

IDENTIFICATION

Product Code: MAINDEC 08-D1CA-D
Product Name: Extended Memory Control - Part 1
Date Created: Revised August 21, 1967
Maintainer: Diagnostic Group
Author: R. Green
M. Horovitz
Previous Code: MAINDEC 820-1

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1. ABSTRACT

This program exercises and tests the Extended Memory Type 138 Instructions CDF, CIF, RDF, RIF, RMF, and RIB for proper operation. This program basically test the control section of the Type 183 Memory or Type 185 Memory. Data is tested by tests Maindec 08-D1BA and Maindec 08-D1DA-D.

2. REQUIREMENTS

Storage

The program occupies registers $0001_8 - 2500_8$ in all memory modules.
The RIM loader must be in registers $7756_8 - 7776_8$.

Subprograms and/or Subroutines

High RIM Loader, Binary Loader

Equipment

Standard PDP-8 and Extended Memory Type 183 or Extended Memory Type 185.

3. USAGE

3.1 Loading

If Binary Loader is in memory load the Extended Memory Control; otherwise, the RIM Loader and/or the Binary Loader must be loaded into memory.

The Extended Memory Control exerciser may now be loaded as follows:

Set 7777_8 in the SWITCH REGISTER.

Press LOAD ADDRESS key.

Place object tape in the ASR33.

PRESS START key on the operator's console.

Engage the reader.

3.2 Switch Settings

Starting Address is 0200_8 .

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Program control settings set the highest numbered memory module to be tested in SWITCH REGISTER bits 0, 1, 2.

1 = 001_8

2 = 010_8

3 = 011_8

4 = 100_8

5 = 101_8

6 = 110_8

7 = 111_8

3.3 Start-Up and/or Entry

Set a 0 in the instruction field register and a 0 in the data field register. Press the LOAD ADDRESS key. The IF and DF indicators should now be equal to all 0s.

Set all 1s in the instruction field register and the data field register. Press the LOAD ADDRESS key. The IF and DF indicators should now be equal to all 1s.

Set a 0 in the instruction field register and a 0 in the data field register. Set 0200_8 in the SWITCH REGISTER. Press the LOAD ADDRESS key. The IF and DF indicators should now be equal to all 0s. Load highest field number in SWITCH REGISTER bits 0, 1, 2. Press START key.

3.4

Errors in Usage

Cause of Failure

Halt Address	CDF	CIF	RDF	RIF	RMF	RIB	ION
0207	X		X				
0212				X			
0221	X		X				
0226	X		X				
0235	X		X				
0244	X		X				
0253	X		X				
0262	X		X				
0271	X		X				
0300	X		X				
0306						X	X
0316						X	X
0326						X	X
0336						X	X
0346						X	X
0357							X
0407						X	X
0417						X	X
0426						X	X
0437				X			
0444						X	
0463				X			
0470						X	
0505				X			
0512						X	
0527				X			
0534						X	
0551				X			
0556						X	
0614				X			
0621						X	
0636				X			
0643						X	
0654					X		
0672					X		
0710					X		
0726					X		
0744					X		
0762					X		
1014					X		

3.5 Recovery from Such Errors

Press CONTINUE to recover from error halts.

If the program does not print out EM OK it has probably tried to execute an instruction in a non-existent memory module. Recovery from this error may be accomplished by replacing instructions at various points in the program with halt commands. This allows tracing of the program to its illegal exit.

4. RESTRICTIONS

CIF instruction is exercised only. CIF instruction failure may be detected through program usage. CIF exercise tests are labeled T32 - T38.

5. DESCRIPTION

This program is an exerciser with limited diagnostic features. The program exercises only the amount of control necessary to operate the highest numbered memory module as pre-selected in the AC register. (Reference switch settings section 3.2). The start of each test or exercise has a mnemonic label of T1 - T38. The program loops continuously through the selected amount of tests 4096 times before a printout of EM OK is typed. The test routines may be analyzed from the program listing due to their brevity.

6. EXECUTION TIME

Depends upon the amount of memory modules selected to be tested.
Time/Memory module is 10 seconds.

7. PROGRAM LISTING

/EXTENDED MEMORY PART 1
/SET A 0 IN THE INSTRUCTION
/FIELD SWITCH REGISTER AND
/A 0 IN THE DATA FIELD
/SWITCH REGISTER, PRESS THE
/LOAD ADDRESS KEY. THE
/IF AND DF INDICATORS SHOULD
/NOW BE EQUAL TO ALL ZEROS.

/SET ALL ONES IN THE
/INSTRUCTION FIELD SWITCH
/REGISTER AND THE DATA
/FIELD SWITCH REGISTER,
/PRESS THE LOAD ADDRESS KEY,
/THE IF AND DF INDICATORS
/SHOULD NOW BE EQUAL TO
/ALL ONES.

