



TYPE APPROVAL CERTIFICATE

Certificate No. : LDN04977-AC116 **Initial Approval** : 4th June, 2019
Product : Marine Computer
Manufacturer : Mariner Systems (UK) Ltd.
Oaklands Park, Wokingham, Berkshire, RG41 2FD, United Kingdom

Product Description : Marine Computer (Model : HP Z4 G4 Workstation)

" The HP Z4 G4 Workstation must be used
in conjunction with one of the Mariner Kit MS3070 or MS3080 "

- MS3070 : Desktop configuration
- MS3080 : Tower configuration

" See Appendix 1 "

Approval Condition : " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows and entered in the "List of Approved Manufacturers and Type Approved Equipment".
Pt. 6, Ch. 2, Art. 301 of the Rules for Classification, Steel Ships.

This Certificate is valid until 3rd June, 2024
Issued at Busan, Korea on 4th June, 2019



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No (ME19014089175) and certificate No.(LDN04977-AC116).



KOREAN REGISTER OF SHIPPING

*General Manager of
Marine & Ocean Equipment Team*

*Note : 1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.*

Appendix 1

Product Description and/or Approval Condition

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A. Product Description

1. Product Specification

- 1) Processor
 - All Intel Xeon processors up to and including 4.0GHz (4.4GHz turbo) frequency, 19.25MB cache, 14 cores
- 2) Power Supply
 - 700W 90% efficient
- 3) Memory
 - Up to 256 GB DDR4-2666 ECC Reg DIMM (8GB/16GB/32GB)
- 4) Hard Disk
 - 300GB 15000 rpm SAS SFF
 - 500GB SATA-6G 3.5" (7200 rpm)
 - 1TB SATA-6G 3.5" (7200 rpm)
 - 2TB SATA-6G 3.5" (7200 rpm)
 - 256GB SATA SSD
 - 512GB SATA SSD
 - 1TB SATA SSD
 - 256GB Z Turbo Drive M.2 MLC SSD
 - 512GB Z Turbo Drive M.2 MLC SSD
 - 256GB Z Turbo Drive M.2 TLC SSD
 - 512GB Z Turbo Drive M.2 TLC SSD
- 5) Optical Drive
 - HP 9.5mm DVD ROM
 - HP 9.5mm DVD Writer
 - HP 9.5mm Slim Blu Ray Disc Writer
- 6) Graphics Card
 - NVIDIA Quadro P400 2GB
 - NVIDIA Quadro P600 2GB
 - NVIDIA Quadro P620 2GB
 - NVIDIA Quadro P1000 4GB
 - NVIDIA Quadro P2000 5GB
 - AMD FirePro W2100 2GB
 - AMD Radeon Pro WX 3100 4GB
 - AMD Radeon Pro WX 4100 4GB
- 7) Network Interface Card
 - Intel Ethernet I219-LM PCIe Controller (integrated)
 - Intel Ethernet I210-AT PCIe Controller (integrated)
 - Intel I210-T1 PCIe x1 Gigabit NIC
 - Intel i350-T2 PCIe Dual Port Gigabit NIC
 - Intel i350-T4 PCIe 4-Port Gigabit NIC
 - Intel X550-T2 10GbE Dual Port NIC
 - Intel X710-DA2 10GbE SFP+ Dual Port NIC
 - Intel 10GbE SFP+ SR Transceiver
- 8) Keyboard
 - HP Business Slim PS/2 Keyboard
 - HP Business Slim USB Keyboard
 - HP Smart Card CCID Keyboard
- 9) Mouse
 - HP PS/2 Mouse
 - HP Optical USB Mouse
 - HP USB Hardened Mouse
- 10) Miscellaneous
 - MicroSemi SmartHBA2100-4i4e SAS Controller
 - HP SD 4 Media Card Reader
 - HP Serial Port Adapter
 - HP Standard CPU Cooling Solution
 - HP Premium F10 Module
 - HP Fan & Front Guide Kit
 - HP Memory Cooling Solution
- 11) Operating system
 - Windows 10 Pro 64 for Workstations
 - Windows 10 Pro 64
 - Windows 7 Pro 64
 - HP Linux Ready

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2. Approved Drawings and Documents

- 1) Drawings
 - MS3070 Assembly, Dwg. No. MS3070_A, Issue No.1, dated 2018-11-12
 - MS3080 Assembly, Dwg. No. MS3080_A, Issue No.1, dated 2018-11-12
 - Filter type RF 1007-MST-A, Dwg. No. DS 105-MST, Issue No. 0.1
- 2) Specifications
 - QuickSpecs, Doc. c05527757-DA 15954-Worldwide-Version 9, dated 2018-09-21
 - Component Options, Doc. HP Z4 G4 Components Feb 19, dated 2019-02-04

3. Test Reports, etc.

- 1) Report TL18111 Issue 1 issued by MS Testing, dated 2019-01-22
- 2) Report TL18112 Issue 1 issued by MS Testing, dated 2019-01-22
- 3) Report TL18113 Issue 1 issued by MS Testing, dated 2019-01-22

B. Approval Condition

1. Application & Limitation

- 1) This Approval is granted on the basis of the test reports and the approved documentation.
- 2) The manufacturer should inform this Society of all kinds of revisions of the equipment including software. If the changes are recognized to affect functionality of the approved equipment, type test to confirm the reliability of the revised equipment may be performed in the presence of our surveyor.
- 3) The product is to be installed as manufacturer's instructions.

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is not required.

3. Marking

- 1) The product or packing is to be marked with manufacturer name and type designation on a suitable position.

4. Others

- 1) Test condition

| Test | Condition | Remark |
|-------------|--|--------|
| EMC | All locations including the bridge and deck zone | - |
| Temperature | -25 ~ +70°C | - |
| Vibration | Acceleration ±0.7g | - |

- 2) Compass Safe Distance

| Description | 1 degree deflection | 0.3 degree deflection |
|----------------------|---------------------|-----------------------|
| HP Z4 G4 Workstation | 600mm | 700mm |

< End of Certificate >