Upgrading an HP 50g Calculator ROM

Introduction

Please read this entire document before attempting to upgrade you calculator. While it is not a difficult operation to perform, there are a few steps needed in the process. This zip file contains the latest version of the HP 49G+/50g ROM (v2.15).

The easiest way to perform the upgrade is using a SD card reader and a SD card formatted using the FAT file system (not FAT32). The other method requires using the HP49G+/50g Connectivity kit and the HP49G+/50g USB drivers installed on your PC.

Although the ROM update process should not erase any user data stored in HOME, Port0 (IRAM), Port1(ERAM) and Port3(SD), this upgrade may erase some of the data in Port2(FLASH). Performing a backup of your valuable data is recommended.

To perform a backup using an SD card, use the `ARCHIVE` command to archive the HOME directory. In Algebraic mode, type `ARCHIVE(:3:BAKNAME)` and press `ENTER`. In RPN mode, type `:3:BAKNAME` `SPC` `ARCHIVE` and press `ENTER`. Then enter the filer by pressing `←` `APPS`, select all files in port 0, copy them onto the SD card, and repeat for port 1 and 2 until everything is saved to the SD card.

If you do not have a SD card, use the backup feature of the connectivity kit (in the file menu) to backup the home directory. Copy your data from the other memory locations to the home directory and download them with the connectivity kit until everything is backed up.

Before Beginning an Upgrade

1. Unzip the package in a directory on your computer.

2. Ensure that you have good batteries in the calculator.

Upgrading Using an SD Card

1. Copy the files: 4950_215.bin and update.scp that were in the zip file onto a SD card formatted using the FAT file system (not FAT32). FAT is the default file system for almost all SD cards.

2. On the calculator, press and hold `ON` and `F4` together. Release `F4` and then `ON`. A test menu showing `1.LCD` through `A.AUTOTEST` will appear.

3. Now press and hold `ON` and `F3` together. Release both keys and then hold down `+` and `−`. Hold these for three seconds, and then release both keys. A menu showing `1.UPDATE CODE` will appear. If it does not, please repeat steps 1-3 until it appears. There must be a tiny delay between `ON``F3` and `+``−` in which no key is pressed. If you are too quick at pressing `+``−`, or leave too long a delay, the 50g will reboot instead. If you continue having trouble after several attempts, please use the USB Upgrade method explained in the next section.

4. Once the update menu appears, press `1` to select `UPGRADE CODE`, and then `2` for `CARD`. The calculator will erase the ROM, and flash the new version. After about a minute, the 50g will be upgraded. Press `ENTER` or remove and then replace a single battery to reboot the calculator. Your calculator is now ready for use.

If you have a problem during upgrade, ensure that your SD card is formatted using the FAT file system, and that the update.scp file and new ROM is copied to the root card (not inside any folder) of your SD. If you continue have problems, please use the USB upgrade method.

Upgrading Using a USB Cable

The screen shots showing the process may vary slightly on your own computer. This is normal.

1. If needed, download the 50g connectivity kit from the HP calculator website at http://www.hp.com/calculators/. After installation when connecting the calculator for the first time, you must manually locate the directory containing the HP calculator USB drivers. The default location is "C:\Program Files\Hewlett-Packard\Conn4x\USBDriver". The calculator driver will then be installed. Currently, there is no 64 bit driver available for XPx64 or Vista x64 and you must use an SD card for the upgrade.

