

OSMOSIS CP/M DISK EMULATION SYSTEM

USER MANUAL

FOR THE OSBORNE 1 MICROCOMPUTER

Version 1.0

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CREATING YOUR SYSTEM MASTER SOFTWARE

REQUIREMENTS

1. Your Osborne CP/M system disk.
2. Your Osborne Utilities disk.
3. The distribution disk we supplied (Note: We do not supply CP/M on this disk hence it will not boot).

(ret) = Press return key

- 1) Place your Osborne Utilities disk in drive A and the distribution disk we supplied in drive B. Boot the system to arrive at the CP/M prompt on the screen.
- 2) Enter SYSGEN (ret)
- 3) The computer will respond:
SOURCE drive (A or B)
- 4) Enter A (ret)
- 5) The computer will respond:
DESTINATION (A,B or RETURN to exit)
- 6) Enter B (ret)
- 7) Take your Utilities disk from drive A and place it in drive B. Take the Distribution disk and insert it in drive A. Use the reset button and boot the system:
- 8) Enter B:SUBMIT PATCH (ret). The computer will respond by carrying out a series of commands. (If you are interested in how the computer is able to carry out commands on its own an explanation is given in section 8).
- 9) When these commands have finished and the screen shows:

-R4280
NEXT PC
2800 0000
-

Press ctrl C i.e. Enter Control C
- 10) Enter B:SYSGEN (ret)

- 11) The computer will respond
SOURCE drive (A or B)
- 12) Press return key ONLY
- 13) The computer will respond
DESTINATION (A,B or RETURN to exit)
- 14) Enter A (ret)
- 15) Use the reset button to restore the system
- 16) Boot the system to arrive at the CP/M prompt on the screen.
- 17) Enter ERA PATCH.* (ret)
- 18) Enter ERA CPM58.COM (ret)
- 19) Place Your Osborne CP/M System disk in drive B
- 20) Enter B:PIP A:=B:PIP.COM[v] (ret)
- 21) You have now created the Emulator System Master.

USING THE EMULATOR SOFTWARE

- 1) You have now created your new Emulation System Master which should be marked accordingly.

FORMATTING A NEW BLANK DISKETTE

- 2) To format a disk place your Emulation Master in drive A and a new diskette in drive B.

Enter SUPERMAT (ret)

NOTE: Your response is shown in a box i.e.

The computer responds:

OSMOSIS LTD

disk formatting program for the OSBORNE 1 microcomputer

Enter format type :-

A - osborne 1 single density
B - osborne 1 double density
C - nec pc8000
D - sharp mz80b
E - sharp pc3201
F - icl pc
G - rair black box
H - wangwriter
I - rank xerox 820
J - british micro mimi
K - hewlett-packard 125
L - wordplex

Enter ctrl C to exit (ret) (it is necessary to use the capital)

Drive B will be formatted showing the tracks in hexadecimal code on the screen. Then the computer should respond:

Disk successfully formatted

The program will loop back to the menu:

Enter

READING AND WRITING TO OTHER FORMATS

- 3) Having now formatted the disk in drive B to xerox 820 format we will now test to see if the disk can be read and written to:

Enter RX820 (ret)

The computer will respond:

Osborne Computer System
60k CP/M 2.2A

Enter DIR B: (ret)

The computer will respond:

NO FILE

This means that the disk in drive B has been successfully formatted in Xerox format but there are no files on the diskette:

Enter PIP B:=A:PIP.COM[v] (ret)

Enter DIR B: (ret)

The computer will now respond:

A: PIP.COM

Enter PIP A:=B:PIP.COM[v] (ret)

The computer will copy the program from B to A.

The format can, of course, be proved beyond doubt if you give the disk with a text file to a friend with a Xerox 820. The file should be able to be read and the disk written to using the Xerox 820 computer.

- 4) **COPYING THE EMULATOR SYSTEM MASTER**

To copy the master disk use the osborne 1 single density option running SUPERMAT.

Place your normal Osborne issued CP/M System disk in drive A and:

Enter SYSGEN (ret)

The computer will respond:

SOURCE drive (A or B)

Enter A

Take out the diskette in drive A and insert the Emulator System Master:

Enter (ret)

The computer will respond:

DESTINATION (A,B or return to exit)

Enter B

If the computer responds:

system written successfully (if not return to step 4)

Enter (ret)

Enter PIP B:=A:*. *[V] (ret)

When the files have transferred successfully, the diskette in drive B will be an exact copy of the Emulation System Master.

