

### OVERVIEW

The Generic Multi Array Recorder (**GEMAR**) records hydrophone data from multi Arrays. The replayed data can then be used to assist in testing and development of various sub-systems as well as providing the ability for OFFLINE analysis. The **GEMAR** is composed of hardware and software components.

The system can be configured to record digitised hydrophone data and Non-Acoustic Data (ships data and contact data) along with monitoring information on a Network Attached Storage (NAS) device.

The NAS device provides non-volatile storage and consists of a Redundant Array of Inexpensive Discs (RAID), driven by an embedded PC. The disks in the NAS device are removable to allow multiple recordings to be made. Individual Trials Breakout Boxes can be supplied to acquire the hydrophone data.

The specification of the GEMAR can be summarised as follows:

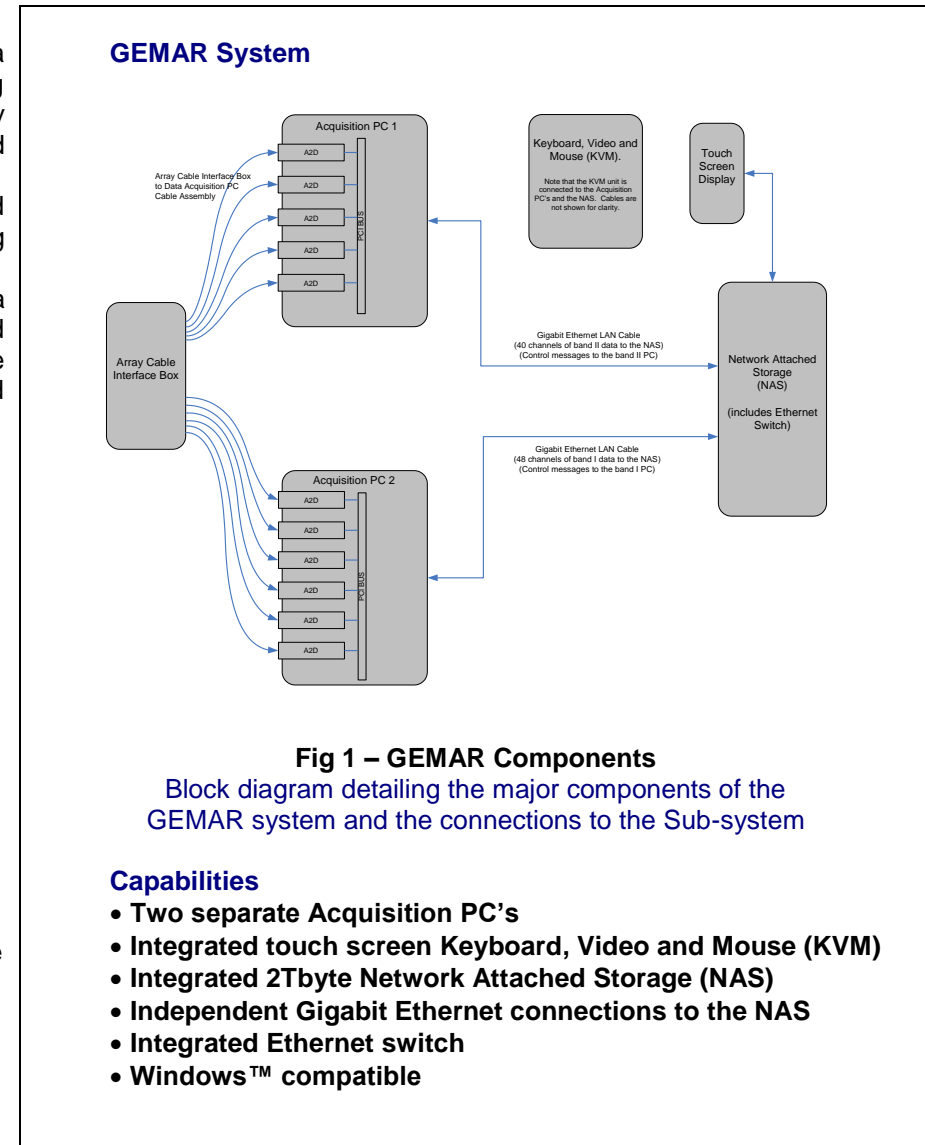
- Configured for up to 88 channels of analogue recorded data
- Two separate Acquisition PC's – each allowing independent acquisition parameter control
- Sampling data rates up to 500KHz
- NAS storage device configured to capture 2TByte of data
- Proven Operation under at-sea conditions

### ACQUISITION PC'S

These PC's perform the analogue to digital conversion of the hydrophone data from each Array. The data they produce is transmitted over a Gigabit LAN to the NAS device where multi-channel A2D cards perform the conversion process.

### NAS, ETHERNET SWITCH AND GIGABIT LAN

The NAS device provides non-volatile storage for all acquired hydrophone and NAD data. It contains a 4-port Ethernet switch card that routes the received hydrophone data via the NAS PC's internal PCI bus onto the disks. The User Interface application runs on the NAS PC which issues control commands and receives error and monitoring information from the Data Acquisition PC's. The NAD application is also resident on the NAS device.



### GIGABIT LAN CABLES

These cables connect the Data Acquisition PC's to the NAS device at the NAS device's internal Ethernet Switch card. Digitised hydrophone data and error reports are transmitted over these cables to the NAS device, and control messages are routed via the cables from the NAS device.

### KVM

A KVM unit is attached to the system to provide monitoring and control functions for the system. Cables connect the KVM to each PC in the system: the 2 Data Acquisition PC's and the NAS PC. This allows control and monitoring functions to be carried out.

### TOUCH SCREEN DISPLAY / GUI

To provide a user interface to the system a compact Touch Screen Display unit will be provided. The GUI for the GEMAR is split into two distinct parts. The main operator GUI is provided by an embedded controller fitted with a HVGA touch screen display which runs Window CE version 5. The secondary GUI which is also a communication bridge for the operator GUI is located on the NAS PC.

### OPEN ARCHITECTURE

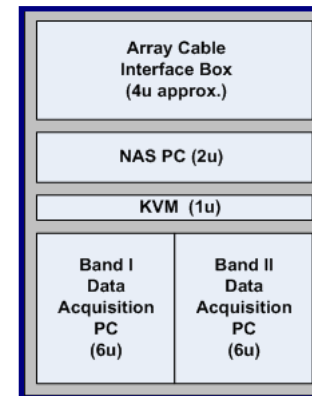
The system can be configured to run on any Windows™ compatible PC. Clear definitions of input data streams are provided.

### CABLE INTERFACE BREAKOUT BOXES

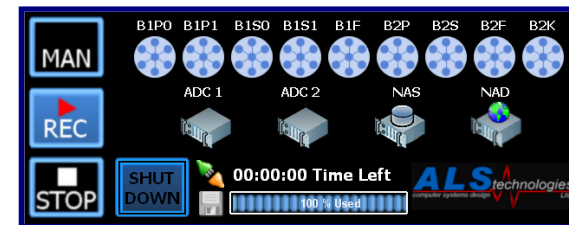
To complement the recording of array data cable breakout boxes can be supplied to provide a fully scaleable solution for use with Intercept, Towed or Bow arrays.

*Contact ALS Technologies to discuss the full detailed specifications and to arrange a demonstration of the GEMAR capabilities.*

### Display Formats



**Fig 2 – Physical Layout**  
The Touch Screen Display will be mounted on the front of the Array Cable Interface Box.



**Fig 3 – GEMAR Controller GUI**

The application that resides on the NAS provides a proxy communication infrastructure for the embedded device – the status information is received by proxy via mail slots.