

P I N O S D E S A Í D A

1.) Terra

3.) +5V

5.) +12V

7.) BOOT

9.) $\overline{CS3}$

11) D6

13) D4

15) D2

17) D0

19) A1

21) A3

23) A5

25) A7

27) A9

29) A11

31) A13

33) A15

35) AEN

37) RESET. IN

39) INTERRUPTÃO

41) RST6.5

43) TRAP

45) SOD

47) INTA

49) I/O-W

51) I/O-M

53) WR

55) I/O-S1

57) I/O-S2

59) I/O-S3

2.) Terra

4.) +5V

6.) -12V

8.) $\overline{CS4}$

10) D7

12) D5

14) D3

16) D1

18) A0

20) A2

22) A4

24) A6

26) A8

28) A10

30) A12

32) A14

34) HLDA

36) MR

38) HOLD

40) RST5.5

42) RST7.5

44) RESET. OUT

46) SID

48) CK OUT

50) READY

52) RD

54) ALE

56) MW

58) $\overline{CS5}$

60) I/O-R

MÓDULO BÁSICO - ENDEREÇAMENTO DOS PERIFÉRICOS

USART K.7 (8251):

- . Endereço de dados: 00 H
- . Endereço de controle: 01 H

USART CRT (8251):

- . Endereço de dados: 06 H
- . Endereço de controle: 07 H

- PPI PROGRAMADOR/IMPRESSORA (8255):

STRAP EM PROGRAMADOR:

- . Endereço de controle: 0F H
- . Endereço de PA: 0C H
- . Endereço de PB: 0D H
- . Endereço de PC: 0E H

STRAP EM IMPRESSORA:

- . Endereço de controle: 73H
- . Endereço PA: 70H
- . Endereço PB: 71H
- . Endereço PC: 72H

- CONTROLADOR DE DISPLAY/TECLADO (8279):

- . Endereço de controle: 09 H
- . Endereço de dados: 08 H

SM80 :F1:SSSTEP3.SRC XREF

SIS-II 8080/8085 MACRO ASSEMBLER, V4.0
PROGRAMA MONITOR PARA DISPLAY/TECLADO V3.0

MODULE PAGE 1

LOC	OBJ	LINE	SOURCE STATEMENT
		1	\$TITLE('PROGRAMA MONITOR PARA DISPLAY/TECLADO V3.0')
		2	\$MOD85 PAGEWIDTH(80)
		3	;
		4	*****
		5	;
		6	***** KMD - 85 MONITOR DT - V3.0 COM SINGLE STEP *****
		7	;
		8	*****
		9	
		10	VERSÃO 3.0 - INCLUI ENTRADA P/ COMANDO LIST-MOSTRA
		11	CONTEUDO DA MEMORIA EM HEX NA IMPRESSORA - ATRAVES
		12	DA TECLA 6
		13	INCLUI AINDA ALTERACAO DOS INTERRUPT JUMP'S, PARA
		14	EVITAR ALTERACOES NOS REGISTRADORES
		15	
1000		16	LIST EQU 1000H <i>Trap - 4B E 0</i>
		17	
0000		18	ORG 0 <i>Rst 7,5 - 4B D7</i>
		19	
		20	PREPARACAO STACK POINTE
		21	R. SERA SUBS. PELO STACK A
		22	UTOMATICO
0000	F3	23	DI ;ENIBA INTERRUPTCOES.
0001	3EC7	24	MVI A,0C7H ;A=MASCARA PARA SIM.
0003	30	25	SIM
0004	21FFFF	26	LXI H,0FFFFH <i>HL= FFFF</i>
0007	7E	27	NOMEM: MOV A,M
0008	2F	28	CMA
0009	77	29	MOV M,A
000A	BE	30	CMF M
000B	2F	31	CMA
000C	77	32	MOV M,A
000D	CA1700	33	JZ LOSP
0010	7C	34	MOV A,H
0011	D604	35	SUI 4
0013	67	36	MOV H,A
0014	C30700	37	JMP NOMEM
0017	7D	38	LOSP: MOV A,L ;SETA STACK POINTER
0018	D630	39	SUI 30H ;48 POSICOES ABAIXO DO TOPO DA M
			EMORIA.
001A	6F	40	MOV L,A
001B	F9	41	SPLH
		42	
		43	PROGRAMACAO DOS I/O'S
001C	C33B05	44	JMP INIO
		45	
		46	
		47	
0020		48	ORG 20H
0020	C35602	49	JMP SAVE
		50	
0024		51	ORG 24H

LOC	OBJ	LINE	SOURCE STATEMENT
0024	C31905	52	JMP TRAP 05 19
		53	
002C		54	ORG 2CH
002C	C31F05	55	JMP RST55 05 1F
		56	
0034		57	ORG 34H
0034	C32805	58	JMP RST65 05 28
		59	
003C		60	ORG 3CH
003C	C32E05	61	JMP RST75 05 2E
		62	
003F	OEEC	63	INICIO: MVI C, -20
0041	CDE205	64	CALL MENTOP
0044	3600	65	MVI M, 0
0046	OEF3	66	MVI C, -13
0048	CDE205	67	CALL MENTOP
004B	7E	68	MOV A, M
004C	FEAA	69	CPI OAAH
004E	C25900	70	JNZ TEC
0051	OEEC	71	MVI C, -20
0053	CDE205	72	CALL MENTOP
0056	3601	73	MVI M, 1
0058	E7	74	RST 4
		75	
		76	
		77	
		78	; TEC/DIS MONITOR
		79	
0059	CD0B07	80	TEC: CALL APDIS ; LIMPA DISPLAY.
005C	21AA07	81	LXI H, MENS ; HL = POINTER MENSAGEM.
005F	CDD605	82	CALL PRINT ; IMPRIME NO DISPLAY 8085-C.
0062	CDBA06	83	COMAND: CALL TECLA ; RECEBE TECLA EM A E C.
0065	D604	84	SUI 4 ; A = A-4.
0067	CAAA01	85	JZ SSTEP ; COMANDO SINGLE STEP.
006A	3D	86	DCR A ;
006B	CA3601	87	JZ MCOM ; COMANDO MOVE.
006E	3D	88	DCR A ;
006F	CA0010	89	JZ LIST ; COMANDO LIST
0072	D602	90	SUI 2 ;
0074	CAD102	91	JZ XCOM ; COMANDO MOSTRA REGISTRADORES.
0077	3D	92	DCR A ;
007B	CAB700	93	JZ FCOM ; COMANDO FILL.
007B	3D	94	DCR A ;
007C	CAED00	95	JZ ICOM ; COMANDO INSERE.
007F	3D	96	DCR A ;
0080	CA0C01	97	JZ SCOM ; COMANDO SUBSTITUE.
0083	3D	98	DCR A ;
0084	CA7B01	99	JZ DCOM ; COMANDO DISPLAY.
0087	3D	100	DCR A ;
008B	CABE01	101	JZ DNXT ; COMANDO DISPLAY NEXT.
008B	3D	102	DCR A ;
008C	CA9701	103	JZ DMEN ; COMANDO DISPLAY MENOS.
008F	3D	104	DCR A ;
0090	CAD001	105	JZ GCOM ; COMANDO GO.
0093	3D	106	DCR A ;