NOTE:When using SYSGEN always be sure you have used the EMULATOR PATCHED CP/M as the source, rather than an unpatched Osborne distributed single density CP/M.

5) COPYING SOFTWARE FROM OTHER FORMATS

In this section we will suppose that you wish to use the Osborne to copy files or programs from a DEC VT180 to a XEROX 820 formatted diskette.

Format a new blank diskette as described in section 2 using Osborne single density format.

Write a CP/M system to the diskette as described in section 4

Place your Emulator System Master in drive A and the newly formatted diskette in drive B and boot up.

Enter PIP B:=A:PIP.COM[v] (ret)

Enter PIP B:=A:VT180.COM[v] (ret)

Enter PIP B:=A:RX820.COM[v] (ret)

Enter PIP B:=A:SUPERMAT.COM[v] (ret)

Take out the diskette in B and place it in drive A. Take the DEC VT180 diskette you wish to copy from in drive B. Boot up:

Enter VT180 (ret)

Enter PIP A:=B:*. *[v] (ret)

Enter SUPERMAT (ret)

Place a new blank diskette in drive B.

Enter I (ret)

When the diskette has been formatted:

Enter RX820 (ret)

Enter PIP B:=A:*. *[v] (ret)

Enter B: (ret)

Enter ERA SUPERMAT.COM (ret)

Enter ERA PIP.COM (ret)

Enter ERA VT180.COM (ret)

Enter ERA RX820.com (ret)

6) **COPYING OSBORNE DOUBLE DENSITY FORMATTED DISKS
 TO OSMOSIS DOUBLE DENSITY**

Format a new blank diskette to Single Sided Double Density format as shown on page 6 section 2 of the Double Density User Manual.

Copy the Double Density CP/M System as shown on page 6 section 3 of the Double Density User Manual.

Enter PIP B:=A:PIP.COM[V] (ret)

Take out both diskettes and insert your Emulation System Master in drive A and a new blank diskette in B. Reboot:

Enter SUPERMAT (ret)

The menu will appear on the screen as shown on page 3 of the Emulation User Manual, section 2. For format type:

Enter **A** (ret)

Enter ctrl C

Copy the CP/M System as shown on page 6 section 3 of the Emulation User Manual.

Enter PIP B:=A:OSBORNDD.COM[V] (ret)

Enter PIP B:=A:PIP.COM[V] (ret)

Take the diskette out of drive A and insert the diskette from drive B. Reboot.

Insert the Osborne Double Density diskette you wish to copy from in drive B. Using PIP copy the files and programs from drive B to Drive A. If the Osborne DD diskette is over 92k filled this operation must be performed twice i.e take half the files this time and the other half later.

Take the diskette from A and insert your Double Density System Master. Reboot:

Enter DD14 (ret)

Take the diskette from A and insert the OSMOSIS formatted Double Density diskette. Take the single density diskette containing the copied files and insert it in B.

Enter ctrl C

Enter PIP A:=B:*. *[V] (ret)

This completes the operation. If you need to copy more files or programs from the Osborne DD diskette, erase the files you have just copied and return to the appropriate step.

7) USING PIP AND ERA

PIP and ERA are very powerful commands and can be used in such a way to save the user a great deal of time:

The ERA command removes files and programs from the currently logged drive (the drive currently prompted by CP/M. Ambiguous file references are acceptable and ERA will remove the files that satisfy the command reference:

ERA X.Y The file X.Y is removed on the currently logged drive.

ERA X.* All files with a primary name X are removed.

ERA *.X All files with a secondary name of X are removed.

ERA X?Y.A?M All files which satisfy the ambiguous reference will be removed.

ERA *.* All files will be removed. However CP/M will request confirmation when this command is used and prompt "ARE YOU SURE (Y/N) ?" - to which the response is Y or N.

Because the ERA command is so powerful always check the command line before pressing return. It is also important to log into the drive you wish to remove files from first, or you could find that files are removed from the wrong diskette.

The command PIP will also allow these ambiguous references.

