COPYSYS.ASM

CP/M RMAC ASSEM 1.1 #001 COPYSYS - UPDATED SYSGEN PROGRAM 6/82

title 'Copysys - updated sysgen program 6/82'

; System generation program

001E = VERS equ 30 ;version x.x for CP/M x.x

;

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

;\* \*

;\* \*

;\* Copysys source code \*

;\* \*

;\* \*

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

;

0000 = FALSE equ 0

FFFF = TRUE equ not FALSE

;

;

001A = NSECTS equ 26 ;no. of sectors

0002 = NTRKS equ 2 ;no. of systems tracks

0004 = NDISKS equ 4 ;no. of disks drives

0080 = SECSIZ equ 128 ;size of sector

0007 = LOG2SEC equ 7 ;LOG2 128

0002 = SKEW equ 2 ;skew sector factor

;

005C = FCB equ 005Ch ;location of FCB

007C = FCBCR equ FCB+32 ;current record location

0100 = TPA equ 0100h ;Transient Program Area

1000 = LOADP equ 1000h ;LOAD Point for system

0005 = BDOS equ 05h ;DOS entry point

0000 = BOOT equ 00h ;reboot for system

0001 = CONI equ 1h ;console input function

0002 = CONO equ 2h ;console output function

000E = SELD equ 14 ;select a disk

000F = OPENF equ 15 ;disk open function

0010 = CLOSEF equ 16 ;open a file

0015 = DWRITF equ 21 ;Write func

0016 = MAKEF equ 22 ;mae a file

0013 = DELTEF equ 19 ;delete a file

0014 = DREADF equ 20 ;disk read function

0032 = DRBIOS equ 50 ;Direct BIOS call function

0080 = EIGHTY equ 080h ;value of 80

0003 = CTLC equ 'C'-'@' ;ConTroL C

0059 = Y equ 89 ;ASCII value of Y

;

0001 = MAXTRY equ 01 ;maximum number of tries

000D = CR equ 0Dh ;Carriage Return

000A = LF equ 0Ah ;Line Feed

0016 = STACKSIZE equ 016h ;size of local stack

;

0001 = WBOOT equ 01 ;address of warm boot

;

0009 = SELDSK equ 9 ;Bios func #9 SELect DiSK

000A = SETTRK equ 10 ;BIOS func #10 SET TRacK

000B = SETSEC equ 11 ;BIOS func #11 SET SECtor

000C = SETDMA equ 12 ;BIOS func #12 SET DMA address

000D = READF equ 13 ;BIOS func #13 READ selected sector

000E = WRITF equ 14 ;BIOS func #14 WRITe selected sector

CP/M RMAC ASSEM 1.1 #002 COPYSYS - UPDATED SYSGEN PROGRAM 6/82

;

0100 org TPA ;Transient Program Area

0100 C35704 jmp START

0103 0000000000 dw 0,0,0,0,0,0,0,0

0113 0000000000 dw 0,0,0,0,0,0,0,0

0123 0000000000 dw 0,0,0,0,0,0,0,0

0133 0000000000 dw 0,0,0,0,0,0,0,0

0143 0000000000 dw 0,0,0,0,0

014D 000000 db 0,0,0

0150 434F505952 db 'COPYRIGHT 1982, '

0160 4449474954 db 'DIGITAL RESEARCH'

0170 3135313238 db '151282'

0176 00000000 db 0,0,0,0

017A 3635343332 db '654321'

;

; Translate table-sector numbers are translated here to decrease

; the systen tie for missed sectors when slow controllers are

; involved. Translate takes place according to the "SKEW" factor

; set above.

