Marine Embedded Box Series

SBOX-100-QM87

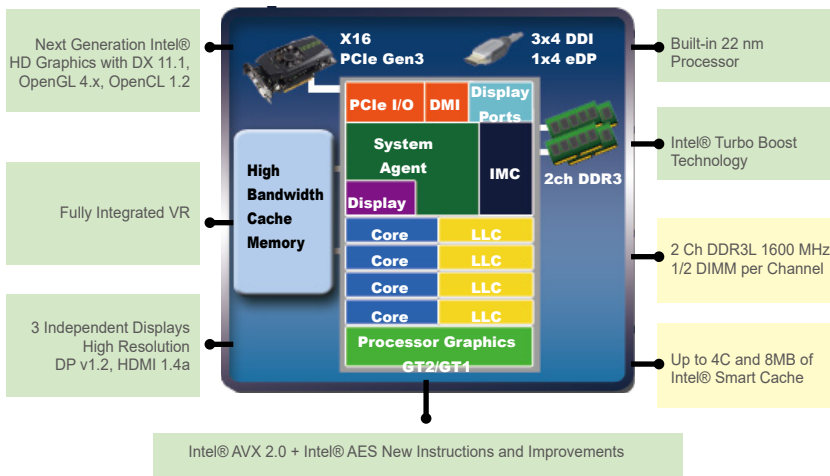Intel® Core™ i5 Dual-core Processor

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
- Supports IEI iRIS-2400 (IPMI 2.0 compliant)

iEi. QTS-Gateway | iRIS™ IPMI 2.0 Compliant | TYPE APPROVED PRODUCT 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

Fully Integrated VR

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

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

Built-in 22 nm Processor

Intel® Turbo Boost Technology

2 Ch DDR3L 1600 MHz 1/2 DIMM per Channel

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

Intel® AVX 2.0 + Intel® AES New Instructions and Improvements
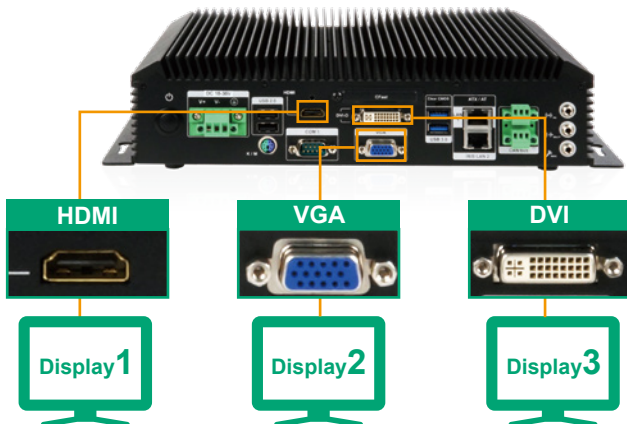
-15°C ~ 55°C FANLESS!

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.

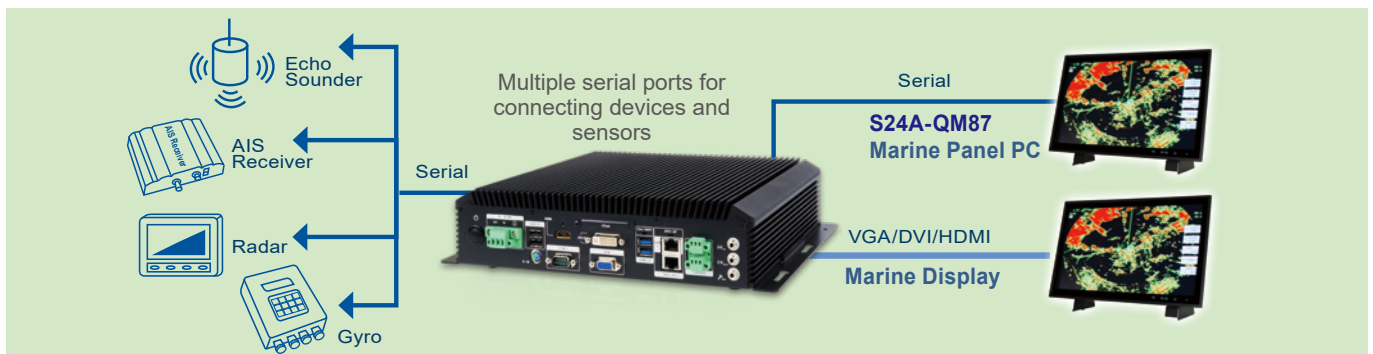### ■ Isolated 18 V~24 V DC power 2250 V DC Input to Output Basic Insulation