LOC	OBJ	LINE	SOURCE STATEMENT
		107 ;	-----
		108 ;	
		109 ;	COMANDOS DO PROGRAMADOR E K-7
		110 ;	-----
0094	CABB04	111	JZ TRANS ;COMANDO TRANSFERE.
0097	3D	112	DCR A ;
0098	CAE903	113	JZ COMP ;COMANDO COMPARA.
009B	3D	114	DCR A ;
009C	CAB603	115	JZ CKREAD ;COMANDO LE FITA K-7.
009F	3D	116	DCR A ;
00A0	CAB303	117	JZ CKWRIT ;COMANDO ESCRIVE FITA K-7.
00A3	3D	118	DCR A ;
00A4	CAF204	119	JZ VERIF ;COMANDO VERIFICA.
00A7	3D	120	DCR A ;
00A8	CA2D04	121	JZ PROGRA ;COMANDO PROGRAME.
		122 ;	-----
		123 ;	
00AB	CD0B07	124	ERRENT: CALL APDIS
00AE	21B107	125	LXI H,MERR
00B1	CDD605	126	CALL PRINT
00B4	C36200	127	JMP COMAND
		128	
00B7	CD0B07	129	FCOM: CALL APDIS
00BA	CD8005	130	CALL RADD
00BD	EB	131	XCHG
00BE	CDBA06	132	CALL TECLA
00C1	CD0B07	133	CALL APDIS
00C4	CD5B05	134	CALL RBYTE+3
00C7	CD8305	135	CALL RADD+3
00CA	EB	136	XCHG ;HL=END.INI DE=END.FIN ✓
00CB	CD5B05	137	CALL RBYTE
00CE	DAAB00	138	JC ERRENT
00D1	47	139	MOV B,A
00D2	CDBA06	140	CALL TECLA
00D5	FE16	141	CPI 22
00D7	C2AB00	142	JNZ ERRENT
00DA	70	143	NEWBYT: MOV M,B
00DB	CD9A07	144	CALL HILO
00DE	D2DA00	145	JNC NEWBYT
00E1	CD0B07	146	IMEOFD: CALL APDIS ;APAGA DISPLAY.
00E4	21B607	147	LXI H,EOFD ;HL=POINTER MENSAGEM.
00E7	CDD605	148	CALL PRINT ;IMPRIME MENSAGEM EOF.
00EA	C36200	149	JMP COMAND ;
		150	
		151	
00ED	CD0B07	152	ICOM: CALL APDIS
00F0	CD8005	153	CALL RADD
00F3	CD5B05	154	CALL RBYTE
00F6	DA0401	155	ICOM1: JC ICOM2
00F9	77	156	MOV M,A
00FA	23	157	INX H

LOC	OBJ	LINE	SOURCE STATEMENT
00FB	CD9305	158	CALL RDATA
00FE	CD5B05	159	CALL RBYTE+3
0101	C3F600	160	JMP ICOM1
0104	FE16	161	ICOM2: CPI 22
0106	CAE100	162	JZ IMEOF0
0109	C3AB00	163	JMP ERRENT
		164	
		165	
010C	CD0B07	166	SCOM: CALL APDIS
010F	CD8005	167	CALL RADD
0112	7E	168	MOV A,M
0113	CDA105	169	CALL DBYTE
0116	CD9305	170	CALL RDATA
0119	FE16	171	CPI 22
011B	CAE100	172	JZ IMEOF0
011E	CD5B05	173	CALL RBYTE+3
0121	DAAB00	174	JC ERRENT
0124	F5	175	PUSH PSW
0125	CDBA06	176	CALL TECLA
0128	FE16	177	CPI 22
012A	C23201	178	JNZ SCOM1
012D	F1	179	POP PSW
012E	77	180	MOV M,A
012F	C3E100	181	JMP IMEOF0
0132	F1	182	SCOM1: POP PSW
0133	C3AB00	183	JMP ERRENT
		184	
		185	
0136	CD0B07	186	MCOM: CALL APDIS
0139	CD8005	187	CALL RADD
013C	EB	188	XCHG
013D	CDBA06	189	CALL TECLA
0140	CD0B07	190	CALL APDIS
0143	CD5B05	191	CALL RBYTE+3
0146	CD8305	192	CALL RADD+3
0149	EB	193	XCHG
014A	E5	194	PUSH H
014B	0EE7	195	MVI C,-25
014D	CDA806	196	CALL SADR
0150	E1	197	POP H
0151	EB	198	XCHG
0152	CDBA06	199	CALL TECLA
0155	CD0B07	200	CALL APDIS
0158	CD5B05	201	CALL RBYTE+3
015B	CD8305	202	CALL RADD+3
015E	CDBA06	203	CALL TECLA
0161	FE16	204	CPI 22
0163	C2AB00	205	JNZ ERRENT
0166	E5	206	PUSH H
0167	D5	207	PUSH D
0168	0EE7	208	MVI C,-25
016A	CDB106	209	CALL LADR
016D	E1	210	POP H
016E	C1	211	POP B
016F	7E	212	MCOM1: MOV A,M

LOC	OBJ	LINE	SOURCE STATEMENT
0170	02	213	STAX B
0171	CD9A07	214	CALL HILO
0174	03	215	INX B
0175	DAE100	216	JC IMEOF0
0178	C36F01	217	JMP MCOM1
		218	
017B	CD0B07	219	DCOM: CALL APDIS
017E	CD8005	220	CALL RADD
0181	7E	221	MOV A,M
0182	CDA105	222	CALL DBYTE
0185	EB	223	XCHG
0186	OEEB	224	DCOM1: MVI C,-21
0188	CDAB06	225	CALL SADR
018B	C36200	226	JMP COMAND
		227	
018E	OEEB	228	DNXT: MVI C,-21
0190	CDB106	229	CALL LADR
0193	13	230	INX D
0194	C39D01	231	JMP MDADO
0197	OEEB	232	DMEN: MVI C,-21
0199	CDB106	233	CALL LADR
019C	1B	234	DCX D
019D	CD0B07	235	MDADO: CALL APDIS
01A0	CDB805	236	CALL DADD
01A3	1A	237	LDA D
01A4	CDA105	238	CALL DBYTE
01A7	C38601	239	JMP DCOM1
		240	
01AA	CD0B07	241	SSTEP: CALL APDIS ;APAGA DISPLAY.
01AD	0EF3	242	MVI C,-13 ;*PREPARA POSICAO TOPO-13
01AF	CDE205	243	CALL MENTOP ;*PARA COLOCAR O FLAG QUE
01B2	3655	244	MVI M,55H ;*INDICARA SINGLE STEP.
01B4	CD8005	245	CALL RADD ;LEIA END. INICIO EM HL.
01B7	E5	246	PUSH H ;SALVA HL NO STACK.
01B8	CD8A06	247	SST01: CALL TECLA ;AGUARDE ENTR. DE TECLA.
01BB	FE0D	248	CPI 0DH ;VEJA SE TECLA NEXT.
01BD	CA3102	249	JZ EXEC ;PULE SE AFIRMATIVO.
01C0	E1	250	POP H ;AJUSTE STACK POINTER.
01C1	FE16	251	CPI 22 ;VEJA SE TECLA EXECUTE.
01C3	C2AB00	252	JNZ ERRENT ;PULE P/ ERRO SE NAO.
01C6	0EF3	253	MVI C,-13 ;*PREPARA POSICAO TOPO-13
01C8	CDE205	254	CALL MENTOP ;*PARA APAGAR O FLAG QUE
01CB	3600	255	MVI M,0 ;*INDICA SINGLE STEP.
01CD	C36200	256	JMP COMAND ;SAIDA.
		257	
		258	
		259	
01D0	CD0B07	260	GCOM: CALL APDIS
01D3	0EF3	261	MVI C,-13
01D5	CDE205	262	CALL MENTOP
01D8	36AA	263	MVI M,0AAH
01DA	CD8005	264	CALL RADD
01DD	E5	265	PUSH H
01DE	CD8A06	266	CALL TECLA
01E1	FE16	267	CPI 22

