

Moates Flash & Burn

Thank you for purchasing the Moates.net Flash & Burn. We appreciate your interest in our products and look forward to providing you with quality products and service in the future.

Overview

The Moates.net Flash & Burn allows the user to program AT29C256, 27SF512 and AM19F040 chips (usable as drop-in replacements for most EFI applications) and read most stock-style chips (including 2732A, 27C128, 27C256, 27C512, etc.). It is self-powered from the USB port and includes stand-alone chip programming software. Optionally, you can also read stock GM memcals using the HDR1 adapter (not included).

Package Contents

- (1) - BURN1 Flash & Burn USB device
- (1) - 4 foot USB Cable

Software Installation

The CD provided with your Flash & Burn contains the Flash & Burn software for use with your Flash & Burn. The latest version of this software can be found at: <http://www.tunerpro.net/downloadUtils.htm#FNB>

TunerPro RT also fully supports the Flash & Burn and can be found at: <http://www.tunerpro.net>. The TunerPro RT prom I/O interface matches the Flash & Burn software interface, and all information in this manual applies to it as well as the Flash & Burn software bundled with your purchase.

Driver Installation

The latest drivers needed to utilize your Flash & Burn product can be found at:
http://www.moates.net/product_info.php?cPath=33&products_id=66

Additional documentation on driver installation can be found at the moates.net website.

Using your Flash & Burn

Chip reading and writing with the Flash & Burn software is accomplished with a intermediary buffer. When burning a file to a chip, this buffer is filled with that file. The buffer is then burned to the chip. Similarly, reading a chip to a file is done by way of the buffer. The chip gets read into the buffer, then the buffer gets saved to file.

Chip Orientation

The Flash & Burn has a 32-pin ZIF socket. Pin 1 of the chip should towards the ZIF handle. If you're using a 28-pin chip, the chip should be placed so that the 2 extra rows of pins are between the chip and the ZIF handle. **Chip orientation is critical and failure to properly position or seat the chip can result in destroying the chip and/or the Flash & Burn itself.** See Figure 1 for an example of 28-pin chip orientation.



Figure 1 – 28-pin Chip Orientation

Burning a chip

1. Connect your Flash & Burn to the PC via the included USB cable and open the Flash & Burn Software.
2. Select the chip you will be programming from the **Supported Chips** list.
3. If you are unsure whether the chip you are using has been erased, press **Erase Chip**. This will erase all content from the chip.
4. Load the file into the buffer by selecting **Load File to Buffer**. This will open a **Browse** window where you can select the file you will be burning.
5. Input the addresses of the buffer you want burned to the chip (**Buffer Addressing**).
6. Input the addresses of the chip that you want the buffer data written to (**Chip Addressing**).

Note: All addresses and file sizes must be 64-byte aligned.

Reading a chip

1. Connect your Flash & Burn to the PC via the included USB cable and open the Flash & Burn Software.
2. Select the chip you will be programming from the **Supported Chips** list.
3. Select **Read Chip**. This will read the chip into the local buffer.
4. Select **Save Buffer to File** and browse to select the file you want saved in the buffer.
5. Press **Save**.

Note: All addresses and file sizes must be 64-byte aligned.

Using Offsets

If the chip you are programming is of a larger capacity than the binary file you are putting on it, you typically need to use an offset with respect to chip addressing. To program a chip with alternate offset, proceed as follows:

1. Ensure that all programs on the PC are closed, and then connect the Flash & Burn unit.
2. Once the unit is connected, start up the Flash & Burn program. You should see at the bottom of the window a message like "Connected: Flash & Burn 5.9.F" or something similar. If this is not shown, see the troubleshooting portion of this manual.
3. Place the chip in the ZIF socket. See "Chip Orientation" portion of this manual, and Figure 1 for clarity.
4. Select the type of chip you'll be programming from the drop-down menu. This will likely be either the AT29C256 or the 27SF512.
5. Pick the 'Load file to buffer' option, and navigate to find the file you want programmed on the chip. Select it, and it will be loaded to memory on the PC.
6. Take note of the file size indicated in the message window. It will likely be one of four sizes: 4KB, 16KB, 32KB, or 64KB.
7. Take a look at the top right part of the window, and you'll see the offset values. This is what we'll do next.
8. The file size, along with the chip size, will determine what offsets you need to use. When you change the offset values, you will notice that other values will change automatically. Just make sure that the correct values are filled in for all four boxes before programming the chip. The following table summarizes what offsets you need to use depending on chip used and file size:

File Size	Chip	Buffer Start -> End	Chip Start -> End
4k (4096)	AT29C256	000000 -> 000FFF	007000 -> 007FFF
16k (16384)	AT29C256	000000 -> 003FFF	004000 -> 007FFF
32k (32768)	AT29C256	000000 -> 007FFF	000000 -> 007FFF
4k (4096)	27SF512	000000 -> 000FFF	00F000 -> 00FFFF
16k (16384)	27SF512	000000 -> 003FFF	00C000 -> 00FFFF
32k (32768)	27SF512	000000 -> 007FFF	008000 -> 00FFFF
56k (57344)	27SF512	000000 -> 00DFFF	002000 -> 00FFFF
64k (65536)	27SF512	000000 -> 00FFFF	000000 -> 00FFFF

Table 1 – Offsets

9. If using a 27SF512 chip, you must 'Erase Chip' first. This is not needed with the AT29C256.
10. Select the 'Program Chip' option
11. Use the 'Verify' command to make sure everything programmed correctly. You should get a 'Success' notice.

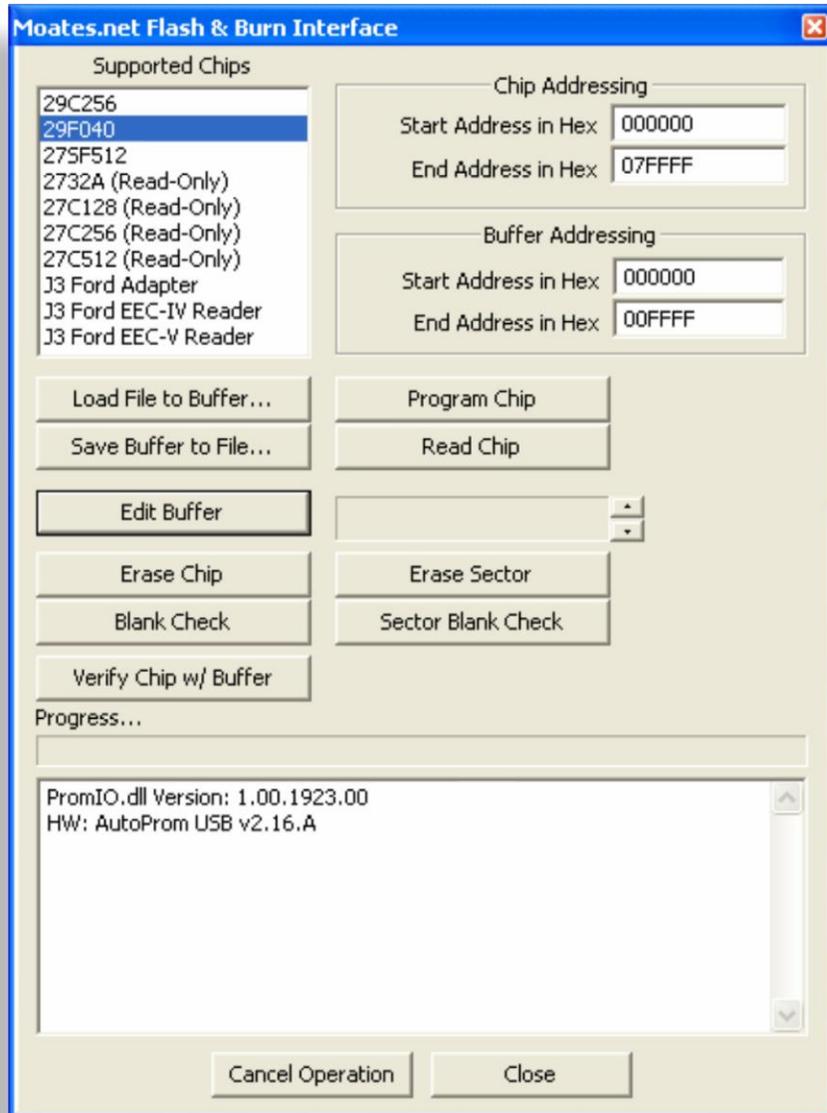


Figure 2 - The Flash & Burn User Interface

Button and Field Descriptions

Supported Chips	List of supported chips for reading and writing. Some chips may be read-only (as indicated).
Load File to Buffer	Selecting this option will open a Browse window that will allow you to select which file they will use to fill the buffer.
Save Buffer to File	Allows you to save the contents of the buffer to a file. <i>This action makes use of the Buffer Addressing fields.</i>
Edit Buffer	Opens a hex editor and displays the current buffer contents. You can edit the buffer's raw contents in hexadecimal, decimal, octal, and binary.
Program Chip	Selecting this option will initiate programming of the chip. It makes use of the current buffer and burns the chip from the information specified in the Buffer Addressing fields. The information will be burned at the location specified in the Chip Addressing fields.
Read Chip	Reads the chips contents from the specified Chip Addressing fields and places them <i>at the beginning of the buffer.</i>
Erase Chip	Erases the entire contents programmed onto the chip (from beginning to end).
Blank Check	Checks the entire chip and returns success if the chip is blank, or failure if the chip is not blank or experiences an error.
Erase Sector (29F040 only)	Erases an individual 64-KB sector of a multi-sector chip, such as the 29F040.
Sector Blank Check (29F040 only)	Allows you to blank check an individual 64-KB sector of an 29F040 chip.
Verify Chip with Buffer	Reads the contents of the chip at, and between, the locations specified in the Chip Addressing fields and compares them against the data in the buffer at the Buffer Addressing field Start Address . It will return Success if the contents are identical and Failure if they contain any differences or experiences an error.

