

quikLoader

ADDENDUM TO DOCUMENTATION

ProDOS has arrived on the quikLoader, and along with ProDOS comes new opportunities to further expand the usefulness of the quikLoader card. All previous features have been retained and several new ones have been added.

When the quikLoader carried only DOS 3.3, discussion of DOS was easy as DOS could be looked at as a single file. ProDOS on the other hand consists of two files, one named PRODOS and one named BASIC.SYSTEM. The first file handles all communications with the hardware and the second one is the interface with the user. To avoid confusion, any reference to PRODOS using all capital letters refers to the file, references to ProDOS (not all capital letters) is to the total operating system.

This addendum is to supplement the existing documentation and not to replace it. Please read the existing documentation as some of the following builds on the concepts presented there.

OPERATING WITH ProDOS

The addition ProDOS to the chip zero operating system has not resulted in the loss of any existing features. Some of the previous capabilities required alteration to avoid operating problems, but are minor in nature and may not even be noticed. The required changes were required by the fact that there now could be either DOS 3.3 or ProDOS in RAM. Previously it was assumed that only DOS 3.3 would be loaded.

C-RESET

Catalog a DOS 3.3 disk. The user was previously required to ensure that DOS 3.3 was in RAM for this feature to work properly. Now DOS 3.3 will be loaded if the chip zero operating system does not detect the presence of DOS 3.3 in RAM. If DOS 3.3 is loaded, the disk in Drive 1, Slot 6 will be cataloged. If DOS 3.3 was already in RAM, the last accessed disk will be cataloged.

X-RESET

Enter the mini-assembler. The mini-assembler resides in high RAM, the same place that ProDOS resides. Thus the only DOS that can support the mini-assembler is DOS 3.3, which is loaded if the chip zero operating system does not detect its presence in RAM.

NEW KEYBOARD RESET COMMANDS

The following keyboard reset commands have been added to those already present. In the event that you cannot remember them later, they have been added to the HELP program on chip zero.

P-RESET

PRODOS is moved to the motherboard and initialized, then BASIC.SYSTEM is moved to the motherboard and also initialized. The operating system then exits to Applesoft.

R-RESET

PRODOS is moved to the motherboard and initialized. PRODOS then goes to the disk in Drive 1, Slot 6. The FIRST file that PRODOS finds in the Directory ENDING in '.SYSTEM' will be loaded and executed. If PRODOS cannot find a file meeting the requirements, a 'configuration error' will occur.

L-RESET

Both PRODOS and BASIC.SYSTEM will be loaded and initialized. BASIC.SYSTEM will then go to the disk in Drive 1, Slot 6. If a ProDOS file named 'STARTUP' is found, it will be loaded and executed. If 'STARTUP' is not found, BASIC.SYSTEM will exit to Applesoft.

UNDOCUMENTED FEATURE

There are a total of 10 single digit numbers, and there are 8 sockets on the quikLoader, leaving two numbers left over. These two left over numbers have now been put to use as part of the N-RESET capability. The N-RESET feature of the quikLoader is explained in the enclosed documentation. The use of 8-RESET will load FID, 9-RESET will load COPYA and 0-RESET will load the HELP menu. The quikLoader Katalog also reflects the N-RESET's for these files.

THE NEW CHIP ZERO

Whether you have just received your quikLoader or are preparing to upgrade an existing quikLoader to use ProDOS, some of the following information will be of use. The necessary information to upgrade an existing quikLoader to ProDOS on chip zero is included in this section.

Prior to the addition of ProDOS to chip zero, DOS 3.3 was the only disk operating system available to be loaded at computer powerup. With both ProDOS and DOS 3.3 available on chip zero, the capability of having ProDOS load at computer powerup becomes a reality. The DOS loaded at powerup has no effect on the quikLoader keyboard-reset commands and does not affect the operation of any existing program chips. The only change is the DOS that is immediately loaded at computer powerup. The non-powerup DOS is still available through the keyboard-reset commands.