LOC	OBJ	LINE	SOURCE STATEMENT
01E3	CA3102	268	JZ EXEC
01E6	D1	269	POP D
01E7	CD0B07	270	CALL APDIS
01EA	CD5B05	271	CALL RBYTE+3
01ED	CD8305	272	CALL RADD+3
01F0	D5	273	PUSH D
01F1	EB	274	XCHG
01F2	0EF0	275	MVI C,-16
01F4	CDA806	276	CALL SADR
01F7	D1	277	POP D
01F8	CDBA06	278	CALL TECLA
01FB	FE16	279	CPI 22
01FD	CA2202	280	JZ EXEC1
0200	CD0B07	281	CALL APDIS
0203	CD5B05	282	CALL RBYTE+3
0206	CD8305	283	CALL RADD+3
0209	CDBA06	284	CALL TECLA
020C	FE16	285	CPI 22
020E	C2AB00	286	JNZ ERRENT
0211	D5	287	EXEC2: PUSH D
0212	EB	288	XCHG
0213	0EED	289	MVI C,-19
0215	CDE205	290	CALL MENTOP
0218	CD1E07	291	CALL COBREK
021B	0EF1	292	MVI C,-15
021D	CDE205	293	CALL MENTOP
0220	72	294	MOV M,D
0221	D1	295	POP D
0222	D5	296	EXEC1: PUSH D
0223	0EF0	297	MVI C,-16
0225	CDB106	298	CALL LADR
0228	CD1E07	299	CALL COBREK
022B	0EF2	300	MVI C,-14
022D	CDE205	301	CALL MENTOP
0230	72	302	MOV M,D
0231	3E04	303	EXEC: MVI A,4
0233	0EFF	304	MVI C,-1
0235	CDB106	305	CALL LADR
0238	D5	306	PUSH D
0239	0D	307	DCR C
023A	0D	308	DCR C
023B	3D	309	DCR A
023C	C23502	310	JNZ *-7
023F	0EF3	311	MVI C,-13 ;TESTE SE EM SINGLE STEP.
0241	CDE205	312	CALL MENTOP
0244	3E55	313	MVI A,55H
0246	BE	314	CMF M
0247	C25102	315	JNZ EXECO ;PULE CASO NEGATIVO.
024A	3E5E	316	MVI A,5EH ;A=MASCARA PARA SIM.
024C	30	317	SIM
024D	FB	318	EI ;PERMITA INTERRUPTCOES.
024E	00	319	NOP ;AJUSTE DE TEMPO.
024F	00	320	NOP ;AJUSTE DE TEMPO.
0250	00	321	NOP ;AJUSTE DE TEMPO.
0251	F1	322	EXEC0: POP PSW

LOC	OBJ	LINE	SOURCE STATEMENT
0252	E1	323	POP H
0253	D1	324	POP D
0254	C1	325	POP B
0255	C9	326	RET
		327	
		328	
0256	E5	329	SAVE: PUSH H
0257	F5	330	PUSH PSW
0258	210600	331	LXI H,6
025B	39	332	DAD SP
025C	E5	333	PUSH H
025D	D5	334	PUSH D
025E	C5	335	PUSH B
025F	3E06	336	MVI A,6
0261	0EFF	337	MVI C,-1
0263	D1	338	POP D
0264	CDA806	339	CALL SADR
0267	0D	340	DCR C
0268	0D	341	DCR C
0269	3D	342	DCR A
026A	C26302	343	JNZ \$-7
026D	0EF6	344	MVI C,-10
026F	CDE205	345	CALL MENTOP
0272	F9	346	SPHL
0273	E1	347	POP H
0274	33	348	INX SP
0275	33	349	INX SP
0276	E3	350	XTHL
0277	3B	351	DCX SP
0278	3B	352	DCX SP
0279	E5	353	PUSH H
027A	F9	354	SPHL
027B	0EF3	355	MVI C,-13
027D	CDE205	356	CALL MENTOP
0280	3E55	357	MVI A,55H ;A=FLAG DE SINGLE STEP.
0282	BE	358	CMP M ;VEJA SE EM SINGLE STEP.
0283	C29A02	359	JNZ SAV01 ;PULE EM CASO NEGATIVO.
0286	CD0B07	360	CALL APDIS ;APAGA DISPLAY.
0289	0EF5	361	MVI C,-11 ;*
028B	CDB106	362	CALL LADR ;*OBTENHA CONTEUDO PC.
028E	CDB805	363	CALL DADD ;MOSTRA CONTEUDO DO PC.
0291	EB	364	XCHG ;FACA HL = PC.
0292	E5	365	PUSH H ;SALVA HL NO STACK.
0293	7E	366	MOV A,M ;A=OPCODE PROXIMA INSTR.
0294	CDA105	367	CALL DBYTE ;MOSTRA OPCODE NO DISPLAY.
0297	C3B801(0188)	368	JMP SST01 ;PULA P/ROTINA SINGLE STEP.
029A	EB	369	SAV01: XCHG
029B	AF	370	XRA A
029C	12	371	STAX D
029D	1B	372	DCX D
029E	1A	373	LDAX D
029F	FEDD	374	CPI ODDH
02A1	CAAB02	375	JZ VBREK2
02A4	21FEFF	376	LXI H,-2
02A7	19	377	DAD D

Single Step. (RST 5.5)

LOC	OBJ	LINE	SOURCE	STATEMENT
02A8	CD2607	378	CALL	VEDD
02AB	1B	379	VBREK2:	DCX D
02AC	1A	380	LDAX	D
02AD	FEDD	381	CPI	ODDH
02AF	CAB902	382	JZ	TDUMP
02B2	21FDFF	383	LXI	H, -3
02B5	19	384	DAD	D
02B6	CD2607	385	CALL	VEDD
02B9	CD0B07	386	TDUMP:	CALL APDIS
02BC	0EF5	387	MVI	C, -11
02BE	CDB106	388	CALL	LADR
02C1	1B	389	DCX	D
02C2	CDB805	390	CALL	DADD
02C5	0EF8	391	MVI	C, -8
02C7	CDE205	392	CALL	MENTOP
02CA	7E	393	MOV	A, M
02CB	CDA105	394	CALL	DBYTE
02CE	C36200	395	JMP	COMAND
		396		
		397		
		398		
02D1	CD0B07	399	XCOM:	CALL APDIS
02D4	CD8A06	400	CALL	TECLA
02D7	FE08	401	CPI	8
02D9	DAEC02	402	JC	XCOM1
02DC	CA3B03	403	JZ	XPC
02DF	FE09	404	CPI	9
02E1	CA2A03	405	JZ	XSP
02E4	FE0A	406	CPI	OAH
02E6	CA4A03	407	JZ	XM
02E9	C3AB00	408	JMP	ERRENT
02EC	5F	409	XCOM1:	MOV E, A
02ED	3E93	410	MVI	A, 93H
02EF	D309	411	OUT	C79
02F1	210307	412	LXI	H, TABDRE
02F4	1600	413	MVI	D, 0
02F6	19	414	DAD	D
02F7	4E	415	MOV	C, M
02F8	06FA	416	MVI	B, 0FAH
02FA	CD5105	417	CALL	TDISX
02FD	3EFF	418	MVI	A, OFFH
02FF	D308	419	OUT	D79
0301	7B	420	MOV	A, E
0302	2F	421	CMA	
0303	4F	422	MOV	C, A
0304	CDE205	423	CALL	MENTOP
0307	7E	424	MOV	A, M
0308	CDA105	425	CALL	DBYTE
030B	3E96	426	MVI	A, 96H
030D	D309	427	OUT	C79
030F	CD8A06	428	CALL	TECLA
0312	FE16	429	CPI	22
0314	CAE100	430	JZ	IMEOFD
0317	CD5B05	431	CALL	RBYTE+3
031A	DAAB00	432	JC	ERRENT