2. Start the connectivity kit by locating Conn4x in the "HP48g,49g,50g series Calculator Connectivity Kit" folder in the start menu.
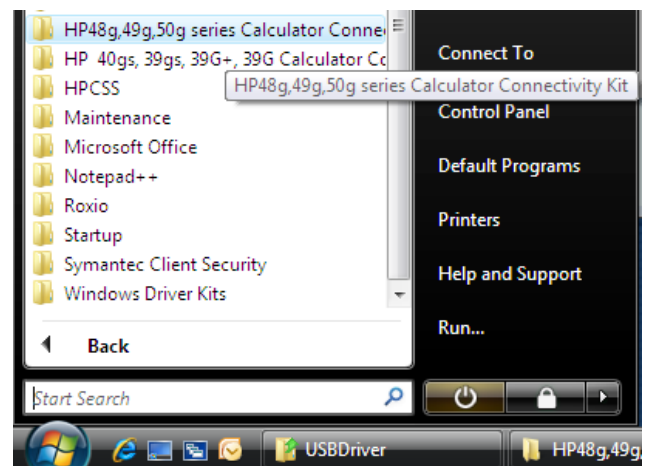

Illustration 1: Open the connectivity kit from the start menu.

3. In the connectivity kit, select USB Calculator in the 'Connect using' pull down menu. If this option is not available, turn on your calculator, unplug and re-plug the USB cable. If still not available, check all connections and that the drivers are correctly installed.

4. Once connected to your calculator, find the ROM menu option. Open it and select "Download Calculator ROM"

5. On the connectivity kit, select the file: 4950_215.bin that was in the zip archive. Follow the instruction given by the connectivity kit to set the calculator in download mode.

6. A download dialog box should appear monitoring the download process. This should take around 1 minute.

7. When the download is finished, press ⟨ENTER⟩ or remove and then replace a single battery to reboot the calculator. Your calculator is now ready for use.

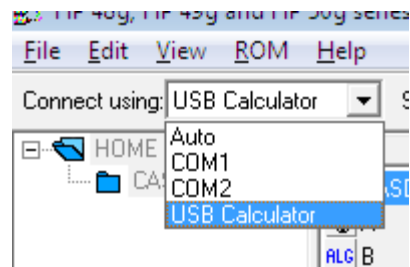## Installing the Equation Library and Periodic Table

Included in this zip file are the HP Equation Library and the HP Periodic Table. These are special programs called libraries that can be installed to extend the functionality of your 50g calculator as if they were built into the ROM. If your calculator has a version of these libraries that came from before ROM 2.08, you need to reinstall these libraries. If you are not sure, simply follow the steps to install the libraries once again.

Removing Previous Libraries

1. On the calculator, press ⟨↰⟩⟨APPS⟩ to enter the filer. Once the filer appears, press ⟨2⟩ to open Port2. If there are copies of L226, L227 or L229 present, please select the first one using ⟨▲⟩ and ⟨▼⟩ to highlight it, press ⟨NXT⟩ to see more menu options, and then ▐▐▐▐▐▐ to delete the library. Continue deleting the libraries until all 3 have been removed.

2. Now copy the libraries onto the calculator. The easiest way to do this is to use and SD card and reader. Place the files *EqnData.lib*, *EqnLib.lib* and *prtbl.lib* on the SD card using your PC. Place the SD card into your calculator.

3. If you are using the USB cable and software to copy the files, you will still need to install the libraries once they are in the HOME directory. Follow the directions in the next section to install the libraries.
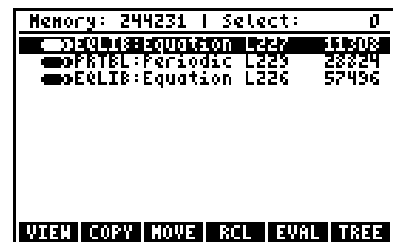
Installing New Libraries

1. Enter the filer by pressing ⟨←⟩⟨APPS⟩. This time, press ⟨3⟩ to jump to the SD card. Locate the three files using ⟨▲⟩ and ⟨▼⟩. With the first selected, press ▉▉▉ to copy the file to Port2. When you press ▉▉▉, a directory tree appears. Press ⟨2⟩ to copy the library to Port2. Continue until all 3 libraries are in Port2.

2. Once copied, there is still one important step to properly install a library. The calculator must be rebooted. To do this, press and hold ⟨ON⟩ and ⟨F3⟩ together. Release ⟨F3⟩ and then ⟨ON⟩ to reboot the calculator. You can now access the new functionality by pressing ⟨APPS⟩.

