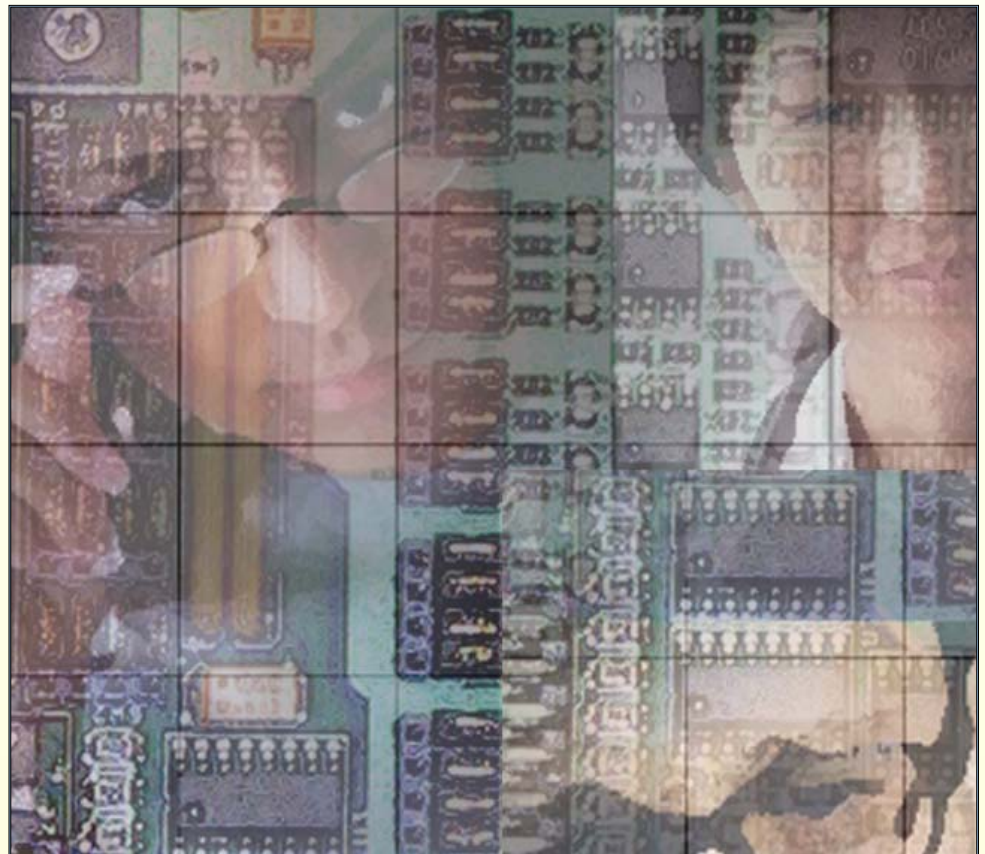



# Argon ST

Creative People Applying Advanced Technology



# Background

Argon ST provides advanced intelligence, surveillance, and reconnaissance systems to the U.S. Department of Defense and certain foreign governments. Argon ST supplies communications signals intercept and processing systems that are used to provide intelligence information to both military and international users.



These systems are highly automated and support the simultaneous interception and processing of thousands of radio signals used to convey information between military and non-military users across a broad range of frequency and signal types.

We believe the key difference between our products and those of our competitors is our products are software-based and perform on commonly available receivers, computers, and workstations. This development method has enabled the company to provide systems with wide-ranging capabilities on shorter schedules, at lower cost, and with greater reliability.

Argon ST currently provides signals intercept systems for use on ships and submarines, aircraft, military vehicles (manned and unmanned), as well as for human-portable and fixed-site requirements.

Argon ST has used the concept of a commercial software product line to develop and maintain a common suite of continuously updated software configured on the appropriate mix of hardware to meet each customer's unique needs.

This approach to software development is highly efficient, effectively manages change and upgrade requirements, provides sturdier software, and reduces developmental risk. Our customers have been willing to share our developments across agencies and governments, leading to a wide market for the company's products at lower-than-traditional cost.

