DATASHEET

HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**27 inch Maritime Multi Computer (MMC)**
Type:	**HD 27T22 MxC-Mxx-xxxUxx (26" chassis/27" TFT)**

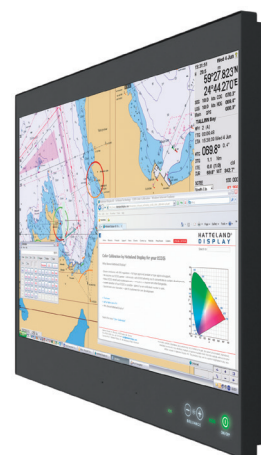# 27 inch Maritime Multi Computer - Series X G2

Features:

Series X Generation 2 (G2) Panel Computers offer the ultimate in performance, convenience, state of the art design and enduring quality for system integrators and boat builders. Series X Generation 2 (G2) products offer a range of feature sets optimized for varying requirements and applications.

The Series X Generation 2 (G2) Panel Computer range is a flexible all in one monitor & PC solution, designed and type approved for the professional marine segment, where reliability and long life time are key prerequisites for the industry. The product range combines state of the art display and computer technology with innovative features and options, making it all that the integrator needs for top class type-approved marine systems.

The high performance MMC Panel Computer models provide a wide choice of display size and format, along with various processor and storage options. The compact, all-in-one MMC solution is the ideal one for all ship navigation or automation installations. This range with all it's versitility and capability provides a robust and cost effective platform from which to run multiple applications and display and manage data.
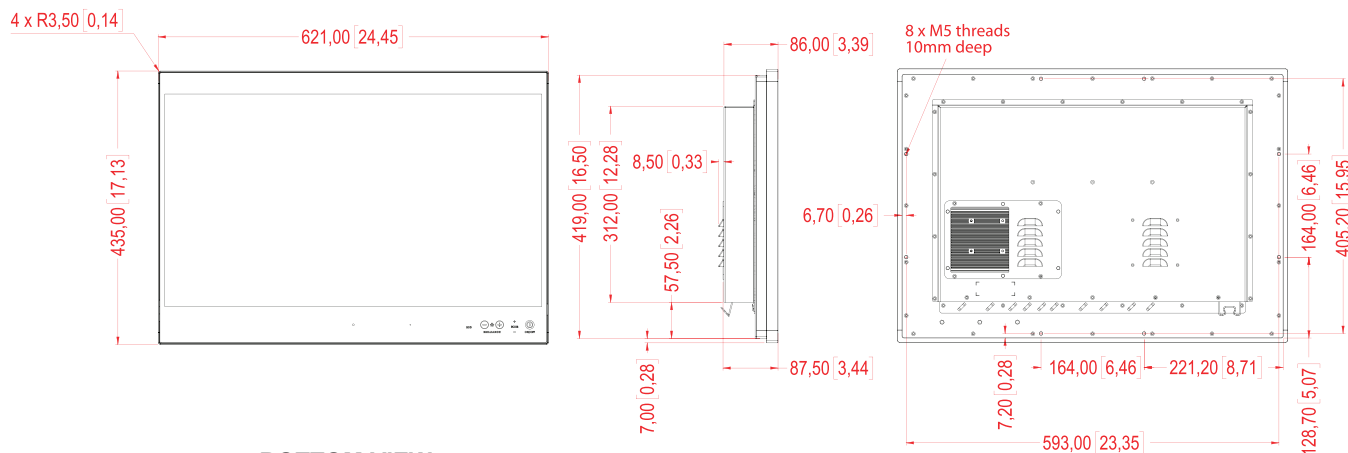
Series X Generation 2 (G2) Panel Computer feature Glass Display Control, LED Backlight Technology, full dimming, multipower all as standard. In addition there are options such as SSD storage mediums, Multiple interface configurations and several OS options. The product range can also accomodate and combine optical bonding and ECDIS calibration. By factory standards the 27 inch unit is ECDIS Compliant. This particular model features the physical dimensions of an 26 inch unit, but with a 27" TFT panel.

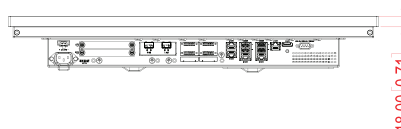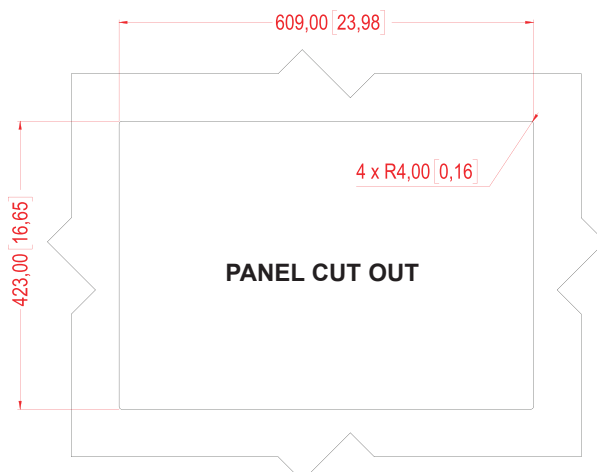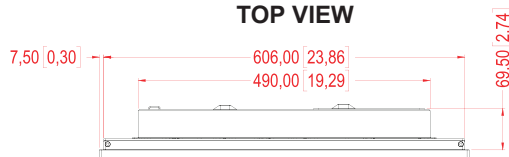**FRONT VIEW**   **SIDE VIEW**   **BACK VIEW**

BOTTOM VIEW

TOP VIEW

PANEL CUT OUT

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.