The Hex Editor

The Flash & Burn software includes a built-in hex editor. This editor allows you to make quick edits to the raw binary data loaded to the buffer, either before burning it to the chip, or after reading it from the chip and before saving it to disk. In general, the hex editor is for advanced users.

See Figure 3 for an illustration of the hex editor. The Hex editor is split into 3 vertical "sections". The left-most section shows the start address of the data represented in the corresponding row of text. By default there are 16 bytes of data represented per row. The middle section is the hexadecimal value of each byte in the row. The right-most section is the ASCII representation of the data row.

To use the hex editor:

- 1) Load a file to the buffer from disk, or read the contents of the chip. See the sections of this manual titled "Burning a Chip" and "Reading a Chip" for more information on how to do this.
- 2) Click the "Edit Buffer..." button. This will open the hex editor. Optionally, you can create a new and empty buffer by selecting "New" from the "Action" menu.
- 3) Make your edits by placing the cursor at the location at which you'd like to edit in either the hex or ASCII portion of the editor, then type in the new data. By default, information you type in will overwrite the existing information at the cursor location. If the value you attempt to type is invalid, the entry will be ignored. For instance, typing 'G' in the hex portion will yield no change, as 'G' is not a valid hex character.
- 4) To save your changes to the buffer, select "Commit Changes" in the "Action" menu.
- 5) Optionally, if you wish to save your changes back to disk, use "Save As..." in the "Action" menu.

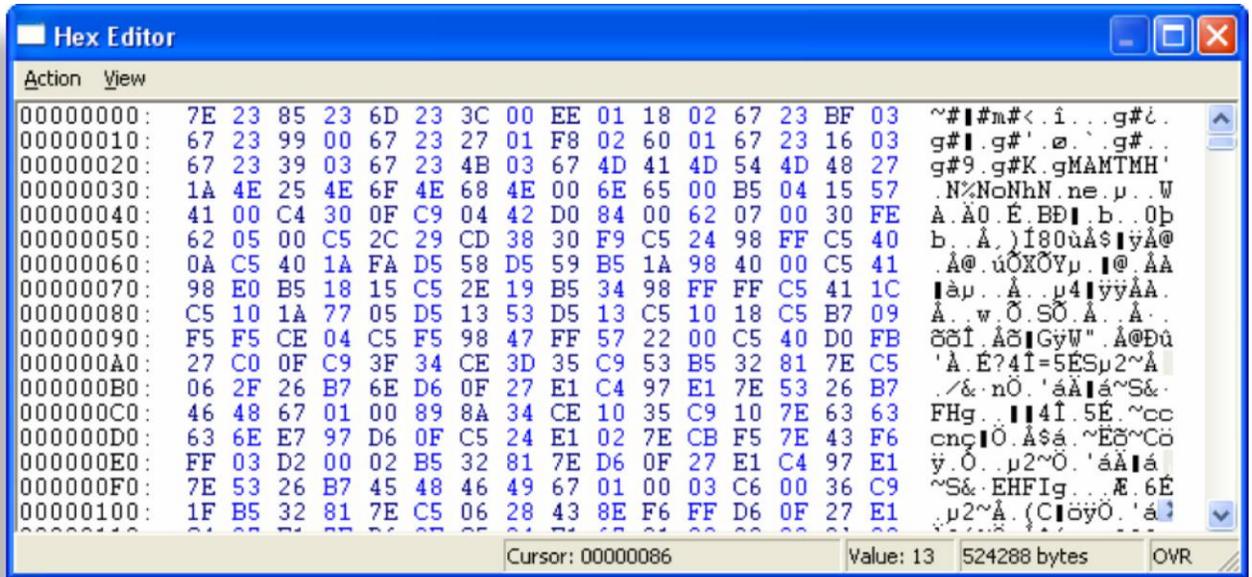


Figure 3 - The Flash & Burn Hex Editor

Troubleshooting and Frequently Asked Questions

Problem	Solution
"No Hardware Found" when starting the Flash & Burn software	<ul style="list-style-type: none"> A) Flash & Burn not attached to PC via USB. Ensure Flash & Burn is attached to the PC. B) Driver not installed. Install driver.
After burning a chip, the chip will not verify	<ul style="list-style-type: none"> A) Chip was not erased before the write cycle. 27SF512 chips specifically require this step. Erase the chip, then re-burn the contents to the chip. B) Chip type not supported. 27SF512, 29C256, and 29F040 are currently the chips supported for writing.

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Contact & Support

Please ensure you've read through this manual and any additional documentation on the website. In the event that you require further assistance, please contact support via email at support@moates.net.

Moatesware, LLC
16848 Jefferson Hwy
Baton Rouge, LA 70817

<http://www.moates.net>