LOC	OBJ	LINE	SOURCE STATEMENT
031D	47	433	MOV B,A
031E	CDBA06	434	CALL TECLA
0321	FE16	435	CPI 22
0323	C2AB00	436	JNZ ERRENT
0326	70	437	MOV M,B
0327	C3E100	438	JMP IMEOF0
032A	0EF7	439 XSP:	MVI C,-9
032C	CDB106	440	CALL LADR
032F	CDB805	441	CALL DADD
0332	01C829	442	LXI B,29C8H
0335	CD5105	443	CALL TDISX
0338	C36200	444	JMP COMAND
033B	0EF5	445 XPC:	MVI C,-11
033D	CDB106	446	CALL LADR
0340	1B	447	DCX D
0341	CDB805	448	CALL DADD
0344	016CC8	449	LXI B,0C86CH
0347	C33503	450	JMP XPC-6
034A	0EFB	451 XM:	MVI C,-5
034C	CDB106	452	CALL LADR
034F	CDB805	453	CALL DADD
0352	017C98	454	LXI B,987CH
0355	CD5105	455	CALL TDISX
0358	CDBA06	456	CALL TECLA
035B	CD0B07	457	CALL APDIS
035E	FE16	458	CPI 22
0360	CAE100	459	JZ IMEOF0
0363	CD5B05	460	CALL RBYTE+3
0366	CD8305	461	CALL RADD+3
0369	EB	462	XCHG
036A	0EFA	463	MVI C,-6
036C	CDE205	464	CALL MENTOP
036F	CDBA06	465	CALL TECLA
0372	FE16	466	CPI 22
0374	C2AB00	467	JNZ ERRENT
0377	73	468	MOV M,E
0378	23	469	INX H
0379	72	470	MOV M,D
037A	017C98	471	LXI B,987CH
037D	CD5105	472	CALL TDISX
0380	C3E100	473	JMP IMEOF0
		474	
		475	
0383	CD0B07	476 CKWRIT:	CALL APDIS
0386	CD8005	477	CALL RADD
0389	EB	478	XCHG
038A	CDBA06	479	CALL TECLA
038D	CD0B07	480	CALL APDIS
0390	CD5B05	481	CALL RBYTE+3
0393	CD8305	482	CALL RADD+3
0396	CD5805	483	CALL RBYTE
0399	DAAB00	484	JC ERRENT
039C	47	485	MOV B,A
039D	CDBA06	486	CALL TECLA
03A0	FE16	487	CPI 22

LOC	OBJ	LINE	SOURCE STATEMENT
03A2	C2AB00	488	JNZ ERRENT
03A5	E5	489	PUSH H
03A6	CD0B07	490	CALL APDIS
03A9	21D007	491	LXI H, MENCW
03AC	CDD605	492	CALL PRINT
03AF	E1	493	POP H
03B0	CDFD05	494	CALL WR
03B3	C3E100	495	JMP IMEOF0
		496	
		497	
03B6	CD0B07	498	CKREAD: CALL APDIS
03B9	CD8005	499	CALL RADD
03BC	CD5B05	500	CALL RBYTE
03BF	DAAB00	501	JC ERRENT
03C2	47	502	MOV B, A
03C3	CDBA06	503	CALL TECLA
03C6	FE16	504	CPI 22
03C8	C2AB00	505	JNZ ERRENT
03CB	E5	506	PUSH H
03CC	CD0B07	507	CALL APDIS
03CF	21CB07	508	LXI H, MENCN
03D2	CDD605	509	CALL PRINT
03D5	E1	510	POP H
03D6	CD3A06	511	NOVID: CALL LSYID
03D9	CD9A06	512	CALL MOSID
03DC	BB	513	CMP B
03DD	C2D603	514	JNZ NOVID
03E0	CD6206	515	CALL RD
03E3	CAE100	516	JZ IMEOF0
03E6	C3AB00	517	JMP ERRENT
		518	
		519	
03E9	CD0B07	520	COMP: CALL APDIS
03EC	CD8005	521	CALL RADD
03EF	EB	522	XCHG
03F0	0EE9	523	MVI C, -23
03F2	CDA806	524	CALL SADR
03F5	CDBA06	525	CALL TECLA
03F8	CD0B07	526	CALL APDIS
03FB	CD5B05	527	CALL RBYTE+3
03FE	CD8305	528	CALL RADD+3
0401	EB	529	XCHG
0402	0EE7	530	MVI C, -25
0404	CDA806	531	CALL SADR
0407	CDBA06	532	CALL TECLA
040A	CD0B07	533	CALL APDIS
040D	CD5B05	534	CALL RBYTE+3
0410	CD8305	535	CALL RADD+3
0413	EB	536	XCHG
0414	0EE5	537	MVI C, -27
0416	CDA806	538	CALL SADR
0419	CDBA06	539	CALL TECLA
041C	FE16	540	CPI 22
041E	C2AB00	541	JNZ ERRENT
0421	CD0B07	542	CALL APDIS

LOC	OBJ	LINE	SOURCE	STATEMENT
0424	21C307	543	LXI	H, MENCOM
0427	CDD605	544	CALL	PRINT
042A	C39B04	545	JMP	COMP1
		546		
042D	CD0B07	547	PROGRA: CALL	APDIS
0430	CD8005	548	CALL	RADD
0433	EB	549	XCHG	
0434	0EE9	550	MVI	C, -23
0436	CDA806	551	CALL	SADR
0439	CDBA06	552	CALL	TECLA
043C	CD0B07	553	CALL	APDIS
043F	CD5B05	554	CALL	RBYTE+3
0442	CD8305	555	CALL	RADD+3
0445	EB	556	XCHG	
0446	0EE7	557	MVI	C, -25
0448	CDA806	558	CALL	SADR
044B	CDBA06	559	CALL	TECLA
044E	CD0B07	560	CALL	APDIS
0451	CD5B05	561	CALL	RBYTE+3
0454	CD8305	562	CALL	RADD+3
0457	EB	563	XCHG	
0458	0EE5	564	MVI	C, -27
045A	CDA806	565	CALL	SADR
045D	CDBA06	566	CALL	TECLA
0460	FE16	567	CPI	22
0462	C2AB00	568	JNZ	ERRENT
0465	E5	569	PUSH	H
0466	CD0B07	570	CALL	APDIS
0469	21BB07	571	LXI	H, MENPRO
046C	CDD605	572	CALL	PRINT
046F	E1	573	POP	H
0470	3EB0	574	MVI	A, 80H
0472	D30F	575	OUT	CON1
0474	3E07	576	MVI	A, SETPC3
0476	D30F	577	OUT	CON1
0478	CD3907	578	CALL	MASEND
047B	7B	579	NOCIC: MOV	A, E
047C	D30C	580	OUT	A1
047E	7A	581	MOV	A, D
047F	F6A8	582	ORI	0A8H
0481	D30E	583	OUT	C1
0483	7E	584	MOV	A, M
0484	D30D	585	OUT	B1
0486	3E09	586	MVI	A, SETPC4
0488	D30F	587	OUT	CON1
048A	CD7007	588	CALL	DEL1
048D	3E08	589	MVI	A, RESPC4
048F	D30F	590	OUT	CON1
0491	CD8107	591	CALL	FIM
0494	D27B04	592	JNC	NOCIC
0497	3E20	593	MVI	A, 20H
0499	D30E	594	OUT	C1
049B	CD3907	595	COMP1: CALL	MASEND
049E	CD9107	596	CALL	STAR
04A1	CD5907	597	ONBY: CALL	PRBYTE

LOC	OBJ	LINE	SOURCE STATEMENT
04A4	47	598	MOV B,A
04A5	3E0B	599	MVI A,SETPC5
04A7	D30F	600	OUT CON1
04A9	7E	601	MOV A,M
04AA	B8	602	CMP B
04AB	C2AB00	603	JNZ ERRENT
04AE	CDB107	604	CALL FIM
04B1	D2A104	605	JNC ONBY
04B4	3E20	606	ENCER: MVI A,20H
04B6	D30E	607	OUT C1
04B8	C3E100	608	JMP IMEOFD
		609	
04BB	CDOB07	610	TRANS: CALL APDIS
04BE	CDB005	611	CALL RADD
04C1	CDBA06	612	CALL TECLA
04C4	FE16	613	CPI 22
04C6	C2AB00	614	JNZ ERRENT
04C9	E5	615	PUSH H
04CA	CDOB07	616	CALL APDIS
04CD	21BF07	617	LXI H,MENRA
04D0	CDD605	618	CALL PRINT
04D3	E1	619	POP H
04D4	E5	620	PUSH H
04D5	11FF07	621	LXI D,7FFH
04D8	19	622	DAD D
04D9	EB	623	XCHG
04DA	CD4D07	624	CALL GETADD
04DD	E1	625	POP H
04DE	CD9107	626	CALL STAR
04E1	CD5907	627	NUM: CALL PRBYTE
04E4	77	628	MOV M,A
04E5	3E0B	629	MVI A,SETPC5
04E7	D30F	630	OUT CON1
04E9	CDB107	631	CALL FIM
04EC	D2E104	632	JNC NUM
04EF	C3B404	633	JMP ENCER
		634	
04F2	CDOB07	635	VERIF: CALL APDIS
04F5	21C707	636	LXI H,MENCHE
04F8	CDD605	637	CALL PRINT
04FB	11FF17	638	LXI D,17FFH
04FE	CD4D07	639	CALL GETADD
0501	CD9107	640	CALL STAR
0504	CD5907	641	MON16: CALL PRBYTE
0507	FEFF	642	CPI 0FFH
0509	3E0B	643	MVI A,SETPC5
050B	D30F	644	OUT CON1
050D	C2AB00	645	JNZ ERRENT
0510	CDB107	646	CALL FIM
0513	D20405	647	JNC MON16
0516	C3B404	648	JMP ENCER
		649	
		650	
0519	C5	651	TRAP: PUSH B
051A	0EE1	652	MVI C,-31

