Hardware Specifications

C-BridgeSim

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1. PROPOSED CONFIGURATION

This document reports an example of hardware specifications for a standard Full Mission, 5 consoles, Ship Bridge Simulator. Different configurations may require different hardware specifications. The configuration proposed in this document includes:

- N°1 Visualization system: 5 channels (5 TV LED ultra HD, 55")
- N°1 steering console including, touch screen, conning, rudder wheel, engine telegraph, basic double rudder controllers, two azimuth controllers, bow/stern thrusters controllers
- N°1 Radar ARPA console
- N°1 ECDIS console
- N°1 Navigational Aids console (Echo-sounder, GPS, AIS)
- N°1 Communication console (GDMSS)
- N°1 Overhead Display

Figure 1 – Ship Bridge Simulator – proposed configuration

2. HARDWARE FOR INSTRUCTOR'S WORKSTATION

The following table reports the hardware specifications for the Instructor's workstation.

Table 1 – Hardware specifications for Instructor's Workstation

Description	Quantity
PC for instructor • Power Supply 750W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1050, 2GB DDR5 • SDRAM DDR4 8 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • WI-FI 802.11a/b/g/n/ac • DVD-writer • N°2 LAN 10/100/1000 GbE supporting Wake on LAN • Sound Card • Mouse & Keyboard	1
UPS 750 VA (minimum) for Instructor	1
Monitor 24" for instructor • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	2
Desk (180cm x 80 cm) + Chair	1

3. HARDWARE FOR SHIP BRIDGE SIMULATOR

The following table reports the hardware specifications for the trainees' workstation.

Table 2 – Hardware specifications for trainees' workstation

DESCRIPTION	QUANTITY
PC for Visualization System • Power supply, 1000W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I7-8700 3.2 GHZ Sk 1151, COFFEE Lake (12 MB cache, 6core) • N° 2 Graphic Card NVIDIA Ge-Force GTX 1060 6 GB • SDRAM DDR4 16 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	1
UPS 1000 VA (minimum) for Visualization System PC	1
Monitor 55", 4K Ultra HD	5
PC for Radar Conning Display • Power Supply 750W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1050, 2GB DDR5 • SDRAM DDR4 8 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	1
UPS 750 VA (minimum) for Radar ARPA PC	1
Monitor 24" for Radar ARPA PC • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	1
Monitor Touch Screen 24"	1
PC for Radar ARPA • Power Supply 750W	1

• MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1050, 2GB DDR5 • SDRAM DDR4 8 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	
UPS 750 VA (minimum) for Radar ARPA PC	1
Monitor 24” for Radar ARPA PC • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	1
PC for ECDIS • Power Supply 750W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1050, 2GB DDR5 • SDRAM DDR4 8 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	1
UPS 750 VA (minimum) for ECDIS PC	1
Monitor 24” for ECDIS PC • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	1
PC for GDMSS • Power Supply 750W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1050, 2GB DDR5	1

• SDRAM DDR4 8 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	
UPS 750 VA (minimum) for GDMSS	1
Monitor 24” for GDMSS • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	1
PC for Navigational Aids (GPS, Echosounder, AIS, etc.) • Power Supply 750W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1050, 2GB DDR5 • SDRAM DDR4 8 GB • HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	1
UPS 750 VA (minimum) for Navigational Aids (GPS, Echosounder, AIS, etc.)	1
Monitor 24” for Navigational Aids (GPS, Echosounder, AIS, etc.) • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	1
PC for Overhead Instruments Display • Power Supply 750W • MSI Mother Board, Socket 1151 Coffee Lake • CPU Intel I5-9400F 2.9 GHZ Sk 1151, COFFEE Lake • Graphic Card NVIDIA Ge-Force GTX 1060, 3GB • SDRAM DDR4 8 GB	1

• HD SSD, 120 GB • HD SATA, 1 TB • Windows 10 Pro • LAN card 10/100/1000 GbE, supporting Wake on LAN • Sound Card • Mouse & Keyboard wireless	
UPS 750 VA (minimum) for Overhead Instruments Display	1
Monitor 24” Overhead Instruments Display • Type 24" LED Monitor • Full HD (1080p) 1920 x 1080 at 60 Hz • Contrast Ratio 1000:1 / 8000000:1 (dynamic) • Brightness : 300 cd/m² • Response Time 2 ms (gray-to-gray)	3
Routers, 16 ports	1
Network/USB/VIDEO Cables, Electricity cables, Video Adapters (the quantity will be defined according to rooms dimensions and to PCs and Monitors)	1
Basic computer speakers for Radar and ECDIS	2
Laser Printer	1
Steering Console in painted metal, dimensions 140 cm x 70 cm x 80 cm (LxWxH)	1
Radar Arpa Console in painted metal, dimensions 60 cm x 70 cm x 80 cm (LxWxH)	1
ECDIS Console in painted metal, dimensions 60 cm x 70 cm x 80 cm (LxWxH)	1
GDMSS Console in painted metal, dimensions 60 cm x 70 cm x 80 cm (LxWxH)	1
Navigational Aids Console in painted metal, dimensions 60 cm x 70 cm x 80 cm (LxWxH)	1
Rudder Wheel with illuminated scale (-45° + 45°), model KWANT CONTROLS Steering Wheel	1
Engine Telegraph, double lever for pitch control and engine power control, illuminated scale, model KWANT CONTROL BUK-C	1
Azimuth Controllers, 360°, illuminated scale, model KWANT CONTROL RSCU-mk3	2
Bow/Stern thrusters joystick contollers	2
Basic Angle Controller for double rudder ships control, model KWANT CONTROLS PMA-1	2