

Signal Processing Modules

Signal processing plug-in modules provided with GPAS include the following operations:

Beamforming: User-programmable time- and frequency-domain beamformers

Frequency Filtration: Band Pass, Band Stop, High Pass, Low Pass, Notch, User-Defined

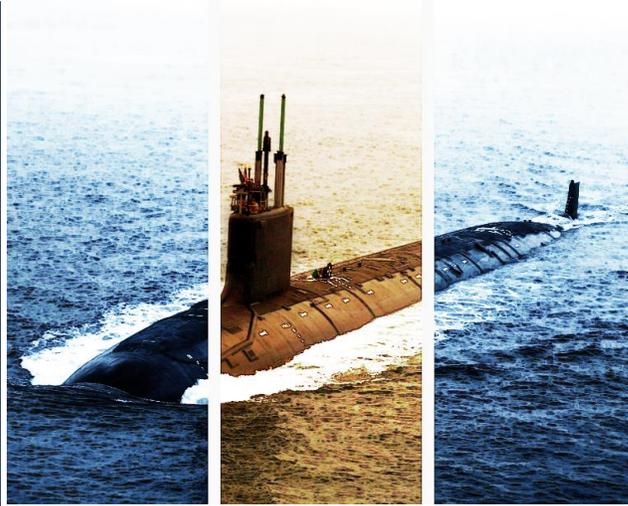
Detectors: Energy, Kurtosis, Matched Filter, Quantile, Skewness, Transient

Resampling: Decimation, Interpolation, Rational Factor Resampling

DIFAR Buoy: DIFAR Demultiplexer and Beamformer

Advanced Algorithms: Adaptive Noise Cancellation, Array Element Localization, Geology Filter, Sensor Deconvolution

Miscellaneous: Channel Selection, Matrix Operations, Quadrature Demultiplex, Save Intermediate Results to File



Tap into Array's World - Class Sonar Expertise

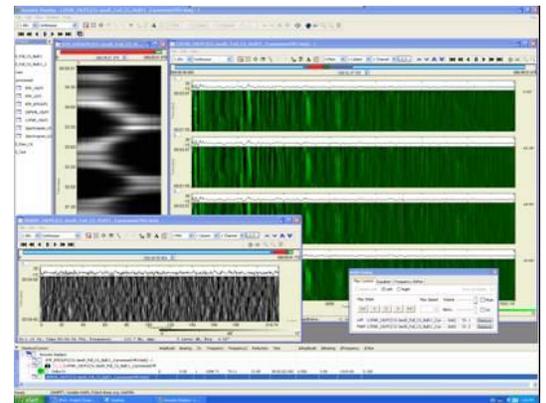
Array Systems Computing Inc.
1120 Finch Avenue West, Suite 700
Toronto, Ontario Canada M3J 3H7

Tel: +1 416 736 0900
Fax: +1 416 736 4715

Generic Post Analysis System

Array Systems is proud to offer our state-of-the-art Generic Post-Analysis System (GPAS), a fully modular and extensible system consisting of a high performance parallel signal processor, mass storage archive and a number of Operator Workstations. The GPAS system is able to process sonar records from all naval systems, including active and passive sonar records from both surface ship and submarine systems.

Supported sensors include towed arrays, bow arrays, flank arrays, passive-ranging systems and a number of different types of sonobuoy. The GPAS features a fully user-programmer beamformer which includes a graphic user interface allowing analysts to define the position of array elements and to specify the desired beams to be formed.



Screenshot of Acoustic Analysis Software

Our Clients

Currently in use by the Swedish ([SAPPS](#)), German ([UAAS](#)) and Canadian ([CANTASS PAS](#)) navies, Array Systems' Post Analysis System is one of the most advanced sonar processors available. It incorporates advanced processing and flexible GUI tools that allow operators to easily capture the acoustic signature of the targets.

Signal Processor

The Signal Processor is the heart of the GPAS. It utilizes a cluster architecture, which allows the number of processing nodes to be scaled to meet performance requirements without any change to the software. This facilitates cost-effective upgrades to system capability to handle more channels, a higher sample rate or more numerically-intensive signal processing algorithms. On the flip-side, it allows the system to be operated in a degraded mode should an individual signal processing node fail. All the sonar signal processing algorithms in GPAS are implemented as plug-in modules, allowing the system to be readily extended to support new processing techniques. Similarly, support for input devices and for the data format of raw sonar records is implemented by means of plug-ins, so support for new vessels and sonar sets may be added easily. The Application Programmers' Interface (API) for plug-in module development allows end-users and third parties to add support for new sonar systems and new processing requirements.

Operator Workstation

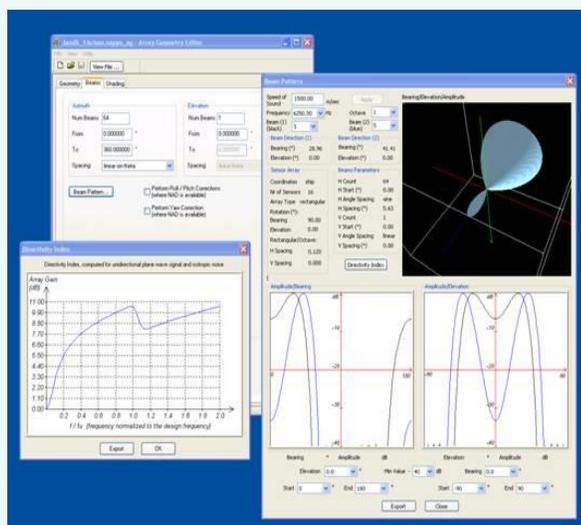
The Operator Workstation Software includes a graphical user interface allowing analysts to assemble flexible processing chains using the signal processor's plug-in modules.

The workstation provides a wide selection of different analysis displays and measurement cursors, and includes an audio monitoring facility for reviewing sonar data aurally. Optionally, the Operator Workstation Software may interface with a Target Signature Classification Database (such as Array's Acoustic Signature Classification Software) allowing automatic transfer of signal parameters, bitmap images and acoustic samples between the Operator Workstation and the database.

The GPAS supports multiple Operator Workstations. Operators may work on separate tasks or may collaborate with one-another to analyze a single large dataset.

Platform Standards

The GPAS utilizes the open source Linux operating system for the Signal Processor, and leverages the Message Passing Interface (MPI) for interprocessor communication and Vector Signal and Image Processing Library for high performance numerical computation. The Operator Workstation is based on the popular Microsoft Windows family of operating systems. The use of open-source and COTS technologies minimizes system life-cycle cost and permits easy migration of the software to new platforms as technologies evolve.



Acoustic Analysis Displays

- Autospectrum
- Bearing Time Record (BTR)
- Broadband Ambiguity Plot (BAP)
- Correlogram
- DEMON
- Frequency-Azimuth (FRAZ)
- LOFAR
- Ping History
- Plan Position Indicator (PPI)
- Spectrogram
- Tactical Display
- Time Series

Contact Us

1120 Finch Avenue West,
Suite 700, Toronto, Ontario,
Canada, M3J 3H7

Phone: +1 416 736 0900
Fax: +1 416 736 4715
Email: marketing@array.ca