PROBLEM SOLVING

PROBLEM	SOLUTION
1. SETUP will not work.	(1) You are running under an emulation "patched" CP/M System. Reset and try again.
2. SYSGEN will not work.	(1) Same as above. (2) Bad diskette
3. Boot error.	(1) No system on disk. (2) Bad disk. (3) Switch off at power source and try again.
4. Will not log another disk.	(1) No system on disk. (2) Bad disk. (3) Incorrect emulation "patch".
5. Random BDOS errors when less than 50% full.	(1) Dirty read/write heads - Purchase head cleaning diskette. (2) Possible power filter problems. (3) Computer board fault.
6. BDOS errors more than 50% full.	(1) Disk drive problem. (a) Speed (b) alignment (c) index sensor.
7. Computer locks-out when logging new diskette.	(1) Incorrect emulation "patch" (2) Wrong CP/M system use copy of emulation master CP/M.
8. Emulation will not work.	(1) Osmosis board fitted incorrectly (2) Incorrect diskette format. (3) Incorrect emulation "patch" (4) Osmosis board failure. (5) Not running an emulation "patch"
9. Will not read a formatted disk	(1) Not running correct "patch". (2) Disk not formatted. (3) Bad diskette.
10. Copy program will not work.	(1) Because a new ROM was inserted - use PIP (and SYSGEN if required) (2) We will issue a new COPY soon.
11. Cannot generate a System Master.	(1) The Distribution Disk is defective (2) Power off for 10 seconds and try again.
12. Will not write to diskette.	(1) Diskette not logged with ctrl C. (2) Diskette files read only use: STAT *.* \$R/W (ret)
13. Printer will not work with System Diskette.	(1) Use SETUP on the System Master diskette (without running any emulation)

THEORY OF OPERATION AND SPECIFICATION

In order to achieve Disk Emulation the CP/M Basic I/O system (BIOS) must be altered. The BIOS is the only module in CP/M dependant on hardware. The alteration is called a "patch".

The patch is a small program to change various areas in the BIOS which deal with:

1. The block code and blocking pars
2. Sectors per track
3. Sector Blocking and Deblocking
4. Number of directory enteries
5. Directory allocation
6. Allocation vector size
7. Cluster Sector Mapping

The patches are files contained on the distribution diskette which are the BIOS overlays. Each emulation program initiates the required overlay.

The utilities SUBMIT, XSUB, SAVE, DDT, SYSGEN and MOVCPM are all used to generate the new CP/M. The utilities are very useful:

SUBMIT: Allows CP/M commands to be batched together for automatic processing. The commands are "given" to CP/M by a file created by an editor such as Wordstar (using the Non Document option). This file type must be ".SUB". The .SUB file for this generation is PATCH.SUB.

XSUB: Allows the commands batched in the .SUB file to work within a CP/M utility program. In this case commands are issued within DDT. Submit could also be modified to accept ctrl commands.

SAVE: Saves to disk in 256k byte blocks from the Transient Program Area (TPA).

DDT: Dynamic Debugging Tool, a program to aid with the debugging of a program

SYSGEN: A program to copy a CP/M system from one place to another, either from disk to disk or memory (TPA) to disk.

MOVCPM: To regenerate the CP/M system for a particular size.

AVAILABLE FORMATS AND DEVELOPMENT
MARCH 16, 1983

This section will be updated many times as we find other formats that will already work using one of the existing Emulations and with the other formats we are at present developing:

APPLE (under CP/M)	RADIOSHACK	ALTOS
TELEVIDEO	INTERTEC	
KAYCOM II	IBM PC (MSDOS)	
NORTHSTAR	IBM PC (under CP/M 86)	

Updates will be issued to registered owners of the software. Other machines will be considered and if you have a special interest we will require a formatted disk with a file, number of bytes/sector, number of sectors/track, name of the manufacturer, and the Cluster Sector and Interleave tables, together with any other information that the manufacturer may feel useful such as the directory sector and track etc.

Many manufacturers use similar formats and in many cases the same as another manufacturer. If you have a formatted disk which is not mentioned on our current list, but find that one of our emulations reads and writes to it, please let us know so we can keep the other users advised.

The Emulator is not due for release until 14th May 1983. However because of the incredible interest from our clients and our decision to make the software free to the purchasers of our Double Density upgrades we have decided to release it early and consequently the program Emulators do not all have a formatter.

ACTUAL EMULATION PROGRAMS AVAILABLE NOW

XEROX 820	DEC VT180	WANGWRITER
NEC8000	HP 125	OKI IF 800
CROMEMCOSD	CROMEMCODD	KAPRO SD
SANYO	BRITISH MICRO	OSBORNE DD
SHARP MZ80B	SHARP 3201	INT. COMP. PC
RAIR BLACK BOX	WORDPLEX	OSMOSIS DD
OSMOSIS DSDD		

The list of formatters are shown in the menu of SUPERMAT.