

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Personal Computer

with type designation(s)

Marine Computer II(EMB-7040), PCI Extender Unit(EMB-7040-OP1)

Issued to

Terasaki Electric Co., Ltd.
Osaka, Japan

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Marine Computer II(EMB-7040)	B	A	A	B	A
PCI Extender Unit(EMB-7040-OP1)	B	A	A	B	A

Issued at **Busan** on **2017-09-28**

This Certificate is valid until **2022-09-27**.

for **DNV GL**

DNV GL local station: **Kobe**

Approval Engineer: **Baeg Soon Choi**

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Michael Jost Auf der Stroth
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

Marine Computer II: EMB-7040

CPU	Intel, i7 3517UE Dual core 1.7 GHZ
Chipset	Intel QM77
BIOS(UEFI)	Insyde H20
Main memory	DDR3-SO DIMM 4GB (4GBx1) ECC
Serial	RS-232C D-sub 9 pin x2(Male)up to 115.2 Kbps
USB	Rear:USB2.0 x4, USB3.0 X2. Front:USB2.0 x2
Input Power Supply	24VDC (Tolerance: 16 to 31.2V)
Power Consumption	Up to 40W with no external USB device connected

PCI Extender Unit: EMB-7040-OP1

Extension slot	PCI:1 slot, PCIExpress(x1:1 slot, PCIExpress(x8):1 slot
Air cooling fan	Fan x 2 with fan filters
Power supply	100 to 240VAC (Tolerance: 85 to 264V)

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Product certificate

If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After the certification the clause for application software control will be put into force.

Clause for application software control

All changes in software are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV GL for evaluation and approval. Major changes in the software are to be approved before being installed in the computer.

Type Approval documentation

Tests carried out

Environmental, Vibration and EMC Test: according to IACS Unified Requirements E10 (2014).
Performance Test: according to IACS E 10(2014) and DNVGL-CG-0339 Nov 2016

Marking of product

The products to be marked with:

- model name
- manufacturer name
- serial number

Periodical assessment

Job Id: **262.1-025260-1**
Certificate No: **TAA00001E3**

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE