

HOW TO READ A MASTER CHIP, SAVE THE DATA TO A FILE AND CREATE A DUPLICATE PART

This document contains the procedures for reading a master chip, saving the contents to a disk file and then creating a duplicate part from the saved data. It is assumed that you have connected the EPROM+ programming system to a computer, have started the software and have selected the part with which you will be working. We strongly suggest that you create a directory (folder) into which you will save the chip data. The chip data is saved as a binary image file which is an exact duplicate of the data contained in the chip. Each operation is described on the following pages.

HOW TO CREATE A DIRECTORY AND ENTER A FILENAME

1. At the SELECT COMMAND prompt press "P" then "ALT-V". The system will scan your computer for available drives and display a list. Choose the drive you wish to use and press the letter. If your system has an external drive, such as a floppy disk or USB drive, you may save your files there. Please note that if you are running the EPROM+ system from the bootable CD or floppy disk, be sure that the drive you choose is not the CD or the RAMDISK created by the system. For this example if you wish to use the floppy drive you would press "A". The current path would change to A:
2. We will now add a directory to the drive. Press "ALT-A". At the ENTER NAME prompt type an eight character name such as "ROM_DATA" and press ENTER.
3. Respond to ADD NEW DIRECTORY NOW? with "Y". The new directory name will appear on the screen.
4. Use the arrow keys and place the lite bar over the new directory name. Press "ALT-D". You will see "NO FILES" displayed.
5. Enter a filename (8 characters max with a 3 character extension - EXAMPLE: ROM1.DAT) under which you wish to save the data from the master chip and press <ENTER>. This is called the RECALL FILENAME.
6. You have now created a directory (folder) and entered a filename which will be used when you actually save your master chip.

READING YOUR MASTER CHIP

1. Install the master chip into the programming unit. If you are using an adapter, clip or probes, install the adapter and attach the clip or probe set to the master part.
2. With the master chip installed or attached, press "3" (READ DEVICE INTO BUFFER). Respond to the READ DEVICE AT BUFFER START (ADDRESS 0) with "Y". The system will read the data from the master chip into the system buffer. (NOTE: The system buffer is a block of memory maintained by the EPROM+ system and used for all operations when working with any part. The buffer editor (Command 5) allows you to work with the buffer data directly. It's operation is described in the user manual. We will use the buffer editor only to view buffer data.
3. Press "5" (BUFFER EDITOR). You will see 16 rows of data on the screen starting with row 0 (number on the left) then row 10, 20, 30, etc. After each row number is a line composed of 16 groups of two characters. Each group of 2 characters is one byte of data (16 bytes per line). When the EPROM+ system starts it initializes the buffer data to the value of FF. FF is the value of an erased or empty chip. After you read a programmed chip, you should see data in the buffer which is not FF. Some values may be FF but not the entire screen. Look at the editor screen. If you have successfully read any data from the chip it will be visible on the screen. You may see values such as 5A, B9, C7, 00, 04, etc. These bytes are the data from your master chip displayed in hex.
4. Press "ESC" to return to the main command list.

GETTING A GOOD READ - CONFIRMING THAT THE MASTER CHIP DATA IS VALID

1. When reading data from a master part, especially one that is connected to an existing board, it is important to confirm that the data which was read into the buffer is indeed valid data. If you are using a clip or probe set to connect to a part, it is possible that contamination, moisture sealant or the existing circuitry on the board will interfere with reading the data from the master part.
2. To determine that the data is indeed good, press "8" (COMPARE DEVICE WITH BUFFER). Then press "Y". This will cause the system to again read the data from the chip, however it will not place the data into the buffer. Instead it will compare each byte read from the master chip with the corresponding data byte which is already in the buffer. This is the master chip data which was read previously with command 3.
3. After command 8 completes, it indicates any errors found during the comparison of the master part with the data in the buffer. If the part data compared exactly with the data in the buffer the system will indicate "COMPARISON COMPLETE:000000 ERROR(S)". The message is in green indicating success. If there are any errors, the message will be in red with the number of errors indicated.
4. If the system indicates that there are errors, there is a problem reading valid data from the master part. This is normally caused by a bad connection or part interference. It may also be caused by a defective part. Under no circumstances should you save the data from a master chip until you confirm that you have correctly read and compared the data using command 8 after command 3. NOTE: In some circumstances you may need to remove a chip from the circuit assembly to obtain a proper read.
5. If the system indicates 000000 errors after you perform command 8, then the data in the buffer is valid and you may proceed to the save operation.

