

# DIGITAL RESEARCH

Post Office Box 579, Pacific Grove, California 93950, (408) 373-3403

SYSTEM GENERATION (SYSGEN)

CP/M VERSION \_\_\_\_\_

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P. O. BOX 579

PACIFIC GROVE, CA. 93950

SER. # \_\_\_\_\_

# SYSGEN

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1>
2>
3>
4> 0000 = VERS SYSTEM GENERATION PROGRAM, VERSION FOR MDS
5> EQU 11 ,X.X
6>
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9>
10> 0100 ORG 100H ,BASE OF TRANSIENT AREA
11>
12> 0900 = LOADP EQU 900H ,LOAD POINT FOR SYSTEM DURING LOAD/STORE
13> 0805 = BDOS EQU 5H ,BDS ENTRY POINT
14> 0800 = BOOT EQU 0 ,JMP TO 'BOOT' TO REBOOT SYSTEM
15> 0801 = CONI EQU 1 ,CONSOLE INPUT FUNCTION
16> 0802 = CONO EQU 2 ,CONSOLE OUTPUT FUNCTION
17> 080E = SELF EQU 14 ,SELECT DISK
18> 0800 = DISKA EQU 0 ,NUMBER CORRESPONDING TO A
19> 0801 = DISKB EQU 1 ,AND B, RESPECTIVELY
20>
21> 080A = MAXTRY EQU 10 ,MAXIMUM NUMBER OF RETRIES ON EACH READ/WRITE
22> 0802 = NTRKS EQU 2 ,NUMBER OF TRACK RESERVED FOR CP/M
23> 080D = CR EQU 0DH ,CARRIAGE RETURN
24> 080A = LF EQU 0AH ,LINE FEED
25> 080A = STACKSIZE EQU 10 ,SIZE OF LOCAL STACK
26>
27> 0801 = WBOOT EQU 1 ,ADDRESS OF WARM BOOT (OTHER PATCH ENTRY
28> ,POINTS ARE COMPUTED RELATIVE TO WBOOT)
29> 0818 = SELDSK EQU 24 ,WBOOT+24 FOR DISK SELECT
30> 081B = SETTRK EQU 27 ,WBOOT+27 FOR SET TRACK FUNCTION
31> 081E = SETSEC EQU 30 ,WBOOT+30 FOR SET SECTOR FUNCTION
32> 0821 = SETDMA EQU 33 ,WBOOT+33 FOR SET DMA ADDRESS
33> 0824 = READF EQU 36 ,WBOOT+36 FOR READ FUNCTION
34> 0827 = WRITF EQU 39 ,WBOOT+39 FOR WRITE FUNCTION
35>
36> 0100 317103 LXI SP,STACK ,SET LOCAL STACK
37> 0103 C3D101 JMP START
38>
39> UTILITY SUBROUTINES
40>
41> GETCHAR, READ CONSOLE CHARACTER TO REGISTER A
42> MVI C,CONI! CALL BDOS!
43> CONVERT TO UPPER CASE BEFORE RETURN
44> ANI 5FH! RET
45>
46> PUTCHAR, WRITE CHARACTER FROM A TO CONSOLE
47> MOV E,A! MVI C,CONO! CALL BDOS! RET
48>
49> CRLF, ,SEND CARRIAGE RETURN, LINE FEED
50> MVI A,CR
51> CALL PUTCHAR
52> MVI A,LF
53> CALL PUTCHAR
54> RET
55>
56> OUTMSG, ,PRINT MESSAGE ADDRESSED BY H,L TIL ZERO
57> 0120 E3CD1501E1 PUSH HI CALL CRLF! POP H ,DROP THRU TO OUTMSG0
58> OUTMSG0,

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59> 0125 7EB7C0 MOV A,M! ORA A! RZ
60> MESSAGE NOT YET COMPLETED
61> 0128 E3CD0E01E1 PUSH HI CALL PUTCHAR! POP HI! INX H
62> 012E C32501 JMP OUTMSG0
63>
64> SEL, SELECT DISK GIVEN BY REGISTER A
65> MOV C,A! LHLD WBOOT! LXI D,SELDSK! DAD D! PCHL
66> 0131 4F2A018011
67>
68> TRK, ,SET UP TRACK
69> 013A 2A0100 LHLD WBOOT ,ADDRESS OF BOOT ENTRY
70> 013D 111800 LXI D,SETTRK ,OFFSET FOR SETTRK ENTRY
71> 0140 19 DAD D
72> 0141 E9 PCHL ,GONE TO SETTRK
73>
74> SEC, ,SET UP SECTOR NUMBER
75> 0142 2A0100 LHLD WBOOT
76> 0145 111E00 LXI D,SETSEC
77> 0148 19 DAD D
78> 0149 E9 PCHL
79>
80> DMA, ,SET DMA ADDRESS TO VALUE OF B,C
81> 014A 2A0100 LHLD WBOOT
82> 014D 112100 LXI D,SETDMA
83> 0150 19 DAD D
84> 0151 E9 PCHL
85>
86> READ, ,PERFORM READ OPERATION
87> 0152 2A0100 LHLD WBOOT
88> 0155 112400 LXI D,READF
89> 0158 19 DAD D
90> 0159 E9 PCHL
91>
92> WRITE, ,PERFORM WRITE OPERATION
93> 015A 2A0100 LHLD WBOOT
94> 015D 112700 LXI D,WRITF
95> 0160 19 DAD D
96> 0161 E9 PCHL
97>
98>
99> GETPUT, GET OR PUT CP/M (RW=0 FOR READ, 1 FOR WRITE)
100> DISK IS ALREADY SELECTED
101>
102> 0162 210009 LXI H,LOADP ,LOAD POINT IN RAM FOR CP/M DURING SYS
103> 0165 225A03 SHLD DMADDR
104>
105>
106> CLEAR TRACK TO 00
107> 0168 AF XRA A ,CLEAR REG-A
108> 0169 325703 STA TRACK
109>
110> RUTRK, ,READ OR WRITE NEXT TRACK
111> LXI H,TRACK
112> MOV A,M
113> CPI NTRKS ,LOADED OR DUMPED ENTIRE SYSTEM?
114> JNC ENDRW ,END OF READ OR WRITE
115>
116> OTHERWISE NOTDONE, GO TO NEXT TRACK
117> INR M
118> MOV C,A
119> CALL TRK ,TO SET TRACK

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119> 017A AF      XRA      A
120> 017B 325803  STA      SECTOR  ;SECTOR INCREMENTED BEFORE READ OR WRITE
121>
122>
123> 017E 215803  RWSEC.  ;READ OR WRITE SECTOR
124> 0181 7E      LXI      H,SECTOR
125> 0182 FE1A     MOV      A,M
126> 0194 D2D901  CPI      26      ;PAST LAST SECTOR ON THIS TRACK?
127> 0187 34      JNC      ENDTRK
128>
129> 0187 34      IHR      M      ;TO NEXT SECTOR
130>
131>
132>
133> 0188 2A5A03  ;READ OR WRITE SECTOR TO OR FROM CURRENT DMA ADDR
134> 0188 44      LHLD     DMADDR
135> 0190 4D      MOV      B,H
136> 019C 4D      MOV      C,L      ;READY FOR SET DMA
137> 018D 118000  LXI      D,00H      ;INCREMENT BY 128 BYTES
138> 0190 19      DAD      D
139> 0191 225A03  SHLD     DMADDR      ;READY FOR NEXT OPERATION
140> 0194 CD4A01  CALL     DMA      ;DMA ADDRESS SET FROM B,C
141> 0197 AF      XRA      A
142> 0198 325C03  STA      RETRY      ;SET TO ZERO RETRIES
143>
144>
145>
146> 019B 3A5C03  TRYSEC. ;TRY TO READ OR WRITE CURRENT SECTOR
147> 019E FE0A     LDA      RETRY
148> 01A0 DA8701  CPI      MAXTRY      ;TOO MANY RETRIES?
149>
150>
151>
152>
153> 01A3 218603  ;PAST MAXTRIES, MESSAGE AND IGNORE
154> 01A6 CD2001  LXI      H,ERRMSG
155> 01A9 CD8601  CALL     OUTMSG
156> 01AC FE0D     CALL     GETCHAR
157> 01AE C27502  CPI      CR
158>
159> 01B1 CD1501  JNZ      REBOOT
160> 0184 C37E01  ;TYPED A CR, OK TO IGNORE
161>
162>
163>
164>
165>
166>
167>
168>
169>
170>
171>
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179>
180>
181> 01D9 C36C01
182>
183>
184> 01DC C9
185>
186>
187>
188>
189> 01DD 218E02
190> 01E0 CD2001
191> 01E3 21A102
192> 01E6 CD2001
193> 01E9 CD8601
194> 01EC 0E01
195> 01EE FE59
196> 01F0 CAFF01
197> 01F3 FE42
198> 01F5 CAFF01
199> 01F8 0E00
200> 01FA FE41
201> 01FC C22A02
202>
203>
204>
205> 01FF 79
206> 0200 C641
207> 0202 32BD02
208> 0205 79CD3101
209>
210> 0209 CD1501
211> 020C 218302
212> 020F CD2001
213> 0212 CD8601
214> 0215 FE0D
215> 0217 C27502
216> 021A CD1501
217>
218> 021D AF
219> 021E 327903
220> 0221 CD6201
221> 0224 212D03
222> 0227 CD2001
223>
224>
225>
226> 022A CD1501
227> 022D 21D102
228> 0230 CD2001
229> 0233 CD8601
230> 0236 0E01
231> 0238 FE59
232> 023A CA4902
233> 023D FE42
234> 023F CA4902
235>
236>
237> 0242 0E00
238> 0244 FE41

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END OF TRACK
ENDTRK. JMP      RWTRK      ;FOR ANOTHER TRACK
ENDRW.  ;END OF READ OR WRITE, RETURN TO CALLER
RET

```

START.

