DATASHEET

HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**Industrial Marine Computer (Standard Models)**
Type:	**HT20470-ww-xx yzzzzzz**
	where ww=CPU type (i3,i5,i7,i9), xx=Power Input (AC, DC), y=manufacturing site, zz=configuration

Last Revised:	**12 Mar 2024**
Revision#:	**12**

Marine Computer (Standard Models)

Features:

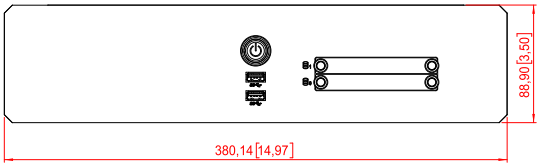
The HT20470 model is the successor to the best in class and highly successful HT20370 computer. The new model incorporates latest processor technologies and enhanced feature sets, thus providing greater versatility for high-end maritime system applications.

The HT20470 models are high-end platforms with an enhanced chassis that includes external disc bays at the front. The i3, i5, i7 or i9 processor options ensure state of the art computing performance is delivered; while the extensive feature options allows for the HT20470 to be built up to a quasi-Server capability.

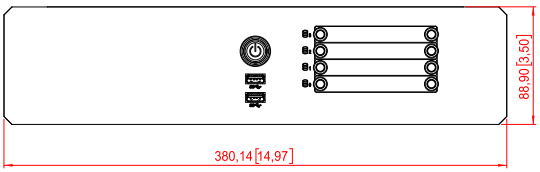
By default equipped with 2 x removable 2.5" SSD bays in front and internal space for 2 x 2.5" SSD's, 4 x removable 2.5" SSD bays available as option, onboard raid, M.2, up till 4 x PCI-e slots, memory up to 64GB RAM, 6 x USB, 4 x LAN ports, 3 x Signal outputs (2 x DP+ and 1 x USB-C) and more, making the HT20470 the most versatile rugged PC solution for the professional maritime segment.

Note: AC model contains only 3 x PCIe- slots

FRONT VIEW (2-Bay model)

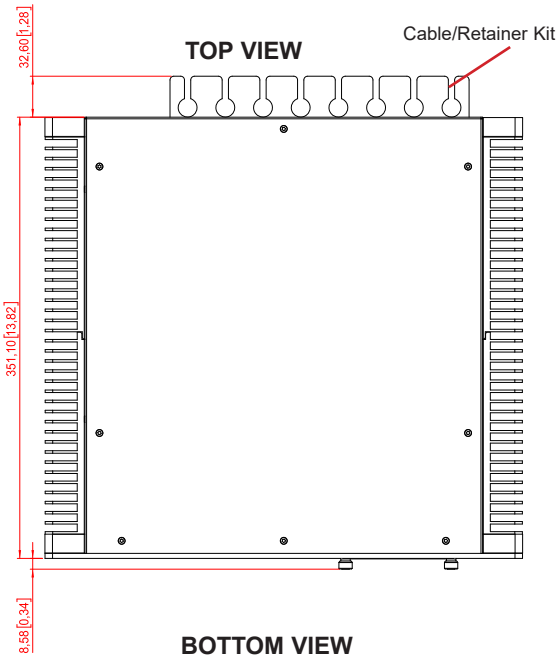


FRONT VIEW (4-Bay model)

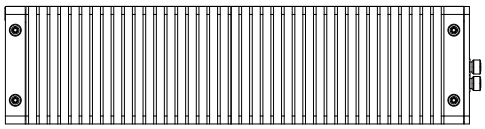


For 4-bay model: Contact your sales representative at Hatteland Technology for details.

TOP VIEW

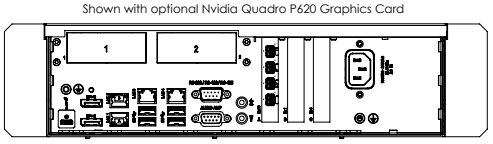


SIDE VIEW



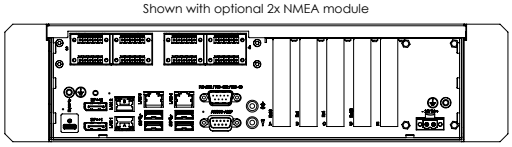
BACK VIEW (AC)

Shown with optional Nvidia Quadro P620 Graphics Card

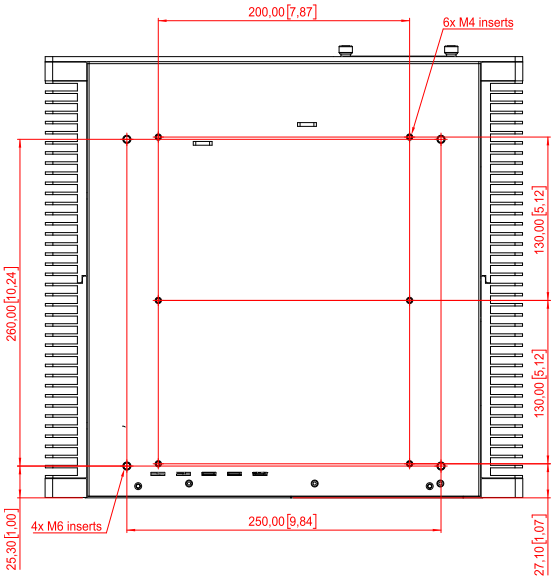


BACK VIEW (DC)

Shown with optional 2x NMEA module



BOTTOM VIEW



Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.

