

Updating the Cycle Analogger's Firmware

Last Updated: 9 November 2015, MRVass

This document describes how to update the firmware on a Cycle Analogger to take advantage of new features and any relevant bug fixes. This is done through a special USB programming mode, accessible via a programming button included on every Cycle Analogger. To access this programming mode, you must install the appropriate drivers and access software on your computer, and once this is done you can simply plug your Cycle Analogger into your computer in programming mode, and run the included script (or enter the commands contained inside from a command line) to update its firmware.

Step 1: Install Atmel's "Flip" Software

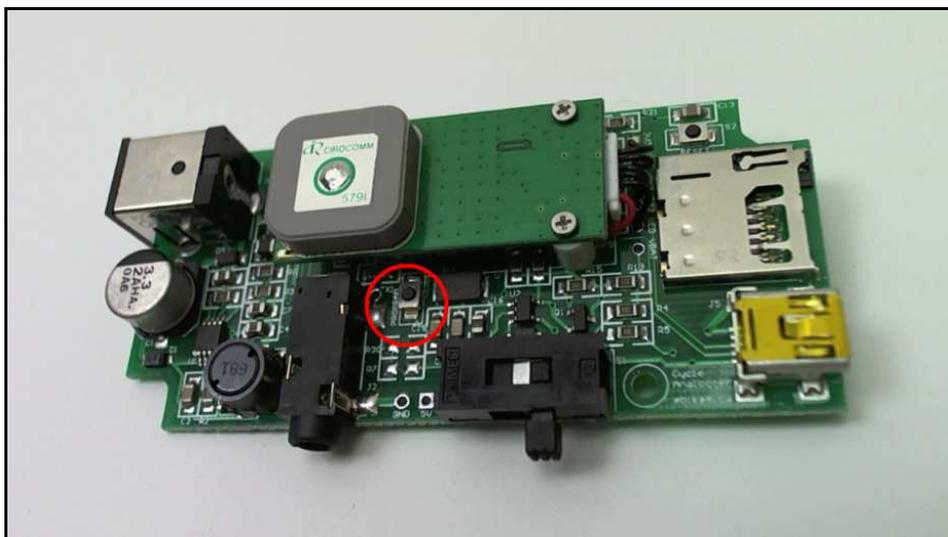
To flash the Cycle Analogger, you must first install Atmel's "Flip" software, available at <http://www.atmel.com/tools/flip.aspx>. Both Windows (FLIP 3.4.2 for Windows) and Linux (FLIP 3.2.1 for Linux x86) versions are available.

Install Atmel Flip wherever you would like to install it, with default options. For a step-by-step install process for this program in Windows XP, please refer to Appendix A.

Step 2: Place the Cycle Analogger into Programming Mode

To place the Cycle Analogger into programming mode, you will have to disassemble the Cycle Analogger by removing the two black case screws, take off the back plate, then press and hold down the programming button (near the Cycle Analyst barrel jack) when plugging the device into your computer's USB port while the power switch is set in Mass Storage mode.

You can also plug the Cycle Analogger into your computer's USB port, then move the power switch from its middle position to its Mass Storage mode position while holding down the programming button. The button, with the power switch in the appropriate position, is shown in the picture below:



Step 3: Driver Installation

This should start a driver installation process to install the drivers for the bootloader device. The driver files are in the program directory of Atmel Flip, which you just installed, under:

[Atmel Flip Install path]/usb

For example, this might look like:

C:\Program Files\Atmel\FliP 3.4.2\usb

For step-by-step instructions on how to install the driver for this in Windows XP, please see Appendix B.

Step 4: Run the Firmware Update Script

Once the driver is installed, you can simply run the batch file (Patch.bat) included, which consists of a number of commands using “**batchisp**”, the program included with Atmel Flip to communicate with the Atmel microchip used in the Cycle Anologger, in order to rewrite its USB bootloader defaults and install the new firmware.