/SET A 0 IN THE INSTRUCTION
/FIELD SWITCH REGISTER AND
/A 0 IN THE DATA FIELD
/SWITCH REGISTER, SET 0176 (OCTAL)
/IN THE SWITCH REGISTER,
/PRESS THE LOAD ADDRESS
/KEY, THE IF AND DF
/INDICATORS SHOULD NOW BE EQUAL
/TO ALL ZEROES
/LOAD HIGHEST FIELD NUMBER IN
/SWITCH REGISTER BITS 0,1,2.
/PRESS START KEY.

6201	CDF=6201
6202	CIF=6202
6214	RDF=6214
6224	RIF=6224
6244	RMF=6244
6234	RIR=6234
6201	CDF0=CDF+0
6211	CDF1=CDF+10
6221	CDF2=CDF+20
6231	CDF3=CDF+30
6241	CDF4=CDF+40
6251	CDF5=CDF+50
6261	CDF6=CDF+60
6271	CDF7=CDF+70
6202	CIF0=CIF+0
6212	CIF1=CIF+10
6222	CIF2=CIF+20
6232	CIF3=CIF+30
6242	CIF4=CIF+40
6252	CIF5=CIF+50
6262	CIF6=CIF+60
6272	CIF7=CIF+70

0001 0001
0001 5400

*0001

JMP I 0

/ION RETURN JUMP

0020 0020
0020 0000
0021 7300
0022 1025
0023 7040
0024 5420
0025 0000
0026 0644
0027 0070
0030 7707
0031 7767
0032 7757
0033 7747
0034 7737
0035 7727
0036 7717
0037 7776
0040 7775
0041 7774
0042 7773
0043 7772
0044 7771
0045 2000
0046 3000
0047 4000
0050 5000
0051 6000
0052 7000
0053 1016
0054 1102
0055 0000
0056 0203

*0020

FIELDX, 0

/FIELD ROUTINE

CLA CLL
TAD 7 FEILD
CMA
JMP I FIELDX

FEILD, 0

FIEX, T25
K0070, 0070
K7707, 7707
K7767, 7767
K7757, 7757
K7747, 7747
K7737, 7737
K7727, 7727
K7717, 7717
K7776, 7776
K7775, 7775
K7774, 7774
K7773, 7773
K7772, 7772
K7771, 7771
K2000, 2000
K3000, 3000
K4000, 4000
K5000, 5000
K6000, 6000
K7000, 7000
FIEX1, T32
FIEX2, END
CNT, 0
LOOP, T1

0057 0000
0060 6046
0061 6041
0062 5061
0063 7200
0064 5457

TYPE, 0

TLS
TSF
JMP .-1
CLA
JMP I TYPE

0065	7770	K7770,	7770
0066	0352	ADDR,	INTHIB
0067	6224	RIFX,	6224
0070	6001	IONX,	6001
0071	7000	NOPX,	7000
0072	6202	CIF0X,	6202
0073	5626	JMPI2,	5626
0074	5636	JMPI3,	5636
0075	5646	JMPI4,	5646
0076	5656	JMPI5,	5656
0077	5666	JMPI6,	5666
0100	5676	JMPI7,	5676
0101	7200	CLAX,	7200
0102	2000	PATCHE,	RIT
0103	0000	PATCH2,	0
0104	7604	CLA	OSR
0105	3025	DCA	7 FEILD
0106	5503	JMP	I PATCH2
	0176	*0176	
0176	4103	JMS	PATCH2
0177	4502	JMS	I PATCHE

	0200		*0200		
0200	7240			CLA CMA	
0201	4057			JMS Z TYPE	/SET FLAG
0202	3055			DCA Z CNT	
0203	7200	T1,		CLA	
0204	6201			CDF0	
0205	6214			RDF	
0206	7440			SZA	
0207	7402			HLT	/CDF0 OR RDF FAILED
0210	6224			RIF	
0211	7440			SZA	
0212	7402			HLT	/RIF FAILED
0213	7200	T2,		CLA	
0214	1030			TAD K7707	
0215	6271			CDF7	
0216	6214			RDF	
0217	7040			CMA	
0220	7440			SZA	
0221	7402			HLT	/CDF7 OR RDF FAILED
0222	7200	T3,		CLA	
0223	6201			CDF0	
0224	6214			RDF	
0225	7440			SZA	
0226	7402			HLT	/CDF0 OR RDF FAILED
0227	7200	T4,		CLA	
0230	1031			TAD K7767	
0231	6211			CDF1	
0232	6214			RDF	
0233	7040			CMA	
0234	7440			SZA	
0235	7402			HLT	/CDF1 OR RDF FAILED
0236	7200	T5,		CLA	
0237	1032			TAD K7757	
0240	6221			CDF2	
0241	6214			RDF	
0242	7040			CMA	
0243	7440			SZA	
0244	7402			HLT	/CDF2 OR RDF FAILED