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User Controls:

Behind front bezel - Glass Display Control™ (GDC) IP66:
- Power On/Off, Brightness Control (-/+)
- Power LED, Mode Status Indicators (ECDIS, HDD, Service)
- Buzzer (through glass) (75-85dB) (according to IEC60945/IACS-E10)e, Light Sensor (behind glass).

TFT Technology:

- LED Backlight Technology, Color Active Matrix
- 27.0 inch viewable image size, Widescreen, Aspect Ratio 16:9
- a-SI (amorphous silicon) Thin Film Transistor (TFT), (according to IEC60945/IACS-E10)

TFT Characteristics:

• Native Resolution	: 1920 x 1080 (FHD)
• Pixel Pitch (RGB)	: 0.31125 (H) x 0.31125 (V) mm
• Response Time	: 12 ms (typical) (on/off)
• Contrast Ratio	: 3000:1 (typical)
• Light Intensity	: 300 cd/m² (typical)
• Viewable Angle	: +/- 89 deg. (typical) (Up/Down/Left/Right)
• Active Display Area	: 597.6 (H) x 336.15 (V) mm
• Max Colors	: 16.7 million

Computer Specifications:

• OS Options	: See table below or customized image on request.
• Internal Storage	: 1 x SSD SATA, Type m.2. See table below.
• Removable Storage Factory Option	: 1 or 2 x 2.5" SSD SATA See table below.
• CPU/Processor	: 1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache or see table below.
• Memory	: See table below
• System Chipset	: Intel® GL82Q170 PCH
• Graphics Chipset	: Intel® HD Graphics xxx (dependent on CPU) See table below for details.
• Ethernet LAN #1	: Intel® I219LM Gigabit LAN 10/100/1000Mbps Supports Intel® Teaming
• Ethernet LAN #2/#3	: Intel® I211AT Gigabit LAN 10/100/1000Mbps Supports Intel® Teaming
• Ethernet LAN #4/#5	: Realtek RTL8111G-CG Gigabit LAN 10/100/1000Mbps
• Audio Chipsets	: Realtek HD AUDIO ALC662 (on-board)
• BIOS	: EFI, ACPI Support. Preconfigured by factory.
• Watchdog Timer	: 256 Segments, 0, 1, 2...255 sec/min
• Power Manager	: AT, ACPI (S3/S4)
• Monitoring	: Temperature, Fan and voltages status
• Other Features	: TPM2.0, Firmware Raid, GPIO, LAN Wakeup, USB Boot and Wakeup
• DP++ Out Max Res.	: 640 x 480 to 4096 x 2304 @ 60Hz

Available Computer Configurations:

Type	Description	Size/Specification
CPU	1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache or 1 x Intel® Quad Core™ i7-7700T*, 2.9/3.8GHz, 8MB Cache or 1 x Intel® Dual Core Celeron™ G3900TE, 2.3/2.3GHz, 2MB Cache *Supported only by Windows® 10 IoT Enterprise	
Graphics Chipset	For all Intel® HD Graphics xxx Chipsets: Video Max Memory: 64GB, Supports: DirectX 12, OpenGL 4.4, OpenCL 2.0. - 6500TE CPU: 530,350Mhz,Max Dynamic Freq:1GHz (384GFLOPS) - G3900TE CPU: 510,350Mhz,Max Dynamic Freq:0.95GHz (182GFLOPS) - 7700T CPU: 630,350Mhz,Max Dynamic Freq:1.15 GHz (442GFLOPS)	
Memory	2 x 260-pin DDR4-2133, Dual Channel	- 8GB, 16GB, 32GB(Max)
Storage	1 x SSD SATA Type m.2 internal Enterprise 24/7, (according to JESD218 standard with JESD219 workload). Power loss protection.	- 240 GB (599 TBW) - 480 GB (945 TBW) - 960 GB (1750 TBW)
Storage	2 x 2.5" SSD SATA via Removable Tray	- 240 GB (599 TBW) - 480 GB (945 TBW) - 960 GB (1750 TBW)

Operating System (OS) Options:
Windows® 7 Pro. for Embedded Systems (1-2 CPU)
(End of support July 2017, Product Distribution End Date Sep. 2024)
Windows® 7 Ult. for Embedded Systems (1-2 CPU)
(End of support July 2017, Product Distribution End Date Sep. 2024)
Windows® Emb. Standard 7 (Toolkit & Runtime) - All Versions
(End of support July 2017, Product Distribution End Date July 2025)
Windows® 10 IoT Enterprise 2019 LTSC (64bit)
(Product Distribution End Date January 2029)
or: **Linux (Skylake: kernel 4.4 or later).**

Notes	- See also Accessories (HT 00300 MSOS) Operating System options. - 32bit or 64bit OS versions available where applicable. - Review "SSD Selection Guide" in manual.