```

LXI      H,SIGNON
CALL     OUTMSG
LXI      H,ASKGET      ;GET SYSTEM?
CALL     OUTMSG
CALL     GETCHAR
MVI      C,DISKB      ;ASSUME DISK B, UNLESS SPECIFIED
CPI      'Y'
JZ       GETC          ;GET FROM DISK B
CPI      'B'
JZ       GETC
MVI      C,DISKA      ;IN CASE A WAS TYPED
CPI      'A'          ;MAY BE FROM A
JNZ      PUTSYS

```

GETC.

```

SELECT DISK GIVEN BY REGISTER C
MOV      A,C
ADI      'A'
STA      GDISK      ;TO SET MESSAGE
MOV A,C; CALL SEL
GETSYS. SET RW TO READ, AND GET SYSTEM
CALL     CRLF
LXI      H,GETMSG
CALL     OUTMSG
CALL     GETCHAR
CPI      CR
JNZ      REBOOT
CALL     CRLF

```

```

XRA      A
STA      RW
CALL     GETPUT
LXI      H,DONE
CALL     OUTMSG

```

PUT SYSTEM

```

PUTSYS. CALL     CRLF
LXI      H,ASKPUT
CALL     OUTMSG
CALL     GETCHAR
MVI      C,DISKB      ;ASSUME DISK B, UNLESS SPECIFIED
CPI      'Y'
JZ       PUTC
CPI      'B'
JZ       PUTC

```

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MAY BE DISK A
MVI      C,DISKA
CPI      'A'

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239> 0246 C27502      JNZ      REBOOT
240>
241>      PUTC,
242>      SET DISK FROM REGISTER C
243> 0249 79            MOV      A,C
244> 024A C641          ADI      'A'
245> 024C 32F202        STA      PDISK ,MESSAGE SET
246> 024F 79CD3101      MOV A,C; CALL SEL
247> 0253 CD1501        PUT SYSTEM, SET RW TO WRITE
248> 0256 21E302        CALL     CRLF
249> 0259 CD2001        LXI      H,PUTMSG
250> 025C CD0601        CALL     OUTMSG
251> 025F FE0D          CPI      CR
252> 0261 C27502        JNZ      REBOOT
253> 0264 CD1501        CALL     CRLF
254>
255> 0267 215903        LXI      H,RW
256> 026A 3601          MVI      M,1
257> 026C CD6201        CALL     GETPUT ,TO PUT SYSTEM BACK ON DISKETTE
258> 026F 212D03        LXI      H,DONE
259> 0272 CD2001        CALL     OUTMSG
260>
261>      REBOOT,
262> 0275 213F03        LXI      H,BOOTING
263> 0278 CD2001        CALL     OUTMSG
264> 027B CD0601        CALL     GETCHAR
265> 027E FE0D          CPI      CR
266> 0280 C27502        JNZ      REBOOT
267>
268>
269> 0283 3E00CD3101    SELECT DISK A BEFORE REBOOT
270>
271>
272>      DATA AREAS
273>      MESSAGES
274> 028E 5359534745SIGNON, DB      'SYSGEN VERSION '
275> 029D 312E31        DB      VERS/10+'0',',',VERS MOD 10+'0'
276> 02A0 00            DB      0
277> 02A1 4745542053ASKCET, DB      'GET SYSTEM? (Y/N)',0
278> 02B3 534F555243GETMSG, DB      'SOURCE ON '
279> 02BD 42            DB      'B'
280> 02BE 2C20544045    DB      ', THEN TYPE RETURN',0
281> 02D1 5055542053ASKPUT, DB      'PUT SYSTEM? (Y/N)',0
282> 02E3 4445535449PUTMSG, DB      'DESTINATION ON '
283> 02F2 42            DB      'B'
284> 02F3 2C20544045    DB      ', THEN TYPE RETURN',0
285> 0306 5045524D41ERRMSG, DB      'PERMANENT ERROR, TYPE RETURN TO IGNORE',0
286> 032D 46554E4354DONE, DB      'FUNCTION COMPLETE',0
287>
288>      BOOTING,
289> 033F 5245424F4F    DB      'REBOOTING. TYPE RETURN',0
290>
291>      VARIABLES
292> 0356              DS      1      ;SELECTED DISK FOR CURRENT OPERATION
293> 0357              DS      1      ;CURRENT TRACK
294> 0358              DS      1      ;CURRENT SECTOR
295> 0359              DS      1      ;READ IF 0, WRITE IF 1
296> 035A              DS      2      ;CURRENT DMA ADDRESS
297> 035C              DS      1      ;NUMBER OF TRIES ON THIS SECTOR
298> 035D              DS      STACKSIZE+2
299>
300>      STACK,
301> 0371              END

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