DATASHEET

HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**Compact Fanless Computer**
Type:	**HTB40K-xx-DC yzzzzzz (Short Depth model)**
Description:	(where xx=CPU type, y=manufacturing site, z=configuration)

Last Revised:	**09 Dec 2024**
Revision#:	**03**

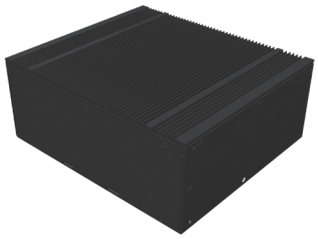
Compact Fanless Computer

Overview:

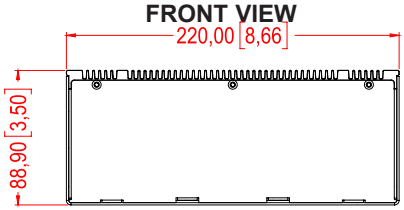
The HTB40 range is based on the latest Intel chipset and Alderlake processor platform, delivering even more power for maritime technology developers to design and build high-end vessel control and monitoring solutions that enable safer and more effecient maritime operations.

HTB40 computers are available in two new form factors, short depth and long depth, allowing for flexible installation options including 3U rack mounting in pairs. Using the same system architecture as our new, second generation Series X Panel Computers, the HTB40 range offers significant processing speed and graphical performance improvements, which when combined with multiple-drive solid state storage and silent, fanless operation, positioning it among the most advanced computing platforms for maritime applications.

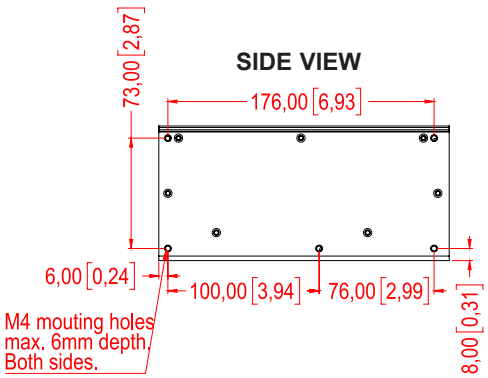
HTB40 computers can be delivered with a choice of Intel® Core™ / Celeron® processors, up to i7. Graphical output is handled by 2 x Display Port 1.4a and 2x USB-C ALT mode. While standard interfaces include 4 x Ethernet Ports, 2 x USB-C, 6 x USB2.0 and 2 x USB3.2. The HTB40 platform also supports a wide range of interface modules such as CAN/NMEA COM/COM and DIO, ensuring it is ready off-the-shelf for all maritime applications. In addition, HTB40 range of computers features a lightweight, fully enclosed aluminium chassis and comes with dual DC inputs.



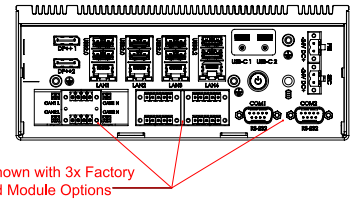
FRONT VIEW

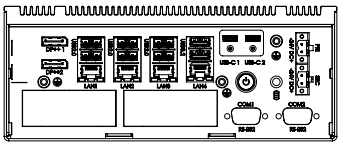


SIDE VIEW

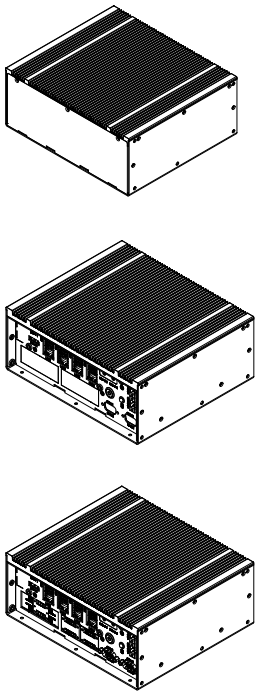


BACK VIEW

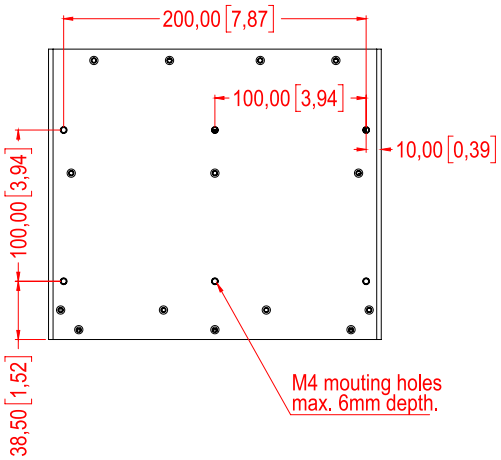




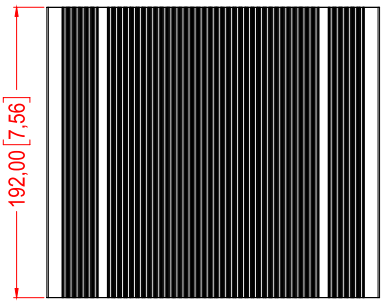
DIMETRIC VIEWS



BOTTOM VIEW



TOP 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.

TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

		External Connector Type:
• Operating System	: None or Customized image - See table below	
• Processor	: 1 x Intel® Core™ - See table below	
• Memory/RAM	: 2 x SO-DIMM SLOT DDR5-4800, Max 2x32GB - See table below	
• Storage internal	: 1 x 2.5" SSD	
• Graphics	: Intel® Iris® Xe Graphics eligible OpenGL 4.6, DirectX 12.1, OpenCL 3.0 4 independent displays (valid combinations: ref Intel datasheet)	2 x DP++ 1.4a
• Graphics Res.	: DP = 7680 x 4320 @ 60Hz Max	
• System Chipset	: Integrated in 12th Generation Intel® Core™ U-series processor	
• BIOS	: ACPI support	
• Ethernet #1	: 1 x 10/100/1000Mbps, Realtek RTL8119I Gigabit LAN	1 x RJ-45, Teaming
• Ethernet #2	: 1 x 10/100/1000Mbps, Realtek 8119I Gigabit LAN	1 x RJ-45, Teaming
• Ethernet #3	: 1 x 10/100/1000Mbps, Intel® i226IT Gigabit LAN	1 x RJ-45, Teaming
• Ethernet #4	: 1 x 10/100/1000Mbps, Intel® i219V LAN	1 x RJ-45, Teaming
• USB Ports #1	: 6 x USB2.0 (<5m)	6 x USB Type A
• USB Ports #2	: 2 x USB3.2 (<3m)	2 x USB Type A
• USB Ports #3	: 2 x USB3.2 (<3m) DP1.4a ALT mode	2 x USB-C
• Power Manager	: ACPI S3/S4	
• Watchdog Timer	: 256 Segments, 0, 1, 2...255 sec/min	
• RTC	: 0.5s/day**	
• H/W Status Mont.	: TPM2.0, Firmware Raid, Temperatures, voltages, Battery load status Alarm, cooling fan status*. Auto throttling control if CPU overheats	
• Battery	: Normal operational conditions: life time >5 year, worst case conditions(@70C, 24/7): life time >2 year	

* Cooling FAN status, not applicable for system without CPU/system FAN.

Power Specifications:

Power Supply options:

- Dual DC Input 24VDC, 24V nom, Galvanic isolated, automatic switch between power source — 2 x 2-pin Terminal Block 5.08
- Power Consumption* - Operating : 52W TBD (typ)* - 75W (max) - *at 25% load. Max Allowed External USB load = 10W.

Available Computer Configurations:

Type	Description	Size/Specification
CPU	1 x Intel® Core™ i7-1265UE (10 physical core / 12 thread) or Intel® Core™ i5-1245UE (10 physical core / 12 thread) or Intel® Core™ i3-1215UE (6 physical core / 8 thread) or Intel® Core™ Celeron 7305E (5 physical core / 5 thread)	- 3.5GHz / 4.7GHz @15W, Chipset: Intel® Iris® Xe Graphics eligible - 3.3GHz / 4.4GHz @15W, Chipset: Intel® Iris® Xe Graphics eligible - 3.3GHz / 4.4GHz @15W, Chipset: Intel® UHD Graphics for 12th Gen Intel® - 1.0 GHz @15W, Chipset: Intel® UHD Graphics for 12th Gen Intel®
Memory	Dual Channel, DDR5 SO-DIMM, 2 slots available	- 2x8GB (Standard), 2x16GB, 2x32GB (Max). 1x8 GB RAM (*Intel Iris Graphics requires 2x**GBRAM)
Storage	1 x 2.5" SDD	- 240GB (599TBW),480GB (945TBW),960GB (1750TBW), 1.9TB (8.8PBW). Review "SSD Selection Guide" in User Manual
OS Option 32/64bit where applicable	Windows 10 2021 IoT Enterprise LTSC - Product Distribution End Date January 2029. Windows 11 2024 IoT Enterprise LTSC. Linux Kernel xx TBD	

Factory Mounted Options:

- 1 or 2 x PCA200828-1 (4 x COM RS-422/485 isolated NMEA 4 channel) module*
- 1 x HTA2020002-AD1033: CAN isolated, 2 channel module*
- 1 x HTA2020002-SLCAN: Socket CAN isolated, 2 channel module*
- 1 x PCA100297-1: (4 x Digital Input/Output isolated) module*
- 1 x PCA100298-1: (LAN 10/100Mbps, 2 ports (RJ45) module*
- 1 x VSD203134-1: (2W Amplified Audio out via DB9F)* - Pending EN60945
- 1, 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9M module*
- 1 x PCBAA21001: LAN 1Gbps, 2 x SFP module*
- 1 x PCA200827-1: 2 x RJ-45, PoE 12V 5,5A receiver module*
- 1 x PCA200898-1: NMEA Kit (4xRS422/RS485 isolated) SW Configurable Pending
- 1 x HT EPB STD-A5: Remote-ON/OFF KIT
- Recessed Power Button Option
- Recessed Reset Button Option
- Reset Button Option

* Contact us for possible combinations. Review separate datasheet for more info.

Available Accessories:

- HT 00262 OPT-A1/B1: 4 x RS-422/RS-485 isolated, USB ext. module
- HT 00263 OPT-A1/B1: 4 x RS-232 COM non-isolated, USB ext. module
- HT 00264 OPT-A1/B1: 1 x CAN isolated, 2 channel, USB ext. module [1]
- HT 00264 OPT-A2/B2: 1 x SLCAN isolated, 2 channel, USB ext. module [1]
- HT 00273 OPT-A1/B1: 4 x Digital IN/OUT isolated, USB ext. module
- HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
- HT 00277 OPT-B1: 2 x LAN 1Gbps, SFP, USB ext. module
- HT MBK STD-A2: 1 x Mounting Bracket Kit**
- HT RET STD-A1: 1 x Cable Retainer/Relief Kit**
- HT RMK STD-A1: 1 x 2U Rack Mount Kit RAL9011
- HT RMK STD-H1: 1 x 2U Rack Mount Kit w/Handles, RAL9011
- HT SRK STD-A2: 1 x 3U 19" Slide Rack Mount Kit (For 1 or 2 x HTB40)
- SF-41-20: 2 x 20" ball bearing sliding rail kit for 19" Rack*
- SF-41-26: 2 x 26" ball bearing sliding rail kit for 19" Rack*
- JH C01MF A-A: 1 x USB Cable 1m, Type A to Chassis mount receptacle
- HT 00300 MSOS: OS options: https://www.hattelandtechnology.com/os
- HT DPM2DVI-DF-A1: 1 x DP to DVI adapter
- SFP-1000Base-TX-C: SFP to 10/100/1000Base-T Copper Interface
- VSD203400-1: External Power Button Cable 2m
- VSD203400-2: External Power Button Cable 5m
- VSD203733-1: External Power Button Cable 4.6m (no power button included)

* Must be combined with HT SRK STD-A2
** Included with delivery

[1] **Note:** Due to driver limitations, only 1 instance of this module can be connected to the same Computer/Panel Computer unit. If Computer/Panel Computer already has SLCAN functionality built-in, connecting this external module will always fail.

MECHANICAL DESCRIPTION

Physical Specifications:

- W:220.00 [8.66"] x H:88.90 [3.50"] x D:192.00 [7.56"] mm [inch]
- Weight: 2.5 kg / 5.5lbs
- Aluminium Cooling Chassis
- Includes: Mounting Bracket Kit, USB + DP/HDMI Retainers, Cable Relief Retainer
- Power Button, Power LED, Activity LED SSD

*Power Consumption: Numbers are specified as the unit is delivered from factory. All additional installed equipment like USB, PCIe and similar loads have to be added to power consumption. Note that total extra load have to be multiplied by 1.5 to compensate for efficiency in internal power converters. Typical power consumption varies a lot with computer load. We measure with 25% of max computer load.

Environmental Considerations:

• Operating	: Temperature -15°C to +55°C
• Storage	: Temperature -20°C to +60°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
• Air Pressure Maximum Altitude (Bonded)	: Operating: 3000m - Storage: 3000m
• Compass Safe Distance	: Standard: 30cm - Steering: 10cm

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)* **IACS E10*** **EN55024*** **EN55022, Class A*** **EU RO MR** - Mutual Recognition*
ClassNK - Nippon Kaiji Kyokai* **CCS** - China Classification Society* **ABS** - American Bureau of Shipping* **BV** - Bureau Veritas*