SPECIFICATIONS

Note: All specifications are subject to change without prior notice!
Please visit www.hattelandtechnology.com for the latest electronic version.

HATTELAND TECHNOLOGY
an EMBRON Company

TECHNICAL DESCRIPTION

Computer Specifications:

		External Connector Type:
• Installed Operating System	: Windows® 10 IoT Enterprise 2019 LTSC (64bit)	
• Supported Storage	: 2 or 4 x SATA 3.0 (6GB/s) in Removable SSD tray in front (2.5" size). See table below for options	
• Processor	: 1 x Intel® Core™ i5-10500TE, 6-Core 2.20Ghz - 3.60GHz, 9MB Cache - See table below for options	
• Memory/RAM	: 1 x 8GB (single channel) installed - Max 64GB possible - Dual Channel available - See table below for options	
• Graphics	: Intel® UHD 630	1 x USB-C + 2 x DisplayPort 1.2
• Graphics Capabilities	: DirectX Support 12.0, Shader Model 6.4, OpenCL 2.1, OpenGL Support 4.5/linux, Vulkan 1.1.97	
• Max Graphics Resolution	: Max 3840 x 2160 (4K UHD) @ 60Hz for DP (DisplayPort)	
• System Chipset	: Intel® Q470	
• BIOS	: UEFI, ACPI support	
• PCIe Slots	: 1 x PCIe 3.0 x16 (reserved for additional Graphics Card, See Factory Mounted options below) 1 x PCIe 3.0 x4 (x8 socket)[1] + 1 x PCIe 3.0 x4 + 1 x PCIe 3.0 x1	
• M.2 Storage (PCIe options)	: 1 x M.2 2280 M-key (one SATA + NVMEx4) 1 x M.2 2230 E-Key (PCIe + USB for WiFi)	
• Ethernet #1-2	: 2 x LAN 10/100/1000Mbps, Intel®, Support for Intel® Teaming	2 x RJ-45 Teaming
• Ethernet #3-4	: 2 x LAN 10/100/1000Mbps (Realtek)	2 x RJ-45
• USB Ports #1-2	: 2 x USB 3.1 (<3m) ports in front	2 x USB Type A
• USB Ports #3-6	: 4 x USB 3.1 (<3m) ports in rear	4 x USB Type A
• USB Ports #7	: 1 x USB-C (DisplayPort - Power Distribution enabled)	1 x USB-C
• Serial Port #1	: 1 x RS-232/RS-422/RS-485 un-isolated Baud Rate: Max 115.2Kbps	1 x DB9M
• Audio Onboard	: Realtek HD Audio supports 2.0 channel, Mic. in, Line out	2 x 3.5mm Audio Jack
• Audio Amplified	: 2W, Stereo/Mono supported	1 x DB9F
• Power Manager	: ACPI	
• Watchdog Timer	: Reset: 1 sec.~255 min. and 1 sec. or 1 min./step	
• H/W Status Monitor	: Temperatures, voltages & cooling fan status. Auto throttling control if CPU overheats	
• Other Features	: LAN Wakeup, USB Boot, Trusted Platform Module 2.0 (TPM2.0), Firmware Raid, Intel® Management Engine. True power on after power fail.	

[1]Not available for AC model.

Power Supply:
• Single DC: 24VDC
Power Consumption - Operating: 85W Typical - 135W High Load (excluding external additional loads) - 240W Max (at label, theoretically MAX defined by PSU)

• Single AC: 100-240V AC - 50/60Hz
Power Consumption - Operating: 85W Typical - 135W High Load (excluding external additional loads) - 412W Max (at label, theoretically MAX defined by PSU)

External Connector Type:
1 x 2-pin Terminal Block 5.08 +
1 x 2-pin Cable Hosuing KGG_MSTB 2.5/2 1803934

STD IEC

Available Computer Configurations:

Type	Description	Size/Specification
CPU	1 x Intel® Core™ i3-10100TE 1 x Intel® Core™ i5-10500TE 1 x Intel® Core™ i7-10700TE 1 x Intel® Core™ i9-10900TE	4-Core 2.3GHz - 3.6GHz, 6MB Cache 6-Core 2.3GHz - 3.7GHz, 9MB Cache 8-Core 2.0GHz - 4.4GHz, 16MB Cache 10-Core 1.8 GHz - 4.5 GHz 20 MB Cache
Memory	DDR4 - SO-DIMM 260-pin	- Uses 2 slots, Single or Dual Channel (where applicable), available sizes are: Single Channel: 1x8GB (2400MHz) Dual Channel: 2x8GB (2400MHz), 2x16GB (2400MHz), 2x32GB (2666MHz)
Storage	2.5" SSD SATA	- 240GB (0.9PBW), 480GB (1.2PBW), 960GB (3.4PBW), 1.9TB (7.1PWB)
OS Option	Microsoft® Windows® Server 2016/2019 64bit, Windows® 10 IoT Enterprise 2019 LTSC (64bit), Windows® 10 IoT Enterprise 2021 LTSC (64bit). Linux: Kernel 4.1x or later version	

Factory Mounted Options:

[2]For all Factory Mounted Options, review User Manual for possible HW combinations.