IS-II 8080/8085 MACRO ASSEMBLER, V4.0
PROGRAMA MONITOR PARA DISPLAY/TECLADO V3.0

MODULE PAGE 13

LOC	OBJ	LINE	SOURCE STATEMENT
051C	C33105	653	JMP JUMP
		654	
051F	F3	655	RST55: DI ;ENIBA INTERRUPTCOES. RST55.
0520	F5	656	PUSH PSW ;SALVA A E FLAGS.
0521	3EDF	657	MVI A,ODFH ;A=MASCARA PARA INSTR. SIM.
0523	30	658	SIM ;
0524	F1	659	POP PSW ;RECUPERA A E FLAGS.
0525	C35602(02,56)	660	JMP SAVE ;PULE P/ROTINA SAVE.
		661	
0528	C5	662	RST65: PUSH B
0529	0EDB	663	MVI C,-37
052B	C33105(053J)	664	JMP JUMP
		665	
052E	C5	666	RST75: PUSH B
052F	0EDB	667	MVI C,-40 D8
		668	;
		669	;ROTINA PARA PULAR PARA ROTINA DE INTERRUPTCAO 4 *
0531	E3	670	JUMP: XTHL foga (B,C) em (H,L) ;SALVA HL a Troca contido de H com (H,L)
0532	E5	671	PUSH H (B,C) ;SALVA BC ORIGINAL
0533	F5	672	PUSH PSW ;SALVA PSW
0534	CDE205 (05E2)	673	CALL MENTOP ;TRANSFERE ENDEREÇO DA INTERRUPTCAO
		AD	
		674	;EM TOPO - (C) PARA (HL)
0537	F1	675	POP PSW ;RESTAURA PSW
0538	C1	676	POP B ;BC
0539	E3	677	XTHL ;RESTAURA HL E SALVA ENDEREÇO
		678	;DA INTERRUPTCAO NA PILHA
053A	C9	679	RET ;PULA P/ INTERRUPTCAO
		680	
		681	;ROTINAS UTILITARIAS 4BD7
		682	
053B	3ECE	683	INIO: MVI A,PMODO
053D	D301	684	OUT UCK
053F	3E27	685	MVI A,PCOM
0541	D301	686	OUT UCK
0543	AF	687	XRA A
0544	D309	688	OUT C79
0546	3E3F	689	MVI A,3FH
0548	D309	690	OUT C79
054A	3E80	691	MVI A,80H
054C	D30F	692	OUT CON1
054E	C33F00	693	JMP INICIO
		694	
0551	78	695	TDISX: MOV A,B
0552	D308	696	OUT D79
0554	79	697	MOV A,C
0555	D308	698	OUT D79
0557	C9	699	RET
		700	
		701	
		702	
		703	
		704	
055B	CDBA06	705	RBYTE: CALL TECLA
055B	FE10	706	CPI 10H

LOC	OBJ	LINE	SOURCE STATEMENT
055D	D27E05	707	JNC ERRO
0560	CDCF06	708	CALL CONDIS
0563	0F	709	RRC
0564	0F	710	RRC
0565	0F	711	RRC
0566	0F	712	RRC
0567	47	713	MOV B, A
0568	CDCB05	714	CALL CO
056B	CDBA06	715	CALL TECLA
056E	FE10	716	CPI 10H
0570	D27E05	717	JNC ERRO
0573	CDCF06	718	CALL CONDIS
0576	B0	719	ORA B
0577	47	720	MOV B, A
0578	CDCB05	721	CALL CO
057B	AF	722	XRA A
057C	78	723	MOV A, B
057D	C9	724	RET
057E	37	725	STC ERRO:
057F	C9	726	RET
0580	CD5805	727	RADD: CALL RBYTE
0583	DABF05	728	JC ERR
0586	67	729	MOV H, A
0587	CD5805	730	CALL RBYTE
058A	DABF05	731	JC ERR
058D	6F	732	MOV L, A
058E	C9	733	RET
058F	E1	734	ERR: POP H
0590	C3AB00	735	JMP ERRENT
		736	
0593	CDBA06	737	RDATA: CALL TECLA
0596	F5	738	PUSH PSW
0597	CD0B07	739	CALL APDIS
059A	EB	740	XCHG
059B	CDB805	741	CALL DADD
059E	EB	742	XCHG
059F	F1	743	POP PSW
05A0	C9	744	RET
		745	
05A1	47	746	DBYTE: MOV B, A
05A2	E6F0	747	ANI 0F0H
05A4	0F	748	RRC
05A5	0F	749	RRC
05A6	0F	750	RRC
05A7	0F	751	RRC
05A8	CDCF06	752	CALL CONDIS
05AB	CDCB05	753	CALL CO
05AE	78	754	MOV A, B
05AF	E60F	755	ANI 0FH
05B1	CDCF06	756	CALL CONDIS
05B4	CDCB05	757	CALL CO
05B7	C9	758	RET
		759	
		760	
05B8	7A	761	DADD: MOV A, D

LOC	OBJ	LINE	SOURCE STATEMENT
05B9	CDA105	762	CALL DBYTE
05BC	7B	763	MOV A,E
05BD	CDA105	764	CALL DBYTE
05C0	C9	765	RET
		766	
		767	
		768	
05C1	DB09	769	CI: IN C79
05C3	E607	770	ANI 7
05C5	CAC105	771	JZ CI
05C8	DB08	772	IN D79
05CA	C9	773	RET
		774	
		775	
05CB	DB09	776	CO: IN C79
05CD	E680	777	ANI 80H
05CF	C2CB05	778	JNZ CO
05D2	79	779	MOV A,C
05D3	D308	780	OUT D79
05D5	C9	781	RET
		782	
		783	
05D6	7E	784	PRINT: MOV A,M
05D7	FEFF	785	CPI OFFH
05D9	C8	786	RZ
05DA	4F	787	MOV C,A
05DB	CDCB05	788	CALL CO
05DE	23	789	INX H
05DF	C3D605	790	JMP PRINT
		791	
		792	
05E2	21FFFF	793	MENTOP: LXI H,OFFFH
05E5	7E	794	NTESTE: MOV A,M
05E6	2F	795	CMA <i>complementa A</i>
05E7	77	796	MOV M,A
05E8	BE	797	CMP M <i>Sub-trai A - ((H,L))</i>
05E9	2F	798	CMA <i>complementa A</i>
05EA	77	799	MOV M,A
05EB	CAF505	800	JZ METOP1
05EE	7C	801	MOV A,H
05EF	D604	802	SUI 4
05F1	67	803	MOV H,A
05F2	C3E505	804	JMP NTESTE
05F5	06FF	805	METOP1: MVI B,OFFH
05F7	79	806	MOV A,C <i>C = 08</i>
05F8	FE00	807	CPI 0
05FA	C8	808	RZ
05FB	09	809	DAD B <i>(H,L) = (H,L) + (B,C) <i>cont. em (HL)</i></i>
05FC	C9	810	RET
		811	
		812	
05FD	D5	813	WR: PUSH D
05FE	1620	814	MVI D,20H
0600	0ECB	815	MVI C,0CBH
0602	CD8506	816	CALL KOUT