The user interface to our systems provides operations with the capability to task and monitor embedded systems. Our next-generation developments aim to define a user interface framework for monitoring and controlling system components while ensuring software abstraction. This software abstraction will ensure that our software maintenance costs remain low even as cutting-edge hardware evolves.

Although initially developed to support communications signals intercept for intelligence purposes, Argon ST is currently transitioning its "software radio" approach to new uses. A software radio performs radio functions independent of the hardware on which the software operates.

Our software radio approach can also be used for intercepting and processing higher frequency non-communications (radar).

Argon ST is successful because of its talented, team-oriented, and dedicated staff. Our staff has created a collaborative work environment that encourages and rewards initiative, dedication, new ideas, and quality of work.



# Reusable Software Product Line

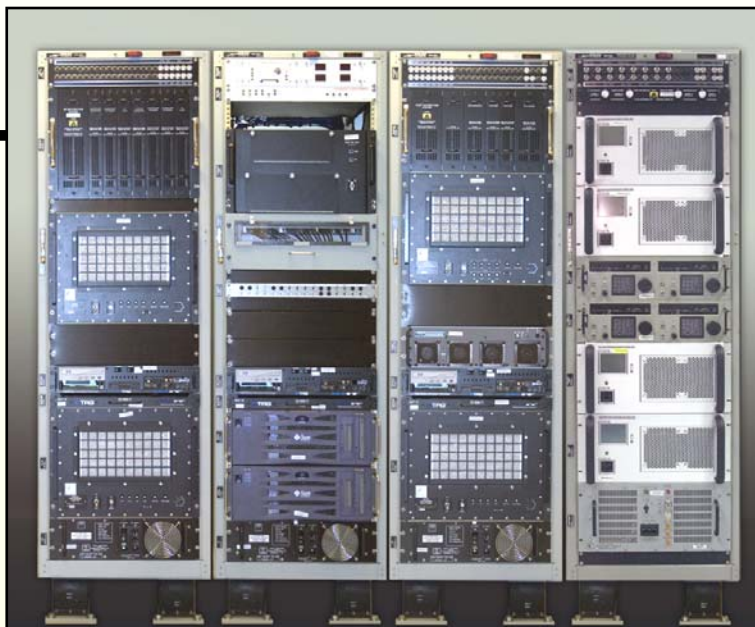
## Sharing Across All Programs

Algorithms and techniques employed in our design are founded on years of success against all types of signals and communications technology.

Signal processing modules enhanced under one system are available to all systems.

Interoperability commonality promotes efficiencies in operability.

Each system has adopted a common architecture for analysis, fusion, and dissemination of data.



