

*At home on the Mod I and III.*

# DOSPLUS 3.3

**DOS PLUS 3.3**  
**Microsystems Software, Inc.**  
**Hollywood, FL**  
**\$99.95**

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**A**t this writing there is only one serious double-density DOS available: DOSPLUS 3.3. It not only reads single density TRSDOS, LDOS and NEWDOS/80 diskettes, but reads standard Model III TRSDOS diskettes; *and* the Model III DOSPLUS reads and writes diskettes that are compatible with the Model I.

However, specialized disk I/O files and hardware-dependent features cannot be shuttled between the machines. The little gem that lets the Model I read Model III TRSDOS diskettes is the Convert/CMD utility. Convert :1 :0 makes the required adjustments to allow access to Model III diskettes.

DOSPLUS 3.3 allows mixing of various track drives. The Format/CMD utility formats disks for the desired track count and storage mode (double or single density). Once this is done, DOSPLUS 3.3 takes care of all housekeeping. LDOS/VTOS handles the different track drive problem in the same manner. If specifying the track on each format is disturbing to you, Config will allow you to preselect the track count and stepping rate, operate with a clock speed modification installed, configure a drive as double sided, (you can only configure the system drive to a certain track count) and if

your printer can handle them, send unaltered graphics codes to the printer.

### Transfer Your Library

You may want to transfer your program library from single to double-density format. Unlike Percom's DBLDOS that requires you to manually copy all filespecs, DOSPLUS does this with the Transfer/CMD utility. DOSPLUS reacts to the disk format (double or single density) and transfers files from disk to disk in the appropriate mode.

First format the destination disk in double density and execute Transfer :s :d (:s equals source drive, :d equals destination drive). DOSPLUS moves all visible files with no user intervention.

### Directory

LIB gives you a look at a respectable library of DOS commands. Many of the familiar ones have been extended. DIR typifies the library enhancements. With most DOSes (LDOS excepted) the directory lists only the visible files on a disk; however, with DOSPLUS 3.3 the information is much more thorough.

The first line of the directory lists the drive number, disk name and date, version of DOSPLUS and density mode. The files are then described with various parameters. The ATTRB column first tells if the file is visible, invisible or deleted. The asterisks denote a user file. An S in the second ATTRB column would denote a system file. Next a U, A or B tells if the update, access or both passwords are set. The last ATTRB column tells the protection level set.

The directory also indicates the number of records on file, number of sectors, number of granules used, and if the file is written on consecutive tracks. The last directory line tells how much storage space remains on the disk.

A double-density disk filled with small utility programs easily fills several video screens in this format. This is not incon-

venient because the system pauses after the video is full and waits for user instructions to proceed.

### Other Commands

Free has been altered to graphically display the tracks currently being used on a specified disk instead of the amount of free storage left. This is a quick way to see how many tracks on a disk have been formatted where the directory is located and which tracks have been locked out.

Date can be set at power-up and is the default value for backups and format functions. DOSPLUS retains the date unless the system is rebooted. Copy has been streamlined to copy filename:s:d. This copies a file from drive :s to drive :d. Single-drive users are not forgotten. A special utility, Copy1/CMD, allows single-drive copying of all file types. Create preallocates disk space for a specified file. Debug can now be entered with a shift Break. Device displays current I/O devices and their vector addresses.

DOSPLUS 3.3 for TRS-80 Model I currently supports only three devices: keyboard, video monitor and printer. The RS232 is not defined at this time. Not implemented in this version of DOSPLUS are Link (I really miss this one), Set, Reset and the ability to route to a disk file.

### Build-Do Commands

Chaining is available with the Build-Do commands. Build allows the user to create a sequential set of tasks for DOSPLUS to perform. A Do file may be created with Build to get a directory, display the Free map, load a printer driver, set Basic memory size, and jump to Basic. Build is completely self-prompting. A Pause command may be inserted in the Build file to allow for user intervention. Pause does not allow for user entry of commands.

Do checks high memory (4049H-404AH) and reserves about 300 bytes at the top of memory for itself and a small buffer. After

*"There is only  
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available: DOSPLUS 3.3."*

Do executes, this memory space is returned to the system.

A problem arises when a high memory program (printer driver, machine code sort, etc.) occupies the same memory area that Do usurps. Trying to Build a file that first loads the GSF (Racet computes) sort module into high memory is disastrous. When Do loads GSF, it obliterates its buffer and all Build instructions are lost.

The Forms command controls printer page length, the number of printed lines per page, the number of characters per line, and can output to a serial printer. It can also generate an automatic line feed on carriage return and perform a top-of-form.