Physical Considerations:

- W:621.00 [24.45"] x H:435.00 [17.13"] x D:94.50 [3.72"] mm [inch]
- Weight: Approx. 11.0 kg / 25.0lbs

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
• IP-Rating Protection	: IP66 front - IP20 rear (EN60529). IP22=option
• Compass Safe Distance	: Standard: 85cm - Steering: 50cm
• CPU Fan Cooler/Heatsink	: Rear external air flow. FAN speed temp. controlled

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.

Input/Output Connectors:

Connector	Rear
• Ethernet GBLan	: 5 x RJ-45
• COM RS-232 & 422/485	: 1 x DB9M non-isolated (Change RS mode in BIOS)
• COM RS-232	: 1 x COM (Software controlled)
• USB2.0 (<5m)	: 2 x USB Type A (4-pin)
• USB3.0 (<3m)	: 2 x USB Type A (9-pin)
• DP++ 1.2 OUT	: 1 x DisplayPort Female (Dual-Mode DP++)
• AC Power IN	: 1 x Std IEC inlet
• DC Power IN	: 1 x 2-pin Terminal Block 5.08 (Factory option)
• If SSD Trays option	: 2 x 2.5" Sized Tray/Bay (Factory option)

Power Specifications:

Power Supply option:
- Multipower: 100-240V AC - 50/60Hz+ 24VDC
Note: 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.
Power Consumption:
- Operating AC/DC: 72W (typ) - 156W (max)

Available Accessories:

- JH C01MF A-A : 1 x USB Cable 1m, TypeA-Chassis mount receptacle
- HD VED SX2-J1 : 1 x VESA Adapter (100/100 & 200/100mm) Not EN60945 Tested
- HD TMB SX1-C1 : 1 x Table Mount Bracket. EN60945 Tested
- HD CMB SX1-B1 : 1 x Console Mount Kit. EN60945 Tested
- HD 26COV SX1-A1 : 1 x UV Sun Cover
- HD 26TAP SX1-A1 : 1 x Frame Adapter for JH 27T11 MMD Cutout (Retrofit)
- P007178 : 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
- 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 00273 OPT-A1 : 4 x Digital IN/OUT isolated, USB ext. module
- HT 00274 OPT-A1 : 2 x LAN 10/100Mbps, RJ45, USB ext. module
- JH 26TAP STD-A1 : 1 x Frame Adapter for Series 1 Cutout (retrofit)
- HT 00300 MSOS : OS options: https://www.hattelandtechnology.com/os
- HD 000TR SX2-A2 : 1 x Removable Front Tray 2.5" Empty
- HD xxxyy SX1-z1 : 1 x Removable Front Tray 2.5" w/Storage Device*
  *Where xxx=Size of device. yy=GB,TB. z=S (SSD) - Choose Device from table.

Factory Options:

- Optical Bonding Technology
- Color Calibrated models (ECDIS)
- Model with 2 x physical 2.5" removable Disk Bay/Tray
- IP22 Model (Factory Mounted internal gaskets)
- Variations of SSD Storage, RAM Memory, Operating System, CPU
- 1 or 2 x PCA200828-1: 4xCOM RS-422/485 isolated NMEA 4 channel
- 1 x HTA2020002-AD1033: CAN isolated 2 channel
- 1 x HTA2020002-SLCAN: CAN isolated 2 channel, socketCAN
- 1 x VSD101121-1: 2W Amplified Audio out via 1xDB9F+3x3.5mm Jack
- 1 x PCA100297-1: Isolated Digital IO module,4 x Output/4 x Input
- 1 x PCA100298-1: LAN 10/100Mbps, 2 ports RJ45
- 1 or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9M module
- 1 x Q170 IO: 1xNMEA RS422/485 isolated+2xDig. In&Out (Low side switch)

APPROVALS & CERTIFICATES

These products have been tested / type approved by the following classification societies:

IEC 60945 4th (EN 60945:2002)   **IACS E10**   **IP66**   **EU RO MR** - Mutual Recognition   **ClassNK** - Nippon Kaiji Kyokai
CCS - China Classification Society   **KR** - Korean Register of Shipping   **BV** - Bureau Veritas   **ABS** - American Bureau of Shipping
LRS - Lloyd's Register of Shipping