0245	7200	T6,	CLA	
0246	1033		TAD K7747	
0247	6231		CDF3	
0250	6214		RDF	
0251	7040		CMA	
0252	7440		SZA	
0253	7402		HLT	/CDF3 OR RDF FAILED
0254	7200	T7,	CLA	
0255	1034		TAD K7737	
0256	6241		CDF4	
0257	6214		RDF	
0260	7040		CMA	
0261	7440		SZA	
0262	7402		HLT	/CDF4 OR RDF FAILED
0263	7200	T8,	CLA	
0264	1035		TAD K7727	
0265	6251		CDF5	
0266	6214		RDF	
0267	7040		CMA	
0270	7440		SZA	
0271	7402		HLT	/CDF5 OR RDF FAILED
0272	7200	T9,	CLA	
0273	1036		TAD K7717	
0274	6261		CDF6	
0275	6214		RDF	
0276	7040		CMA	
0277	7440		SZA	
0300	7402		HLT	/CDF6 OR RDF FAILED
0301	6201	T10,	CDF0	/DF0
0302	6001		ION	
0303	7200		CLA	
0304	6234		RIB	
0305	7440		SZA	
0306	7402		HLT	/RIB OR ION FAILED
0307	6211	T11,	CDF1	/DF1
0310	6001		ION	
0311	7200		CLA	
0312	1037		TAD K7776	
0313	6234		RIB	
0314	7040		CMA	
0315	7440		SZA	
0316	7402		HLT	/RIB OR ION FAILED

0317	6221	T12,	CDF2	/DF2
0320	6001		ION	
0321	7200		CLA	
0322	1040		TAD K7775	
0323	6234		RIB	
0324	7040		CMA	
0325	7440		SZA	
0326	7402		HLT	/RIB OR ION FAILED
0327	6231	T13,	CDF3	/DF3
0330	6001		ION	
0331	7200		CLA	
0332	1041		TAD K7774	
0333	6234		RIB	
0334	7040		CMA	
0335	7440		SZA	
0336	7402		HLT	/RIB OR ION FAILED
0337	6241	T14,	CDF4	/DF4
0340	6001		ION	
0341	7200		CLA	
0342	1042		TAD K7773	
0343	6234		RIB	
0344	7040		CMA	
0345	7440		SZA	
0346	7402		HLT	/RIB OR ION FAILED
0347	6202	INTRPT,	CIF0	
0350	6001		ION	
0351	7200		CLA	
0352	1000	INTHIB,	TAD 7 0	
0353	7040		CMA	
0354	1066		TAD 7 ADDR	
0355	7040		CMA	
0356	7450		SNA	
0357	7402		HLT	/INT. INHIBIT FAILED
0360	6201		CDF0	/DF0
0361	6202		CIF0	/IF0
0362	5763		JMP I .+1	
0363	0400		T15	

	0400	*0400		
0400	6251	T15,	CDF5	/DF5
0401	6001		ION	
0402	7200		CLA	
0403	1043		TAD K7772	
0404	6234		RIR	
0405	7040		CMA	
0406	7440		SZA	
0407	7402		HLT	/RIB OR ION FAILED
0410	6261	T16,	CDF6	/DF6
0411	6001		ION	
0412	7200		CLA	
0413	1044		TAD K7771	
0414	6234		RIR	
0415	7040		CMA	
0416	7440		SZA	
0417	7402		HLT	/RIB OR ION FAILED
0420	6271	T17,	CDF7	/DF7
0421	6001		ION	
0422	1065		TAD K7770	
0423	6234		RIB	
0424	7040		CMA	
0425	7440		SZA	
0426	7402		HLT	/RIB OR ION FAILED
0427	6212	T18,	CIF1	/F1
0430	6201		CDF0	
0431	7200		CLA	
0432	5633		JMP I .+1	
0433	0431		T18F1	
0434	1031		TAD K7767	/ION FROM T18F1
0435	7040		CMA	
0436	7440		SZA	
0437	7402		HLT	/RIF FAILED
0440	6234		RIR	/SF1 TO AC
0441	1031		TAD K7767	
0442	7040		CMA	
0443	7440		SZA	
0444	7402		HLT	/RIB FAILED

0445	7604	SWITCH, CLA	OSR	
0446	3025		DCA 7 FEILD	/STORE FIELD SWITCHES
0447	4020		JMS 7 FIELDX	
0450	1045		TAD K2000	
0451	7430		SZL	
0452	5426		JMP I 7 FIEX	/NO FIELD 2
0453	6222	T19,	CIF2	/F2
0454	6201		CDF0	
0455	7200		CLA	
0456	5657		JMP I .+1	
0457	0455		0455	
0460	1032		TAD K7757	/ION FROM T19F2
0461	7040		CMA	
0462	7440		SZA	
0463	7402		HLT	/RIF FAILED
0464	6234		RIB	/SF2 TO AC
0465	1032		TAD K7757	
0466	7040		CMA	
0467	7440		SZA	
0470	7402		HLT	/RIB FAILED
0471	4020		JMS 7 FIELDX	
0472	1046		TAD K3000	
0473	7430		SZL	
0474	5426		JMP I 7 FIEX	/NO FIELD 3
0475	6232	T20,	CIF3	/F3
0476	6201		CDF0	
0477	7200		CLA	
0500	5701		JMP I .+1	
0501	0477		0477	
0502	1033		TAD K7747	
0503	7040		CMA	
0504	7440		SZA	
0505	7402		HLT	/RIF FAILED
0506	6234		RIB	/SF3 TO AC
0507	1033		TAD K7747	
0510	7040		CMA	
0511	7440		SZA	
0512	7402		HLT	/RIB FAILED
0513	4020		JMS 7 FIELDX	
0514	1047		TAD K4000	
0515	7430		SZL	
0516	5426		JMP I 7 FIEX	/NO FIELD 4

0517	6242	T21,	CIF4	/F4
0520	6201		CDF0	
0521	7200		CLA	
0522	5723		JMP I .+1	
0523	0521		0521	
0524	1034		TAD K7737	
0525	7040		CMA	
0526	7440		SZA	
0527	7402		HLT	/RIF FAILED
0530	6234		RIB	/SF4 TO AC
0531	1034		TAD K7737	
0532	7040		CMA	
0533	7440		SZA	
0534	7402		HLT	/RIB FAILED
0535	4020		JMS 7 FIELDX	
0536	1050		TAD K5000	
0537	7430		SZL	
0540	5426		JMP I 7 FLEX	/NO FIELD 5
0541	6252	T22,	CIF5	/F5
0542	6201		CDF0	
0543	7200		CLA	
0544	5745		JMP I .+1	
0545	0543		0543	
0546	1035		TAD K7727	
0547	7040		CMA	
0550	7440		SZA	
0551	7402		HLT	/RIF FAILED
0552	6234		RIB	/SF5 TO AC
0553	1035		TAD K7727	
0554	7040		CMA	
0555	7440		SZA	
0556	7402		HLT	/RIB FAILED
0557	5760		JMP I .+1	
0560	0600		PAT	

	0600	*0600	
0600	4020	PAT,	JMS 7 FIELDX
0601	1051		TAD K6000
0602	7430		SZL
0603	5426		JMP I 2 FIEX /NO FIELD 6
0604	6262	T23,	CIF6 /F6
0605	6201		CDF0
0606	7200		CLA
0607	5610		JMP I .+1
0610	0606		0606
0611	1036		TAD K7717
0612	7040		CMA
0613	7440		SZA
0614	7402		HLT /RIF FAILED
0615	6234		RIB /SF6 TO AC
0616	1036		TAD K7717
0617	7040		CMA
0620	7440		SZA
0621	7402		HLT /RIB FAILED
0622	4020		JMS 7 FIELDX
0623	1052		TAD K7000
0624	7430		SZI
0625	5426		JMP I 2 FIEX /NO FIELD 7
0626	6272	T24,	CIF7 /F7
0627	6201		CDF0
0630	7200		CLA
0631	5632		JMP I .+1
0632	0630		0630
0633	1030		TAD K7707
0634	7040		CMA
0635	7440		SZA
0636	7402		HLT /RIF FAILED
0637	6234		RIB /SF7 TO AC
0640	1030		TAD K7707
0641	7040		CMA
0642	7440		SZA
0643	7402		HLT /RIB FAILED
0644	6212	T25,	CIF1 /F1
0645	6211		CDF1
0646	5245		JMP T25+1
0647	6244		RMF /SF TO IF1, DF1
0650	6214		RDF
0651	1031		TAD K7767
0652	7040		CMA
0653	7440		SZA

0654	7402	TX25,	HLT	/RMF FAILED
0655	5254		JMP TX25	/IB=1
0656	4020		JMS 7 FIELDX	
0657	1045		TAD K2000	
0660	7430		SZL	
0661	5453		JMP I 7 FIEX1	/NO FIELD 2
0662	6222	T26,	CIF2	/F2
0663	6221		CDF2	
0664	5263		JMP T26+1	
0665	6244		RMF	/SF TO IF2, DF2
0666	6214		RDF	
0667	1032		TAD K7757	
0670	7040		CMA	
0671	7440		SZA	
0672	7402	TX26,	HLT	/RMF FAILED
0673	5272		JMP TX26	/IB=2
0674	4020		JMS 7 FIELDX	
0675	1046		TAD K3000	
0676	7430		SZL	
0677	5453		JMP I 7 FIEX1	/NO FIELD 3
0700	6232	T27,	CIF3	/F3
0701	6231		CDF3	
0702	5301		JMP T27+1	
0703	6244		RMF	/SF TO IF3, DF3
0704	6214		RDF	
0705	1033		TAD K7747	
0706	7040		CMA	
0707	7440		SZA	
0710	7402	TX27,	HLT	/RMF FAILED
0711	5310		JMP TX27	/IB=3
0712	4020		JMS 7 FIELDX	
0713	1047		TAD K4000	
0714	7430		SZL	
0715	5453		JMP I 7 FIEX1	/NOT FIELD 4
0716	6242	T28,	CIF4	/F4
0717	6241		CDF4	
0720	5317		JMP T28+1	
0721	6244		RMF	/SF TO IF4, DF4
0722	6214		RDF	
0723	1034		TAD K7737	
0724	7040		CMA	
0725	7440		SZA	
0726	7402	TX28,	HLT	/RMF FAILED
0727	5326		JMP TX28	/IB=4

0730	4020		JMS 7 FIELDX	
0731	1050		TAD K5000	
0732	7430		SZL	
0733	5453		JMP I 7 FIE1	/NO FIELD 5
0734	6252	T29,	CIF5	/F5
0735	6251		CDF5	
0736	5335		JMP T29+1	
0737	6244		RMF	/SF TO IF5, DF5
0740	6214		RDF	
0741	1035		TAD K7727	
0742	7040		CMA	
0743	7440		SZA	
0744	7402	TX29,	HLT	/RMF FAILED
0745	5344		JMP TX29	/IB=5
0746	4020		JMS 7 FIELDX	
0747	1051		TAD K6000	
0750	7430		SZL	
0751	5453		JMP I 7 FIE1	/NO FIELD 6
0752	6262	T30,	CIF6	/F6
0753	6261		CDF6	
0754	5353		JMP T30+1	
0755	6244		RMF	
0756	6214		RDF	
0757	1036		TAD K7717	
0760	7040		CMA	
0761	7440		SZA	
0762	7402	TX30,	HLT	/RMF FAILED
0763	5362		JMP TX30	/IB=6
0764	5765		JMP I .+1	
0765	1000		PAT1	

	1000		*1000		
1000	4020		PAT1,	JMS Z FIELDX	
1001	1052			TAD K7000	
1002	7430			SZL	
1003	5453			JMP I Z FIEX1	/NO FIELD 7
1004	6272	T31,		CIF7	/F7
1005	6271			CDF7	
1006	5205			JMP T31+1	
1007	6244			RMF	/SF TO IF7, DF7
1010	6214			RDF	
1011	1030			TAD K7707	
1012	7040			CMA	
1013	7440			SZA	
1014	7402	TX31,		HLT	/RMF FAILED
1015	5214			JMP TX31	/I8=7
1016	6212	T32,		CIF1	/F1
1017	6261			CDF6	
1020	4216			JMS T32X1	/JMS DIRECT F1
1021	6201			CDF0	
1022	4020			JMS Z FIELDX	
1023	1045			TAD K2000	
1024	7430			SZL	
1025	5454			JMP I Z FIEX2	/NO FIELD 2
1026	6222	T33,		CIF2	/F2
1027	6251			CDF5	
1030	4226			JMS T33	/JMS DIRECT F2
1031	6201			CDF0	
1032	4020			JMS Z FIELDX	
1033	1046			TAD K3000	
1034	7430			SZL	
1035	5454			JMP I Z FIEX2	/NO FIELD 3
1036	6232	T34,		CIF3	/F3
1037	6241			CDF4	
1040	4236			JMS T34	/JMS DIRECT F3
1041	6201			CDF0	
1042	4020			JMS Z FIELDX	
1043	1047			TAD K4000	
1044	7430			SZL	
1045	5454			JMP I Z FIEX2	/NO FIELD 4
1046	6242	T35,		CIF4	/F4
1047	6231			CDF3	
1050	4246			JMS T35	/JMS DIRECT F4
1051	6201			CDF0	
1052	4020			JMS Z FIELDX	
1053	1050			TAD K5000	
1054	7430			SZL	
1055	5454			JMP I Z FIEX2	/NO FIELD 5

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1056 6252
 1057 6221
 1060 4256
 1061 6201

1062 4020
 1063 1051
 1064 7430
 1065 5454

1066 6262
 1067 6211
 1070 4266
 1071 6201
 1072 4020
 1073 1052
 1074 7430
 1075 5454

1076 6272
 1077 6201
 1100 4276
 1101 6201

1102 2055
 1103 5456
 1104 7200
 1105 1324
 1106 4057
 1107 1325
 1110 4057
 1111 1326
 1112 4057
 1113 1327
 1114 4057
 1115 1330
 1116 4057
 1117 1331
 1120 4057
 1121 1332
 1122 4057
 1123 5456

T36, CIF5 /F5
 CDF2
 JMS T36 /JMS DIRECT F5
 CDF0

JMS 7 FIELDX
 TAD K6000
 SZL
 JMP I 7 FIEX2 /NO FIELD 6

T37, CIF6 /F6
 CDF1
 JMS T37 /JMS DIRECT F6
 CDF0
 JMS 7 FIELDX
 TAD K7000
 SZL
 JMP I 7 FIEX2 /NO FIELD 7

T38, CIF7 /F7
 CDF0
 JMS T38 /JMS DIRECT F7
 CDF0

END, ISZ CNT
 JMP I 7 LOOP
 CLA
 TAD CR
 JMS 7 TYPE
 TAD LF
 JMS 7 TYPE
 TAD F
 JMS 7 TYPE
 TAD M
 JMS 7 TYPE
 TAD SP
 JMS 7 TYPE
 TAD O
 JMS 7 TYPE
 TAD K
 JMS 7 TYPE
 JMP I 7 LOOP

1124 0215
 1125 0212
 1126 0305
 1127 0315
 1130 0240
 1131 0317
 1132 0313

CR, 0215
 LF, 0212
 E, 0305
 M, 0315
 SP, 0240
 O, 0317
 K, 0313

0431 6224
 0432 6001
 0433 7000

FIELD 1

*T18+2

T18F1, RIF
 ION
 NOP

/IF1 TO AC
 /INTERRUPT

0645 6001
 0646 7200

FIELD 1

*T25+1

ION
 CLA

/INTERRUPT

0654 6001
 0655 7000

FIELD 1

*TX25

ION
 NOP

/INTERRUPT

1016 0000
 1017 6202
 1020 5616

FIELD 1

*T32

T32X1, 0

CIF0

JMP I ,-2

/JMP INDIRECT F0

PAUSE

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/END OF TAPE 1

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/TAPE 2 - EXTENDED MEMORY PART 1

FIELD 0

*2000

RIT,

2000	0000	0	
2001	7604	CLA	OSR
2002	4020	JMS	7 FIELDX
2003	1045	TAD	K2000
2004	7430	SZL	
2005	5600	JMP	I RIT
2006	6221	CDF2	/F2
2007	7200	CLA	
2010	1067	TAD	7 RIFX
2011	3724	DCA	I F2
2012	1070	TAD	7 IONX
2013	3725	DCA	I F2+1
2014	1071	TAD	7 NOPX
2015	3726	DCA	I F2+2
2016	1070	TAD	7 IONX
2017	3727	DCA	I F2A
2020	1101	TAD	7 CLAX
2021	3730	DCA	I F2A+1
2022	1070	TAD	7 IONX
2023	3731	DCA	I F2B
2024	1071	TAD	7 NOPX
2025	3732	DCA	I F2B+1
2026	1072	TAD	7 CIF0X
2027	3733	DCA	I F2C
2030	1073	TAD	7 JMPI2
2031	3734	DCA	I F2C+1
2032	7404	OSR	
2033	4020	JMS	7 FIELDX
2034	1046	TAD	K3000
2035	6201	CDF0	
2036	7430	SZL	
2037	5600	JMP	I RIT
2040	6231	CDF3	/F3
2041	7200	CLA	
2042	1067	TAD	7 RIFX
2043	3735	DCA	I F3
2044	1070	TAD	7 IONX
2045	3736	DCA	I F3+1
2046	1071	TAD	7 NOPX
2047	3737	DCA	I F3+2
2050	1070	TAD	7 IONX
2051	3740	DCA	I F3A
2052	1101	TAD	7 CLAX
2053	3741	DCA	I F3A+1
2054	1070	TAD	7 IONX
2055	3742	DCA	I F3B
2056	1071	TAD	7 NOPX

2057 3743
 2060 1072
 2061 3744
 2062 1074
 2063 3745
 2064 7404
 2065 4020
 2066 1047
 2067 6201
 2070 7430
 2071 5600
 2072 6241
 2073 7200
 2074 1067
 2075 3746
 2076 1070
 2077 3747
 2100 1071
 2101 3750
 2102 1070
 2103 3751
 2104 1101
 2105 3752
 2106 1070
 2107 3753
 2110 1071
 2111 3754
 2112 1072
 2113 3755
 2114 1075
 2115 3756
 2116 1200
 2117 6201
 2120 3723
 2121 5722
 2122 2201
 2123 2200

RITX,

DCA I F3B+1
 TAD Z CIF0X
 DCA I F3C
 TAD Z JMP13
 DCA I F3C+1
 OSR
 JMS Z FIELDX
 TAD K4000
 CDF0
 SZL
 JMP I RIT
 CDF4 /F4
 CLA
 TAD Z RIFX
 DCA I F4
 TAD Z IONX
 DCA I F4+1
 TAD Z NOPX
 DCA I F4+2
 TAD Z IONX
 DCA I F4A
 TAD Z CLAX
 DCA I F4A+1
 TAD Z IONX
 DCA I F4B
 TAD Z NOPX
 DCA I F4B+1
 TAD Z CIF0X
 DCA I F4C
 TAD Z JMP14
 DCA I F4C+1
 TAD RIT
 CDF0
 DCA I RITX
 JMP I .+1
 RIT1+1
 RIT1

2124	0455	F2,	0455	/RIF (FIELD 2)
2125	0456		0456	/ION
2126	0457		0457	/NOP
2127	0663	F2A,	0663	/ION (FIELD 2)
2130	0664		0664	/NOP
2131	0672	F2B,	0672	/ION (FIELD 2)
2132	0673		0673	/NOP
2133	1027	F2C,	1027	/CIF0 (FIELD 2)
2134	1030		1030	/JMP I ,-2
2135	0477	F3,	0477	/RIF (FIELD 3)
2136	0500		0500	/ION
2137	0501		0501	/NOP
2140	0701	F3A,	0701	/ION (FIELD 3)
2141	0702		0702	/NOP
2142	0710	F3B,	0710	/ION (FIELD 3)
2143	0711		0711	/NOP
2144	1037	F3C,	1037	/CIF0 (FIELD 3)
2145	1040		1040	/JMP I ,-2
2146	0521	F4,	0521	/RIF (FIELD 4)
2147	0522		0522	/ION
2150	0523		0523	/NOP
2151	0717	F4A,	0717	/ION (FIELD 4)
2152	0720		0720	/CLA
2153	0726	F4B,	0726	/ION (FIELD 4)
2154	0727		0727	/NOP
2155	1047	F4C,	1047	/CIF0 (FIELD 4)
2156	1050		1050	/JMP I ,-2

2200	2200	*2200	Ø
2200	0000	RIT1,	Ø
2201	7404		OSR
2202	4020		JMS Z FIELDX
2203	1050		TAD K5000
2204	6201		CDFØ
2205	7430		SZL
2206	5600		JMP I RIT1
2207	6251		CDF5 /F5
2210	7200		CLA
2211	1067		TAD Z RIFX
2212	3721		DCA I F5
2213	1070		TAD Z IONX
2214	3722		DCA I F5+1
2215	1071		TAD Z NOPX
2216	3723		DCA I F5+2
2217	1070		TAD Z IONX
2220	3724		DCA I F5A
2221	1101		TAD Z CLAX
2222	3725		DCA I F5A+1
2223	1070		TAD Z IONX
2224	3726		DCA I F5B
2225	1071		TAD Z NOPX
2226	3727		DCA I F5B+1
2227	1072		TAD Z CIFØX
2230	3730		DCA I F5C
2231	1076		TAD Z JMP15
2232	3731		DCA I F5C+1
2233	7404		OSR
2234	4020		JMS Z FIELDX
2235	1051		TAD K6000
2236	6201		CDFØ
2237	7430		SZL
2240	5600		JMP I RIT1
2241	6261		CDF6
2242	7200		CLA
2243	1067		TAD Z RIFX
2244	3732		DCA I F6
2245	1070		TAD Z IONX
2246	3733		DCA I F6+1
2247	1071		TAD Z NOPX
2250	3734		DCA I F6+2
2251	1070		TAD Z IONX
2252	3735		DCA I F6A
2253	1101		TAD Z CLAX
2254	3736		DCA I F6A+1
2255	1070		TAD Z IONX
2256	3737		DCA I F6B
2257	1071		TAD Z NOPX

2260 3740
2261 1072
2262 3741
2263 1077
2264 3742
2265 7404
2266 4020
2267 1052
2270 6201
2271 7430
2272 5600
2273 6271
2274 7200
2275 1067
2276 3743
2277 1070
2300 3744
2301 1071
2302 3745
2303 1070
2304 3746
2305 1101
2306 3747
2307 1070
2310 3750
2311 1071
2312 3751
2313 1072
2314 3752
2315 1100
2316 3753
2317 6201
2320 5600

