

Manufacturer: **Hatteland Display AS**

Product: **Compact Rugged Naval Computer**

Type: **HM C02HK STC-x69-M010 (x=OS)**

Last Revised: **01 Dec 2015**
Revision#: **01**

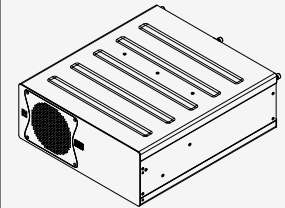
Compact Rugged Naval Computer

Features:

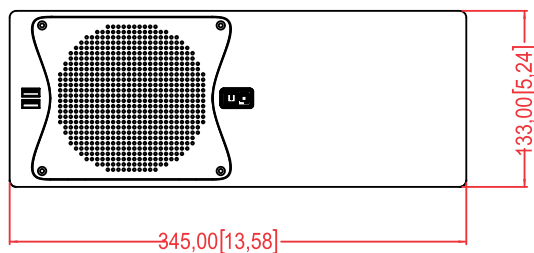
The HM C02 model is the successor to the best in class and highly successful HM C01 computer. The new model incorporates latest processor technologies and enhanced feature sets. A compact naval computer with extreme performance and most computer functions built into a form factor that can be placed virtually anywhere.

The HM C02 computer is designed for 24/7 operation and fulfil naval MIL test qualifications. The computer has a rigid mechanical structure with no rotating drives and temperature control FANS for optimal performance and life expectancy.

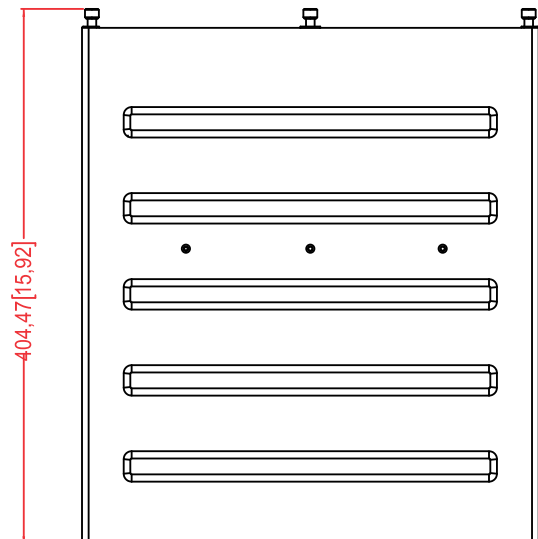
This solution provides the most competitive in type approved rugged PC computing to system integrator applications, while retaining a high level of feature sets and connectivity capability. It includes high-end Intel i7 CPU, 16GB of industrial RAM, 2x300GB SSD, 4 PCIe/PCI slots, RS232 + RS422/485, 6 USB, 4 GBLAN ports and 2 DVI + 1 DP with support for 3 active/simultaneous displays.