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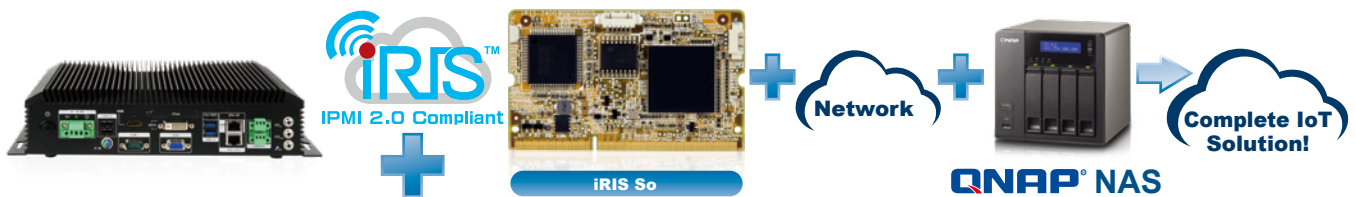
■ Two independent CAN 2.0B channels with 2.5 kV isolation protection

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
S24A-QM87 Marine Panel PC
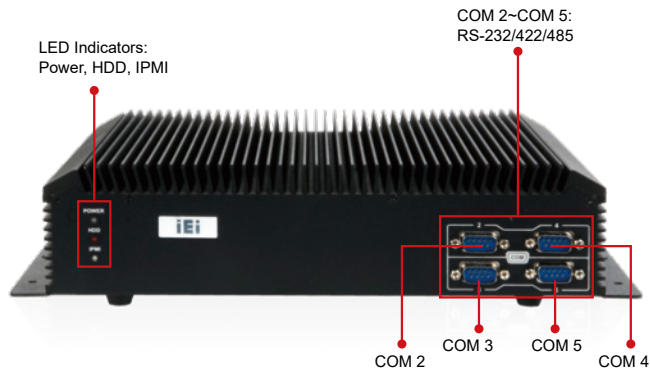VGA/DVI/HDMI
Marine Display

■ IEI Remote Intelligent Management System

The marine computer supports IEI iRIS remote management solution which helps users to manage multiple devices through single management interface and elevates work efficiency. The iRIS solution only requires a module and Internet connection!
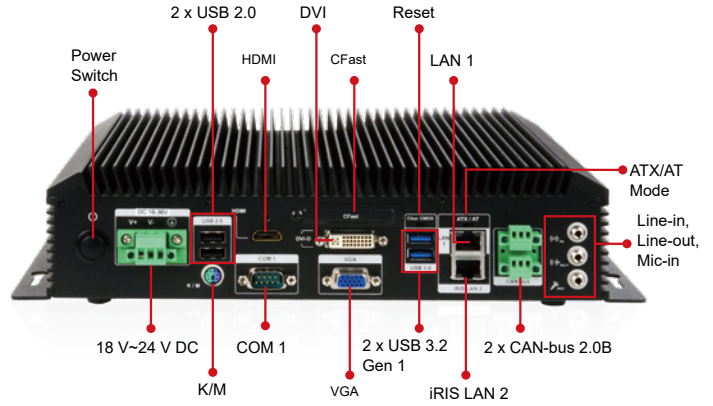
iRIS™ IPMI 2.0 Compliant + iRIS So + Network + QNAP° NAS → Complete IoT Solution!