A hard (printer generated) top-of-form is not implemented on my Okidata Microline 80 printer. Having to include paging modules in my programs has been a minor inconvenience in the past, but DOSPLUS 3.3 eliminates the need for extra page formatting code. On power-up the Forms parameters are set to standard values. To view the current status of the Forms driver type: Forms (enter). This also eliminates the need for any high memory printer routines. Since Forms is a library function these LPRINT/LLIST parameters are available for all printer output—even Basic listings!

The only minor irritant is that the TRS-80 Model I LPRINT line counter (found at 16425 decimal) is decremented with each printer code. In the Okidata Microline 80 printer expanded print is available by typing LPRINT CHR\$(31); a return to normal print is LPRINT CHR\$(30). The Model I and the Forms driver count each of these codes as a line printed and increment the LPRINT line counter. This could lead to a problem with printed output creeping down the page.

When I do not want Forms control I disable it by typing: Forms (L = 66, P = 66). This sets the page length and number of lines printed per page equal to 66. If I want a Basic program listing to accurately paged, I initialize the LPRINT counter by typing: LPRINT CHR\$(12).

PROT has been expanded to allow the changing of a disk's name as well as the usual password manipulations.

**Utility Functions**

There are about a dozen programs listed in the utilities section of the DOSPLUS 3.3 manual—all of them extend the versatility of the system. By being discrete about which utility functions become programs, relatively small system disks can be created. This provides the single-disk user with

maximum storage space per disk.

CLRFIL zeroes a file but does not reallocate its storage area. This could be useful when using a disk for temporary files. CLRFIL has the same overall effect as the library command Create.

Copy1 is a necessity for single-drive users. It permits single-drive disks to transfer all types of files. Both LDOS and NEWDOS/80 have this feature, but it is closely tied to the system. Copy1 will probably be little used by multiple-drive users.

Crunch is little changed from DOSPLUS 3.1. It is a utility to eliminate Remarks and extra spaces in Basic programs.


DiskZap has been amended to read single or double-density disks. Its capabilities are similar to Apparat's SuperZap. In its current form it does not generate hash codes or passwords. Conspicuous by its absence is SuperZap's DFS function. This permits examining or modifying by file name rather than by sector. Micro-Systems Software chose to provide this ability in a stand-alone machine language DiskDump program. Paging is slightly improved over SuperZap. Taken together these utilities should keep most disk zappers happy. Documentation is adequate for both utilities.

Purge allows you to rid a large number of files. Purge :0 (I) presents the user with a menu of visible and invisible files to be marked for deletion. Passwords are transparent to Purge so all files may be killed. With a handy program of this type it is easy to become over-zealous and kill the wrong file. The Restore utility, fortunately, resurrects the kill file as long as it has not been overwritten by another program or CLRFIL has not been used on it.

Map shows what tracks and sectors each file occupies. The value of this utility becomes evident when two disk systems of different track counts are used.

**Spooler**

Micro-Systems also provide an adequate spooler with DOSPLUS 3.3. The spooler uses an operator-defined memory buffer and an optional disk file for printer output. Spooling becomes a semi-background task allowing the host program disk I/O. This is accomplished by halting printer operation while the disk drives are being accessed. If the operator was too conservative in the allocation of spooling memory space, the spooler will temporarily seize CPU control until the spooler buffer is cleared of its backlog. Other than this, the operator is barely aware that the spooler is active. You



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*"The SR/CMD module is unique. . . you expect to find this feature in a word processor."*

can even list the spooler's disk file and printing still continues.

Deactivating the spooler requires rebooting the system. Since the spooler and the Do buffers can be co-resident, the spooler can be activated from a Build/Do file.

### Disk Basic Version 1.4

DOSPLUS Extended Disk Basic Version 1.4 is authored solely by Micro-Systems Software, but I have not experienced a compatibility problem between DOSPLUS Basic and the MicroSoft/Tandy Extended Disk Basic. The only areas of incompatibility I encountered was with the specialized disk I/O file structure of NEWDOS/80 and with entry into Disk Basic itself. When entering DOSPLUS Basic, no file buffers (channels) are allocated. With other DOSes the default value is three buffers reserved. You must explicitly reserve I/O buffers when entering DOSPLUS Basic. The syntax for this also differs from the norm. The command: Basic filename-F:3-M:65237 loads Basic, reserves three I/O file buffers, protects memory above 65237 and loads and executes the program specified in filename.

DOS commands from Basic have been simplified to: CMD"DOS command". DOSPLUS 3.1 used CMD"!", "DOS command". A plain CMD returns to DOS. RENUM, SR and REF are called from Basic using CMD.

Basic has editing and keyboard shorthand. Pressing the semicolon displays the first line of code; pressing the slash key displays the last. Pressing L lists the entire program. The DU and DI commands allow the duplication and deletion/insertion of a program line. An L"filename" loads a program and a S"filename" saves it. Similarly R"filename" loads and executes a program.

Renumbering is adequate. To renumber a Basic program type: CMD"RENUM", n,i,s,e. Where n equals new line, i equals increment, s equals start line, e equals end line. Unlike NEWDOS/80, DOSPLUS 3.3 will *not* allow block moves via the RENUM command.

The SR/CMD module is unique in that it allows the programmer to search and replace a string variable or expression. You expect to find this feature in a word processor. I am sure this is one feature that future DOSes will incorporate.

REF/CMD is a variable cross reference. CMD"REF", K,L,V lists references in a Basic program by keyword, line number or variables. To obtain hard copy just append a P to the specification list.

CMD"M" is a kind of dynamic variables

list. Stop a program at any time during execution and type CMD"M" and all variables are listed along with their current value. The debugging value of this command should be obvious.

The Trace function has been revamped to single step through Basic displaying program lines before executing them. This, along with CMD"M", has significantly reduced program debugging time for me. TRON turns on the trace and pressing any key single steps through Basic. Since only one instruction is displayed at a time, the video display is much easier to interpret. If Devices were fully implemented, the video monitor could be Linked to the printer to display the trace simultaneously on the monitor and printer. In the absence of Link the video could be Forced (Routed) to the printer.

Appending a ,V after a file to be run saves all current variable values. This allows passing variables from one Basic program to another. The result is true chaining. An index array could be established with an initialization program and passed to other programs.

File handling enhancements with DOSPLUS include variable record length files. This makes ISAM techniques possible. With variable record length files, the programmer no longer has to calculate subrecords. If a logical record length turns out to be only 100 bytes, then Open"R",1, "filename",100 opens buffer one for a record length of 100 bytes. Micro System's TEST-PGM program amply illustrates this technique. Other than this sample program there is little explanation on the utilization of variable record length files.

In addition to the variable length files, Open"E" and Open"D" are available. Open"E" allows the extension of a sequential file without reading the entire file into memory and writing it back to disk. Open"E" causes new records to be added to the file on disk and the EOF marker adjusted. Open"D" seems to be synonymous with Open"R". It has been included to be compatible with TRS-80 Model II syntax.

Micro-Systems Software reworked Basic in DOSPLUS 3.3 quite extensively. Actually two Basics are provided: a full-feature Basic/CMD and an abbreviated TBasic/CMD. TBasic is meant to be used after a program is debugged and the various debugging utilities are not needed. This provides the user with more memory space for data. Not included in TBasic are the CMD function, editing and keyboard shorthand,

***“The shortcomings of DOSPLUS 3.3 are few and reflect my personal preferences. . . the literature is adequate for an experienced hacker.”***

or full error messages.

**Shortcomings**

The following shortcomings of DOSPLUS 3.3 are few and reflect my personal preferences: no DOS high memory command; lack of complete Device handling; no DOS Boot command for a warm reboot; the elimination of the Basic2 library command; and finally, only fair documentation. The literature is adequate for an experienced hacker, but may not suffice for an entry-level user. I especially miss a section on DOS calls.

There is also some conflict between DOSPLUS' keyboard routine and some Level II programs. Radio Shack's Haunted House adventure and Astrology are representative of this problem. Both programs were put on disk with Apparat's LMOFFSET. Executing either of these programs under NEWDOS/80 requires disabling the

keyboard debounce routine. Small Systems Software's DCV-1 tape-to-disk utility solves this problem, however. DOSPLUS has no way to disable debounce so neither of these programs can be easily executed!

**Assessments**

My overall evaluation of DOSPLUS 3.3 is that it is a stable, efficient, fast and easy-to-master DOS. However, if you have mastered NEWDOS/80 you would probably miss many of the Apparat's extra enhancements (mini-DOS, block move of Basic code, etc.) if you adopted DOSPLUS as your bread-and-butter DOS.

The major factor in weaning me away from NEWDOS/80 was DOSPLUS' portability from Model I to Model III (and back again), and the ease with which it interchanges single and double-density diskettes. The standard features of DOSPLUS have been the basis for many stand-alone utilities. If noth-

ing else was considered but this factor, DOSPLUS is a bargain. I have not used NEWDOS/80 with double-density zaps since acquiring DOSPLUS. A business can do little better than DOSPLUS for TRS-80 Model I or Model III. ■

*Author's Note: The Config command can only configure the system drive to a certain track count. Disks intended for drives with a track count different from the zero drive must be defined with the Format utility. The Config command may still be used to vary the stepping rate and number of disk sides for any drive as mentioned above.*

*Micro-Systems also tells me that Small Systems Software's DCV1 tape-to-disk utility will set the proper Level II keyboard values for correct operation. This means that DOSPLUS' debounce routine is no longer a serious problem for those few programs that require a Level II keyboard. ■*

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