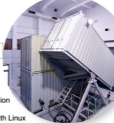# 潛艦教練儀 *Submarine Operational Simulator*



## 主電腦系統

- 負責處置接控軟體即時運算。
- 四核心硬體架構具Linux開放式作業系統。
- 連網採雲端設計。

## 音效系統

- 負責環境音效模擬。
- 採用自由軟體OpenAL開發設計，可適用微軟XP及Linux作業系統。

## 教官台系統

- 全系統之控制中心，提供艙體面板測試、模擬啟停、課後評估及全系統開關機等功能。
- 提供模擬進行中，各接控台重要參數監控顯示。
- 具觸控液晶顯示器。
- 中英文操作及顯示。
- 提供兩位教官可同時操作。

## 輸出入界面系統

- 4U工業電腦，PCI多插卡式架構。
- 提供訊號接頭轉換電路卡，可讓原艙體硬體功能不經任何修改，就能快速地與輸出入介面系統合一。
- 提供緩衝及上線偵錯功能。
- 軟體可提供虛擬與真實硬體同時操作中。
- 軟體以服務(Service)隨機啟動。

## 液壓系統

- 真實反應湖艇動態模擬之艉身角。
- PLC控制軟體具真安全保護機制。

## 聲納調音教室

- 具備良好的隔音效果。
- 可容納15名(含)以上受訓學員，且每位學員皆具獨立的控制與學習聽音設備。
- 室內採隔棟教室設計並具備聽力聽、音效率訓等設備。
- 提供聲音編輯及頻譜分析設備。

## Host Computer System

- The host computer is responsible for real-time executing simulation model.
- Quad cores architected with Linux Kernel.
- Cloud computation for networking.

## Sound system

- The sound system is responsible for generating environmental sounds generating and simulation.
- Sound development environment adopts OpenAL freeware, it can be available for Microsoft XP and Linux.

## Instructor Operating System

- Providing the totally system control capabilities, such as Panel testing, simulation start/stop, simulation evaluation and system power on/power off, etc.
- Provide the real-time monitoring capability for important parameters of control panels while simulation is in progress.
- Support two touch LCD displays.
- Support Chinese/English language display.
- Provide the synchronization mechanism for two instructors operating simultaneously.

## I/O System

- Two of 4U industrial computers associated with multiple PCI-slots and I/O controller cards, such as DI, DO, RI and DO, etc.
- Provide an adaptive patch panel converter so that the training cabin can be interfaced with various I/O computers rapidly, reducing the risk and minimizing the cost of I/O system upgrade.
- Support a graceful debugging tool while working is on-line and offline.
- I/O control software can work for virtual and physical panels existing simultaneously.
- I/O control software is designed to a service, starting up automatically when computer powers on.

## Hydraulic System

- Realize the pitching motions of the moving base while simulation is in progress.
- Associated with PLC control software, and provides the rigorous safe protection mechanism.

## Sonar Man-training & Hydrographic Analysis Center

- Provide valid sound insulation effect.
- The classroom can accommodate at least of 15 trained students, and each student has individual equipment.
- Indoor adopts the design of a lecture theater, associated with the audio-visual functions.
- Support the device and tool for audio editing and sound spectral analysis.

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