

- All capabilities of the existing computer system are maintained or exceeded, including continued operation of the existing data output links and various computer interfaces.

- Existing equipment diagnostic capabilities is maintained or improved.

- The VME Upgrade consists of commercial-off-the-shelf (COTS) equipment manufactured by various VME and peripheral vendors.

BAE SYSTEMS offers cost effective modifications and upgrades to improve performance and extend the operational life of older radar systems. The VME upgrade replaces existing Data General hardware with a new state-of-the-art, VME-based computer, disk drive, serial interfaces, Operator Communications Computer (OPCOM), and specific VME interface cards that will emulate the existing Data General bus controller. Commercial-off-the-shelf (COTS) boards are utilized in the VME computer and the radar program is written in the "C" language, allowing the new computer system to be more easily maintained and upgraded.

Numerous benefits of a VME Computer upgrade are realized:

- Economical upgrade
- Reduced future maintenance cost over original system
- Minimal impact to the system
- Requires minimal retraining for maintenance personnel
- Provides new state-of-the-art COTS computer and peripheral equipment
- Software enhancements to original software
- Retains the original system interfaces

The computer and peripheral equipment are provided as the heart of the radar and will function as the main control point for the systems. These functions include data handling and processing, system mode control and processing, error detection and correction, range and angle filtering, and control intersystem communication, timing, angle scan generation, and acquisition control.

VME Processor Equipment Provided

- 20-slot VME Chassis
- Multi Gigabyte SCSI-2 disk drive
- 250 megabyte SCSI 1/4" tape drive
- 32-bit VME processor
- Digital I/O Card
- Change of State Card
- Serial controller board

Host VME processor Equipment

(External Peripherals)

- LaserJet Printer
- Windows-based PC for Operator's terminal

Technical Services

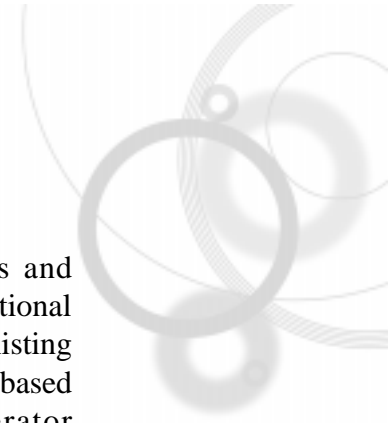
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VME Computer System and Radar Program Software

The Lynx OS Real-Time UNIX operating system is provided as the basis of the radar computer system. Delivered software includes compilers, assemblers, linkers, text editors, and other utilities necessary to develop and maintain the radar or other programs.

The upgraded radar software is written in the “C” language and performs all critical mission radar functions such as tracking, mode control, data display, and real-time data output as well as non-critical functions such as radar calibration, data playback, and program development.

Several general classes of software programs are provided:

- All of the executive/utility software necessary to develop and load object programs (includes disk-resident operating systems, assemblers, compilers, linkers, editors, etc.)
- Real-time programs that accept the input, provide data corrections, and produce outputs.
- Diagnostic programs to test the computer, its interface, and peripherals.
- Calibration programs to test radar functions and provide output for analysis.
- A full complement of data processing programs.

Radar Program Output Data: Azimuth, Elevation and Range (AER) data are output in raw and corrected formats. Raw data is corrected for encoder and range biases, and corrected data is corrected for skew, droop, non-orthogonality, mislevel, range bias, and encoder bias.

Disk Recorded Data

Mission Date and ID
Radar ID
Time of Day (DOY:HH:MM:SS)
Recording Rate
Calibration Data
System Modes Data (including Plunge Bit)
State Position Vectors (XYZ)
Corrected AZ, EL
Corrected Range
Target Altitude
AZ, EL RF Track Error
Range RF Track Error
Signal-to-Noise
Auto Track Bit (automatically selected when the radar system is in full auto RF track mode)
Additional floating point system variables (Operator selectable)

Laser Printer Playback Data: A disk file recorded in real-time on the radar plays back to the computer for use with the laser printer.

Radar Program Calibration Routines: The calibration software includes programs to automatically provide constants for real-time mission operations and help examine radar system performance before a real-time mission. Software is provided to select at least five pre-programmed computer-generated calibration tests, including two automatic mislevel calibrations, star calibration, and various slew calibrations. In all cases, the computer calibration data is stored in memory and on disk for future radar data corrections, printout, and other purposes, including mount motion characterization and on-axis tracking.