

IDENTIFICATION

SEO 0001

PRODUCT CODE: MAINDEC-08-DHKMA-C-0
PRODUCT NAME: POP-08 EXTENDED MEMORY DATA & CHECKERBOARD TEST
RELEASE DATE: FEBRUARY 1976
MAINTAINER: DIAGNOSTIC ENGINEERING
AUTHOR: VERNON FREY
D. MACOMBER
BRUCE HANSEN

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT CORPORATION. DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY ERRORS THAT MAY APPEAR IN THIS MANUAL.

THE SOFTWARE DESCRIBED IN THIS DOCUMENT IS FURNISHED TO THE PURCHASER UNDER A LICENSE FOR USE ON A SINGLE COMPUTER SYSTEM AND CAN BE COPIED (WITH INCLUSION OF DIGITAL'S COPYRIGHT NOTICE) ONLY FOR USE IN SUCH SYSTEM, EXCEPT AS MAY OTHERWISE BE PROVIDED IN WRITING BY DIGITAL.

DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS SOFTWARE ON EQUIPMENT THAT IS NOT SUPPLIED BY DIGITAL.

COPYRIGHT (C) 1972, 1975, 1976
BY DIGITAL EQUIPMENT CORPORATION

ABST

1.

MODIFIED TO RUN ON APT SYSTEMS, APRIL 1975.
SEE NOTES AT END OF DOCUMENT.

MODIFIED TO RUN ON CLASSIC 8 SYSTEMS (CONSOLE PACKAGE).
SEE SECTION 10.

MODIFIED TO RUN ON SYSTEMS WITH NO CONSOLE TERMINAL.
REFER TO SECTIONS STARTING AT SECTION 11 FOR PROGRAM INITIALIZATION,
OPERATING PROCEDURES, SWITCH REGISTER SETTINGS AND ERROR REPORTING.

THE PDP-8E EXTENDED MEMORY DATA & CHECKERBOARD TEST IS
DESIGNED TO DETECT MEMORY FAILURE DUE TO SENSE-LINE
NOISE UNDER WORST CASE CONDITIONS. THE FOUR WORST CASE
PATTERNS PROVIDED WILL GENERATE WORST CASE
NOISE CONDITIONS IN ALL STANDARD AND SPECIALLY PURCHASED
PDP-8E CORE STACKS, AND WILL TEST SYSTEMS EQUIPPED WITH
FROM 8K TO 32K WORDS OF CORE MEMORY. THE ALL 0'S AND ALL
1'S PATTERNS ARE PROVIDED TO IDENTIFY BASIC MEMORY FAILURES.
AUTOMATIC PROGRAM RELOCATION IS PROVIDED IN ORDER TO TEST
ALL MEMORY FIELDS FROM EACH MEMORY FIELD. TELETYPE PRINTOUTS
ARE PROVIDED FOR ERROR IDENTIFICATION, AND THE OPERATOR
IS GIVEN A DEGREE OF CONTROL OVER THE PROGRAM BY VARIOUS
SWITCH REGISTER SETTINGS.

2. REQUIREMENTS

2.1 EQUIPMENT

A PDP-8E COMPUTER EQUIPPED WITH AT LEAST 8K OF CORE MEMORY.

2.2 STORAGE

THE PROGRAM OCCUPIES CORE LOCATIONS 0000 TO 7577 IN THE PRESENT FIELD.

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 FIELD.

4. OPERATING PROCEDURE

TO START THE PROGRAM:

- A. SET THE SR TO IF AND OF OF THE FIELD THAT CONTAINS
THE PROGRAM.