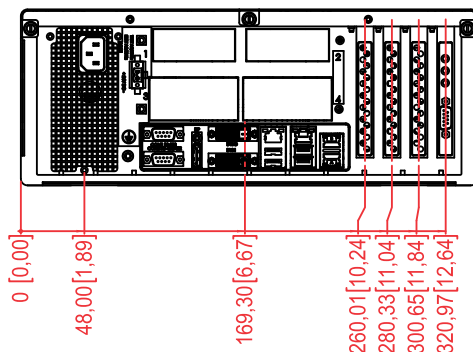
FRONT VIEW



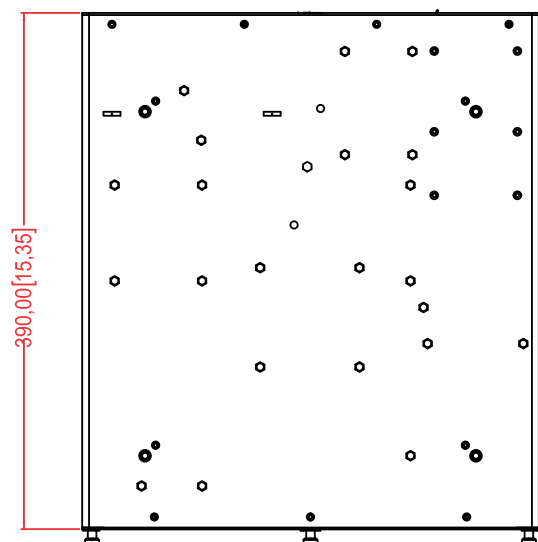
BOTTOM VIEW



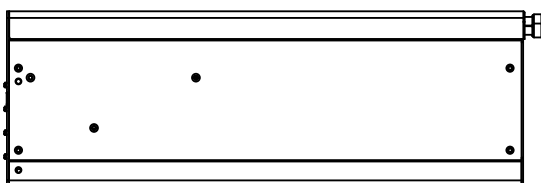
BACK VIEW



TOP VIEW



SIDE 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: (Entry model)

• Operating System Support	: None, customized image or see table below.
• Storage Devices	: 2 x 2.5" 300GB SSD SATA, Multi Level (MLC) - Review "SSD Write Endurance Data" below.
• Processor	: 1 x Intel® Core™ i7-4770S Quad Core 3.1/3.9GHz, Front Side Bus: 1600Mhz, 8MB Cache
• Memory/RAM	: 2 x 8GB (Total 16GB). Dual Channel DDR3 1600 204pin SO-DIMM.
• Graphics	: Intel HD Graphics 4600 integrated
• Graphics Capabilities	: Direct3D 11.1 w/Shader Model 5.0, OpenCL 1.2, OpenGL 4.2/3.3 (Linux). Max memory available for use: 1.7GB
• Max Graphics Resolution	: Max 2560 x 1600 @ 60Hz for DVI-I/VGA/DVI-D. Max 3840 x 2160 (4K UHD) @ 30Hz for DP (DisplayPort)
• System Chipset	: Intel® Q87
• BIOS	: AMI BIOS. On-board PC BIOS-Speaker.
• PCI Slots	: 1 x PCI v2.3, 32-bit/33MHz, 3V and 5V Interface, Full Height & Length
• PCIe Slots	: 1 x PCI Express x16+1 x PCI Express x4+1 x PCI Express x1, all Full Height & Length
• Ethernet #1	: 2 x 10/100/1000Mbps, Intel® I217/I210 Gigabit LAN supports Intel® Teaming
• Ethernet #2	: 2 x 10/100/1000Mbps, Realtek 8111E Gigabit LAN
• Serial Port #1	: 1 x RS-232 Baud Rate: Max ~256Kbps
• Serial Port #2	: 1 x RS-422/RS-485 Baud Rate: Max ~256Kbps
• USB Ports #1	: 2 x USB2.0 (<5m) ports in front
• USB Ports #2	: 1 x USB2.0 (<5m) + 1 x USB1.1 (<10m) / USB2.0 (<5m) ports in rear
• USB Ports #3	: 2 x USB3.0 (<3m) ports in rear
• Audio	: Realtek ALC892-CG HD Audio, 5.1 ch. via PCI Bracket
• 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, Wakeup, Intel® Management Engine. True power on after power fail.

External Connector Type:

1 x DVI-I + 1 x DVI-D + 1 x DP
2 x RJ-45
2 x RJ-45
1 x DB9M
1 x DB9M
2 x USB Type A
2 x USB Type A
2 x USB Type A
1 x DB9F (2W Amplified)
+ 3 x 3.5mm Jack (Line-IN/OUT, Mic)

Multi-power Supply, 125W:

115&230VAC - 50/60Hz + 24VDC

Power Consumption (Operating):

70W (typ) - 160W (Max)

External Connector Type:

STD IEC + 1 x 2-pin Terminal Block 5.08

AC: 115VAC@50/60Hz, 230VAC@50/60Hz, range and duration according to IEC60945 (92VAC - 276VAC, 45Hz - 66Hz).

