

IDENTIFICATION

PRODUCT CODE: MAINDEC-8E-DIEC-D
PRODUCT NAME: MEMORY ADDRESS TEST
DATE CREATED: JUNE 11, 1974
MAINTAINER: DIAGNOSTIC GROUP
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1, ABSTRACT

MEMORY ADDRESS TEST, A RELOCATABLE PROGRAM, CHECKS FOR PROPER
MEMORY ADDRESS SELECTION ON THE PDP-8E.

2, REQUIREMENTS

2.1 EQUIPMENT

PDP-8E EQUIPPED WITH A TELETYPE

2.2 STORAGE

MEMORY ADDRESS TEST OCCUPIES LOCATIONS 7200-7507,
AFTER RELOCATING, THE TEST OCCUPIES LOCATIONS 0000-0307.

2.3 PRELIMINARY PROGRAMS

NONE

3, LOADING PROCEDURE

USE STANDARD BINARY LOADER

4, STARTING PROCEDURE

4.1 INITIAL SWITCH SETTINGS

ALL SR'S = 0 RUN ADDRESS TEST HIGH AND RELOCATE PROGRAM AFTER
1 PASS TO ADDRESS TEST LOW AND THEN RELOCATE PROGRAM TO ADDRESS
TEST HIGH, REPEATEDLY.

SR0(0) HALT AFTER ERROR PRINTOUT
SR1(1) AND SR2(0) RUN ADDRESS TEST HIGH ONLY
SR1(1) AND SR2(1) RELOCATE PROGRAM AND RUN ADDRESS TEST LOW ONLY
SR1(0) PROGRAM WILL RELOCATE AFTER A PASS
SR1(1) PROGRAM WILL STAY IN TEST AND WILL NOT RELOCATE

4.2 SWITCH SETTINGS AFTER PROGRAM IS RUNNING

SR0(0) HALT AFTER ERROR PRINTOUT
SR1(0) RUN TEST AND RELOCATE
SR1(1) RUN SAME TEST, DO NOT RELOCATE

4.3 STARTING ADDRESSES

0200 INITIALLY

RESTART ADDRESS: 0000,7200

4.4 OPERATOR ACTION

A. SET SR TO 0200 AND PRESS LOAD ADDRESS

B. SET SR FOR DESIRED OPERATION (SEE 4.1) PRESS CLEAR, THEN CONTINUE. FOR MOST CASES THE SWITCH REGISTER SHOULD EQUAL ZERO.

5. OPERATING PROCEDURE

ONCE THE PROGRAM IS RUNNING, THE STARTING ROUTINE IS GIVEN UP FOR A TEST AREA. SR0 AND SR1 ARE THE ONLY SWITCHES THAT HAVE ANY AFFECT ON THE PROGRAM. (SEE 4.2) IN ORDER TO RESTART THE PROGRAM, CERTAIN LOCATIONS MUST BE EXAMINED (SEE BELOW) TO DETERMINE WHERE THE PROGRAM IS, SINCE THE PROGRAM RELOCATES ITSELF FROM ADDRESS TEST HIGH TO ADDRESS TEST LOW AND ADDRESS TEST LOW TO ADDRESS TEST HIGH. IF ADDRESS 0000 CONTAINS A 7300 AND ADDRESS 307 CONTAINS A 7200, START THE PROGRAM AT LOCATION 0000 FOR ADDRESS TEST LOW. IF 7200 AND 7507 HAS 7300 AND 7200 RESPECTIVELY, LOAD ADDRESS 7200 AND SET DESIRED SWITCHES AND HIT CLEAR AND THEN CONTINUE.

6. ERRORS

6.1 ERROR PRINTOUTS

A XXXX 0 YYY (ERROR PRINTOUT FORMAT)

A XXXX (ADDRESS) XXXX = ADDRESS CONTAINING WRONG DATA.

C YYY (CONTENTS) YYY = CONTENTS OF LOCATION XXXX

THE CONTENTS OF AN ADDRESS SHOULD EQUAL THE ADDRESS OR THE COMPLEMENT OF THE ADDRESS

6.2 ERROR RECOVERY

ANALYSIS OF SEVERAL ERROR PRINTOUTS SHOULD ESTABLISH A MEANINGFUL PATTERN THAT WILL SINGLE OUT A PARTICULAR ADDRESS SELECTION.

IF IT IS NECESSARY TO SCOPE THE PROBLEM, THE FOLLOWING TWO INSTRUCTIONS MAY BE ENTERED IN MEMORY:

TAD (BAD LOCATION)

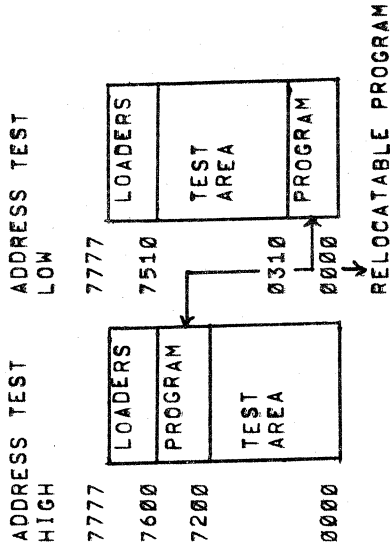
JMP .-1

7. MISCELLANEOUS

7.1 EXECUTION TIME

AFTER EVERY 96 COMPLETE PROGRAM LOOPS AN EC IS PRINTED OUT BEFORE THE PROGRAM RELOCATES, EC IS TYPED OUT TWICE, ONCE AFTER ADDRESS TEST HIGH AND THE SECOND TIME AFTER ADDRESS TEST LOW.

7.2 MEMORY MAPS



8. PROGRAM DESCRIPTION

THE PROGRAM CONSIST OF TWO PHASES WHICH OCCUR IN THE FOLLOWING SEQUENCE:

PHASE 1 LOAD MEMORY SEQUENTIALLY IN THE FORWARD DIRECTION WITH EACH ADDRESS EQUAL TO ITS CONTENTS, THEN READ AND CHECK MEMORY FOR ERRORS.

PHASE 2 LOAD MEMORY SEQUENTIALLY IN THE REVERSE DIRECTION WITH ONE'S COMPLEMENT OF EACH ADDRESS, THEN READ AND CHECK MEMORY FOR ERRORS.

IN PHASE ONE, THE CONTENTS OF EVERY LOCATION IN THE TEST AREA IS EQUAL TO ITS ADDRESS. IF AN ERROR OCCURS, THE CONTENTS WERE PROBABLY DEPOSITED INTO A WRONG ADDRESS OR MULTIPLE ADDRESSES. IN PHASE 2 THE MEMORY IS LOADED WITH THE ONE'S COMPLEMENT OF THE ADDRESS, IF THE ADDRESS OR ITS COMPLEMENT IS WRONG, A ERROR MESSAGE WILL BE TYPED OUT GIVING THE FAILING ADDRESS AND ITS CONTENTS.

BETWEEN PHASE 1 AND PHASE 2 EACH ADDRESS IS CHECKED WITH THE ADDRESS EQUAL TO ITS ADDRESS WITH ALL OTHER BITS A ZERO, AND THEN WITH THE ADDRESS BITS EQUAL TO A ZERO AND ALL OTHER BITS SET TO A ONE. THIS CHECKS EACH ADDRESS FOR BIT DROPOUT OR PICKUP OF ALL BITS OF AN ADDRESS.

SAMPLE ERROR PRINTOUT: