DIGITAL RESEARCH

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

MDS COLD START LOADERS

CP/M VERSION _____

SER. # _____

MBOOT

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1>
2>
3>                      ;       MDS LOADER MOVE PROGRAM, PLACES COLD START BOOT AT BOOTB
4>                      ;
5>  3000                        ORG     3000H   ;WE ARE LOADED HERE ON COLD START
6>  0080 =              BOOTB   EQU     80H     ;START OF COLD BOOT PROGRAM
7>  0080 =              BOOTL   EQU     80H     ;LENGTH OF BOOT
8>  0900 =              MBIAS   EQU     900H-$  ;BIAS TO ADD DURING LOAD
9>  0078 =              BASE    EQU     078H    ;'BASE' USED BY DISK CONTROLLER
10> 0079 =              RTYPE   EQU     BASE+1  ;RESULT TYPE
11> 007B =              RBYTE   EQU     BASE+3  ;RESULT TYPE
12>                     ;
13> 00FF =              BSW     EQU     0FFH    ;BOOT SWITCH
14>                     ;
15>                     ;       CLEAR DISK STATUS
16> 3000 DB79                   IN      RTYPE
17> 3002 DB7B                   IN      RBYTE
18>                     ;
19>                     COLDSTART:
20> 3004 DBFF                   IN      BSW
21> 3006 E602                   ANI     2H      ;SWITCH ON?
22> 3008 C20430                 JNZ     COLDSTART
23>                     ;
24> 300B 211E30                 LXI     H,BOOTV ;VIRTUAL BASE
25> 300E 0680                   MVI     B,BOOTL ;LENGTH OF BOOT
26> 3010 118000                 LXI     D,BOOTB ;DESTINATION OF BOOT
27> 3013 7E             MOVE:   MOV     A,M
28> 3014 12                     STAX    D       ;TRANSFERRED ONE BYTE
29> 3015 23                     INX     H
30> 3016 13                     INX     D
31> 3017 05                     DCR     B
32> 3018 C21330                 JNZ     MOVE
33> 301B C38000                 JMP     BOOTB   ;TO BOOT SYSTEM
34>                     ;
35>                     BOOTV:  ;BOOT LOADER PLACE HERE AT SYSTEM GENERATION
36> 009E =              LBIAS   EQU     $-80H+MBIAS     ;COLD START BOOT BEGINS AT 80H
37> 301E                        END
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LBOOT