HOW TO SAVE YOUR MASTER CHIP DATA TO A FILE

The EPROM+ system offers you two options for saving the data from your master chip to a disk file; COMMAND A (SAVE BUFFER TO DISK FILE) or COMMAND B (SAVE DEVICE TO DISK FILE). Command A allows you to save the data which has already been read into the buffer. Command B allows you to save the data directly from the device attached to the system.

SAVING WITH COMMAND A

1. Press "A". The system will display the current path and prompt you for a filename. You will use the filename you saved previously (the RECALL filename). Press the "Ins" key. The filename will appear after the prompt. Press <ENTER>.
2. You will see "SAVE DEFINED BUFFER RANGE" along with the actual buffer range to be saved. This is the amount of the buffer which corresponds to the storage capacity of the master chip. Press "Y".
3. The system saves the block of buffer data under the filename you provided previously and returns to the main command list.
4. You may now confirm that the file has been saved by pressing "D". This displays a list of files in the current directory. You should see the filename on the screen. Press "ESC" to return to the command list.

SAVING WITH COMMAND B

1. Press "B". The system will display the current path and prompt you for a filename. You will use the filename you saved previously (the RECALL filename). Press the "Ins" key. The filename will appear after the prompt. Press <ENTER>.
2. You will see "SAVE DEVICE IN SOCKET NOW?". Press "Y".
3. The system will save the data from the master chip under the filename you provided previously and then indicates * DEVICE SAVE OPERATION COMPLETE *. Press any key to return to the command list.
4. You may now confirm that the file has been saved by pressing "D". This displays a list of files in the current directory. You should see the filename on the screen. Press "ESC" to return to the command list.

You may use either method to save your master chip to a disk file. Remember that the disk file will be located on the drive you selected and in the directory you created. Please note that the EPROM+ system uses the term "directory" where Microsoft uses the term "folder".

CREATING A COPY OF THE MASTER CHIP FROM THE DISK FILE

If you are starting the system from power up, you must use the path command "P" to navigate to the disk drive and directory which contains the file you wish to program. This procedure assumes that the system path is already pointing to the directory which contains your file.

1. Install or attach the blank or old chip (the chip you wish to program) to the system. If you are using the probe set or clip, be sure it is firmly attached.
2. Press "D". This will display a list of files contained in the directory. Locate the file you wish to program and using the arrow keys, position the lite bar over the filename.
3. Press "ALT-1". The system will automatically load the file and present you with the prompt "PROGRAM OR SKIP". Press "P". The system will program the data from the file into the attached part.
4. If the programming process was successful, the system will display "PROGRAMMING COMPLETE - DATA VERIFICATION IS CORRECT". If this message is displayed, the part has been programmed correctly and may be removed.
5. If you wish to program another part, simply attach it to the programming unit and press "Y". The system will program as many parts as desired until you exit.
6. If the part does not program correctly, confirm that the part is properly connected and try again. If you are not certain of the condition of the part, you may read the part using command 3 and examine the contents with command 5. If your part continuously reads FF, the part may be defective.
7. If you accidentally exit the initial programming sequence, you may use command 2 to continue programming parts. Since the data has already been loaded into the buffer, simply press "2" then "Y" to resume programming.

CREATING A CONFIGURATION FILE

The EPROM+ system allows you to create a file which saves your settings. This includes the device part number, path and filename. If you choose, you may also specify a command to execute when the system starts. NOTE: The configuration file must be saved to writable media and cannot be saved if you are running the system from the bootable CD.

1. To create a configuration file press "O" (EXIT PROGRAM/SYSTEM OPTIONS). Press "O" for options. The system enters the EDIT/SAVE SYSTEM CONFIGURATION FILE mode.
2. Press "ALT-U". This will recall the settings last used by the system. Note that the part number (device), path, directory and filename are all preset. If you want the system to execute a command on startup, use the tab key to move to the "COMMAND=" field. If you wish to have the system display the directory contents (file list) enter a "D" in the field.
3. Press "ALT-S". The configuration file is saved. The next time you start the system, the settings saved in the configuration file will already be set.