Linux users can navigate to the file directory and run the commands listed in the batch file as presented (it is a simple text file). You should see a window like the following appear, and a whole lot of green “PASS” text:

```
ATMEL FLIP Command Line Interpreter
Device selection..... PASS
Hardware selection..... PASS
Opening port..... PASS
Reading Bootloader version..... PASS 1.0.2
Erasing..... PASS
Selecting USER..... PASS
Setting Address Range..... PASS 0x001fc 0x001fc
Filling buffer..... PASS 0x001fc 0x001fc 0X92
Programming memory..... PASS 0x001fc 0x001fc

Summary: Total 9 Passed 9 Failed 0

E:\Datalogger Patch Kit\Patch Kit>batchisp -device at32uc3b0128 -hardware usb -o
peration erase f memory user addrange 0x1FD 0x1FD fillbuffer 0x9E program
Running batchisp 1.2.4 on Thu Mar 03 15:36:29 2011

AT32UC3B0128 - USB - USB/DFU

Device selection..... PASS
Hardware selection..... PASS
Opening port..... PASS
Reading Bootloader version..... PASS 1.0.2
Erasing..... PASS
Selecting USER..... PASS
Setting Address Range..... PASS 0x001fd 0x001fd
Filling buffer..... PASS 0x001fd 0x001fd 0X9E
Programming memory..... PASS 0x001fd 0x001fd

Summary: Total 9 Passed 9 Failed 0

E:\Datalogger Patch Kit\Patch Kit>batchisp -device at32uc3b0128 -hardware usb -o
peration erase f memory user addrange 0x1FE 0x1FE fillbuffer 0x0D program
Running batchisp 1.2.4 on Thu Mar 03 15:36:32 2011

AT32UC3B0128 - USB - USB/DFU

Device selection..... PASS
Hardware selection..... PASS
Opening port..... PASS
Reading Bootloader version..... PASS 1.0.2
Erasing..... PASS
Selecting USER..... PASS
Setting Address Range..... PASS 0x001fe 0x001fe
Filling buffer..... PASS 0x001fe 0x001fe 0X0D
Programming memory..... PASS 0x001fe 0x001fe

Summary: Total 9 Passed 9 Failed 0

E:\Datalogger Patch Kit\Patch Kit>batchisp -device at32uc3b0128 -hardware usb -o
peration erase f memory user addrange 0x1FF 0x1FF fillbuffer 0x6B program
Running batchisp 1.2.4 on Thu Mar 03 15:36:35 2011

AT32UC3B0128 - USB - USB/DFU

Device selection..... PASS
Hardware selection..... PASS
Opening port..... PASS
Reading Bootloader version..... PASS 1.0.2
Erasing..... PASS
Selecting USER..... PASS
Setting Address Range..... PASS 0x001ff 0x001ff
Filling buffer..... PASS 0x001ff 0x001ff 0X6B
Programming memory..... PASS 0x001ff 0x001ff

Summary: Total 9 Passed 9 Failed 0

E:\Datalogger Patch Kit\Patch Kit>batchisp -device at32uc3b0128 -hardware usb -o
peration erase f memory flash blankcheck loadbuffer uc3b1128-grindatalogger_stan
dalone.elf program verify
```

In Windows 7, you may need to run this script as an administrator to access the USB device.

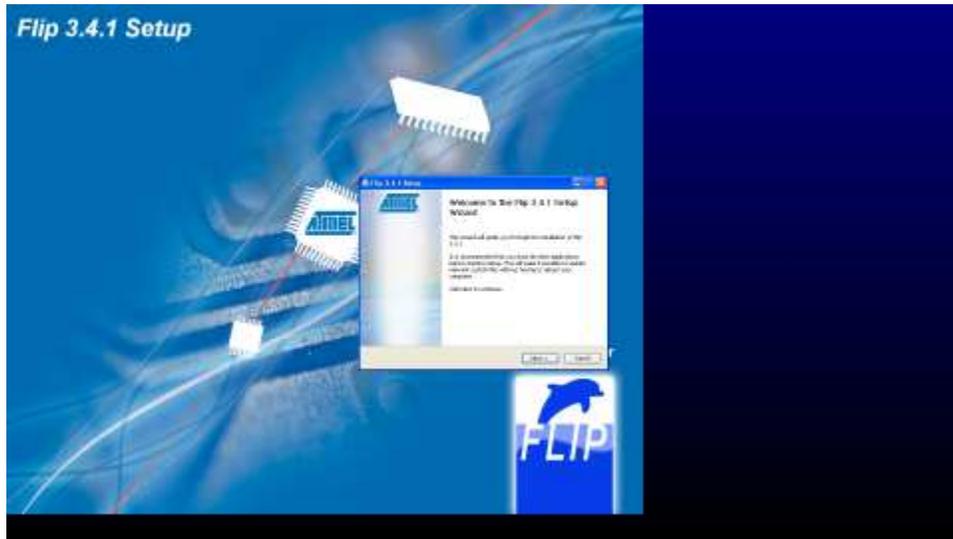
If the script closes successfully, then your Cycle Analogger should be updated and running in Mass Storage mode. Congratulations! If not, please try to place your Cycle Analogger into programming mode again by following Step 2 above, then follow Step 4 (as the driver should now be installed and you should be able to skip Step 3).