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                        ;       MDS COLD START LOADER FOR CP/M
0000 =          BIAS    EQU     000H    ;BIAS FOR RELOCATION
0000 =          FALSE   EQU     0
FFFF =          TRUE    EQU     NOT FALSE
0000 =          TESTING EQU     FALSE   ;IF TRUE, THEN GO TO MON80 ON ERRORS
                ;
0000 =          BDOSB   EQU     BIAS            ;BASE OF DOS LOAD
0906 =          BDOS    EQU     906H+BIAS       ;ENTRY TO DOS FOR CALLS
1700 =          BDOSE   EQU     1700H+BIAS      ;END OF DOS LOAD
1500 =          BOOT    EQU     1500H+BIAS      ;COLD START ENTRY POINT
1503 =          RBOOT   EQU     BOOT+3          ;WARM START ENTRY POINT
                ;
0080                    ORG     80H     ;LOADED DOWN FROM HARDWARE BOOT AT 3000H
                ;
1700 =          BDOSL   EQU     BDOSE-BDOSB
0002 =          NTRKS   EQU     2       ;NUMBER OF TRACKS TO READ
002E =          BDOSS   EQU     BDOSL/128       ;NUMBER OF SECTORS IN DOS
0013 =          BDOS0   EQU     25      ;NUMBER OF BDOS SECTORS ON TRACK 0
0015 =          BDOS1   EQU     BDOSS-BDOS0     ;NUMBER OF SECTORS ON TRACK 1
                ;
F800 =          MON80   EQU     0F800H  ;INTEL MONITOR BASE
FF0F =          RMON80  EQU     0FF0FH  ;RESTART LOCATION FOR MON80
0078 =          BASE    EQU     078H    ;'BASE' USED BY CONTROLLER
0079 =          RTYPE   EQU     BASE+1  ;RESULT TYPE
007B =          RBYTE   EQU     BASE+3  ;RESULT BYTE
007F =          RESET   EQU     BASE+7  ;RESET CONTROLLER
                ;
0078 =          DSTAT   EQU     BASE    ;DISK STATUS PORT
0079 =          LOW     EQU     BASE+1  ;LOW IOPB ADDRESS
007A =          HIGH    EQU     BASE+2  ;HIGH IOPB ADDRESS
0003 =          RECAL   EQU     3H      ;RECALIBRATE SELECTED DRIVE
0004 =          READF   EQU     4H      ;DISK READ FUNCTION
0100 =          STACK   EQU     100H    ;USE END OF BOOT FOR STACK
                ;
                RSTART.
0000 310001             LXI     SP,STACK;IN CASE OF CALL TO MON80
                ;       CLEAR THE CONTROLLER
0003 D37F               OUT     RESET   ;LOGIC CLEARED
                ;
                ;
0005 0602               MVI     B,NTRKS ;NUMBER OF TRACKS TO READ
0007 21B700             LXI     H,IOPB0
                ;
                START.
                ;
                ;       READ FIRST/NEXT TRACK INTO BDOSB
000A 7D                 MOV     A,L
000B D379               OUT     LOW
000D 7C                 MOV     A,H
000E D37A               OUT     HIGH
0010 DB78       WAIT0.  IN      DSTAT
0012 E604               ANI     4
0014 CA1000             JZ      WAIT0
                ;
                ;       CHECK DISK STATUS
0017 DB79               IN      RTYPE
0019 E603               ANI     11B
001B FE02               CPI     2
                ;
                        IF      TESTING
                        CNC     RMON80  ;GO TO MONITOR IF 11 OR 10
                        ENDIF
                        IF      NOT TESTING
001D D22800             JNC     RSTART  ;RETRY THE LOAD
                        ENDIF
                ;
0020 DB7B               IN      RBYTE   ;I/O COMPLETE, CHECK STATUS
                ;       IF NOT READY, THEN GO TO MON80
0022 17                 RAL
0023 DCFFFF             CC      RMON80  ;NOT READY BIT SET
0026 1F                 RAR             ;RESTORE
0027 E61E               ANI     11110B  ;OVERRUN/ADDR ERR/SEEK/CRC/XXXX
                ;
                        IF      TESTING
                        CNZ     RMON80  ;GO TO MONITOR
                        ENDIF
                        IF      NOT TESTING
0029 C22800             JNZ     RSTART  ;RETRY THE LOAD
                        ENDIF
                ;
                ;
002C 113700             LXI     D,IOPBL ;LENGTH OF IOPB
002F 19                 DAD     D       ;ADDRESSING NEXT IOPB
0030 05                 DCR     B       ;COUNT DOWN TRACKS
0031 C21A00             JNZ     START
                ;
                ;
                ;       JMP TO BOOT TO PRINT INITIAL MESSAGE, AND SET UP JMPS
0034 C31500             JMP     BOOT
                ;
                ;       PARAMETER BLOCKS
0037 80         IOPB0.  DB      80H     ;IOCW, NO UPDATE
0038 04                 DB      READF   ;READ FUNCTION
0039 15                 DB      BDOS0   ;# SECTORS TO READ ON TRACK 0
003A 00                 DB      0       ;TRACK 0
003B 02                 DB      2       ;START WITH SECTOR 2 ON TRACK 0
003C 0000               DW      BDOSB   ;START AT BASE OF BDOS
0007 =          IOPBL   EQU     $-IOPB0
                ;
003E 80         IOPB1.  DB      80H
003F 04                 DB      READF
0040 15                 DB      BDOS1   ;SECTORS TO READ ON TRACK 1
0041 01                 DB      1       ;TRACK 1
0042 01                 DB      1       ;SECTOR 1
0043 8800               DW      BDOSB+BDOS0*128 ;BASE OF SECOND READ
                ;
0045                    END
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