

IDENTIFICATION

PRODUCT CODE: MAINDEC-08-DJEXC-B-D
PRODUCT NAME: 4K TO 32K PDP-8A PROCESSOR EXERCISER
PRODUCT DATE: JULY, 1977
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TABLE OF CONTENTS

1.0	ABSTRACT
2.0	REQUIREMENTS
2.1	HARDWARE
2.2	STORAGE
2.3	PREREQUISITE SOFTWARE
3.0	RESTRICTIONS
3.1	HARDWARE RESTRICTIONS
3.2	SOFTWARE RESTRICTIONS
4.0	STANDARD TEST PROCEDURE
4.1	PDP-8A OPTION BOARD #1 (M8316) HARDWARE SETUP
4.2	LOADING THE PROGRAM
4.3	RUN 4K TO 32K PDP-8A PROCESSOR EXERCISER
4.3.1	RUNNING PROGRAM ON NON ACTIVE CONSOLE PACKAGE
4.3.2	RUNNING PROGRAM ON A ACTIVE CONSOLE PACKAGE
4.4	CONSOLE PACKAGE CONTROL CHARACTERS
5.0	ERRORS
5.1	CATASTROPHIC ERRORS
5.2	ERROR HALTS/ERROR PRINTOUTS
5.3	MEMORY REFERENCE INSTRUCTION ERRORS
5.4	MEMORY REFERENCE TEST INSTRUCTION SETUP
5.5	OPERATE INSTRUCTION ERRORS
5.6	OPERATE TEST INSTRUCTION SETUP
5.7	ILLEGAL INTERRUPT ERRORS
5.8	INACTIVE DEVICE ERRORS
5.9	NO INTERRUPT ERRORS
6.0	SWITCH REGISTER SETTINGS
6.1	NORMAL OPERATING SWITCHES
6.2	ERROR RELATED SWITCHES
7.0	REVISIONS
8.0	PROGRAM DESCRIPTION
9.0	FLOW CHARTS
10.0	LISTING

ABSTRACT

MODIFIED TO RUN ON VT78 SYSTEM - APRIL 1977

THE 4K TO 32K PDP-8A PROCESSOR EXERCISER WILL TEST THE EXECUTION OF MEMORY REFERENCE AND OPERATE INSTRUCTIONS IN A 4K TO 32K PDP-8A. ALL TEST INSTRUCTIONS, ADDRESSES, MEMORY, AC, MQ AND LINK DATA ARE GENERATED FROM A RANDOM NUMBER GENERATOR. THE SERIAL LINE UNIT TRANSMITTER AND REAL TIME CLOCK WILL BE TESTED IN INTERRUPT MODE IF THE SYSTEM UNDER TEST IS A PDP-8/A WITH OPTION BOARD #1 (M8316) INSTALLED, OR A VT78.

THE PROGRAM RELOCATES ITSELF A PAGE AT A TIME, UP AND DOWN, WITHIN ANY 4K MEMORY FIELD. IF THE COMPUTER CONTAINS MORE THAN 4K OF MEMORY, THE PROGRAM WILL RELOCATE UP AND DOWN BETWEEN MEMORY FIELDS. AT LEAST 3K OF MEMORY IS REQUIRED IN THE LAST EXTENDED MEMORY FIELD FOR THE PROGRAM TO TEST AND TO RELOCATED INTO IT.

THE PROGRAM IS CAPABLE OF RUNNING ON THE PDP-8A AND VT78 APT TEST LINES.

A CONSOLE PACKAGE HAS BEEN INCLUDED IN THIS DIAGNOSTIC TO ALLOW THE PROGRAM TO RUN WITH NO HARDWARE SWITCH REGISTER AND TO HAVE COMMUNICATIONS WITH THE DIAGNOSTIC VIA A TERMINAL. THE DIAGNOSTIC CAN BE RUN IN TWO MODES WITH THE CONSOLE PACKAGE.