The DOS load at computer powerup is determined by the programming of chip zero and is not selectable without changing chip zero. The necessary change is minor and if you have an EPROM programmer, you can make the change yourself.

On the PRODOS PROGRAMMERS AID disk are several files in addition to those for the named program. The two files, CHIPØ.512-1.BØ1 and CHIPØ.512-1.B23, are ready to burn files for the new chip zero and are setup to load DOS 3.3 at computer powerup. Two files are now necessary for chip zero because the addition of ProDOS required the use of a 27512 EPROM in order to have sufficient memory space for all the files.

Included on the PRODOS PROGRAMMERS AID disk are the necessary tools to allow you to create the files for a chip zero that will load ProDOS at computer powerup. The only file that requires alteration to allow the quikLoader to load ProDOS at computer powerup is the file CHIPØ.512-1.BØ1.

To create the necessary file for immediate ProDOS loading, transfer the files CHIPØ.512-1.BØ1, CHIPØ.512-1.B23, and the text file DOS.TO.PRO to a freshly initialized DOS 3.3 disk. The file DOS.TO.PRO is an executable text file and will create the desired chip zero file. Type EXEC DOS.TO.PRO <CR> and when the drive stops you will have a new file on the disk named CHIPØ.512-1.BØ1.P that along with the file CHIPØ.512-1.B23 will create a chip zero that will load ProDOS at computer powerup. (The 'P' was added so you could tell the DOS 3.3 file from the ProDOS file.)

CREATING A NEW CHIP ZERO

To create a new chip zero for your quikLoader, the two files CHIPØ.512-1.BØ1 (for DOS 3.3) or CHIPØ.512-1.BØ1.P (for ProDOS) and CHIPØ.512-1.B23 need to be burned into a 27512 EPROM. Load your EPROM programmer with an erased 27512 EPROM and BLOAD CHIPØ.512-1.(BØ1 or BØ1.P), the file is set up to load at \$1ØØØ. This file is programmed into chip addresses \$ØØØØ through \$7FFF.

When the programming of the first file is completed, BLOAD CHIP0.512-1.B23, also setup to load at \$1000. The second file is to be programmed into chip addresses \$8000 through \$FFFF. When the programming of the second file is completed, turn off your computer, remove your quikLoader card and remove the old chip zero.

FOR CHIP ZERO ONLY!

If you are replacing the old 27256 operating system, it will be necessary to modify the back of the quikLoader card for operation of the 27512 operating system. The following alterations to the back of the quikLoader card are necessary ONLY for the chip zero socket.

Looking at the back of the quikLoader card, the socket on the far right is the one for chip zero. Near the top of the card you will notice a small white square, the circuit trace inside the white box must be cut. Hold your quikLoader card up to a bright light source and view the trace area from the back of the circuit board to ensure that the trace is cut all the way through and across.

Slightly below and to the right of the area where you cut the trace, there is a white circle with two small pads inside of it. Bridge between these two pads with solder using a low wattage soldering iron. If the pads are not silver, but are green, the green coating must be removed prior to soldering across them.

Plug the 27512 EPROM into socket zero with the notch toward the top of the circuit board. With your computer off, reinstall the quikLoader into the computer. Turn on your computer and check for proper operation of the quikLoader card.

If you do not have the facilities for programming a 27512, you may obtain the new chip from us for \$25.00 plus \$2.50 for shipping.

CHANGING FROM DOS 3.3 TO ProDOS

Changing a 27512 chip zero from DOS 3.3 to ProDOS is a relative simple process. When an EPROM is fully erased, all memory locations are filled with \$FF. A value of \$FF is all 1's and when the EPROM is programmed, 0's are made at the necessary bit locations.