4B FF
 H L
 FF D8
 4B D7

LOC	OBJ	LINE	SOURCE STATEMENT
0605	15	817	DCR D
0606	C20206	818	JNZ \$-4
0609	OED9	819	MVI C, 0D9H
060B	CD8506	820	CALL KOUT
060E	48	821	MOV C, B
060F	CD8506	822	CALL KOUT
0612	D1	823	POP D
0613	EB	824	XCHG
0614	CD1806	825	CALL ESBLK
0617	C9	826	RET
		827	
0618	7B	828	ESBLK: MOV A, E
0619	95	829	SUB L
061A	4F	830	MOV C, A
061B	7A	831	MOV A, D
061C	9C	832	SBB H
061D	47	833	MOV B, A
061E	03	834	INX B
061F	CD8506	835	CALL KOUT
0622	48	836	MOV C, B
0623	CD8506	837	CALL KOUT
0626	0600	838	MVI B, 0
0628	4E	839	NBYT: MOV C, M
0629	79	840	MOV A, C
062A	80	841	ADD B
062B	47	842	MOV B, A
062C	CD8506	843	CALL KOUT
062F	CD9A07	844	CALL HILO
0632	D22806	845	JNC NBYT
0635	48	846	MOV C, B
0636	CD8506	847	CALL KOUT
0639	C9	848	RET
		849	
063A	16CB	850	LSYID: MVI D, OCBH
063C	CD9006	851	CALL KIN
063F	BA	852	CMF D
0640	C23A06	853	JNZ LSYID
0643	1E1E	854	MVI E, 1EH
0645	CD9006	855	SYN: CALL KIN
0648	BA	856	CMF D
0649	C23A06	857	JNZ LSYID
064C	1D	858	DCR E
064D	C24506	859	JNZ SYN
0650	1E03	860	MVI E, 3
0652	1D	861	FSYN: DCR E
0653	CA3A06	862	JZ LSYID
0656	CD9006	863	CALL KIN
0659	FED9	864	CPI 0D9H
065B	C25206	865	JNZ FSYN
065E	CD9006	866	CALL KIN
0661	C9	867	RET
		868	
0662	0600	869	RD: MVI B, 0
0664	CD9006	870	CALL KIN
0667	5F	871	MOV E, A

LOC	OBJ	LINE	SOURCE	STATEMENT
0668	CD9006	872	CALL	KIN
066B	57	873	MOV	D,A
066C	CD9006	874	NEWDA:	CALL KIN
066F	77	875	MOV	M,A
0670	80	876	ADD	B
0671	47	877	MOV	B,A
0672	23	878	INX	H
0673	1B	879	DCX	D
0674	CD7F06	880	CALL	FLEI
0677	C26C06	881	JNZ	NEWDA
067A	CD9006	882	CALL	KIN
067D	BB	883	CMP	B
067E	C9	884	RET	
		885		
067F	7B	886	FLEI:	MOV A,E
0680	B7	887	ORA	A
0681	C0	888	RNZ	
0682	7A	889	MOV	A,D
0683	B7	890	ORA	A
0684	C9	891	RET	
		892		
0685	DB01	893	KOUT:	IN UCK
0687	E601	894	ANI	1
0689	CAB506	895	JZ	KOUT
068C	79	896	MOV	A,C
068D	D300	897	OUT	UDK
068F	C9	898	RET	
		899		
0690	DB01	900	KIN:	IN UCK
0692	E602	901	ANI	2
0694	CA9006	902	JZ	KIN
0697	DB00	903	IN	UDK
0699	C9	904	RET	
		905		
		906		
069A	C5	907	MOSID:	PUSH B
069B	F5	908	PUSH	PSW
069C	3E96	909	MVI	A,96H
069E	D309	910	OUT	C79
06A0	F1	911	POP	PSW
06A1	F5	912	PUSH	PSW
06A2	CDA105	913	CALL	DBYTE
06A5	F1	914	POP	PSW
06A6	C1	915	POP	B
06A7	C9	916	RET	
		917		
		918		
		919		
		920		
06A8	F5	921	SADR:	PUSH PSW
06A9	CDE205	922	CALL	MENTOP
06AC	72	923	MOV	M,D
06AD	2B	924	DCX	H
06AE	73	925	MOV	M,E
06AF	F1	926	POP	PSW

LOC	OBJ	LINE	SOURCE STATEMENT
06B0	C9	927	RET
		928	
06B1	F5	929	LADR: PUSH PSW
06B2	CDE205	930	CALL MENTOP
06B5	56	931	MOV D,M
06B6	2B	932	DCX H
06B7	5E	933	MOV E,M
06B8	F1	934	POP PSW
06B9	C9	935	RET
		936	
		937	
06BA	E5	938	TECLA: PUSH H
06BB	CDC105	939	CALL CI
06BE	21EC06	940	LXI H,TABTEC
06C1	0E00	941	MVI C,0
06C3	BE	942	TECLA1: CMP M
06C4	CACC06	943	JZ TECLA2
06C7	0C	944	INR C
06C8	23	945	INX H
06C9	C3C306	946	JMP TECLA1
06CC	79	947	TECLA2: MOV A,C
06CD	E1	948	POP H
06CE	C9	949	RET
06CF	E5	950	CONDIS: PUSH H
06D0	D5	951	PUSH D
06D1	21DC06	952	LXI H,TABDIS
06D4	1600	953	MVI D,0
06D6	5F	954	MOV E,A
06D7	19	955	DAD D
06D8	4E	956	MOV C,M
06D9	D1	957	POP D
06DA	E1	958	POP H
06DB	C9	959	RET
		960	
06DC	0C	961	TABDIS: DB 0CH
06DD	9F	962	DB 9FH
06DE	4A	963	DB 4AH
06DF	0B	964	DB 0BH
06E0	99	965	DB 99H
06E1	29	966	DB 29H
06E2	28	967	DB 28H
06E3	8F	968	DB 8FH
06E4	08	969	DB 08H
06E5	89	970	DB 89H
06E6	88	971	DB 88H
06E7	38	972	DB 38H
06E8	6C	973	DB 6CH
06E9	1A	974	DB 1AH
06EA	68	975	DB 68H
06EB	E8	976	DB 0E8H
06EC	EB	977	TABTEC: DB 0EBH
06ED	EA	978	DB 0EAH
06EE	E9	979	DB 0E9H
06EF	E8	980	DB 0E8H
06F0	E3	981	DB 0E3H

LOC	OBJ	LINE	SOURCE STATEMENT
06F1	E2	982	DB 0E2H
06F2	E1	983	DB 0E1H
06F3	E0	984	DB 0E0H
06F4	DB	985	DB 0DBH
06F5	DA	986	DB 0DAH
06F6	D9	987	DB 0D9H
06F7	DB	988	DB 0DBH
06F8	D3	989	DB 0D3H
06F9	D2	990	DB 0D2H
06FA	D1	991	DB 0D1H
06FB	D0	992	DB 0D0H
06FC	DC	993	DB 0DCH
06FD	E4	994	DB 0E4H
06FE	EC	995	DB 0ECH
06FF	ED	996	DB 0EDH
0700	E5	997	DB 0E5H
0701	DD	998	DB 0DDH
0702	D5	999	DB 0D5H
0703	3B	1000	TABDRE: DB 3BH
0704	6C	1001	DB 6CH
0705	1A	1002	DB 1AH
0706	6B	1003	DB 6BH
0707	9B	1004	DB 9BH
0708	7C	1005	DB 7CH
0709	8B	1006	DB 8BH
070A	EB	1007	DB 0EBH
		1008	
		1009	
070B	F5	1010	APDIS: PUSH PSW
070C	C5	1011	PUSH B
070D	3EDF	1012	MVI A, 0DFH
070F	D309	1013	OUT C79
0711	062B	1014	MVI B, 40
0713	05	1015	DCR B
0714	C21307	1016	JNZ \$-1
0717	3E92	1017	MVI A, 92H
0719	D309	1018	OUT C79
071B	C1	1019	POP B
071C	F1	1020	POP PSW
071D	C9	1021	RET
		1022	
071E	73	1023	COBREK: MOV M, E
071F	23	1024	INX H
0720	72	1025	MOV M, D
0721	EB	1026	XCHG
0722	56	1027	MOV D, M
0723	36E7	1028	MVI M, 0E7H
0725	C9	1029	RET
		1030	
0726	46	1031	VEDD: MOV B, M
0727	2B	1032	DCX H
0728	4E	1033	MOV C, M
0729	02	1034	STAX B
072A	3EDD	1035	MVI A, 0DDH
072C	12	1036	STAX D

LOC	OBJ	LINE	SOURCE STATEMENT
072D	C9	1037	RET
		1038	
		1039	
072E	4E	1040	DIAR: MOV C,M
072F	CDCB05	1041	CALL CO
0732	23	1042	INX H
0733	FE3D	1043	CPI '='
0735	C22E07	1044	JNZ DIAR
0738	C9	1045	RET
		1046	
0739	C5	1047	MASEND: PUSH B
073A	0EE5	1048	MVI C,-27
073C	CDB106	1049	CALL LADR
073F	7A	1050	MOV A,D
0740	E607	1051	ANI 7
0742	57	1052	MOV D,A
0743	D5	1053	PUSH D
0744	0EE9	1054	MVI C,-23
0746	CDB106	1055	CALL LADR
0749	EB	1056	XCHG
074A	D1	1057	POP D
074B	C1	1058	POP B
074C	C9	1059	RET
		1060	
		1061	
074D	0EE7	1062	GETADD: MVI C,-25
074F	CDA806	1063	CALL SADR
0752	110000	1064	LXI D,0
0755	210010	1065	LXI H,1000H
0758	C9	1066	RET
		1067	
0759	7B	1068	PRBYTE: MOV A,E
075A	D30C	1069	OUT A1
075C	7A	1070	MOV A,D
075D	D30E	1071	OUT C1
075F	3E0A	1072	MVI A,RESPC5
0761	D30F	1073	OUT CON1
0763	DB0D	1074	IN B1
0765	C9	1075	RET
		1076	
		1077	
0766	0E12	1078	DEL2: MVI C,12H
0768	CD7007	1079	CALL DEL1
076B	0D	1080	DCR C
076C	C26807	1081	JNZ \$-4
076F	C9	1082	RET
		1083	
		1084	
0770	0652	1085	DEL1: MVI B,B2
0772	CD7A07	1086	CALL DELAY
0775	05	1087	DCR B
0776	C27207	1088	JNZ \$-4
0779	C9	1089	RET
		1090	
077A	3EB2	1091	DELAY: MVI A,130

LOC	OBJ	LINE	SOURCE	STATEMENT
077C	3D	1092	DCR	A
077D	C27C07	1093	JNZ	\$-1
0780	C9	1094	RET	
		1095		
0781	C5	1096	FIM: PUSH	B
0782	D5	1097	PUSH	D
0783	E5	1098	PUSH	H
0784	0EE7	1099	MVI	C, -25
0786	CDB106	1100	CALL	LADR
0789	E1	1101	POP	H
078A	CD9A07	1102	CALL	HILO
078D	D1	1103	POP	D
078E	C1	1104	POP	B
078F	13	1105	INX	D
0790	C9	1106	RET	
		1107		
		1108		
0791	3EB2	1109	STAR: MVI	A, 82H
0793	D30F	1110	OUT	CON1
0795	3E20	1111	MVI	A, 20H
0797	D30E	1112	OUT	C1
0799	C9	1113	RET	
		1114		
		1115		
		1116		
		1117		
		1118		
		1119		
079A	23	1120	HILO: INX	H
079B	EB	1121	XCHG	
079C	CD7F06	1122	CALL	FLEI
079F	CAAB07	1123	JZ	SRET
07A2	EB	1124	XCHG	
07A3	7B	1125	MOV	A, E
07A4	95	1126	SUB	L
07A5	7A	1127	MOV	A, D
07A6	9C	1128	SBB	H
07A7	C9	1129	RET	
07A8	37	1130	SRET: STC	
07A9	C9	1131	RET	
		1132		
		1133		
		1134		
		1135		
07AA	08	1136	MENS: DB	8, 0CH, 8, 29H, 0FBH, 6CH, -1
07AB	0C			
07AC	08			
07AD	29			
07AE	FB			
07AF	6C			
07B0	FF			
07B1	68	1137	MERR: DB	68H, 0FAH, 0FAH, 3AH, -1
07B2	FA			
07B3	FA			
07B4	3A			

LOC	OBJ	LINE	SOURCE STATEMENT
07B5	FF		
07B6	6B	1138	EOFD: DB 6BH, 0CH, 0EBH, 1AH, -1
07B7	0C		
07B8	E8		
07B9	1A		
07BA	FF		
07BB	CB	1139	MENPRO: DB 0CBH, 0FAH, 3AH, -1
07BC	FA		
07BD	3A		
07BE	FF		
07BF	6C	1140	MENTRA: DB 6CH, 3AH, 0CBH, -1
07C0	3A		
07C1	CB		
07C2	FF		
07C3	6C	1141	MENCOM: DB 6CH, 0CBH, 3BH, -1
07C4	CB		
07C5	3B		
07C6	FF		
07C7	6C	1142	MENCHE: DB 6CH, 9BH, 6BH, -1
07C8	9B		
07C9	6B		
07CA	FF		
07CB	6C	1143	MENCR: DB 6CH, 0FBH, 8FH, 7CH, -1
07CC	FB		
07CD	BF		
07CE	7C		
07CF	FF		
07D0	6C	1144	MENCW: DB 6CH, 0FBH, 8FH, 6BH, -1
07D1	FB		
07D2	BF		
07D3	6B		
07D4	FF		

```

1145
1146 ;-----EQUATES :
1147
1148 CRT? EQU 0CH
1149 PMOD0 EQU 0CEH
1150 PCOM EQU 27H
1151 C79 EQU 9
1152 D79 EQU 8
1153 UCK EQU 1
1154 UDK EQU 0
1155 A1 EQU 0CH
1156 B1 EQU 0DH
1157 C1 EQU 0EH
1158 CON1 EQU 0FH
1159 SETPC3 EQU 7
1160 RESPC3 EQU 6
1161 SETPC4 EQU 9
1162 RESPC4 EQU 8
1163 SETPC5 EQU 0BH
1164 RESPC5 EQU 0AH
1165
1166 END
  
```

000C	1148	CRT?	EQU	0CH
00CE	1149	PMOD0	EQU	0CEH
0027	1150	PCOM	EQU	27H
0009	1151	C79	EQU	9
000B	1152	D79	EQU	8
0001	1153	UCK	EQU	1
0000	1154	UDK	EQU	0
000C	1155	A1	EQU	0CH
000D	1156	B1	EQU	0DH
000E	1157	C1	EQU	0EH
000F	1158	CON1	EQU	0FH
0007	1159	SETPC3	EQU	7
0006	1160	RESPC3	EQU	6
0009	1161	SETPC4	EQU	9
000B	1162	RESPC4	EQU	8
000B	1163	SETPC5	EQU	0BH
000A	1164	RESPC5	EQU	0AH