For extensive information on the equations and usage of the HP Equation Library, please see chapter 5 of the Advanced Users Reference found on the HP calculator website at http://www.hp.com/calculators/.

Fixing Strange Port2 Issues

An empty 50g Port2 will report 766KB in the filer. Occasionally, the 50g can have strange issues with Port2 in which memory seems to have disappeared. Sometimes, when a third party program is deleted, reinstalled or has a serious programming issue, the total amount of memory in Port2 is reduced and seems to have disappeared. When everything in port 2 is deleted, the total memory has been reduced to much smaller than 766KB.

To fix this problem, you can use the 2MB ROM image provided in this zip file. This ROM image will completely overwrite the Flash Memory in the 50g and return it to original condition. Please note that anything in Port2 will be deleted if you use this ROM image.

To use this ROM image, please unzip '2MB FIX' and use the files inside for the upgrade procedure previously explained. There is no need to re-flash using the regular ROM file again.

Change Log

This section details changes made from version 2.00 onwards and will be updated as needed.

```
•   Renumbered for a supported release version (C215)
•   Fixed Port2 writing interrupt problem introduced last revision. (C214-2)
•   Removed 49G boot loader code and 'easter egg' pictures from Bank0 to make room for
    Streamsmart application and future enhancements. (C214)
•   SIMPLIFY Fix for 1/(0.5+sqrt(1-cos(x)^2)), also fixing simplify(0.5*sin(2x)/
    (0.5+sin(x))) (C210)
•   Fix issue when running embedded SUM: SUM(N=0,3,SUM(M=0,N,COMB(N,M-N)) (C210)
•   Fix Linear Solver when importing symbolic matrix (C210)
•   Ask the user to convert the matrix to an array in the input form (C210)
•   Reverse variable order for LINSOLVE to return solution in the original order (C210)
•   LINSOLVE help fixed (3 stack levels returned instead of 1) (C210)
```

- Remove check for battery level when storing data onto flash, SD card or using IO. (C210)
- Added new mechanism in ChooseBox menu to allow entry to create 48G style menu. Used by EqnLibrary (C210)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=192 (C209)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=193 (C209)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=206 (C209)
- Fix FSEEK: (C208)
- Fix 48GX full screen choose and mini-font (C207)
- Fix (B206)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=201 (B206)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=113 (B205-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=44 (B205-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=89 (B205-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=115 (B205-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=134 (B205-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=140 (B205-3)
- Fix corrupted screen when entering a multi-line command line in old Input Form (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=96 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=143 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=147 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=72 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=84 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=108 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=112 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=138 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=145 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=110 (B205-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=102 (B204-6)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=133 (B204-6)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=141 (B204-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=131 (B204-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=128 (B204-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=114 (B204-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=111 (B204-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=110 (B204-5)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=106 (B204-1)
- Fix http://bugs.hpcalc.org/show_bug.cgi?id=102 (B204-1)
- anti-debouncing threshold is now by default 139ms with 20ms interrupt timer. This value can now be controlled with ->KEYTIME (build 86)
- Fix a problem in BlankDA2 (C2.02)
- Fix problem where Flash could get corrupted when storing a user object (B2.03-2)
- Fix variable X will be deleted during warmstart (B2.03-6)
- Export entry point MAKELIST to retrieve list of files (including from SD card) (B2.03-7)
- Fix Disp5x7 and DISPN can't use the new 80 lines screen (B2.03-8)
- Fix naming case issue when storing files on SD card (Build 85)
- Fix SD card Fat32/Fat16 access not exactly following Microsoft specification (build 85)
- Fix shift modifier key was pushed with other modifiers where it shouldn't
- Fix GBASIS bug (C-2.01)
- Fix EQW NEGNEG was wrongly deleted when first argument of + or - (C-2.01)
- Fix CLKADJ (C-2.01)