## IDENTIFICATION

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|---|---|
| PRODUCT CODE: | MAINDEC-8E-D1FB-D |
| PRODUCT NAME: | PDP-8E EXTENDED MEMORY ADDRESS TEST (EA8E) |
| DATE: | JUNE 14, 1971 |
| MAINTAINER: | DIAGNOSTIC GROUP |
| AUTHOR: | VERNON FREY |

## 1. ABSTRACT

The PDP-8E Extended Memory Address Test is designed to detect any location that cannot be uniquely addressed. This is performed by a series of four test routines which will test systems equipped with from 8K to 32K words of core memory. Automatic program relocation is provided in order to test all memory fields from each memory field. Teletype print-outs are provided for error identification, and the operator is given a degree of control over the program by various SR settings.

## 2. REQUIREMENTS

### 2.1 Equipment

A PDP-8E computer equipped with a minimum of 8K words of core memory.

### 2.2 Storage

The program occupies core locations ØØØØ to 3777.

### 2.3 Preliminary Programs

The Binary Loader must be in memory. Also, all diagnostics for a basic 4K PDP-8E must have been previously run successfully.

## 3. LOADING PROCEDURE

Load the program with the Binary Loader (BIN). The program may be loaded into any desired core stack by having BIN in that core stack.

## 4. OPERATING PROCEDURE

### 4.1 Program and Operator Action

A. Set the SR to the INSTRUCTION FIELD and DATA FIELD of the stack which contains the program.

B. Press key EXTD ADDR LOAD.

C. Set the SR for desired starting address according to the following table.

| ADDRESS | TEST EXECUTION |
|---|---|
| ØØØØ | Run all tests |
| ØØØ1 | Run only test 1 |
| ØØØ2 | Run only test 2 |
| ØØØ3 | Run only test 3 |
| ØØØ4 | Run only test 4 |

D. Press keys ADDR LOAD, CLEAR, and CONT. A setup SR message will be printed.

E. Set the SR for desired operation according to the following table.

| SWITCH | Ø (down) | 1 (up) |
|---|---|---|
| SRØØ | continue after error | halt after error |
| SRØ1 | typeout errors | inhibit error typeouts |
| SRØ2 | normal | TTY bell on error |
| SRØ3 | relocate program | inhibit program relocation |
| SRØ4 | normal | change stack limits |
| SRØ5 | normal | halt after current test |
| SRØ6-Ø8 | starting stack limit (Ø-7) | |
| SRØ9-11 | ending stack limit (Ø-7) | |

set to ØØØ2

F. Press key CONT.

### 4.2 Detailed SR Explanation

SRØØ-Ø2 SRØ2, if set, will ring the TTY bell once for each error. SRØØ and SRØ1 have no effect with SRØ2 set.
SRØ3 SRØ3 may be set or reset at any time and the program will act accordingly
SRØ4 SRØ4 allows the operator to change the stack limits as defined by SRØ6-11.
SRØ5 SRØ5 is normal halt for program
SRØ6-Ø8 These switches define the starting stack limit (normally Ø).
SRØ9-11 These switches define the ending stack limit (normally 7)

4.3 Example of Selecting Stacks for Test

Example 1: SR = ØØØ7, 28K system

Stacks selected for testing are 6,5,4,3,2,1,Ø

Example 2: SR = ØØØ4, 28K System

Stacks selected for testing are 4,3,2,1,Ø

Example 3: SR = ØØ22 28K System

Stacks selected for testing are 2
(No relocation will occur)

Example 4: SR = ØØ41 28K System

Stacks selected for testing are 6,5,4,1,Ø

NOTE 1: Stacks not in the system are automatically de-selected as is Example 1. Stack 7 is not present therefore not selected.

NOTE 2: A single stack can be selected for testing providing the program is not in that stack as in Example 3.

NOTE 3: Any stack or group of stacks can be by-passed as in Example 4. Stacks 2 and 3 are not selected, stack 7 is not present.

5. ERRORS

The contents of a given memory test location should always be equal to its address or the complement of its address. If it is not, a test error will result. A relocation error will occur if the relocation comparison check fails.

5.1 Test Error Typeouts

For the first error encountered a header will be typed out followed by the pertinent data. For all subsequent errors, only the pertinent data will be typed. The format is as follows:

PR LOC ADDR GOOD BAD TEST

PR LOC = the program address where the error JMS occurred. (Includes Field)