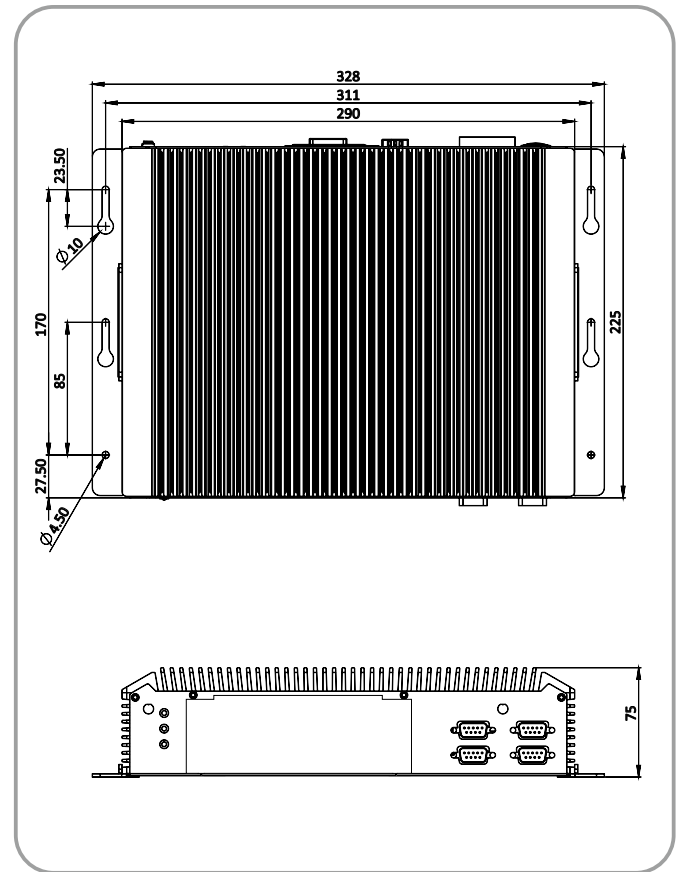| iRIS Key Feature	Detailed Functions	iRIS Key Feature	Detailed Functions
System health monitor	● Hardware monitor ● Health log ● Event log	Screen record	● Remote video streaming record ● Event Trigger Setting & video record
Remote system maintenance	● Remote BIOS update ● Remote OS recovery ● Remote KVM + One Key Recovery ● Remote out-off-band backup	Remote power control	● Reset Power ● Power Off Server — Immediately ● Power Off Server — Orderly ● Power On Server ● Power Cycle Server
Active alert & notice	● Send instant system alerts via e-mail ● Send instant system alerts via SMS ● Send instant system alerts to management server	Remote troubleshooting	● Remote software update ● Remote OS installation & recovery ● Remote KVM ● Post code display
Remote device control	● Fan control ● Remote KVM ● Remote setting BIOS	Diagnose before dispatch	● Health log analysis ● Event log analysis
		Group control	● Group control

Front view

LED Indicators:
Power, HDD, IPMI

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

COM 2
COM 3
COM 5
COM 4

Rear view

2 x USB 2.0
DVI
Reset
Power Switch
HDMI
CFast
LAN 1
ATX/AT Mode
Line-in, Line-out, Mic-in
18 V~24 V DC
K/M
COM 1
2 x USB 3.2 Gen 1
VGA
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

*SBOX-100-QM87i-QGW-R10 has only one Half-size PCIe Mini slot

Dimensions (Unit: mm)

328
311
290
23.50
Ø10
170
85
27.50
Ø4.50
225
75

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
SBOX-100-QM87i-QGW-R10	Fanless marine computer with Intel® Mobile Core™ i5-4400E 2.7GHz Processor, DDR3 8GB, iRIS-2400 supported, with QTS-Gateway, isolated 18~36V DC, RoHs

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

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BXNUC9i5QNX1 BKNUC9V7QNX BKNUC9V7QNX1 2-A0DF-2001 BKCMB1ABB BKCMB1ABA EM3000-3845-8-128-WL-U-1
TANK-870AI-i5/8G/2A-R10 PRFE21000038 EM5000-I3-8-128-WL-W7-1 EM3000-3845-8-128-WL-W7-1 PRFE21000039 AMOS-825-
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I7 SI-606 SI-60E TANK-760-HM86i-i5/4G-R10 BKCM8i7CB8N