6	powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects
7	immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion)
8	immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer
9K	Powerful high temperature water jets	Protected against close-range high pressure, high temperature spray downs.Test duration: 30 seconds in each of 4 angles,Water temperature: 80°C