;

0180 02 OST: db NTRKS ;operating system tracks

0181 1A SPT: db NSECTS ;sectors per track

TRAN:

0001 # TRELT set 1

0001 # TRBASE set 1

rept NSECTS

db TRELT ;generate first/next sector

TRELT set TRELT+SKEW

if TRELT gt NSECTS

TRBASE set TRBASE+1

TRELT set TRBASE

endif

endm

0182+01 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0183+03 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0184+05 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0185+07 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0186+09 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0187+0B DB TRELT ;GENERATE FIRST/NEXT SECTOR

0188+0D DB TRELT ;GENERATE FIRST/NEXT SECTOR

0189+0F DB TRELT ;GENERATE FIRST/NEXT SECTOR

018A+11 DB TRELT ;GENERATE FIRST/NEXT SECTOR

018B+13 DB TRELT ;GENERATE FIRST/NEXT SECTOR

018C+15 DB TRELT ;GENERATE FIRST/NEXT SECTOR

018D+17 DB TRELT ;GENERATE FIRST/NEXT SECTOR

018E+19 DB TRELT ;GENERATE FIRST/NEXT SECTOR

018F+02 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0190+04 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0191+06 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0192+08 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0193+0A DB TRELT ;GENERATE FIRST/NEXT SECTOR

0194+0C DB TRELT ;GENERATE FIRST/NEXT SECTOR

0195+0E DB TRELT ;GENERATE FIRST/NEXT SECTOR

0196+10 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0197+12 DB TRELT ;GENERATE FIRST/NEXT SECTOR

CP/M RMAC ASSEM 1.1 #003 COPYSYS - UPDATED SYSGEN PROGRAM 6/82

0198+14 DB TRELT ;GENERATE FIRST/NEXT SECTOR

0199+16 DB TRELT ;GENERATE FIRST/NEXT SECTOR

019A+18 DB TRELT ;GENERATE FIRST/NEXT SECTOR

019B+1A DB TRELT ;GENERATE FIRST/NEXT SECTOR

;

; Now leave space for extensions to translate table

;

if NSECTS lt 64

rept 64-NSECTS

db 0

endm

019C+00 DB 0

019D+00 DB 0

019E+00 DB 0

019F+00 DB 0

01A0+00 DB 0

01A1+00 DB 0

01A2+00 DB 0

01A3+00 DB 0

01A4+00 DB 0

01A5+00 DB 0

01A6+00 DB 0

01A7+00 DB 0

01A8+00 DB 0

01A9+00 DB 0

01AA+00 DB 0

01AB+00 DB 0

01AC+00 DB 0

01AD+00 DB 0

01AE+00 DB 0

01AF+00 DB 0

01B0+00 DB 0

01B1+00 DB 0

01B2+00 DB 0

01B3+00 DB 0

01B4+00 DB 0

01B5+00 DB 0

01B6+00 DB 0

01B7+00 DB 0

01B8+00 DB 0

01B9+00 DB 0

01BA+00 DB 0

01BB+00 DB 0

01BC+00 DB 0

01BD+00 DB 0

01BE+00 DB 0

01BF+00 DB 0

01C0+00 DB 0

01C1+00 DB 0

endif

;

; Utility subroutines

;

MLTBY3:

;multiply the contents of regE to get jmp address

01C2 7B mov a,e ;Acc = E

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01C3 D601 sui 1

01C5 5F mov e,a ;get ready for multiply

01C6 83 add e

01C7 83 add e

01C8 5F mov e,a

01C9 C9 ret ;back at it

;

SEL:

01CA 323706 sta TEMP

01CD 3A3606 lda V3FLG

01D0 FEFF cpi TRUE

01D2 3A3706 lda TEMP

01D5 C2EE01 jnz SEL2

;

01D8 32E805 sta CREG ;CREG = selected register

01DB 210000 lxi h,0000h

01DE 22EA05 shld EREG ;for first time

01E1 3E09 mvi a,SELDSK

01E3 32E605 sta BIOSFC ;store it in func space

01E6 0E32 mvi c,DRBIOS

01E8 11E605 lxi d,BIOSPB

01EB C30500 jmp BDOS

SEL2:

01EE 4F mov c,a

01EF 2A0100 lhld WBOOT

01F2 110900 lxi d,SELDSK

01F5 CDC201 call MLTBY3

01F8 19 dad d

01F9 E9 pchl

;

TRK:

; Set up track

01FA 323706 sta TEMP

01FD 3A3606 lda V3FLG

0200 FEFF cpi TRUE

0202 3A3706 lda TEMP

0205 C21E02 jnz TRK2

;

0208 3E00 mvi a,00h

020A 32E905 sta BREG ;zero out B register

020D 79 mov a,c ;Acc = track #

020E 32E805 sta CREG ;set up PB

0211 3E0A mvi a,SETTRK ;settrk func #

0213 32E605 sta BIOSFC

0216 0E32 mvi c,DRBIOS

0218 11E605 lxi d,BIOSPB

021B C30500 jmp BDOS

TRK2:

021E 2A0100 lhld WBOOT

0221 110A00 lxi d,SETTRK

0224 CDC201 call MLTBY3

0227 19 dad d

0228 E9 pchl ;gone to set track

;

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SEC:

; Set up sector number

0229 323706 sta TEMP

022C 3A3606 lda V3FLG

022F FEFF cpi TRUE

0231 3A3706 lda TEMP

0234 C24D02 jnz SEC2

;

0237 3E00 mvi a,00h

0239 32E905 sta BREG ;zero out BREG

023C 79 mov a,c ; Acc = C

023D 32E805 sta CREG ;CREG = sector #

0240 3E0B mvi a,SETSEC

0242 32E605 sta BIOSFC ;set up bios call

0245 0E32 mvi c,DRBIOS

0247 11E605 lxi d,BIOSPB

024A C30500 jmp BDOS

SEC2:

024D 2A0100 lhld WBOOT

0250 110B00 lxi d,SETSEC

0253 CDC201 call MLTBY3

0256 19 dad d

0257 E9 pchl

;

DMA:

; Set DMA address to value of BC

0258 323706 sta TEMP

025B 3A3606 lda V3FLG

025E FEFF cpi TRUE

0260 3A3706 lda TEMP

0263 C27B02 jnz DMA2

;

0266 78 mov a,b ;

0267 32E905 sta BREG ;

026A 79 mov a,c ;Set up the BC

026B 32E805 sta CREG ;register pair

026E 3E0C mvi a,SETDMA ;

0270 32E605 sta BIOSFC ;set up bios #

0273 0E32 mvi c,DRBIOS

0275 11E605 lxi d,BIOSPB

0278 C30500 jmp BDOS

DMA2:

027B 2A0100 lhld WBOOT

027E 110C00 lxi d,SETDMA

0281 CDC201 call MLTBY3

0284 19 dad d

0285 E9 pchl

;

READ:

; Perform read operation

0286 323706 sta TEMP

0289 3A3606 lda V3FLG

028C FEFF cpi TRUE

028E 3A3706 lda TEMP

0291 C2A102 jnz READ2

;

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0294 3E0D mvi a,READF

0296 32E605 sta BIOSFC

0299 0E32 mvi c,DRBIOS

029B 11E605 lxi d,BIOSPB

029E C30500 jmp BDOS

READ2:

02A1 2A0100 lhld WBOOT

02A4 110D00 lxi d,READF

02A7 CDC201 call MLTBY3

02AA 19 dad d

02AB E9 pchl

;

WRITE:

; Perform write operation

02AC 323706 sta TEMP

02AF 3A3606 lda V3FLG

02B2 FEFF cpi TRUE

02B4 3A3706 lda TEMP

02B7 C2C702 jnz WRITE2

;

02BA 3E0E mvi a,WRITF

02BC 32E605 sta BIOSFC ;set up bios #

02BF 0E32 mvi c,DRBIOS

02C1 11E605 lxi d,BIOSPB

02C4 C30500 jmp BDOS

WRITE2:

02C7 2A0100 lhld WBOOT

02CA 110E00 lxi d,WRITF

02CD CDC201 call MLTBY3

02D0 19 dad d

02D1 E9 pchl

;

MULTSEC:

; Multiply the sector # in rA by the sector size

02D2 6F mov l,a

02D3 2600 mvi h,0 ;sector in hl

rept LOG2SEC

dad h

endm

02D5+29 DAD H

02D6+29 DAD H

02D7+29 DAD H

02D8+29 DAD H

02D9+29 DAD H

02DA+29 DAD H

02DB+29 DAD H

02DC C9 ret ;with HL - sector\*sectorsize

;