DC: 24VDC nom., range and duration according to IEC60945 (18-32VDC).

Note 1: You may connect either AC power or DC power or both. In case both sources are connected, power will be sourced from the AC input. If AC input is lost, there will be a uninterrupted switch-over to DC input. **Note 2:** MAX total power consumption (sum of all additional loads; PCI/PCIe cards, internal & external USB modules) shall be less than 25W.

Available Computer Configurations:

Type	Description	Size/Specification
OS Option	Microsoft® Embedded Enterprise (WEE) OS: Windows® 7 Standard/Professional/Ultimate SP1, Windows® Server 2008R2, Windows® Server 2012, Windows® Server 2012R2, Windows® 10 IoT Enterprise. Linux OS: Please contact Hatteland Display.	
Notes	32bit or 64bit OS versions available where applicable.	

Available Accessories:

- HT 00225 OPT-A1: 2 x 26" ball bearing sliding rail & mounting kit for 19" Rack
- HT 00224 OPT-A1: 2 x 20" ball bearing sliding rail & mounting kit for 19" Rack
- HT 00223 OPT-A1: 1 x 4U 19" Rack Case Kit(compatible with HT00224/00225)
- HT 00226 OPT-A1: 2 x Mounting Bracket, 4mm SECC+Zinc Plating, RAL9011
- JH C01MF A-A: 1 x USB Cable 1m, Type A-Chassis mount receptacle
- H733S30Q20-SP000-0: 1 x Replacement Front Air Filter w/4 screws
- HT 00275 OPT-A1: 1 x PCI Mount Kit EN60945, Low Profile (LP, any len.)
- HT 00229 OPT-A1: 1 x PCI Mount Kit, Half Height to Full Height (any len.)
- HD 000TR SX1-A1: 1 x Removeable Front Tray 2.5" Empty
- HD 300GB SX1-S1: 1 x Removeable Front Tray 2.5" w/300GB SSD SATA 2.5"
- HT 00300 MSOS: OS options -> <http://www.hatteland-display.com/os>

SSD Write Endurance Data:

Capacity [GB]	TBW [TB]	Formula: $y = z/x$ Where y = Minimum lifetime, with respect to wear out [year] Where x = Data rate [TB/per year] Where z = 225 TB
300	225	

MTBF (Mean Time Between Failures):

TBD Hours

Environmental Performance:

- MIL-STD-167-1 Vibration*
 - MIL-STD-810F Shock 30G 11ms*
 - MIL-STD-810F Shock 50G 11ms*
 - MIL-STD-810F Shock 50G 30ms*
- * = Pending

EMI Testing:

- MIL-STD-461E Naval Limits*
 - CE 101, CE 102*
 - RE 101*
 - RE 102*
 - CS 101, CS 114, CS 116*
 - RS 101, RS 103*
- * = Pending

MECHANICAL DESCRIPTION

Physical Specifications:

- W:345.00 [13.58"] x H:133.00 [5.24"] x D:390.00 [15.35"] mm [inch]
- Weight: 10 kg (approx)
- Power button, power led, reset button and HDD Led in front
- Easy Removable Front Air Filter (spare part accessory available)
- Includes Mounting Brackets (HT 00226 OPT-A1)
- 1 x Internal Cooling fan in front (120x120mm)

Compass Safe Distance: Standard: 140cm - Steering: 90cm

Environmental Considerations:

- Operating : Temperature -15 to +55°C - Humidity up to 95%
DNV Temperature Class B +70 deg. C for 16 hours (TBD)
- Storage : Temperature -30 to +70°C - Humidity up to 95%

Lifetime Considerations:

Even although 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*** **EN61162*** **EU RO MR** - Mutual Recognition (covers DNV, BV, ABS, GL, NK and LRS certificates)*