There is only one byte that determines which DOS will be loaded at powerup, and for DOS 3.3 that byte contains a \$FF. Any value \$80 or greater (negative ASCII) will cause DOS 3.3 to be loaded and any value \$7F or less (positive ASCII) will cause ProDOS to be loaded.

The end result is that to change from DOS 3.3 to ProDOS as the powerup DOS, it is not necessary to use an erased EPROM. The ProDOS version can be programmed over the DOS 3.3 version. All you have to do is program the file CHIPØ.512-1.BØ1.P into your existing DOS 3.3 at powerup 27512 chip zero.

Changing from a chip zero that loads ProDOS at powerup to a chip zero that loads DOS 3.3 at powerup requires that the necessary files be programmed into a clean 27512 EPROM.

MAKING LIFE EASIER

For those of you who are lucky enough to own the PROmGRAMER from Southern California Research Group (editors note; we've got to advertise them somehow), there are several executable text files on the PRODOS PROGRAMMERS AID disk that will be of interest to you.

The first one of interest is BURN.DOS. Transfer this file to a freshly initialized DOS 3.3 disk along with CHIPØ.512-1.BØ1 and CHIPØ.512-1.B23. Place a 27512 EPROM in your PROmGRAMER and run the software. Check that the EPROM is fully erased and without leaving the PROmGRAMER program, EXEC BURN.DOS. The text file will load and program the EPROM with the chip zero operating system.

To have a chip zero that loads ProDOS at computer powerup, transfer the files BURN.PRO, CHIPØ.512-1.BØ1.P and CHIPØ.512-1.B23 to a DOS 3.3 disk. Follow the same steps as above, but EXEC BURN.PRO.

The file PRO.OVER.DOS is to change your 27512 chip zero from DOS 3.3 to ProDOS at powerup. Place your 27512 EPROM that loads DOS 3.3 at power up in your PROmGRAMER, run the PROmGRAMER program and without leaving the PROmGRAMER program, EXEC PRO.OVER.DOS text file. When all the activity stops, you will have a chip that loads ProDOS at powerup.

PROGRAMMING CHIPS WITH ProDOS

The enclosed PROGRAMMERS AID program has been updated to support the use of ProDOS files. The PROGRAMMERS AID does not have the capability to put multi-file applications, such as AppleWorks, on the quikLoader. You do not have to have ProDOS on chip zero to use the latest version of the PROGRAMMERS AID, just don't attempt to use any of the new ProDOS commands.

The PROGRAMMERS AID will support both binary and Applesoft files to run under ProDOS. This includes files that require both PRODOS and BASIC.SYSTEM in memory and also XXXX.SYSTEM files (where XXXX is any valid ProDOS file name) that only requires PRODOS in memory. Stand alone XXXX.SYSTEM files such as the Utilities from COPY][+ are well suited to being put on the quikLoader.

There is nothing to prevent mixing both DOS 3.3 and ProDOS files on the same chip. There has been no changes made to the command structure on the new chip zero and any chips programmed for the previous chip zero should still work. Those made with the PROGRAMMERS AID will certainly work.

The PROGRAMMERS AID is still an Applesoft program written to operate under DOS 3.3. As a result, all ProDOS files that are to be put on a chip must first be converted to the DOS 3.3 format. This conversion can be done using the utilities from Copy][+ 6.0 (or later) or the file CONVERT on your ProDOS users disk.

There is some difference in the way DOS 3.3 and ProDOS files must be handled while using the PROGRAMMERS AID. The difference stems from the way the two operating systems are loaded into memory. DOS 3.3 is loaded into RAM at its operating location, but PRODOS is loaded at \$2000 and then moves itself to high RAM. BASIC.SYSTEM also is loaded at \$2000 and relocates itself.

Therefore, to run a program under ProDOS, without the program file getting clobbered, ProDOS must be loaded first. After ProDOS has been loaded, the desired file(s) can be loaded. This is a change from building files to load under DOS 3.3, especially in the case of Applesoft. The loading or running of Applesoft files under DOS 3.3 will also cause DOS 3.3 to be loaded. The use of ProDOS requires that the user load that part of ProDOS for the file to be run. The loading of ProDOS as part of the file load is not supported.