AIRBORNE

MARITIME

LAND / MOBILE

SUBMARINE

# Common Sensor Architecture

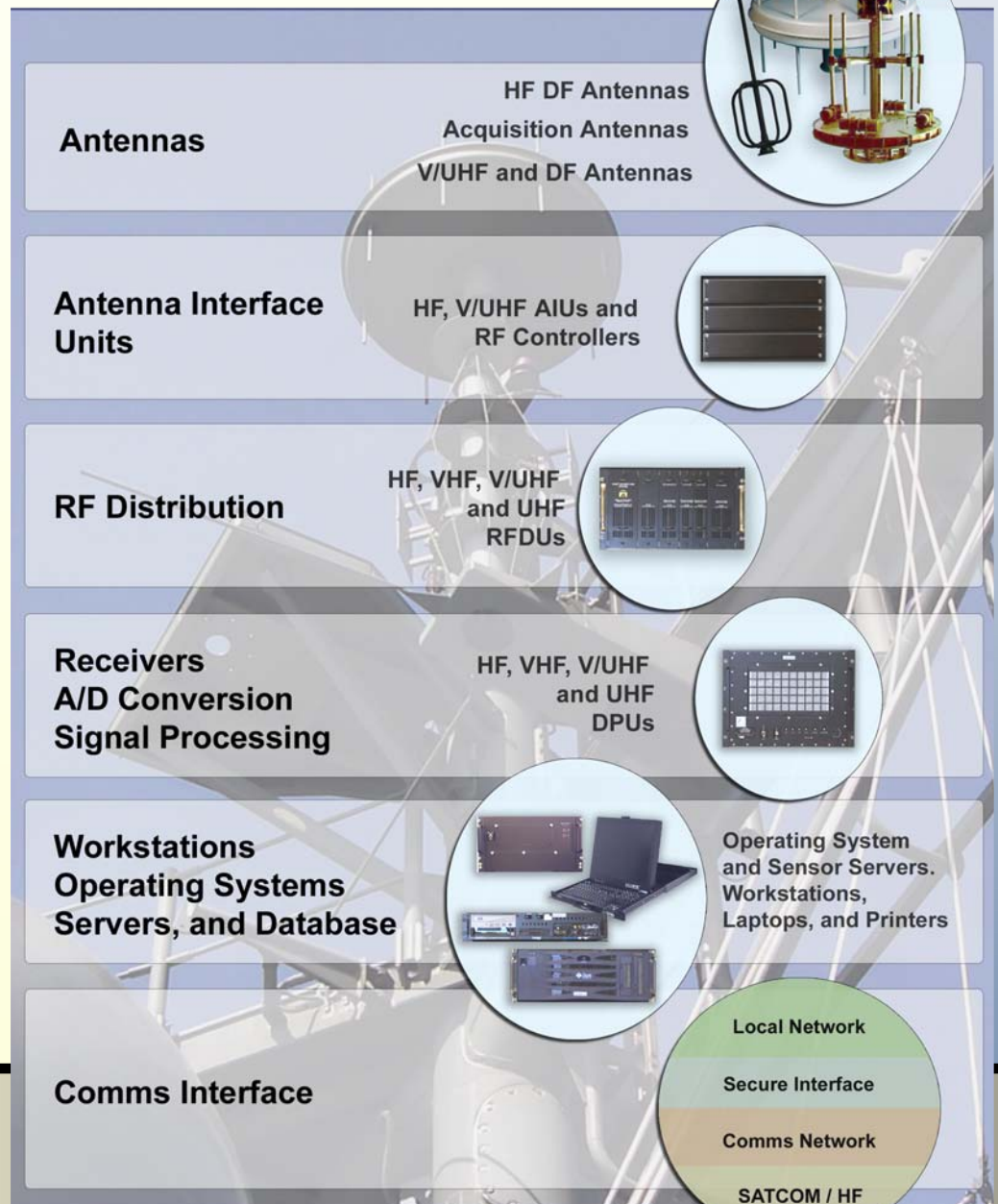
Argon ST provides COTS-based solutions that are sustainable as technology and threats evolve

Argon ST's product line development began in 1997 and has undergone both major and minor technology insertions since first system delivery in 1999. Our product line has been designed to allow each technology to be replaced at its own rate without being coupled to the technical generation of another component.

This is accomplished by maintaining industry-standard physical and electrical interfaces between components and with a software architecture that encapsulates command, control, and communications infrastructure.

This allows the instantiation of the software tailored for unique customer requirements for antennas, SWaP constraints, and follow-on processing and communications, while leveraging the product line investments in capability.

Our systems have been delivered with a wide selection of antennas and arrays for large fixed sites, and shipboard and compact submarine, aircraft, UAV, and mobile vehicles.



# Designed For Demanding Environments



MIL-STD -901D Shock Test, H.I. (High Impact)

No other cryptologic software product line can claim the success Argon ST has demonstrated in over 30 factory acceptance tests, numerous development tests, and an operational test and evaluation.

An Argon ST system was the first system to ever pass a national Tactical Interoperability Office compliancy verification.

Lighthouse systems have met NCTSI & JTIC compliancy, and Cognizant Government Security Office Accreditation. The COTS hardware that underpins the Lighthouse software has successfully passed MIL-STD-461 EMI/EMC testing: MIL-STD-901D Grade A, heavyweight (explosive shock) testing: MIL-STD-167 Type-1 vibration testing and air trials.

## System Test Results

### Rigorously tested and proven hardware and software

Argon ST-developed systems have undergone significant testing by the U.S. Department of Defense and the U.K. Ministry of Defense.