PUBLIC SYMBOLS

EXTERNAL SYMBOLS

USER SYMBOLS

A1	A 000C	APDIS	A 070B	B1	A 000D	C1	A 000E
C79	A 0009	CI	A 05C1	CKREAD	A 03B6	CKWRIT	A 0383
CO	A 05CB	COBREK	A 071E	COMAND	A 0062	COMP	A 03E9
COMP1	A 049B	CON1	A 000F	CONDIS	A 06CF	CRT?	A 000C
D79	A 0008	DADD	A 05B8	DBYTE	A 05A1	DCOM	A 017B
DCOM1	A 0186	DEL1	A 0770	DEL2	A 0766	DELAY	A 077A
DIAR	A 072E	DMEN	A 0197	DNXT	A 018E	ENCER	A 04B4
EOFD	A 07B6	ERR	A 05BF	ERRENT	A 00AB	ERRO	A 057E
ESBLK	A 0618	EXEC	A 0231	EXECO	A 0251	EXEC1	A 0222
EXEC2	A 0211	FCOM	A 00B7	FIM	A 07B1	FLEI	A 067F
FSYN	A 0652	GCOM	A 01D0	GETADD	A 074D	HILO	A 079A
ICOM	A 00ED	ICOM1	A 00F6	ICOM2	A 0104	IMEOFD	A 00E1
INICIO	A 003F	INIO	A 053B	JUMP	A 0531	KIN	A 0690
KOUT	A 0685	LADR	A 06B1	LIST	A 1000	LOSP	A 0017
LSYID	A 063A	MASEND	A 0739	MCOM	A 0136	MCOM1	A 016F
MDADO	A 019D	MENCHE	A 07C7	MENCOM	A 07C3	MENCR	A 07CB
MENCW	A 07D0	MENPRO	A 07BB	MENS	A 07AA	MENTOP	A 05E2
MENTRA	A 07BF	MERR	A 07B1	METOP1	A 05F5	MON16	A 0504
MOSID	A 069A	NBYT	A 0628	NEWBYT	A 00DA	NEWDA	A 066C
NOCIC	A 047B	NOMEM	A 0007	NOVID	A 03D6	NTESTE	A 05E5
NUM	A 04E1	ONBY	A 04A1	PCOM	A 0027	PMODD	A 00CE
PRBYTE	A 0759	PRINT	A 05D6	FROGRA	A 042D	RADD	A 0580
RBYTE	A 0558	RD	A 0662	RDATA	A 0593	RESPC3	A 0006
RESPC4	A 0008	RESPC5	A 000A	RST55	A 051F	RST65	A 0528
RST75	A 052E	SADR	A 06A8	SAVO1	A 029A	SAVE	A 0256
SCOM	A 010C	SCOM1	A 0132	SETPC3	A 0007	SETPC4	A 0009
SETPC5	A 000B	SRET	A 07AB	SSTO1	A 01B8	SSTEP	A 01AA
STAR	A 0791	SYN	A 0645	TABDIS	A 06DC	TABDRE	A 0703
TABTEC	A 06EC	TDISX	A 0551	TDUMP	A 02B9	TEC	A 0059
TECLA	A 06BA	TECLA1	A 06C3	TECLA2	A 06CC	TRANS	A 04BB
TRAP	A 0519	UCK	A 0001	UDK	A 0000	VBREK2	A 02AB
VEDD	A 0726	VERIF	A 04F2	WR	A 05FD	XCOM	A 02D1
XCOM1	A 02EC	XM	A 034A	XPC	A 033B	XSP	A 032A

ASSEMBLY COMPLETE, NO ERRORS

1	580	1069	1155#							
PDIS	80	124	129	133	146	152	166	186	190	200
	219	235	241	260	270	281	360	386	399	457
	476	480	490	498	507	520	526	533	542	547
	553	560	570	610	616	635	739	1010#		
1	585	1074	1156#							
1	583	594	607	1071	1112	1157#				
79	411	427	688	690	769	776	910	1013	1018	1151#
I	769#	771	939							
KREAD	115	498#								
KWRIT	117	476#								
J	714	721	753	757	776#	778	788	1041		
DBREK	291	299	1023#							
OMAND	83#	127	149	226	256	395	444			
OMP	113	520#								
OMP1	545	595#								
ON1	575	577	587	590	600	630	644	692	1073	1110
	1158#									
ONDIS	708	718	752	756	950#					
RT?	1148#									
79	419	696	698	772	780	1152#				
ADD	236	363	390	441	448	453	741	761#		
BYTE	169	222	238	367	394	425	746#	762	764	913
COM	99	219#								
COM1	224#	239								
EL1	588	1079	1085#							
EL2	1078#									
ELAY	1086	1091#								
IAR	1040#	1044								
MEN	103	232#								
NXT	101	228#								
NCER	606#	633	648							
OFD	147	1138#								
RR	728	731	734#							
URRENT	124#	138	142	163	174	183	205	252	286	408
	432	436	467	484	488	501	505	517	541	568
	603	614	645	735						
RRO	707	717	725#							
SBLK	825	828#								
KEC	249	268	303#							
KECO	315	322#								
KEC1	280	296#								
KEC2	287#									
COM	93	129#								
IM	591	604	631	646	1096#					
LEI	880	886#	1122							
SYN	861#	865								
COM	105	260#								
ETADD	624	639	1062#							
ILO	144	214	844	1102	1120#					
COM	95	152#								
COM1	155#	160								
COM2	155	161#								
MEOFD	146#	162	172	181	216	430	438	459	473	495
	516	608								
NICIO	63#	693								
NIO	44	683#								

UMP	653	664	670#							
IN	851	855	863	866	870	872	874	882	900#	902
OUT	816	820	822	835	837	843	847	893#	895	
ADR	209	229	233	298	305	362	388	440	446	452
	929#	1049	1055	1100						
IST	16#	89								
OSP	33	38#								
SYID	511	850#	853	857	862					
ASEND	578	595	1047#							
COM	87	186#								
COM1	212#	217								
DADO	231	235#								
ENCHE	636	1142#								
ENCOM	543	1141#								
ENCR	508	1143#								
ENCW	491	1144#								
ENPRO	571	1139#								
ENS	81	1136#								
ENTOP	64	67	72	243	254	262	290	293	301	312
	345	356	392	423	464	673	793#	922	930	
ENTRA	617	1140#								
ERR	125	1137#								
ETOP1	800	805#								
ON16	641#	647								
OSID	512	907#								
BYT	839#	845								
EWBYT	143#	145								
EWDA	874#	881								
OCIC	579#	592								
MEM	27#	37								
OVID	511#	514								
TESTE	794#	804								
UM	627#	632								
UBY	597#	605								
COM	685	1150#								
MOD0	683	1149#								
RBYTE	597	627	641	1068#						
INT	82	126	148	492	509	544	572	618	637	784#
	790									
ROGRA	121	547#								
DD	130	135	153	167	187	192	202	220	245	264
	272	283	461	477	482	499	521	528	535	548
	555	562	611	727#						
YTE	134	137	154	159	173	191	201	271	282	431
	460	481	483	500	527	534	554	561	705#	727
	730									
	515	869#								
ATA	158	170	737#							
SPC3	1160#									
SPC4	589	1162#								
SPC5	1072	1164#								
T55	55	655#								
T65	58	662#								
T75	61	666#								
DR	196	225	276	339	524	531	538	551	558	565
	921#	1063								
V01	359	369#								

VE	49	329#	660								
OM	97	166#									
OM1	178	182#									
TPC3	576	1159#									
TPC4	586	1161#									
TPC5	599	629	643	1163#							
ET	1123	1130#									
T01	247#	368									
TEP	85	241#									
AR	596	626	640	1109#							
N	855#	859									
BDIS	952	961#									
BDRE	412	1000#									
BTEC	940	977#									
ISX	417	443	455	472	695#						
UMP	382	386#									
C	70	80#									
CLA	83	132	140	176	189	199	203	247	266	278	
	284	400	428	434	456	465	479	486	503	525	
	532	539	552	559	566	612	705	715	737	938#	
CLA1	942#	946									
CLA2	943	947#									
ANS	111	610#									
AP	52	651#									
K	684	686	893	900	1153#						
K	897	903	1154#								
REK2	375	379#									
DD	378	385	1031#								
RIF	119	635#									
	494	813#									
OM	91	399#									
OM1	402	409#									
	407	451#									
C	403	445#	450								
	405	439#									

CROSS REFERENCE COMPLETE

Rst. 7.5 -003C → Jump RAM