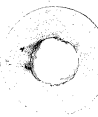
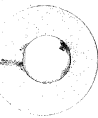
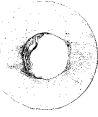


IDENTIFICATION

PRODUCT CODE: MAINDEC-08-DIEC-D  
PRODUCT NAME: PDP-8, 8/I EXTENDED MEMORY  
CHECKERBOARD  
DATE CREATED: NOVEMBER 1, 1971  
MAINTAINER: DIAGNOSTIC GROUP  
AUTHOR: J. RICHARDSON - J. VROBEL

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1. ABSTRACT

The PDP-8, 8/I Extended Memory Checkerboard diagnostic is designed to provide worst case half-select noise conditions in order to determine the operational status of core memory. Four data patterns, and their complements, are written and checked for error. The patterns provided will generate the worst case noise conditions for a PDP-8 or 8/I equipped with standard or specially purchased core stacks, and will test systems equipped with from 8K to 32K words of core memory. Automatic program relocation is provided in order to test all memory stacks from each stack.

Teletype print-outs are provided for error identification. Also, the operator is given a degree of control over the program by various SR settings. These are explained in detail in Section 8.2.

2. REQUIREMENTS

2.1 Equipment

A standard PDP-8 or 8/I equipped with at least 8K words of core memory.

2.2 Storage

The program occupies locations 0010 to 3334.

2.3 Preliminary Programs

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

3. LOADING PROCEDURE

- a. Turn off the Teletype reader.
- b. Set the SR to 7777.
- c. Press LOAD ADDRESS; then START.
- d. Place the Binary tape in Teletype reader and turn on the reader.
- e. When the program has been loaded, stop the computer, turn off the reader, and remove the tape.

#### 4. STARTING PROCEDURE

##### 4.1 Starting Address

Start from address 200 to specify the amount of core memory to test; SR settings, and to receive a header print-out.

##### 4.2 Restarting Address

Start from address 207 to change the test limits; SR settings, and to inhibit the header print-out.

##### 4.3 Operator Action

Immediately after starting from address 200 or 207, the program will print TEST LIMITS. The operator must then specify, via the Teletype keyboard, the amount of core memory to test, followed by a carriage return.

The following rules govern the amount of memory to test:

- a. Type two octal numbers, separating the numbers with a comma. The first number signifies the lowest order 4K stack to test; the second signifies the highest order.
- b. The program expects the 4K stacks to be numbered sequentially starting with a stack 0.
- c. If the highest order stack to test is typed as the first stack, the program will interchange the two values so as to make the second value the first to test.
- d. After typing the second octal number, press the carriage return key to terminate the line.
- e. The program will test the lowest and highest order 4K stack specified, plus every stack between, starting with the lowest specified.
- f. Any single stack, or two or more sequential stacks may be specified.
- g. The stack containing the program may be included when specifying two or more stacks.

The stack containing the program will be tested after automatic program relocation takes place (see Section 5.3.1).

- h. If a typing error is made, press the RUB-OUT key. TEST LIMITS will be printed again. All previous input is disregarded.

For the following examples assume the program to be located in stack 0, and the program has been started from address 200 or 207. The amount of core memory available is 32K.

Example A:

TEST LIMITS

0,7↵ (↵ denotes carriage return)

Example A indicates stacks 0, 1, 2, 3, 4, 5, 6 and 7 will be tested.

Example B:

TEST LIMITS

7,0

The program will perform exactly as Example A.

Example C:

TEST LIMITS

4,5

Only stacks 4 and 5 will be tested.

Example D:

TEST LIMITS

3,3

Stack 3 alone will be tested.

Example E:

TEST LIMITS

0,0 PROGRAM IS LOCATED IN FIELD 0

TEST LIMITS

0,1

Example E shows the message printed by the program when a single stack is selected which currently contains the program. TEST LIMITS is printed again, and the operator must then correct the test limits.

Operation of the program is unpredictable if the amount of memory selected for testing exceeds the actual amount available, i.e., selecting 32K for testing on a PDP-8 or 8/I equipped with a maximum of 28K.

#### 4.3.1 Setup SR

After the test limit is specified, the program will print SETUP SR. For normal program operation, the SR must be set to equal 0000g. Press the carriage return key after setting the SR to 0000. The program will then run until stopped by the operator. Normal program operation is defined as performing all four checkerboard patterns on all of available memory from every memory stack.