IDENTIFICATION

PRODUCT CODE:	MAINDEC-08-DIGD-D
PRODUCT NAME:	PDP-8, 8I, 8S EXTENDED MEMORY CONTROL
DATE CREATED:	JULY 27, 1970
MAINTAINER:	DIAGNOSTIC PROGRAMMING GROUP
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1. ABSTRACT

THIS PROGRAM TESTS THE EXTENDED MEMORY CONTROL LOGIC FOR PROPER OPERATION. IT MAY BE USED WITH A PDP-8, 8I, OR 8S EQUIPPED WITH A MINIMUM OF 4K OF EXTENDED MEMORY. THE PROGRAM EXERCISES AND TESTS THE CONTROL IOT'S; THE ABILITY TO REFERENCE ALL FIELDS FROM 0; PROGRAM INTERRUPT AND INTERRUPT INHIBIT; AUTO-INDEXING IN EACH FIELD, AND A SPECIAL TEST FOR THE PDP-8I WHICH TESTS THE PRESENCE OF A FALSE MEMORY PULSE WHEN A NON-EXISTENT MEMORY FIELD IS REFERENCED.

ERRORS ENCOUNTERED DURING RUNNING WILL RESULT IN A PROGRAM HALT. THE HALT LOCATIONS ARE LABELED, AND THE ERROR MAY BE IDENTIFIED BY REFERENCING THE PROGRAM LISTING OR TABLE OF ERROR HALTS.

2. REQUIREMENTS

2.1 EQUIPMENT

A STANDARD PDP-8, 8I OR 8S EQUIPPED WITH AN EXTENDED MEMORY CONTROL, AND AT LEAST 4K OF EXTENDED MEMORY.

2.2 STORAGE

THE PROGRAM REQUIRES 2400(8) LOCATIONS OF CORE MEMORY. THE PROGRAM MUST RESIDE IN MEMORY FIELD 0 ONLY.

2.3 PRELIMINARY PROGRAMS

ALL PROGRAMS FOR A BASIC PDP-8, 8I OR 8S MUST HAVE BEEN PREVIOUSLY RUN SUCCESSFULLY.

3. LOADING PROCEDURE

3.1 METHOD

THE PROGRAM IS LOADED WITH THE BINARY LOADER.

4. STARTING PROCEDURE

4.1 STARTING ADDRESSES

THE STARTING ADDRESS IS 0200(8).

4.2 CONTROL SWITCH SETTINGS

SR 8 MUST BE ON A 1 IF A PDP-8I IS BEING USED, OTHERWISE, ON A 0 FOR A PDP-8 OR 8S. SR 9, 10 AND 11 MUST CONTAIN AN OCTAL VALUE EQUAL TO THE NUMBER OF EXTENDED MEMORY FIELDS AVAILABLE (1 TO 7 OCTAL). NOTE THAT FIELD 0 IS NOT TO BE INCLUDED IN THIS VALUE.

4.3 OPERATOR ACTION

WITH THE PROGRAM IN MEMORY, SET THE SWITCH REGISTER TO 0200 OCTAL. PRESS LOAD ADDRESS.

SET SR 8 TO A 1 IF A PDP-8I IS BEING USED, OTHERWISE, SET SR 8 TO A 0.

PLACE THE OCTAL NUMBER OF EXTENDED MEMORY FIELDS AVAILABLE IN SR 9, 10 AND 11. THIS VALUE MAY VARY FROM 1 TO 7 ONLY.

PRESS START.

THE PROGRAM WILL RUN UNTIL AN ERROR IS DETECTED, OR STOPPED BY THE OPERATOR.
THE TTY BELL IS RUNG ONCE AFTER ONE COMPLETE PASS OF THE PROGRAM.

5. OPERATING PROCEDURE

SEE SECTION 4.2

5.1 SUBROUTINE ABSTRACTS

REFER TO THE PROGRAM LISTING FOR DESCRIPTIONS OF EACH TEST, AND THE METHOD OF TESTING.

5.2 OPERATOR ACTION

SEE SECTION 4.3

6. ERRORS

6.1 ERROR HALTS AND DESCRIPTIONS

TABLE OF ERROR HALTS

C (MA)	TAG	DESCRIPTIONS
	CDF AND RDF TESTS	
206	E1	CDF 0 OR RDF FAILED.
217	E2	CDF 7 OR RDF FAILED.
234	E3	CDF 1 OR RDF FAILED.
245	E4	CDF 2 OR RDF FAILED.
262	E5	CDF 3 OR RDF FAILED.
273	E6	CDF 4 OR RDF FAILED.
310	E7	CDF 5 OR RDF FAILED.
321	E8	CDF 6 OR RDF FAILED.
	DF, IB AND SR TESTS	
341	E9	RIB OR ION FAILED.
351	E10	DF NOT CLEARED, OR NO INTERRUPT.
360	E11	RIB OR SF FAILED, (DF 1)
410	E12	DF NOT CLEARED, OR NO INTERRUPT.
417	E13	RIB OR SF FAILED, (DF 2)
427	E14	DF NOT CLEARED, OR NO INTERRUPT.
436	E15	RIB OR SF FAILED, (DF 3)
452	E16	DF NOT CLEARED, OR NO INTERRUPT.
461	E17	RIM OR SF FAILED, (DF 4)
471	E18	DF NOT CLEARED, OR NO INTERRUPT.
500	E19	RIB OR SF FAILED, (DF 5)
514	E20	DF NOT CLEARED, OR NO INTERRUPT.
523	E21	RIB OR SF FAILED, (DF 6)
533	E22	DF NOT CLEARED, OR NO INTERRUPT.
542	E23	RIB OR SF FAILED, (DF 7)
	DCA I AND TAD I TESTS	
653	E24	DCA I OR TAD I TO AN EXTENDED FIELD FAILED. THE DF INDICATORS EQUAL THE CURRENT FIELD UNDER TEST. THE AC CONTAINS THE DATA AS READ FROM LOCATION 7000 OF THE EXTENDED FIELD. THE HALT OCCURRED DUE TO THE DATA READ AND THE CURRENT DATA FIELD NOT BEING EQUAL. EACH EXTENDED FIELD SHOULD CONTAIN ITS FIELD NUMBER IN LOCATION 7000.