Just a word of warning, any attempt to load or run an Integer Basic file under ProDOS using the PROGRAMMERS AID will result in an error message. The PROGRAMMERS AID cannot rectify the problem and will abort.

NEW PROGRAMMERS AID COMMANDS

The following commands have been added to the previously existing command list:

A - Will move PRODOS to RAM and it will then be initialized. Since this command will move only the PRODOS file to RAM, one of the following files moved to RAM needs to be a XXXX.SYSTEM type file.

B - Moves to RAM and initializes both PRODOS and BASIC.SYSTEM. With both in memory, Applesoft or other file types requiring BASIC.SYSTEM can be loaded and run.

APPLESOFT PROGRAMS UNDER ProDOS

The use of Applesoft programs under ProDOS requires additional explanation. As previously stated, when the PROGRAMMERS AID encounters an Applesoft program, DOS 3.3 is loaded with the Applesoft program. This is the default condition of the PROGRAMMERS AID.

When an **A** or **B** command is encountered, this default condition is changed. When the default condition is changed, Applesoft programs are moved from chip to RAM WITHOUT loading DOS 3.3. This is to allow the use of Applesoft with ProDOS.

To allow both DOS 3.3 and ProDOS files to be mixed, the default condition needs to be restored. The restoration of the default condition occurs when an Applesoft program is setup to run under ProDOS. In the event an Applesoft program is not setup to run after an A or B command, a Katalog, Dos, Primary, Reset and Go to motherboard command will also restore the default condition.

TIP

During the loading of ProDOS from disk, the PRODOS file goes out to the disk and finds the first file in the directory ending in '.SYSTEM'. This file is then loaded starting at \$2000, when the load is completed, execution starts at \$2000. This is all handled by the file PRODOS and is a fixed routine.

Now here comes the 'GOTCHA'. If you transfer the UTIL.SYSTEM file from the COPY][+ 6.0 disk to DOS 3.3 and then catalog the DOS 3.3 disk with file lengths, you will notice that the starting address is given as \$1400. The PROGRAMMERS AID will load the file at \$1400 and start execution at \$1400. Setting up the PROGRAMMERS AID to create a file for loading and running COPY][+ Utilities without correcting this address problem will not work.

The correct loading and beginning of execution address of \$2000 must be specified in your text file. The following will get the Utilities from COPY][+ up and working for you. Don't forget that the file UTIL.SYSTEM must be converted to DOS 3.3 to use the PROGRAMMERS AID. The file will fit on an 27256 EPROM.

```
K COPY ][+ UTILITIES
A
F UTIL.SYSTEM,A$2000
G $2000
```

So far this is the only '.SYSTEM' ProDOS file that I have run across that exhibits this 'GOTCHA', but there are probably others. Just a word to the wise.

On this disk, we have included instructions and utilities for burning COPY][+ 6.7 onto EPROM. This instructions are on a text file titled "COPY][PLUS.INST"

TECHNICAL STUFF

Those of you who look at the enclosed executable text files will see an entry A964:FF. This is an alteration to DOS 3.3 to allow it to BSAVE a file larger than \$7FFF bytes. If you would like to make this a PERMANENT change to the DOS 3.3 on your quikLoader, here are the instructions.

```
CALL-151
```

```
BLOAD CHIP0.512-1.B01,A$1000
```

```
3C64:FF
```

```
A964:FF
```

```
BSAVE CHIP0.512-1.B01,A$1000,L$8000
```

It is recommended that the change not be made to the files on your PROGRAMMERS AID disk. Also be aware that this change will also be on each and every disk that you subsequently initialize after the alteration. If you seldom have occasion to save a file larger than \$7FFF bytes, it probably would not be wise to do the patch.

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