

# RANGE INSTRUMENTATION RADAR UPGRADE AND SERVICE LIFE EXTENSION PROGRAM

**BAE Systems offers cost-effective modifications and upgrades to improve performance and extend the operational life of existing radar systems. Comprehensive upgrade programs have been developed for specific types of radar systems including the AN/MPS-25, AN/MPS-36, AN/FPQ-6, AN/TPQ-39, NIKE systems and the AN/FPS-16. Upgrade features include the following:**

- Interactive operator's console
- Central VME computer control
- Color graphics
- Radar Signal Processor (RSP) (provides coherent on receive digital processing)
- Windows-based operator communications terminal
- Transmitter control from the console
- Automatic acquisition
- Laser rangefinder integration
- Solid state transmitter (both magnetron and CFA based)
- Pedestal refurbishment
- Computer-assisted servo system
- Custom software packages
- Remote console

## KEY FEATURES

Reduction in:

- Number of operators
- Maintenance costs
- Mission set-up time
- Operator errors

Increases in:

- System life span
- Data accuracy and reliability
- System availability (MTBF)
- Types of data products to customers
- System capability

BAE Systems has an extensive background in operation, maintenance, modernization and upgrade of precision instrumentation radar systems. The RIR-716 and the more current RIR 980 upgrade increases reliability and eases operation and maintenance of existing AN/FPS-16 radar, thereby improving performance, increasing supportability and reducing life cycle costs.

**BAE SYSTEMS**

INSPIRED WORK

## ABOUT US

At BAE Systems, Inc. in the United States, our employees design and deliver advanced defense, aerospace and security solutions that keep the nation at the forefront of modern technology. Our pride and dedication show in everything we do, from innovative electronic systems to intelligence analysis and cyber operations, from combat vehicles and weapons to the maintenance and modernization of ships, aircraft and critical infrastructure.

## FOR MORE INFORMATION

BAE Systems  
557 Mary Esther Cut-Off, NW  
Fort Walton Beach, FL 32548  
Telephone 850-664-1354  
Fax 850-664-1365  
www.esdradar.com  
esdinfo@baesystems.com

# TYPICAL SYSTEM CONFIGURATION

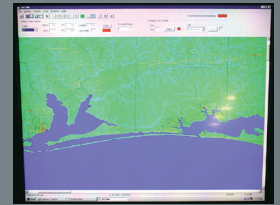
## RADAR SIGNAL PROCESSOR

The 3-channel Radar Signal Processor (RSP) provides state-of-the-art digital filtering techniques for signal processing. The RSP subsystem combines the functions previously provided by the Digital Moving Target Indicator Receiver and Intelligent Range Tracker in a single VME solution. It accepts 3-channel monopulse IF inputs, digitizes the 30 MHz IF, and produces filtered angle error and target range information. Additionally, it incorporates Doppler processing to reduce the effects of stationary clutter. This subsystem works with magnetron-based transmitters in a coherent-on-receive mode and with CFA-based transmitter in a fully coherent mode.



polygon, label) at precise geographical locations. The operator may also zoom the map view in or out and pan the view in any direction using the mouse.

The PC-based system consists of three main windows; the main operator interface window which displays the background map, the menus, and the toolbar buttons, the RIR data display window and the Ground Range VS Altitude Plot window. The RIR data window and the plot window may be displayed or closed at any time.



## INTERACTIVE CONSOLE

The Interactive Console is the prime man-machine interface for the current line of a tracking systems and provides all the controls and indicators required for normal operation and control of the system. Any interactive computer subsystem associated with the system is "transparent" to the radar operator. Interaction with the computer subsystems occurs automatically through the use of dedicated console and does not require access through a keyboard terminal during the course of a mission. This console is made up of LCD monitors incorporating the latest multiple window and touch-screen technology. The design also includes the capability of adding a remote console.

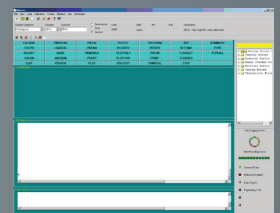


## CENTRAL VME COMPUTER CONTROL

A combination of our field-proven VME host computer technology and recently developed VME subsystem technology allows us to introduce a more efficient, comprehensive and cost-effective means of upgrading commonly used instrumentation class radar systems. The VME upgrade replaces existing hardware with new state-of-the-art, VME-based computer, disk drive, serial interfaces, Operator Communications Computer (OPCOM) and specific VME interface cards to emulate the existing bus controller. Starting with a host VME computer upgrade, BAE Systems offers a foundation platform for expansion to meet long-term requirements. Utilizing Commercial-Off-the-Shelf (COTS) boards and 'C' language, allows the new computer system to be easily maintained and upgraded. This new product line is specifically tailored for an electronic subsystem upgrade of RIR-series computer-based instrumentation radar systems.

## WINDOWS-BASED OPERATOR COMMUNICATIONS TERMINAL (OPCOM)

Replaces the existing OPCOM with a new generation Graphical User Interface. OPCOM employs a Windows-based personal computer to present the GUI. While the look and feel of OPCOM is similar to its predecessor, it has expanded capabilities. The environment is similar to the Microsoft Windows environment and as such, provides an intuitive point and click interface. Major features of the OPCOM window include pull-down menus, tool bar, OPCOM command icons, I/O history window and Status and Error Message window.



## COLOR GRAPHICS (SCENARIO VISUALIZATION)

The Scenario Visualization system displays radar tracked data textual information as well as historical traces of tracked objects superimposed over geographically references maps. The background map is the operational focus of the Scenario Visualization system. Images can be created and geographically referenced by the operator using aerial photographs, satellite images, and/or commercially available geographic data sets for background maps. The Scenario Visualization system supports eight types of geographical data sources. The system provides drawing wizards to render annotation primitives (point, line, circle,