MIL-STD-167-1 Vibration Test

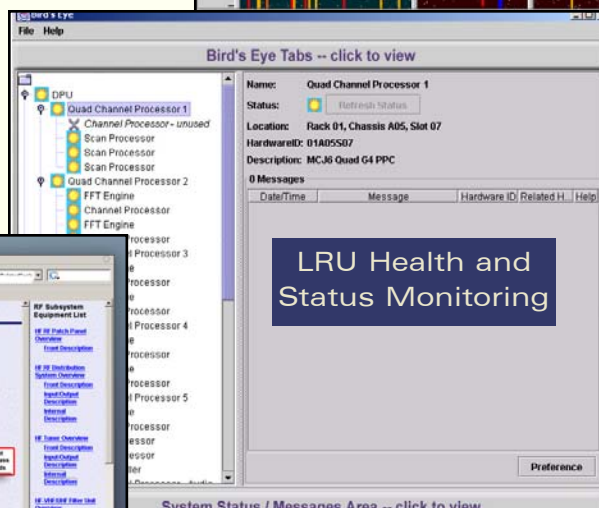
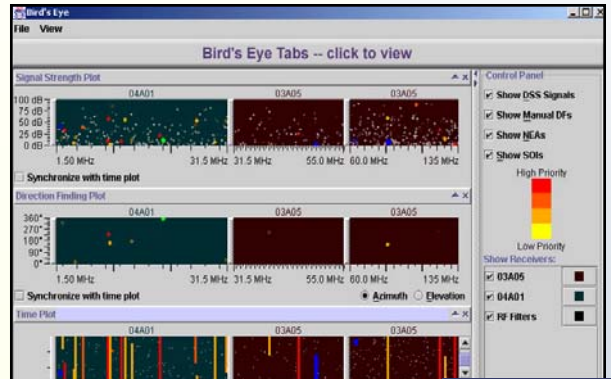
# Customer Specific Interfaces

## Graphical User Interface Designed for Ease of Use

The Argon ST software product line provides a common system platform coupled with a consistent look and feel, which enables operators to move rapidly from platform to platform without the need for familiarization or specialist courses.

The sensor technology can easily be integrated into customer's desired interfaces.

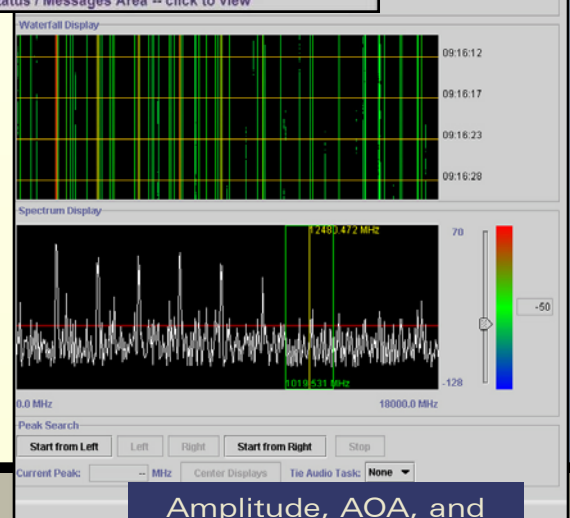
Argon ST provides training courses, coupled with on-line technical documentation and training manuals, that ensure each system can be successfully operated and maintained.



Spectrum Displays

This block contains a screenshot of an interactive technical manual for an 'HF Tuner'. The manual is titled 'UNCLASSIFIED' and 'HF Tuner Internal Description'. It features a navigation menu with 'Home', 'Operator's Manual', 'Maintenance Manual', and 'Vendor Manuals'. The main content area shows a technical diagram of the tuner's internal components. A red box highlights a 'See By Press Card' button. Below the manual screenshot is a photograph of a person's hands working on a piece of electronic hardware, likely the HF Tuner, with a manual open on top of it.

Interactive Electronic Technical Manual with Instructional Video



Amplitude, AOA, and Waterfall



# Successful Management of Complex Technologies

## Organizational Expertise

Argon ST customers benefit from significant non-recurring engineering investments, which have helped mature the software product line.