- B. PRESS KEY EXT0 ADDR LOAD.
- C. SET THE SR EQUAL TO 0200.
- 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	0 (DOWN)	1 (UP)
SR00	CONTINUE AFTER ERROR	HALT AFTER ERROR
SR01	TYPEOUT ERRORS	INHIBIT ERROR TYPEOUTS
SR02	NORMAL	TTY BELL ON ERROR
SR03	RELOCATE PROGRAM	INHIBIT PROGRAM RELOCATION
SR04	NORMAL	CHANGE FIELD LIMITS
SR05	NORMAL	HALT AFTER CURRENT TEST
SR06-08	STARTING FIELD LIMIT (0-7)	
SR09-11	ENDING FIELD LIMIT (0-7)	

F. PRESS KEY CONT.

4.1 DETAILED SR EXPLANATION

- SR00-02 SR02, IF SET, WILL RING THE TTY BELL ONCE FOR EACH ERROR. SR00 AND SR01 HAVE NO EFFECT WITH SR02 SET.
- SR03 SR03 MAY BE SET OR RESET AT ANY TIME AND THE PROGRAM WILL ACT ACCORDINGLY.
- SR04 SR04 ALLOWS THE OPERATOR TO CHANGE THE FIELD LIMITS AS DEFINED BY SR06-11.
- SR05 SR05 IS NORMAL HALT FOR PROGRAM.
- SR06-08 THESE SWITCHES DEFINE THE STARTING FIELD LIMIT (NORMALLY 0).
- SR09-11 THESE SWITCHES DEFINE THE ENDING FIELD LIMIT (NORMALLY 7).

4.2 EXAMPLE OF SELECTING FIELDS FOR TEST

- EXAMPLE 1: SR = 0007, 28K SYSTEM
FIELDS SELECTED FOR TESTING ARE 6, 5, 4, 3, 2, 1, 0.
- EXAMPLE 2: SR = 0004, 28K SYSTEM
FIELDS SELECTED FOR TESTING ARE 4, 3, 2, 1, 0.
- EXAMPLE 3: SR = 0022, 28K SYSTEM
FIELDS SELECTED FOR TESTING ARE 2 (NO RELOCATION WILL OCCUR).
- EXAMPLE 4: SR = 0041, 28K SYSTEM
FIELDS SELECTED FOR TESTING ARE 6, 5, 4, 1, 0.

NOTE 1: FIELDS NOT IN THE SYSTEM ARE AUTOMATICALLY DESELECTED AS IN EXAMPLE 1. FIELD 7 IS NOT PRESENT, THEREFORE, NOT SELECTED.

NOTE 2: DO NOT SELECT A FIELD THAT CONTAINS A ROM.

NOTE 3: A SINGLE FIELD CAN BE SELECTED FOR TESTING PROVIDING THE PROGRAM IS NOT IN THAT FIELD AS IN EXAMPLE 3.

NOTE 4: ANY FIELD OR GROUP OF FIELDS CAN BE BY-PASSED AS IN EXAMPLE 4. FIELDS 2 AND 3 ARE NOT SELECTED, FIELD 7 IS NOT PRESENT.

5. ERRORS

A TEST ERROR WILL OCCUR ANYTIME THE DATA WRITTEN DOES NOT MATCH THE DATA READ. 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.. FAIL. ADR..GOOD..BAD..PATTERN
PR LOC = THE PROGRAM ADDRESS WHERE THE ERROR JMS OCCURRED.
(INCLUDES FIELD).

FAIL ADR = THE ADDRESS OF THE LOCATION IN ERROR.
(INCLUDES FIELD).

GOOD = THE DATA THAT WAS WRITTEN.

BAD = THE DATA THAT WAS READ.

PATTERN= THE PRESENT TEST PATTERN AND THE NUMBER OF TIMES IT WAS COMPLEMENTED.
NC (NOT COMPLEMENTED).
1C (ONE COMPLEMENT).
2C (TWO COMPLEMENTS).

5.2 RELOCATION ERROR TYPEOUTS

ALL RELOCATION ERRORS ARE IN THE FOLLOWING FORMAT:

XXXXX RELOCATION ERROR AT LOCATION YYYY
XXXXX = THE PROGRAM ADDRESS WHERE THE ERROR JMS OCCURRED.
(INCLUDES FIELD).

YYYYY = THE ADDRESS OF THE LOCATION IN ERROR.
(INCLUDES FIELD).

NOTE: AFTER EACH ERROR PRINT-OUT THE PROGRAM CONTINUES ON WITH THE NEXT SEQUENTIAL MEMORY LOCATION.