GETCHAR:

; Read console character to rA

02DD 0E01 mvi c,CONI

02DF CD0500 call BDOS

; Convert to upper case

02E2 FE61 cpi 'A' or 20h

02E4 D8 rc

02E5 FE7B cpi ('Z' or 20h)+1

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02E7 D0 rnc

02E8 E65F ani 05Fh

02EA C9 ret

;

PUTCHAR:

; Write character from rA to console

02EB 5F mov e,a

02EC 0E02 mvi c,CONO

02EE CD0500 call BDOS

02F1 C9 ret

;

CRLF:

; Send Carriage Return, Line Feed

02F2 3E0D mvi a,CR

02F4 CDEB02 call PUTCHAR

02F7 3E0A mvi a,LF

02F9 CDEB02 call PUTCHAR

02FC C9 ret

;

CRMSG:

; Print message addressed by the HL until zero with leading CRLF

02FD D5 push d

02FE CDF202 call CRLF

0301 D1 pop d ;drop through to OUTMSG

OUTMSG:

0302 0E09 mvi c,9

0304 C30500 jmp BDOS

;

SELCT:

; Select disk given by rA

0307 0E0E mvi c,0Eh

0309 C30500 jmp BDOS

;

DWRITE:

; Write for file copy

030C 0E15 mvi c,DWRITF

030E C30500 jmp BDOS

;

DREAD:

; Disk read function

0311 0E14 mvi c,DREADF

0313 C30500 jmp BDOS

;

OPEN:

; File open function

0316 0E0F mvi c,OPENF

0318 C30500 jmp BDOS

;

CLOSE:

031B 0E10 mvi c,CLOSEF

031D C30500 jmp BDOS

;

MAKE:

0320 0E16 mvi c,MAKEF

0322 C30500 jmp BDOS

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;

DELETE:

0325 0E13 mvi c,DELTEF

0327 C30500 jmp BDOS

;

;

;

DSTDMA:

032A 0E1A mvi c,26

032C C30500 jmp BDOS

;

SOURCE:

032F 116006 lxi d,GETPRM ;ask user for source drive

0332 CDFD02 call CRMSG

0335 CDDD02 call GETCHAR ;obtain response

0338 FE0D cpi CR ;is it CR?

033A CA5D03 jz DFLTDR ;skip if CR only

033D FE03 cpi CTLC ;isit ^C?

033F CAD405 jz REBOOT

;

0342 D641 sui 'A' ;normalize drive #

0344 FE04 cpi NDISKS ;valid drive?

0346 DA4F03 jc GETC ;skip to GETC if so

;

; Invalid drive

0349 CDDF05 call BADDISK ;tell user bad drive

034C C32F03 jmp SOURCE ;try again

;

GETC:

; Select disk given by Acc.

034F C641 adi 'A'

0351 329506 sta GDISK ;store source disk

0354 D641 sui 'A'

0356 5F mov e,a ;move disk into E for select func

0357 CDCA01 call SEL ;select the disk

035A C37303 jmp GETVER

;

DFLTDR:

035D 0E19 mvi c,25 ;func 25 for current disk

035F CD0500 call BDOS ;get curdsk

0362 C641 adi 'A'

0364 329506 sta GDISK

0367 CDF202 call CRLF

036A 118B06 lxi d,VERGET

036D CD0203 call OUTMSG

0370 C37C03 jmp VERCR

;

GETVER:

; Getsys set r/w to read and get the system

0373 CDF202 call CRLF

0376 118B06 lxi d,VERGET ;verify source disk

0379 CD0203 call OUTMSG

037C CDDD02 VERCR: call GETCHAR

037F FE0D cpi CR

0381 C2D405 jnz REBOOT ;jmp only if not verified

0384 CDF202 call CRLF

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0387 C9 ret

;

DESTIN:

0388 11A906 lxi d,PUTPRM ;address of message

038B CDFD02 call CRMSG ;print it

038E CDDD02 call GETCHAR ;get answer

0391 FE0D cpi CR

0393 CAD405 jz REBOOT ;all done

0396 D641 sui 'A'

0398 FE04 cpi NDISKS ;valid disk

039A DAA303 jc PUTC

;

