Software Product Description

PRODUCT NAME: **MicroVAX 2000/VAXstation 2000 Diagnostic Package**   SPD 25.C3.00

DESCRIPTION

The entire set of diagnostic functionality for the MicroVAX 2000 and VAXstation 2000 is integrated into the system's ROM based functionality. The following is a description of that functionality and is described in three parts.

Part I describes functional diagnostic tests that are automatically invoked each time the system is powered on. Part II describes additional diagnostic tests and maintenance utilities that can be invoked by the customer. Part I and II diagnostic functionality are protected by copyright and are not subject to licensing. Part III describes Digital Equipment Corporation, Field Service diagnostic tests and maintenance utilities that require a Diagnostic Software License and service maintenance package in order to invoke and execute.

Part I – Functionality Executed On Power-Up

Functional tests are run on each system power-up that check basic system hardware operation. The console display terminal will show a hexidecimal count down beginning at "F" and counting down to "1". Tests are performed on power-up in the following sequence:

* Base video subsystem tests (VAXstation 2000 only)
* Time of Year Clock
* Battery/NVR tests
* Serial line controller tests
* Memory tests
* Memory Management Unit test
* Floating Point Unit test
* Interval Timer test
* Disk controller test
* Tape controller test
* Interrupt controller/System I.D. ROM tests
* Daughter module option tests

Note: Daughter modules installed in the system carry their own diagnostic code that is loaded, invoked, and executed from the main system ROMs.

Part II – Extended Diagnostics/Maintenance Utilities Available to the Customer

After completion of the power on tests described above, the customer may elect to invoke one of several additional tests or maintenance utilities. These can be executed from the system monitor prompt (>>>) utilizing the following "TEST" commands:

TEST 0 – Invokes the customer runnable system exerciser. This test executes a serial string test of all devices in the system. After serial device testing has completed, a concurrent device test is executed. The test automatically configures the test based on the system's hardware configuration and will test all devices present. This test runs for two test passes and concludes with a summary table of test results.

TEST 50 – A utility that displays the hardware configuration of the system. It displays a listing of all functionality present along with status of each device on the last diagnostic executed. Additionally, this display identifies the current revision of firmware in the system as well as the system I.D. number (used as the system's hardware address when networked).

TEST 51 – Allows the user to define a default boot device for automatic bootstrapping of the system.

TEST 52 – Allows the user to set default boot flags to be used by the operating system during boot operations.

TEST 53 – Allows the user to set default recovery action flags used by the system during power up and also used by the system if an error is detected with the operating environment.

TEST 54 – Displays a language inquiry menu on the console device (VAXstation 2000 only) to allow the customer to select the appropriate keyboard type based on the country keyboard in use. On MicroVAX 2000, this function is accomplished through the language set-up utility that is part of the console terminal.

TEST 61 – Sends a full screen of E's to the console monitor display (VAXstation 2000 only) allowing a quick check of the monitor's linearity adjustments.

TEST 62 – Sends a full white screen to the console monitor display (VAXstation 2000 only) allowing a quick check of the monitor's raster as well as a check of the video controller's display memory.

digital
Software

September 1988

AE-FK45A-TE

TEST 70 – Allows the customer to format hard disk drives and RX33 floppy diskettes. RX50 diskettes need not use this utility as they come pre-formatted. If formatting a non-Digital Equipment Corporation hard disk drive, this utility goes into a query mode thus allowing the customer to enter drive parameter data prior to actually performing the format operation.

Note: Formatting destroys all user data on the disk or diskette being formatted.

TEST 71 – A disk verifier utility. This utility does a non-destructive test of hard disk formats to search for new bad blocks on the media since operating system installation and identifies any new bad blocks to the customer. This utility is for use with hard disks only.

TEST 90 – A utility that is used with systems that are connected in a network configuration. This utility, when invoked, puts the system in a test mode to provide loopback and system I.D. support to network level diagnostics run from a host or boot node. Working in combination with network level excercisers, this utility assists in verifying the system's network hardware/firmware interface is correctly functioning.

TEST 80000050 – A utility that displays all system firmware revision levels by function (i.e. self test, bootstrap code, console code, etc.).

Part III – Extended Diagnostics/Maintenance Utilities for Digital Equipment Corporation Field Service Personnel and Licensed Customers

This section describes diagnostic functionality that is proprietary to the Digital Equipment Corporation Field Service and Support organizations. This series of routines require the use of a special hardware key to invoke and execute.

