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10 ' ** SEE-PC **
20 ' AMSTRAD CPC464 ROM/RAM DISASSEMBLER
30 ' COPYRIGHT J. COYNE 1985
40 SYMBOL AFTER 256:MEMORY 8ABEF:SYMBOL AFTER 248:MODE 2
50 ON BREAK GOSUB 80
60 ON ERROR GOTO 90
70 GOTO 41000
80 L=0:RETURN
90 PRINT CHR$(7):RESUME 51000
1000 ' SUNDRY SUBROUTINES
1200 CLS 20:WINDOW SWAP 0,1:WINDOW SWAP 2,3:WINDOW SWAP 4,5
1230 F=S(5,0):R=S(5,1):A=S(5,4)
1250 CLS 22:PRINT 22,CHR$(10);"FUNCTION: ";F$(R);F$(F)
1255 T1=S(0,F):T2=S(1,F):RETURN
1300 CALL 8ABC0,R,@B,@A:PRINT 24,HEX$(B,2);:C$=C$+CHR$(1)+CHR$(B):RETURN
1700 IF Y<4 AND Y<>2 THEN T$=T$+"A,"
1710 RETURN

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1800 IF Y=6 THEN F$="F" ELSE F$=R$(Y)
1810 S$="(C)":RETURN
1900 O$=""
1905 GOSUB 1300:O$="A"+HEX$(B,2)+O$:RETURN
1910 GOSUB 1300:O$=HEX$(B,2):GOTO 1905
1920 GOSUB 1900
1925 O$="( "+O$+")":RETURN
1930 GOSUB 1910:GOTO1925
9997 '
9998 ' NOT CB/ED PREFIXED
9999 '
10000 ON X GOTO 11000,12000,13000
10010 ON Z GOTO 10100,10200,10300,10400,10500,10600,10700
10020 IF B=0 THEN T$="NOP":RETURN
10030 IF B=8 THEN T$="EX AF,AF":RETURN
10040 IF B=16 THEN T$="DJNZ ":GOTO 10070
10050 IF B=24 THEN T$="JR ":GOTO 10070
10060 T$="JR "+C$(Y-4)+", "
10070 GOSUB 1300:IF B>127 THEN B=B-256
10080 B=B+A:T$=T$+"A"+HEX$(B,4):RETURN
10100 IF Y AND 1 THEN T$="ADD "+I$+", "+W$(V):RETURN
10110 GOSUB 1910:T$="LD "+W$(V)+", "+O$:RETURN
10200 T$="LD "
10210 IF V=0 THEN F$="(BC)":S$="A"
10220 IF V=1 THEN F$="(DE)":S$="A"
10230 IF V=2 THEN GOSUB 1930:F$=O$:S$=I$
10240 IF V=3 THEN GOSUB 1930:F$=O$:S$="A"
10250 IF Y AND 1 THEN T$=T$+S$+", "+F$ ELSE T$=T$+F$+", "+S$
10260 RETURN
10300 IF Y AND 1 THEN T$="DEC "+W$(V) ELSE T$="INC "+W$(V)
10310 RETURN
10400 T$="INC "+R$(Y):RETURN
10500 T$="DEC "+R$(Y):RETURN
10600 GOSUB 1900:T$="LD "+R$(Y)+", "+O$:RETURN
10700 T$=M$(4,Y):RETURN
11000 IF B=118 THEN T$="HALT":RETURN
11010 T$="LD "+R$(Y)+", "+R$(Z):RETURN
12000 T$=M$(0,Y):GOSUB 1700:T$=T$+R$(Z):RETURN
13000 ON Z GOTO 13100,13200,13300,13400,13500,13600,13700
13010 T$="RET "+C$(Y):RETURN
13100 IF Y AND 1 THEN 13300
13110 T$="POP "+W$(V+4):RETURN
13200 GOSUB 1910:T$="JP "+C$(Y)+", "+O$:RETURN
13300 K=-1
13310 K=K+1:IF K=12 THEN 40000
13320 IF B<>B(0,K) THEN 13310
13340 ON K GOTO 13351,13352,13353,13354,13355,13356,13357,13358,13359,13360,13361
13350 GOSUB 1910:T$="JP "+O$:RETURN
13351 GOSUB 1920:T$="OUT "+O$+", A":RETURN
13352 T$="EX (SP), "+I$:RETURN
13353 T$="DI":RETURN
13354 T$="RET":RETURN
13355 T$="EXX":RETURN
13356 T$="JP "+R$(6):RETURN
13357 T$="LD SP, "+I$:RETURN
13358 GOSUB 1920:T$="IN A, "+O$:RETURN
13359 T$="EX DE,HL":RETURN
13360 T$="EI":RETURN
13361 GOSUB 1910:T$="CALL "+O$:RETURN
13400 GOSUB 1910:T$="CALL "+C$(Y)+", "+O$:RETURN
13500 IF Y AND 1 THEN 13300
13510 T$="PUSH "+W$(V+4):RETURN
13600 T$=M$(0,Y):GOSUB 1700:GOSUB 1900:T$=T$+O$:RETURN
13700 T$="RST"+STR$(8*Y):RETURN
19997 '
19998 ' CB PREFIXED
19999 '
20000 IF X THEN 20100
20010 T$=M$(1,Y)+R$(Z):RETURN
20100 IF X=1 THEN T$="BIT"
20110 IF X=2 THEN T$="RES"
20120 IF X=3 THEN T$="SET"
20200 T$=T$+STR$(Y)+", "+R$(Z):RETURN
29997 '
29998 ' ED PREFIXED
29999 '
30000 ON X GOTO 31000,32000,40000
30010 GOTO 40000
31000 ON Z GOTO 31100,31200,31300,31400,31400,31400,31400
31010 GOSUB 1800:T$="IN "+F$+", "+S$:RETURN
31100 IF B=113 THEN 40000
31110 GOSUB 1800:T$="OUT "+S$+", "+F$:RETURN
31200 IF Y AND 1 THEN T$="ADC " ELSE T$="SBC "
31210 T$=T$+"HL, "+W$(V):RETURN
31300 GOSUB 1930:IF Y AND 1 THEN T$="LD "+W$(V)+", "+O$:RETURN

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31310 T$="LD "+O$+" "+W$(V):RETURN
31400 K=-1
31410 K=K+1:IF K=12 THEN 40000
31420 IF B=B(1,K) THEN T$=B$(K):RETURN
31430 GOTO 31410
32000 IF Y<4 OR Z>3 THEN 40000
32010 K=Z+4*(Y AND 1):T$=M$(V,K):RETURN
40000 T$="INVALID OPCODE":RETURN
40997 '
40998 ' INITIALISE VARIABLES
40999 '
41000 DEFINT A,B,R,F,S,V,X,Y,Z,I,K,L,P,T
41010 T$="":C$="":O$="":F$="":S$="":I$=""
41020 DIM S(1,4),F$(3)
41025 S(0,0)=2:S(0,1)=0:S(0,2)=21:S(0,3)=32:S(0,4)=0
41030 S(1,0)=2:S(1,1)=0:S(1,2)=36:S(1,3)=32:S(1,4)=0
41035 F$(0)="RAM ":F$(1)="ROM ":F$(2)="DISASSEMBLY":F$(3)="HEX DUMP"
41040 DIM M$(4,7),R$(7),W$(7),C$(7)
41050 DIM B(1,11),B$(11)
41100 FOR K=0 TO 7
41110 FOR L=0 TO 4:READ M$(L,K):NEXT
41120 READ R$(K),W$(K),C$(K):NEXT
41140 FOR K=0 TO 11:READ B(0,K),B(1,K),B$(K):NEXT
42000 DATA "ADD ","RLC ","LDI,LDIR,RLCA,B,BC,NZ
42010 DATA "ADC ","RRC ","CFI,CPIR,RRCA,C,DE,Z
42020 DATA "SUB ","RL ","INI,INIR,RLA,D,HL,NC
42030 DATA "SBC ","RR ","OUTI,OTIR,RRR,A,E,SP,C
42040 DATA "AND ","SLA ","LDD,LDDR,DAA,H,BC,PO
42050 DATA "XOR ","SRA ","CFD,CPIR,CPL,L,DE,PE
42060 DATA "OR ","ERRR",IND,INDR,SCF,(HL),HL,P
42070 DATA "CF ","SRL ","OUTD,OTDR,CCF,A,AF,M
43000 DATA 195,68,NEG,211,69,RETN
43020 DATA 227,70,"IM 0",243,71,"LD 1,A"
43040 DATA 201,77,RETI,217,79,"LD R,A"
43060 DATA 233,86,"IM 1",249,87,"LD A,1"
43080 DATA 219,94,"IM 2",235,95,"LD A,R"
43100 DATA 251,103,RRD,205,111,RLD
44997 '
44998 ' LINE 1300 ENABLES ROM IF NEC.=B=PEEK(A):A=A+1"
44999 '
45000 A!=43968:FOR K=0 TO 57:READ T$:POKE A!+K,VAL("A"+T$):NEXT
45100 DATA 00,6E,00,00,66,01,4E,23
45110 DATA 46,00,7E,04,B7,28,19,78
45120 DATA 2F,E6,C0,E2,E8,AB,07,07
45130 DATA 07,32,00,AB,C0,00,B9,F5
45140 DATA 0A,5F,F1,C0,0C,B9,18,02
45150 DATA 0A,5F,03,70,2B,71,16,00
45160 DATA 00,6E,02,00,66,03,73,23
45170 DATA 72,C9
46997 '
46998 ' PROMPTS MENU
46999 '
47000 C$=CHR$(13)+CHR$(10):T$=STRING$(27,CHR$(9)):PRINT TAB(33)"AMSTRAD CPC464"
47005 PRINT TAB(30)"ROM/RAM DISASSEMBLER":C$:C$:TAB(20)"PRESS:"
47010 PRINT T$,"X TO CHANGE CURRENT SIDE":C$:T$:
"O FOR DISASSEMBLY":C$:T$,"H FOR HEX DUMP"
47020 PRINT T$,"A TO READ RAM":C$:T$,"O TO READ ROM":C$:T$:
"S TO ENTER START ADDRESS":C$:T$,"C TO PRINT NEXT INSTRUCTION"
47030 PRINT T$,"W TO WIPE CLEAN CURRENT WINDOW":C$:T$,"Q TO QUIT":C$:C$:T$:
"ANY KEY TO CONTINUE"
47040 T$=INKEY$:IF T$="" THEN 47040
47050 CLS
48997 '
48998 ' OPEN WINDOWS, INITIALISE SCREEN
48999 '
49000 WINDOW #6,1,80,1,2:WINDOW #4,1,40,3,22:WINDOW #5,41,80,3,22
49010 WINDOW #2,1,40,23,24:WINDOW #3,41,80,23,24
49020 WINDOW #0,1,40,25,25:WINDOW #1,41,80,25,25
49500 PRINT #6,"ADDRESS: CODE: ASSEMBLER: CHAR "
49505 PRINT #6,"ADDRESS: CODE: ASSEMBLER: CHAR "
50000 S=0:B=0:GOSUB 1230:GOTO 53000
50997 '
50998 ' MAIN LOOP 51000-53080
50999 '
51000 LINE INPUT #0;"START ADDR. A":T$:T$="A"+T$:A=UNT(VAL(T$))
51010 INPUT #0;"NO OF LINES",L
51020 CLS #0
51997 '
51998 ' LOOP FOR EACH LINE DISASSEMBLED/DUMPED 52000-52900
51999 '
52000 WHILE L<>0
52010 L=L-1
52020 A!=A:IF A!<0 THEN A!=A!+65536
52030 PRINT #4,MID$(STR$(A!),2);:PRINT #4,TAB(7);HEX$(A,4);: " "

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52040 T$="":C$="":IF F=2 THEN 52100
52049 " HEX DUMP
52050 FOR K=1 TO 4:GOSUB 1300:GOSUB 1300:PRINT $4," ";:NEXT:GOTO 52700
52099 " DISASSEMBLER
52100 I=0:P=0:I$="HL":GOSUB 1300
52110 IF B=237 THEN F=2:GOSUB 1300:GOTO 52150
52120 IF B=221 THEN I=1:I$="IX":GOSUB 1300:GOTO 52140
52130 IF B=253 THEN I=2:I$="IY":GOSUB 1300
52140 IF B=203 THEN P=1:GOSUB 1300:IF 1 THEN K=B:GOSUB 1300
52150 W$(2)=I$:W$(6)=I$
52200 X=(B AND 192)/64
52210 Y=(B AND 56)/8
52220 Z=(B AND 7)
52230 V=(B AND 48)/16
52299 " DEAL WITH IX,IY OFFSET
52300 IF I=0 THEN 52400
52310 IF NOT(Y=6 OR Z=6) THEN 52400
52320 IF P=1 THEN B=K:GOTO 52350
52330 GOSUB 1300
52350 K=1:IF B>127 THEN K=-1:B=ABS(B-256)
52360 I$=I$+CHR$(44-K)+MID$(STR$(B),2)
52400 R$(6)="("+I$+)"
52499 " DECODING SUBROUTINES
52500 ON P+1 GOSUB 10000,20000,30000
52600 IF I THEN K=INSTR(5,T$,I$):IF K=0 THEN T$="INVALID PREFIX"
52699 " PRINT OUTPUT
52700 PRINT $4,TAB(T1);T$:TAB(T2);
52705 FOR K=1 TO LEN(C$):PRINT $4,MID$(C$,K,1);:NEXT:PRINT $4
52800 IF NOT (INKEY(62)) THEN 52020
52900 WEND
52999 " GET KEY
53000 CALL $BB1B:PRINT $0,"ENTER X = D/H - A/O = S - C = W -O"
53010 T$=UPPER$(INKEY$):IF T$="" THEN 53010
53020 IF T$="C" THEN CLS $0:L=1:GOTO 52000
53030 IF T$="S" THEN 51000
53040 IF T$="A" THEN R=0:5(S,1)=R:GOSUB 1250
53045 IF T$="O" THEN R=1:5(S,1)=R:GOSUB 1250
53050 IF T$="D" THEN F=2:5(S,0)=F:GOSUB 1250
53055 IF T$="H" THEN F=3:5(S,0)=F:GOSUB 1250
53060 IF T$="X" THEN S(5,4)=A:S=ABS(5=0):GOSUB 1200
53070 IF T$="W" THEN CLS $4
53080 IF T$<>"Q" THEN 53000
55000 FOR K=0 TO 6:WINDOW $K,1,80,1,25:NEXT:END
READY.
MACHINE CODE ROUTINE CALLED IN LINE 1300.
EQUIVALENT TO "B=PEEK(A):A=A+1"

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100 CALL $ABC0,R,@B,@A
105 *****
110 ABC0 DD6E00 START: LD L,(IX+0)
120 ABC3 DD6601 LD H,(IX+1)
130 ABC6 4E LD C,(HL)
140 ABC7 23 INC HL ;BC+"A"
150 ABC8 46 LD B,(HL)
160 ABC9 DD7E04 LD A,(IX+4) ;ACC+"R"
170 ABCC E7 OR A
180 ABCD 2819 JR Z,GETRAM
190 ABCE 78 LD A,B
200 ABDF 2F CPL ;IF "A"=&C000, THEN ACC+&00
210 ABD1 E6C0 AND &C0 ;IF "A"=&0FFF, THEN ACC+&C0
220 ABD3 E2E8AB JP PO,GETRAM ;ELSE PO, 50 GETRAM
230 ABD6 07 RLCA
240 ABD7 07 RLCA
250 ABD8 07 RLCA ;ACC+&00 OR &06
260 ABD9 32DAB LD (ENABLE+1),A,&B900 FOR UPPER ROM
270 ABDC CD**B9 ENABLE CALL $B9** ;&B906 FOR LOWER ROM
280 ABDF F5 PUSH AF
290 ABE0 0A ROMGET:LD A,(BC)
300 ABE1 5F LD E,A
310 ABE2 F1 POP AF
320 ABE3 CD0CB9 CALL $B90C ;RESTORE PRIOR ROM STATE
330 ABE4 1802 JR POKRAM
340 ABE8 0A GETRAM:LD A,(BC)
350 ABE9 5F LD E,A
360 ABEA 03 POKRAM:INC BC ;("A"=A+1)
370 ABEF 70 LD (HL),B
380 ABED 2B DEC HL ;"A"=BC
390 ABED 71 LD (HL),C
400 ABEE 1600 LD D,&800
410 ABF0 DD6E02 LD L,(IX+2)
420 ABF3 DD6603 LD H,(IX+3)
430 ABF6 73 LD (HL),E
440 ABF7 23 INC HL ;"B"=DE
450 ABF8 72 LD (HL),D
460 ABF9 C9 RET
READY.

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