1. RUNNING WITH THE CONSOLE PACKAGE ACTIVE - (THIS MODE MUST BE SELECTED WHEN TESTING A VT78) - THIS ALLOWS THE OPERATOR CONTROL OF THE DIAGNOSTIC THROUGH THE TERMINAL. THE DIAGNOSTIC WILL ASK FOR THE VALUE OF SWITCH REGISTER, BEFORE CONTINUING WITH THE EXECUTION OF THE DIAGNOSTIC. ALL ERRORS, EXCEPT FOR RELOCATION ERRORS WHICH WILL RESULT IN A HALT, WILL BE PRINTED ON THE TERMINAL. THE NUMBER OF PASSES WILL ALSO BE PRINTED ON THE TERMINAL AFTER 4096 PROCESSOR TEST INSTRUCTIONS HAVE BEEN EXECUTED.
2. CONSOLE PACKAGE NOT ACTIVE - THIS WILL RESULT IN THE USE OF HALTS FOR ERRORS, HALT AT END AT PASS IF SELECTED, USE OF HARDWARE OR PSEUDO SWITCH REGISTER, NOT ASKING SWITCH REGISTER QUESTION.

2.0 REQUIREMENTS

2.1 HARDWARE

THE FOLLOWING HARDWARE IS REQUIRED FOR EXECUTION OF THIS PROGRAM:

PROCESSOR: PDP-8A, VT78

MEMORY: 4K TO 32K OF MEMORY IN 4K INCREMENTS

OPTIONS: IF MEMORY SIZE IS GREATER THAN 4K A PDP-8A OPTION BOARD #2 IS REQUIRED. (DOES NOT APPLY TO VT78)

IF THE SERIAL LINE UNIT AND REAL TIME CLOCK ARE TO BE TESTED, A PDP-8A OPTION BOARD #1 AND A TERMINAL ARE REQUIRED. (DOES NOT APPLY TO VT78)

2.2 STORAGE

THE PROGRAM INITIALLY OCCUPIES LOCATIONS 0000 TO 0130 AND 0200 TO 5314. THE PROGRAM USES LOCATIONS 0000 TO 0130, AND 5200 TO 5314 FOR PROGRAM INITIALIZATION. ONCE THE PROGRAM HAS BEEN STARTED, THESE LOCATIONS WILL BE DESTROYED. ALL LOCATIONS OUTSIDE THE PROGRAM AREA IN THE PROGRAM FIELD AND ANY OTHER FIELD, IF SELECTED ARE USED AS A TEST AREA. THE TEST AREA IS INITIALLY FILLED WITH HALTS AND REFILLED AFTER EVERY 4096 TEST INSTRUCTIONS HAVE BEEN EXECUTED. IF THE PROGRAM IS ALLOWED TO RELOCATE, IT WILL RELOCATE UP AND BACK A PAGE AT A TIME WITHIN A 4K MEMORY FIELD AND UP AND DOWN BETWEEN MEMORY FIELDS IF MORE THAN 4K. THE PROGRAM INITIALLY MUST BE LOADED INTO FIELD 0.

2.3 PREREQUISITE SOFTWARE

FOR PDP-8/A SYSTEM;

PDP-8A CPU TEST

PDP-8A MEMORY TEST

KMB-A OPTION TEST #2 - IF PDP-8A OPTION BOARD #2 IN SYSTEM

DKC8-AA OPTION TEST #1 - IF PDP-8A OPTION BOARD #1 IN SYSTEM

FOR VT78 SYSTEM:

VI78 CPU DIAGNOSTIC

VT78 MOS MEMORY DIAGNOSTIC

3.0 RESTRICTIONS

3.1 HARDWARE RESTRICTIONS

- A. MINIMUM OF 4K OF MEMORY TO A MAXIMUM OF 32K OF MEMORY IN 4K CONSECUTIVE INCREMENTS.
- B. IF THE PDP-8A OPTION BOARD #1 IS TO BE TESTED BY THE PROGRAM, A TERMINAL MUST BE CONNECTED TO THE SERIAL LINE UNIT, BAUD RATES AND STOP BITS MUST BE SETUP, TTY FILTER MUST BE SET IF ASR/KSR TELETYPE, AND THE REAL TIME CLOCK MUST BE ENABLED.