

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

/48 MUX POWER ON OFF TEST

*0001

0001
0001
0002
0003JMP 1
2
3

/START AFTER POWER UP

*0014

0014
0014
0015
0016
0017IAU PATCH
UCA 0
IAU PATCH+1
UCA 1

START,

0020
0021
0022
0023
0024
0025
0026
0027JMS SETUP
JMP WRKUN
0
SETUP,

/START INITIAL

SETUP,

IAU K00//
UCA 11
IAU K36//
UCA 12
JMP 1 SETUP

WRKUN,

0030
0031
0032
0033
0034
0035
0036
0037
0040
0041IAU UPREG
UCA 1 11
IAU LOREG
UCA 1 12
IAU 11
UMA
IAU K36//
UMA
CLA SZA
JMP WRKUN

STEND,

0042

HLI

/TURN POWER OFF AND ON

COMPAR,

0043
0044
0045
0046
0047
0050
0051
0052
0053
0054JMS SETUP
CLA
IAU 1 11
UCA UPPER
IAU 1 12
UCA LOWER
IAU UPPER
IAU LOWER
UMA
SZA

/11=UPPER ADDRESS 100-3/00

/12=LOWER ADDRESS 3/01-7/00

ELI,

0055
0056
0057
0060
0061
0062
0063
0064

/ERROR , NO COMPARE

HLI
IAU 11
UMA
IAU K36//
UMA
SZA
JMP COMP+1
JMP COMP

0065	0077	K0077,	0077
0066	3677	K3677,	3677
0067	7700	K7700,	7700
0070	2525	UPREG,	2525
0071	2525	LOREG,	2525
0072	0043	PATCH,	CUMPAR
0073	5400		JMP 1 0
	0007	*0007/	
0027	0000	UPPER,	0
0010	0000	LOWER,	0
			3

THERE ARE NO ERRORS

SYMBOL TABLE

CUMPAR	0043
E1	0055
K0077	0065
K3677	0066
K7700	0067
LOREG	0071
LOWER	0010
PATCH	0072
SETUP	0022
START	0020
STEND	0042
UPPER	0047
UPREG	0070
WRKON	0030

SYMBOL TABLE

UPPER	0007
LOWER	0010
START	0020
SETUP	0022
WRKON	0030
STEND	0042
COMPAR	0043
E1	0055
K0077	0065
K3677	0066
K7700	0067
UPREG	0070
LOREG	0071
PATCH	0072