; Invalid drive

039D CDDF05 call BADDISK ;tell user bad drive

03A0 C3C204 jmp PUTSYS ;to try again

;

PUTC:

; Set disk fron rA

03A3 C641 adi 'A'

03A5 32E606 sta PDISK ;message sent

03A8 D641 sui 'A'

03AA 5F mov e,a ;disk # in E

03AB CDCA01 call SEL ;select destination drive

; Put system, set r/w to write

03AE 11D706 lxi d,VERPUT ;verify dest prmpt

03B1 CDFD02 call CRMSG ;print it out

03B4 CDDD02 call GETCHAR ;retrieve answer

03B7 FE0D cpi CR

03B9 C2D405 jnz REBOOT ;exit to system if error

03BC CDF202 call CRLF

03BF C9 ret

;

;

GETPUT:

; Get or put CP/M (rw = 0 for read, 1 for write)

; disk is already selected

03C0 210010 lxi h,LOADP ;load point in RAM for DMA address

03C3 224006 shld DMADDR

;

;

;

;

; Clear track 00

03C6 3EFF mvi a,-1 ;

03C8 323C06 sta TRACK

;

RWTRK:

; Read or write next track

03CB 213C06 lxi h,TRACK

03CE 34 inr m ;track = track+1

03CF 3A8001 lda OST ;# of OS tracks

03D2 BE cmp m ;=track # ?

03D3 CA5604 jz ENDRW ;end of read/write

;

; Otherwise not done

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03D6 4E mov c,m ;track number

03D7 CDFA01 call TRK ;set to track

03DA 3EFF mvi a,-1 ;counts 0,1,2,...,25

03DC 323E06 sta SECTOR

;

RWSEC:

; Read or write a sector

03DF 3A8101 lda SPT ;sectors per track

03E2 213E06 lxi h,SECTOR

03E5 34 inr m ;set to next sector

03E6 BE cmp m ;A=26 and M=0,1,..,25

03E7 CA4504 jz ENDTRK

;

; Read or write sector to or from current DMA address

03EA 213E06 lxi h,SECTOR

03ED 5E mov e,m ;sector number

03EE 1600 mvi d,0 ;to DE

03F0 218201 lxi h,TRAN

03F3 46 mov b,m ;tran(0) in B

03F4 19 dad d ;sector translated

03F5 4E mov c,m ;value to C ready for select

03F6 C5 push b ;save tran(0)

03F7 CD2902 call SEC

03FA C1 pop b ;recall tran(0),tran(sector)

03FB 79 mov a,c ;tran(sector)

03FC 90 sub b ;--tran(sector)

03FD CDD202 call MULTSEC ;\*sector size

0400 EB xchg ;to DE

0401 2A4006 lhld DMADDR ;base DMA

0404 19 dad d

0405 44 mov b,h

0406 4D mov c,l ;to set BC for SEC call

0407 CD5802 call DMA ;dma address set from BC

040A AF xra a

040B 324206 sta RETRY ;to set zero retries

;

TRYSEC:

; Try to read or write current sector

040E 3A4206 lda RETRY

0411 FE01 cpi MAXTRY

0413 DA2A04 jc TRYOK

;

; Past MAXTRY, message and ignore

0416 11C507 lxi d,ERRMSG

0419 CD0203 call OUTMSG

041C CDDD02 call GETCHAR

041F FE0D cpi CR

0421 C2D405 jnz REBOOT

;

; Typed a CR, ok to ignore

0424 CDF202 call CRLF

0427 C3DF03 jmp RWSEC

;

TRYOK:

; Ok to tyr read write

042A 3C inr a

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042B 324206 sta RETRY

042E 3A3F06 lda RW

0431 B7 ora a

0432 CA3B04 jz TRYREAD

;

; Must be write

0435 CDAC02 call WRITE

0438 C33E04 jmp CHKRW

TRYREAD:

043B CD8602 call READ

CHKRW:

043E B7 ora a

043F CADF03 jz RWSEC ;zero flag if read/write ok

;

;Error, retry operation

0442 C30E04 jmp TRYSEC

;

; End of track

ENDTRK:

0445 3A8101 lda SPT ;sectors per track

0448 CDD202 call MULTSEC ;\*secsize

044B EB xchg ; to DE

044C 2A4006 lhld DMADDR ;base dma for this track

044F 19 dad d ;+spt\*secsize

0450 224006 shld DMADDR ;ready for next track

0453 C3CB03 jmp RWTRK ;for another track

;

ENDRW:

; End of read or write

0456 C9 ret

;

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

;\*

;\* MAIN ROUTINE

;\*

;\*

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

;

START:

0457 316908 lxi sp,STACK

045A 114306 lxi d,SIGNON

045D CD0203 call OUTMSG

;

;get version number to check compatability

0460 0E0C mvi c,12 ;version check

0462 CD0500 call BDOS

0465 7D mov a,l ;version in Acc

0466 FE30 cpi 30h ;version 3 or newer?

0468 DA7304 jc OLDRVR ;

046B 3EFF mvi a,TRUE

046D 323606 sta V3FLG ;

0470 C37804 jmp FCBCHK

OLDRVR:

0473 3E00 mvi a,FALSE

0475 323606 sta V3FLG

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;

; Check for default file liad instead of get

0478 3A5D00 FCBCHK: lda FCB+1 ;blank if no file

047B FE20 cpi ' '

047D CAB204 jz GETSYS ;skip to system message

0480 115C00 lxi d,FCB ;try to open it

0483 CD1603 call OPEN

0486 3C inr a ;255 becomes 00

0487 C29304 jnz RDOK

;

; File not present

048A 115907 lxi d,NOFILE

048D CDFD02 call CRMSG

0490 C3D405 jmp REBOOT

;

;file present

RDOK:

0493 AF xra a

0494 327C00 sta FCBCR ;current record = 0

0497 210010 lxi h,LOADP

RDINP:

049A E5 push h

049B 44 mov b,h

049C 4D mov c,l

049D CD5802 call DMA ;DMA address set

04A0 115C00 lxi d,FCB ;ready fr read

04A3 CD1103 call DREAD

04A6 E1 pop h ;recall

04A7 B7 ora a ;00 if read ok

04A8 C2C204 jnz PUTSYS ;assume eof if not

; More to read continue

04AB 118000 lxi d,SECSIZ

04AE 19 dad d ;HL is new load address

04AF C39A04 jmp RDINP

;

GETSYS:

04B2 CD2F03 call SOURCE ;find out source drive

;

04B5 AF xra a ;zero out a

04B6 323F06 sta RW ;RW = 0 to signify read

04B9 CDC003 call GETPUT ;get or read system

04BC 111907 lxi d,DONE ;end message of get or read func

04BF CD0203 call OUTMSG ;print it out

;

; Put the system

PUTSYS:

04C2 CD8803 call DESTIN ;get dest drive

;

04C5 213F06 lxi h,RW ;load address

04C8 3601 mvi m,1

04CA CDC003 call GETPUT ;to put system back on disk

04CD 111907 lxi d,DONE

04D0 CD0203 call OUTMSG ;print out end prompt

;

; FILE COPY FOR CPM.SYS

CP/M RMAC ASSEM 1.1 #013 COPYSYS - UPDATED SYSGEN PROGRAM 6/82

;

CPYCPM:

; Prompt the user for the source of CP/M3.SYS

;

04D3 11FA06 lxi d,CPYMSG ;print copys prompt

04D6 CDFD02 call CRMSG ;print it

04D9 CDDD02 call GETCHAR ;obtain reply

04DC FE59 cpi Y ;is it yes?

04DE C2D405 jnz REBOOT ;if not exit

;else

;

;

04E1 0E0D mvi c,13 ;func # for reset

04E3 CD0500 call BDOS ;

04E6 3C inr a

04E7 11C507 lxi d,ERRMSG

04EA CCD105 cz FINIS

;

04ED CD2F03 call SOURCE ;get source disk for CPM3.SYS

CNTNUE:

04F0 3A9506 lda GDISK ;Acc = source disk

04F3 D641 sui 'A'

04F5 1600 mvi d,00h

04F7 5F mov e,a ;DE = selected disk

04F8 CD0703 call SELCT

; now copy the FCBs

04FB 0E24 mvi c,36 ;for copy

04FD 11EE05 lxi d,SFCB ;source file

0500 211206 lxi h,DFCB ;destination file

MFCB:

0503 1A ldax d

0504 13 inx d ;ready next

0505 77 mov m,a

0506 23 inx h ;ready next dest

0507 0D dcr c ;decrement coun

0508 C20305 jnz MFCB

;

050B 3A9506 lda GDISK ;Acc = source disk

050E D640 sui 40h ;correct disk

0510 21EE05 lxi h,SFCB

0513 77 mov m,a ;SFCB has source disk #

0514 3AE606 lda PDISK ;get the dest. disk

0517 211206 lxi h,DFCB ;

051A D640 sui 040h ;normalize disk

051C 77 mov m,a

;

051D AF xra a ;zero out a

051E 323206 sta DFCBCR ;current rec = 0

;

; Source and destination fcb's ready

;

0521 11EE05 lxi d,SFCB ;

0524 CD1603 call OPEN ;open the file

0527 115907 lxi d,NOFILE ;error messg

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052A 3C inr a ;255 becomes 0

052B CCD105 cz FINIS ;done if no file

;

; Source file is present and open

052E 110010 lxi d,LOADP ;get DMA address

0531 EB xchg ;move address to HL regs

0532 223906 shld BEGIN ;save for begin of write

;

0535 3A3906 lda BEGIN ;get low byte of

0538 6F mov l,a ;DMA address into L

0539 3A3A06 lda BEGIN+1 ;

053C 67 mov h,a ;into H also

COPY1:

053D EB xchg ;DE = address of DMA

053E CD2A03 call DSTDMA ;

;

0541 11EE05 lxi d,SFCB ;

0544 CD1103 call DREAD ;read next record

0547 B7 ora a ;end of file?

0548 C26405 jnz EOF ;skip write if so

;

054B 3A3D06 lda CRNREC

054E 3C inr a ;bump it

054F 323D06 sta CRNREC

;

0552 3A3906 lda BEGIN

0555 6F mov l,a

0556 3A3A06 lda BEGIN+1

0559 67 mov h,a

055A 118000 lxi d,EIGHTY

055D 19 dad d ;add eighty to begin address

055E 223906 shld BEGIN

0561 C33D05 jmp COPY1 ;loop until EOF

;

EOF:

0564 111907 lxi d,DONE

0567 CD0203 call OUTMSG

;

COPY2:

056A CD8803 call DESTIN ;get destination drive for CPM3.SYS

056D 111206 lxi d,DFCB ;set up dest FCB

0570 EB xchg

0571 3AE606 lda PDISK

0574 D640 sui 040h ;normalize disk

0576 77 mov m,a ;correct disk for dest

0577 EB xchg ;DE = DFCB

0578 CD2503 call DELETE ;delete file if there

;

057B 111206 lxi d,DFCB ;

057E CD2003 call MAKE ;make a new one

0581 117807 lxi d,NODIR

0584 3C inr a ;check directory space

0585 CCD105 cz FINIS ;end if none

;

0588 110010 lxi d,LOADP

058B EB xchg

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058C 223906 shld BEGIN

;

058F 3A3906 lda BEGIN

0592 6F mov l,a

0593 3A3A06 lda BEGIN+1

0596 67 mov h,a

LOOP2:

0597 EB xchg

0598 CD2A03 call DSTDMA

059B 111206 lxi d,DFCB

059E CD0C03 call DWRITE

05A1 119307 lxi d,FSPACE

05A4 B7 ora a

05A5 C4D105 cnz FINIS

05A8 3A3D06 lda CRNREC

05AB 3D dcr a

05AC 323D06 sta CRNREC

05AF FE00 cpi 0

05B1 CAC605 jz FNLMSG

05B4 3A3906 lda BEGIN

05B7 6F mov l,a

05B8 3A3A06 lda BEGIN+1

05BB 67 mov h,a

05BC 118000 lxi d,EIGHTY

05BF 19 dad d

05C0 223906 shld BEGIN

05C3 C39705 jmp LOOP2

; Copy operation complete

FNLMSG:

05C6 111206 lxi d,DFCB

05C9 0E10 mvi c,CLOSEF

05CB CD0500 call BDOS

;

05CE 111907 lxi d,DONE

;

FINIS:

; Write message given by DE, reboot

05D1 CD0203 call OUTMSG

;

REBOOT:

05D4 0E0D mvi c,13

05D6 CD0500 call BDOS

05D9 CDF202 call CRLF

05DC C30000 jmp BOOT

;

BADDISK:

05DF 112B07 lxi d,QDISK

05E2 CDFD02 call CRMSG

05E5 C9 ret

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

;\*

;\*

;\* DATA STRUCTURES

;\*

;\*

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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;

BIOSPB:

; BIOS Parameter Block

05E6 00 BIOSFC: db 0 ;BIOS function number

05E7 00 AREG: db 0 ;A register contents

05E8 00 CREG: db 0 ;C register contents

05E9 00 BREG: db 0 ;B register contents

05EA 00 EREG: db 0 ;E register contents

05EB 00 DREG: db 0 ;D register contents

05EC 0000 HLREG: dw 0 ;HL register contents

;

SFCB:

05EE DR: ds 1

05EF 43504D3320F1F8: db 'CPM3 '

05F7 535953 T1T3: db 'SYS'

05FA 00 EXT: db 0

05FB 00 CS: db 0

05FC 00 RS: db 0

05FD 00 RCC: db 0

05FE D0D15: ds 16

060E 00 CCR: db 0

060F R0R2: ds 3

;

0612 DFCB: ds 36

0632 = DFCBCR equ DFCB+32

;

;

0636 00 V3FLG: db 0 ;flag for version #

0637 00 TEMP: db 0

0638 SDISK: ds 1 ;selected disk

0639 0000 BEGIN: dw 0

063B 00 DFLAG: db 0

063C TRACK: ds 1 ;current track

063D 00 CRNREC: db 0 ;current rec count

063E SECTOR: ds 1 ;current sector

063F RW: ds 1 ;read if 0 write if 1

0640 DMADDR: ds 2 ;current DMA address

0642 RETRY: ds 1 ;number of tries on this sector

0643 43502F4D20SIGNON: db 'CP/M 3 COPYSYS - Version '

065C 332E30 db VERS/10+'0','.',VERS mod 10 +'0'

065F 24 db '$'

0660 536F757263GETPRM: db 'Source drive name (or return for default) $'

068B 536F757263VERGET: db 'Source on '

0695 GDISK: ds 1

0696 207468656E db ' then type return $'

06A9 4465737469PUTPRM: db 'Destination drive name (or return to reboot) $'

06D7 4465737469VERPUT: db 'Destination on '

06E6 PDISK: ds 1

06E7 207468656E db ' then type return $'

06FA 446F20796FCPYMSG: db 'Do you wish to copy CPM3.SYS? $'

0719 46756E6374DONE: db 'Function complete$'

;

; Error messages......

;

072B 4552524F52QDISK: db 'ERROR: Invalid drive name (Use A, B, C, or D)$'

0759 4552524F52NOFILE: db 'ERROR: No source file on disk.$'

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0778 4552524F52NODIR: db 'ERROR: No directory space.$'

0793 4552524F52FSPACE: db 'ERROR: Out of data space.$'

07AD 4552524F52WRPROT: db 'ERROR: Write protected?$'

07C5 4552524F52ERRMSG: db 'ERROR: Possible incompatible disk format.'

07EE 0D0A205479 db CR,LF,' Type return to ignore.$'

0808 4552524F52CLSERR: db 'ERROR: Close operation failed.$'

;

0827 ds STACKSIZE \* 3

STACK:

0869 end