- PNY NVIDIA T400: PCIe 3.0 x16, 3x mDP 1.4, 4GB GDDR6
- CP-114EL-I ELEK KIT: 4xCOM,PCIe x1,1xDB44F to 4xDB9M isolated, RS-232/422/485)
- HTA2020002-AD1033: CAN isolated, 2 channel module [2]
- PCA100309-1: Dual Isolated RS-232, 2xDB9 module [2]
- HTA2020002-SLCAN: Socket CAN isolated, 2 channel module [2]
- SX-118A: 1 x Parallel Port LPT, DB25F, Bi-Dir. ECP/EPP, PCIe x1 card
- PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45) module [2]
- PCA100297-1: Digital IO Isolated, 4 IN + 4 OUT module [2]
- PCA200828-1: COM RS-422/485 isolated NMEA 4 ch., 5-pin T. Block 3.81 [2]

Available Accessories:

- HT RMK STD-E1: 2U Rack Mount Kit 19" - HT20xxx
- HT 00225 OPT-A1: 2 x 26" ball bearing sliding rail & mount kit for 19" Rack
- HT 00224 OPT-A1: 2 x 20" ball bearing sliding rail & mount kit for 19" Rack
- HT MBK STD-E1: Desktop Mounting Kit HT20xxx – Plate Shaped
- JH C01MF A-A: 1 x USB Cable 1m, Type A-Chassis mount receptacle
- HT 00300 MSOS: OS options -> http://www.hattelandtechnology.com/os
- HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
- VSDDPVGA340 / HT DPM2VGAF-A1: 1 x DP to VGA adapter
- RC3473 / HT DPM2DVI-DF-A1: 1 x DP to DVI adapter
- HT MBK STD-F1: Mounting Bracket Kit HT20xxx – L-Shaped
- DVI-D adapter for P620/T600 Graphics Card: QSP-MINIDP/DVIV2
- miniDP to DP adapter for T400 Graphics card: QSP-MINIDO/DPV3: QSP-MINIDP/DPV3
- HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
- HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
- HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
- HT 00264 OPT-A2: 1 x CAN isolated, 2 channel, socketCAN USB ext. module
- HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
- HD 000TR SX1-A1: 1 x Removable Tray 2.5" Empty
- HD xxxyy SX1-z1: 1 x Removable Tray 2.5" w/Storage Device[3]
- HD 000TR SX2-A3: 1 x Removable Tray 2.5" w/4xM3x4mm Phillips Countersunk Screws
- HDMI adapter or P620/T400 Graphics Card: QSP-MINIDP/HDMIV2
- VGA adapter or P620/T400 Graphics Card: QSP-MINIDP/VGA[4]
- HT RET STD-A3: 1 x Cable Retainer/Relief Kit (included w/delivery)

[3]Where xxx=Size of device. yy=GB,TB. z=S (SSD), z=H (HDD) - Choose Storage Device from table above.
[4]P620, T400, T1000 and A2000 will be able for this computer, but currently only T400

MECHANICAL DESCRIPTION

Physical Specifications:

- W:380.14 [14.97"] x H:88.90 [3.50"] x D:351.10 [13.82"] mm [inch]
- Weight: Approx 7.5kg / 16.5lbs
- 2U chassis, Aluminum Alloy
- 2 x Removable SSD tray in front (2.5" size)
- Power/Reset/Power LED Combined Function

Environmental Considerations:

• Operating	: Temperature -15°C to +55°C
• Storage	: Temperature -20°C to +70°C
• Humidity	: Up to 95% (Operating / Storage)
• Shock - Vibration	: 5g/11ms - 0.7g (IEC 60945 / IACS E10)
• Air Pressure Maximum Altitude	: Operating: 4000m - Storage: 12912m
• Compass Safe Distance	: Standard: 150cm - Steering: 130cm

Lifetime Considerations:
Even though the test conditions for bridge units provide for a maximum operating temperature of 55°C, continuous operation of all electronic components should, if possible, take place at ambient temperatures of only 25°C. This is a necessary prerequisite for long life and low service costs.

APPROVALS & CERTIFICATES

These products have been tested / type approved by the following classification societies: (*= Pending)

IEC 60945 4th (EN 60945:2002)
ABS - American Bureau of Shipping
KR - Korean Register of Shipping
IACS E10
CCS - China Classification Society
EN61162
BV - Bureau Veritas
EU RO MR - Mutual Recognition by DNV*
ClassNK - Nippon Kaiji Kyokai