Over \$100 million have been invested by customers (including \$10 million of Argon ST R&D) to establish the product infrastructure and add new capabilities.

Additionally, the product line process improvements, such as CMM 3 and transitioning to CMMI Level 3, Software Engineering Institutes Product Line Practice 4.0 compliance, and ongoing integration and test process improvements demonstrate Argon's commitment to continuing to enhance our software development practice to deliver the best value, technical performance and stability to our customers.

## Technical Expertise

Our staff is comprised of professionals with a mixture of educational disciplines and experience, with two-thirds of the engineers holding advanced degrees. Our staff has technical expertise in the following disciplines:

Systems Engineering: Parallel Architecture, Multi-processors, Real-time Control, Direction Finding, Communication Systems, Reconnaissance Systems.

Platforms / OS: UNIX (Solaris, HP-UX, Digital), Linux, Windows NT, VxWorks.

Standards: CORBA, IEEE/EIA 12207.

Languages: C/C++, Java/Java Beans, XML, HTML, SQL, PERL, Open GL.

RF and Hardware Systems: COTS/Custom Environments, Antenna/RF Distributions, Receivers, EMI/RFI.

Engineering Methodologies/Processes: Object-Oriented Design, Planning and Estimation, Requirements Management, Configuration Management, Peer Review.



# A Wide Range of Sensor Technologies

## Communications

A best-of-breed signal intercept provider, Argon ST delivers communications ESM sensors for use on ships, submarines, aircraft, and military vehicles (manned and unmanned). These sensors can be human-portable or designed for fixed sites.

## Acoustic

Argon ST production systems delivers torpedo countermeasures systems to over 300 installations world-wide, providing passive and active detection, location, and threat identification of torpedoes and other acoustic targets.

## Electronic Warfare Technology

A world-class provider of combat electronics, Argon ST provides integrated sensors for threat warning, ESM, and ELINT across the full RF spectrum with state-of-the-art performance.



argon ST

# Providing Power to the Edge

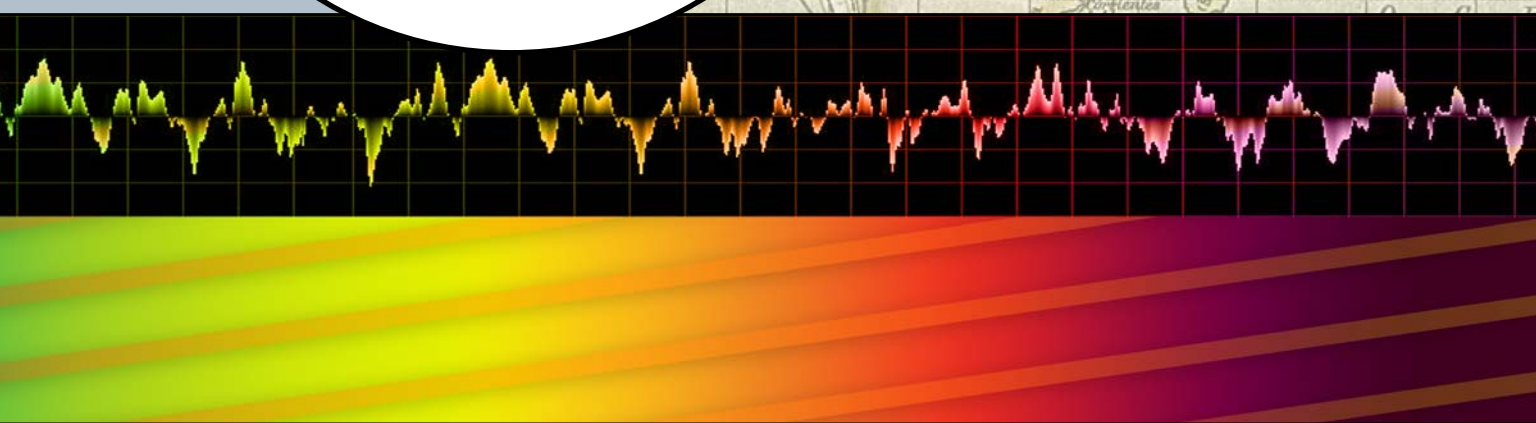
Argon ST sensors are designed to take advantage of the global information grid and provide a distributed network of sensors to support persistent ISR across the entire electromagnetic spectrum.