DCA I F6B+1
TAD Z CIF0X
DCA I F6C
TAD Z JMP16
DCA I F6C+1
OSR
JMS Z FIELDX
TAD K7000
CDF0
SZL
JMP I RIT1
CDF7 /F7
CLA
TAD Z RIFX
DCA I F7
TAD Z IONX
DCA I F7+1
TAD Z NOPX
DCA I F7+2
TAD Z IONX
DCA I F7A
TAD Z CLAX
DCA I F7A+1
TAD Z IONX
DCA I F7B
TAD Z NOPX
DCA I F7B+1
TAD Z CIF0X
DCA I F7C
TAD Z JMP17
DCA I F7C+1
CDF0
JMP I RIT1

2321	0543	F5,	0543	/RIF (FIELD 5)
2322	0544		0544	/ION
2323	0545		0545	/NOP
2324	0735	F5A,	0735	/ION (FIELD 5)
2325	0736		0736	/CLA
2326	0744	F5B,	0744	/ION (FIELD 5)
2327	0745		0745	/NOP
2330	1057	F5C,	1057	/CIF0 (FIELD 5)
2331	1060		1060	/JMP I ,-2
2332	0606	F6,	0606	/RIF (FIELD 6)
2333	0607		0607	/ION
2334	0610		0610	/NOP
2335	0753	F6A,	0753	/ION (FIELD 6)
2336	0754		0754	/CLA
2337	0762	F6B,	0762	/ION (FIELD 6)
2340	0763		0763	/NOP
2341	1067	F6C,	1067	/CIF0 (FIELD 6)
2342	1070		1070	/JMP I ,-2
2343	0630	F7,	0630	/RIF (FIELD 7)
2344	0631		0631	/ION
2345	0632		0632	/NOP
2346	1005	F7A,	1005	/ION (FIELD 7)
2347	1006		1006	/CLA
2350	1014	F7B,	1014	/ION (FIELD 7)
2351	1015		1015	/NOP
2352	1077	F7C,	1077	/CIF0 (FIELD 7)
2353	1100		1100	/JMP I ,-2

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SYMBOL TABLE

ADDR	0066
CDF	6201
CDF0	6201
CDF1	6211
CDF2	6221
CDF3	6231
CDF4	6241
CDF5	6251
CDF6	6261
CDF7	6271
CIF	6202
CIF0	6202
CIF0X	0072
CIF1	6212
CIF2	6222
CIF3	6232
CIF4	6242
CIF5	6252
CIF6	6262
CIF7	6272
CLAX	0101
CNT	0055
CR	1124
E	1126
END	1102
FEILD	0025
FIELDX	0020
FIEX	0026
FIEX1	0053
FIEX2	0054
F2	2124
F2A	2127
F2B	2131
F2C	2133
F3	2135
F3A	2140
F3B	2142
F3C	2144
F4	2146
F4A	2151
F4B	2153
F4C	2155
F5	2321
F5A	2324
F5B	2326
F5C	2330
F6	2332
F6A	2335
F6B	2337
F6C	2341
F7	2343
F7A	2346

SYMBOL TABLE

F7R	2350
F7C	2352
INTHIR	0352
INTRPT	0347
IONX	0070
JMPI2	0073
JMPI3	0074
JMPI4	0075
JMPI5	0076
JMPI6	0077
JMPI7	0100
K	1132
K0070	0027
K2000	0045
K3000	0046
K4000	0047
K5000	0050
K6000	0051
K7000	0052
K7707	0030
K7717	0036
K7727	0035
K7737	0034
K7747	0033
K7757	0032
K7767	0031
K7770	0065
K7771	0044
K7772	0043
K7773	0042
K7774	0041
K7775	0040
K7776	0037
LF	1125
LOOP	0056
M	1127
NOPX	0071
O	1131
PAT	0600
PATCHE	0102
PATCH2	0103
PAT1	1000
RDF	6214
RIB	6234
RIF	6224
RIFX	0067
RIT	2000
RITX	2123
RIT1	2200
RMF	6244
SP	1130
SWITCH	0445
TX25	0654

SYMBOL TABLE

TX26	0672
TX27	0710
TX28	0726
TX29	0744
TX30	0762
TX31	1014
TYPE	0057
T1	0203
T10	0301
T11	0307
T12	0317
T13	0327
T14	0337
T15	0400
T16	0410
T17	0420
T18	0427
T18F1	0431
T19	0453
T2	0213
T20	0475
T21	0517
T22	0541
T23	0604
T24	0626
T25	0644
T26	0662
T27	0700
T28	0716
T29	0734
T3	0222
T30	0752
T31	1004
T32	1016
T32X1	1016
T33	1026
T34	1036
T35	1046
T36	1056
T37	1066
T38	1076
T4	0227
T5	0236
T6	0245
T7	0254
T8	0263
T9	0272

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