



VME UPGRADE

The VME Upgrade replaces existing computer (i.e. 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 can emulate existing Data General bus controller.

VME UPGRADE

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 Disk Drive
- SCSI 1/4" Tape Drive
- 32-bit VME Processor
- Digital I/O Card
- Analog Converter
- Serial Controller
- Time Code Generator (GPS/IRIG-B)

Host VME processor Equipment

(External Peripherals)

- LaserJet Printer
- Windows-based PC for Operator's Communication
- ROM Flash Version (no hard drives) available for applications needing high levels of data security

KEY FEATURES

- 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 are maintained or improved.
- The VME Upgrade consists of COTS equipment manufactured by various VME and peripheral vendors.

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.

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TYPICAL SYSTEM CONFIGURATION

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, nonorthogonality, mislevel, range bias, optical offsets 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 and Raw AZ, EL
- Corrected and Raw 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/TVT 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 realtime 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. Data Recording and Analysis can be hosted on physically separate PC (maintenance laptop).