

#### IDENTIFICATION

PRODUCT CODE: MAINDEC-08-D1AC-D  
PRODUCT NAME: PDP-8 Memory Power On/Off Test  
DATE CREATED: September 16, 1968  
MAINTAINER: Diagnostic Group  
AUTHOR: M. Horovitz  
PREVIOUS CODE: MAINDEC 829



1. ABSTRACT

This program is a Memory Data Validity Test to be used after a simulated power failure.

2. REQUIREMENTS

Storage

Memory locations  $0001_8$ -- $7477_8$

Subprogram and/or Subroutines

RIM

Binary Loader

Equipment

PDP-8 Processor, keyboard reader, and Teleprinter

3. USAGE

3.1 Loading

Normal binary tape loading procedures are to be used with this program.

3.2 Start up and/or Entry

Load address 0014 and press START.

The program should then halt at  $0042_8$ .

Load address 0001 and press START.

The program should now loop.

3.3 Errors in Usage

Errors detected by the program cause the program to halt at memory address  $0055_8$ . The contents of memory addresses  $0011_8$  and  $0012_8$  indicate the addresses of the data that failed to check-sum. Memory addresses  $0007_8$  and  $0010_8$  contain the data words that failed to check-sum.

Lower Address =  $(0011_8) = 100_8 - 3677_8$

Upper Address =  $(0012_8) = 3700_8 - 7477_8$

Lower Error Word =  $(0007_8) = 2525_8$

Upper Error Word =  $(0010_8) = 5252_8$

3.4 Error Recovery

Press CONTINUE to test for other error words in memory.

Reload address  $0020_8$  to restart the entire program.

#### 4. DESCRIPTION

##### 4.1 Discussion

This program tests memory for bit drop out and pick up after a simulated power failure has occurred.

By starting the program at memory address  $0014_8$ , data words consisting of  $2525_8$  are written into memory locations  $0100_8$ -- $3677_8$ , and the data words consisting of  $5252_8$  are written into memory locations  $3700_8$ -- $7477_8$  after which the program halts at memory address  $0042_8$ . Load address  $0001$  and re-start the program; the program will 2's add the contents of memory location  $0100_8$  with  $3700_8$ . If the result equals  $7777_8$ , the program will 2's add the contents of memory locations  $0101_8$  with  $3701_8$ , etc. until the memory addresses of  $3677_8$  and  $7477_8$  are tested. The program stays in the 2's add compare loop until an error occurs. Concurrently cycle the power to the PDP-8 off and on. After the power has been reapplied to the PDP-8, load address  $0001_8$  and press START. If an error occurred during the power cycling, the program halts at location  $0056_8$ . The program may be restarted at memory address  $0001_8$  as many times as desired. Restart address to fill memory is  $0020_8$  not  $0014$ .

##### 4.2 Examples and/or Applications

A HALT occurs at memory address  $0055_8$ .

Address  $0007_8 = 2505_8$  (Data Word)

Address  $0010_8 = 5252$  (Data Word)

Address  $0011_8 = 0101$  (Address Word)

Address  $0012_8 = 3701$  (Address Word)

Bit 7 was dropped at memory address  $0101_8$ .

#### 5. EXECUTION TIME

1 msec/loop

/4 MEMORY POWER ON OFF TEST

0001  
 0001 5001  
 0002 0002  
 0003 0003

JMP 1 /START AFTER POWER UP  
 2  
 3

0014  
 0014 1072  
 0015 3000  
 0016 1073  
 0017 3001

\*0014  
 IAU PATCH  
 UCA 0  
 IAU PATCH+1  
 UCA 1

0020 4022  
 0021 5030  
 0022 0000  
 0023 1065  
 0024 3011  
 0025 1066  
 0026 3012  
 0027 5422

START, JMS SETUP /START INITIAL  
 JMP WRKUN  
 0  
 IAU K00//  
 UCA 11  
 IAU K56//  
 UCA 12  
 JMP 1 SETUP

0030 1070  
 0031 3411  
 0032 1071  
 0033 3412  
 0034 1011  
 0035 7040  
 0036 1066  
 0037 7040  
 0040 7640  
 0041 5030

WRKUN,  
 IAU JPREG  
 UCA 1 11  
 IAU LOREG  
 UCA 1 12  
 IAU 11  
 UMA  
 IAU K56//  
 UMA  
 ULA SZA  
 JMP WRKUN

0042 7402

STEND, HLI /TURN POWER OFF AND ON

0043 4022  
 0044 7200  
 0045 1411  
 0046 3007  
 0047 1412  
 0050 3010  
 0051 1007  
 0052 1010  
 0053 7040  
 0054 7440

COMPAR, JMS SETUP /11=UPPER ADDRESS 100-3/00  
 ULA /12=LOWER ADDRESS 3/01-7/00  
 IAU 1 11  
 UCA UPPER  
 IAU 1 12  
 UCA LOWER  
 IAU UPPER  
 IAU LOWER  
 UMA  
 SZA

0055 7402  
 0056 1011  
 0057 7040  
 0060 1066  
 0061 7040  
 0062 7640  
 0063 5044  
 0064 5043

ELL, /ERROR, NO COMPARE  
 IAU 11  
 UMA  
 IAU K56//  
 UMA  
 SZA ULA  
 JMP COMPAR+1  
 JMP COMPAR