TEST 60 – A utility that displays a circle/crosshatch pattern on the console monitor (VAXstation 2000 only). It is used by service personnel to check/adjust monitor linearity and aspect ratio.

TEST 72 – A utility that writes a special key on scratch floppy diskettes. After running a floppy diskette through this utility, the diskette can then be used with the Field Service system excerciser to do write testing of the floppy diskette subsystem. Floppy diskettes used with the system excerciser that do not have this special key written on the media will do a read test only.

TEST 73 – A utility that writes a special key on a scratch TK50 COMPACTape. After running the COMPACTape through this utility, the cartridge can then be used with the Field Service system excerciser to do write testing of the TK50 subsystem. Cartridges used with the system excerciser that do not have this special key written on the media will do a read test only.

TEST 101 – Executes the Field Service mode system excerciser. This test excercises each device once sequentially and then excercises all devices concurrently. This sequence is executed for two complete passes of all system devices present in the configuration. Loopback

connectors and test media are required to optimize test coverage with this routine. This test automatically stops after two complete passes and displays a test summary.

TEST 102 – Executes the Field Service mode system excerciser. It excercises all devices in the system configuration in the same sequence as described for Test 101. However, when Test 102 is invoked, the sequence is repeated continuously until the user types CONTROL/C at the system console. When CONTROL/C is typed, the test terminates at the conclusion of the current test pass and displays a test summary. Note that the user must allow this test to run for at least two complete passes before typing CONTROL/C.

TEST 80000106 – Allows the Field Service Engineer to select individual device tests from the total test used in Test 102 described above. Whichever device tests are enabled and executed run in a continuous loop until CONTROL/C is typed at the system console. As with Test 102, the user must allow this test run for at least two complete passes before typing CONTROL/C.

HARDWARE REQUIREMENTS

The above described diagnostic functionality runs on a minimum system hardware configuration consisting of a valid console device, an H7848 power supply, and a KA410 system module (includes 2 Mbytes of RAM memory).

OPTIONAL HARDWARE

Ethernet Controller (comes standard with all VAXstation 2000 systems)

2 Mbyte Memory Daughter Module

4 Mbyte Memory Daughter Module

6 Mbyte Memory Daughter Module

12 Mbyte Memory Daughter Module

SOFTWARE REQUIREMENTS

None

SOFTWARE WARRANTY

THIS PRODUCT IS PROVIDED **"AS IS"** WITHOUT ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED.

ORDERING INFORMATION

The Single-use Licensed diagnostic package is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions which provide, in part, that the Software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of DIGITAL's copyright notice and any proprietary notices on the software) for use on the same CPU.

You will need a separate license for each CPU on which you will be using the product (except as otherwise specified by DIGITAL). Then, Materials and Service Options are selected to utilize the product effectively. The License options are described below.

MicroVAX 2000/VAXstation 2000 Diagnostic Package   **SPD 25.C3.00**

ORDERING INFORMATION

ZNAGX-UZ   MicroVAX   2000/VAXstation   2000
            End-User License Only

ZNAGX-HW   MicroVAX 2000/VAXstation 2000 Service
            Maintenance Package

LICENSE OPTIONS

For your first installation of this software product you
must purchase as a **minimum:**

● Single-Use License Option

The single-use license gives you the right to use the
PART III extended diagnostics/maintenance utilities on a
single CPU.

● Distribution and Documentation (Service Maintenance
  Package)

The Distribution and Documentation Diagnostic Package
provides the Special Hardware Key (Maintenance Guide,
blank media, loopback and Ethernet connectors) to oper-
ate the Part III Extended diagnostics. You must have, or
order, a Single-Use License to obtain this option. You will
need this option to install and use the Part III Extended
diagnostic software.

Miscellaneous Options

Maintenance Documentation Service (MDS) - Microfiche
documentation library

MD-VAX   Maintenance Documentation and Diag-
              nostic Listings for VAX Systems
              (Library Only)

MD-VAX-R   Subscription   Update   Service   for
              MD-VAX

MD-VAX-D   Maintenance Documentation for VAX
              systems (Library Only)

MD-VAX-DR   Subscription   Update   Service   for
              MD-VAX-D

MD-VAX-L   Diagnostic Listings for VAX Systems
              (Library Only)

MD-VAX-LR   Subscription   Update   Service   for
              MD-VAX-L

DEC-O-LOG   Microfiche

MD-MFDOL-00   Field Change Order notification service
              for all systems (initial subscription in-
              cludes one year of updates).

MD-MFDOL-R   Subscription   Update   Service   for
              MD-MFDOL-R (Renewal of initial sub-
              scription).