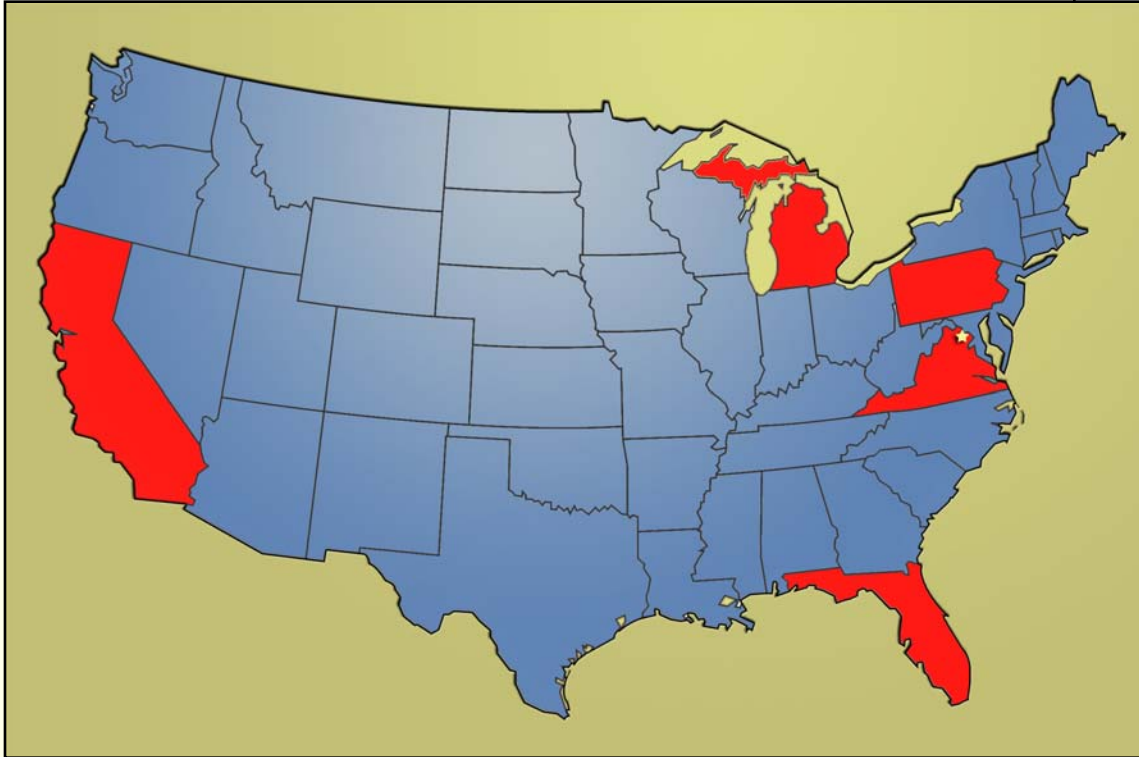
## Multispectral and Hyperspectral

A leader in environmental remote sensing technology, the Argon ST imaging group develops and manufactures hyperspectral and multispectral sensors. With expertise in imagery and interpreted results, Argon ST delivers solutions for natural disaster and hazard management; defense applications, homeland security, and surveillance; and environmental monitoring and protection and infrastructure assessment and management.

## Imagery

The Argon ST imaging sensors group provides a wide range of detection and surveillance systems with capabilities for visible imaging and thermal imaging. These systems deliver exceptional image resolutions, employing advanced digital image processing techniques to meet the demands of airborne reconnaissance, perimeter security and surveillance, vehicle and human-portable reconnaissance, and coastal watch and navigation.





## Contact Information

Argon ST  
12701 Fair Lakes Circle  
Fairfax, VA 22033  
Phone 703-322-0881  
Fax 703-322-0885  
[www.argonst.com](http://www.argonst.com)