Please contact us if any additional assistance is required. Otherwise, please enjoy the enhanced features of your new, updated Cycle Analogger!

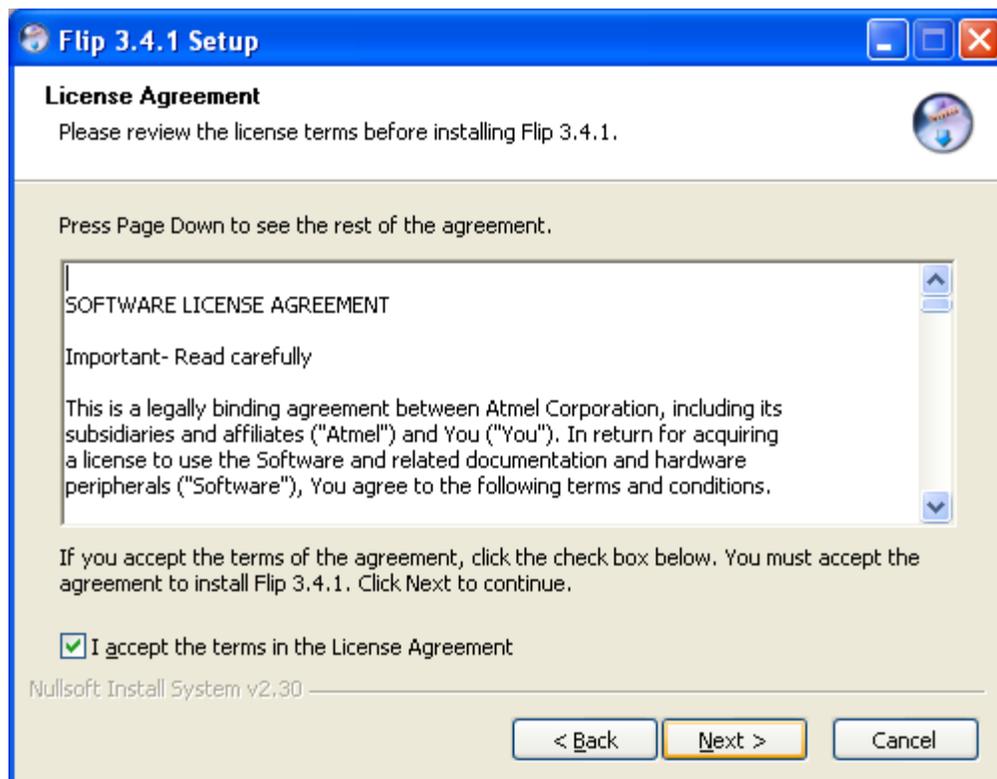
Michael Vass
Lead Firmware Programmer,
Cycle Analogger
michael@ebikes.ca

Appendix A: Installing Atmel Flip in Windows XP

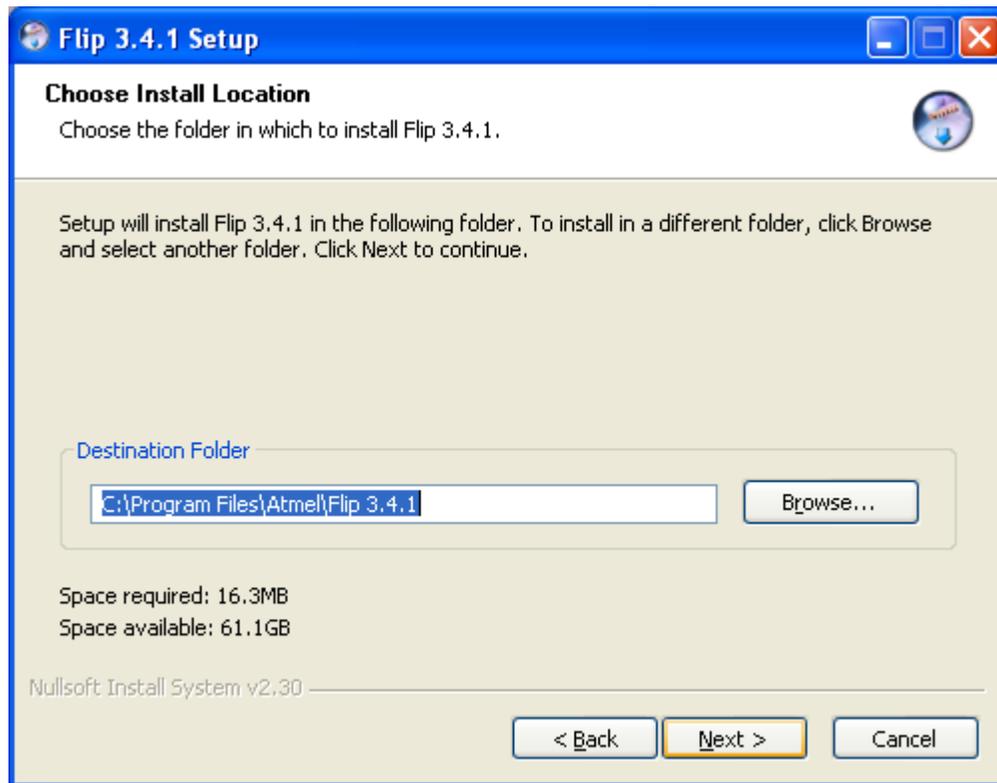
To install Atmel Flip, first start the program, either the file named “Flip Installer – 3.4.1.exe” included with this file, or the file you downloaded from the Atmel website. You should be greeted by the opening screen of the install program:



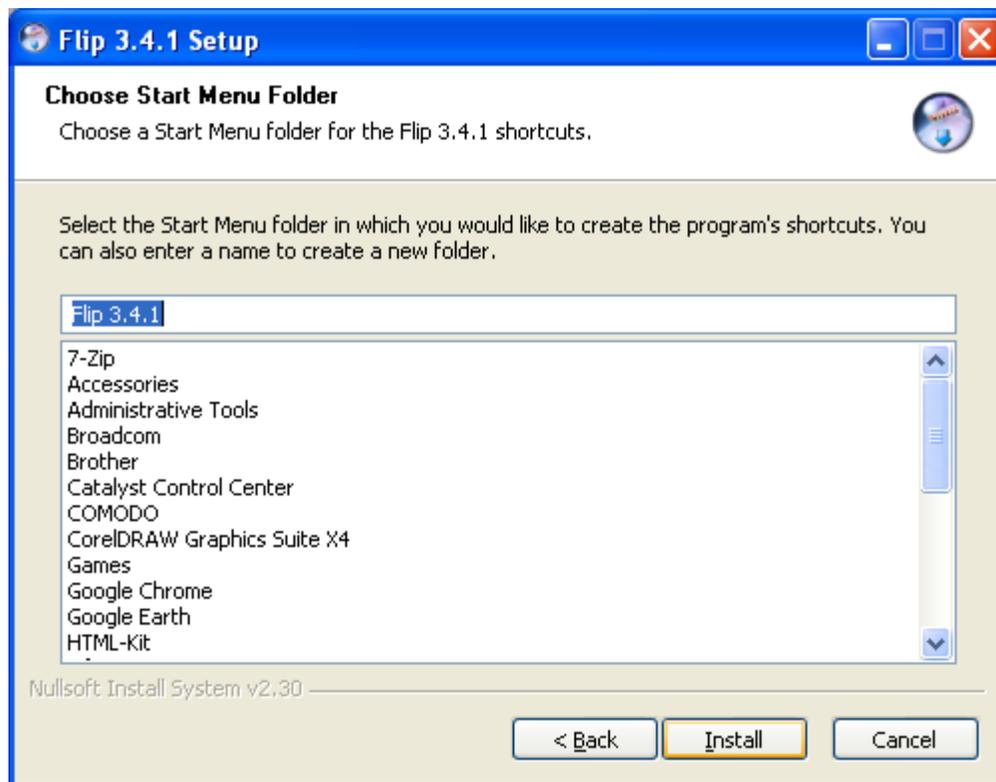
Click “Next” to see the Software License Agreement:



Should you agree to the terms, click the “I accept...” box and click “Next”. You will now be asked where to install the program:



The default location is fine, just be sure you remember where the program is, and click “Next”. You may change the name of the Start Menu folder containing Atmel Flip's program files here:



The defaults should be fine, but choose your name if you wish and click “Install” to begin the installation. When the installation is done, you should see the final closing screen:



Here, I've unchecked the "Create desktop shortcut" and "Show Readme" options because, to patch the Cycle Analogger, I will not need to read the Readme or access the Atmel Flip program except through the script provided to patch my firmware.

You're finished! Congratulations!

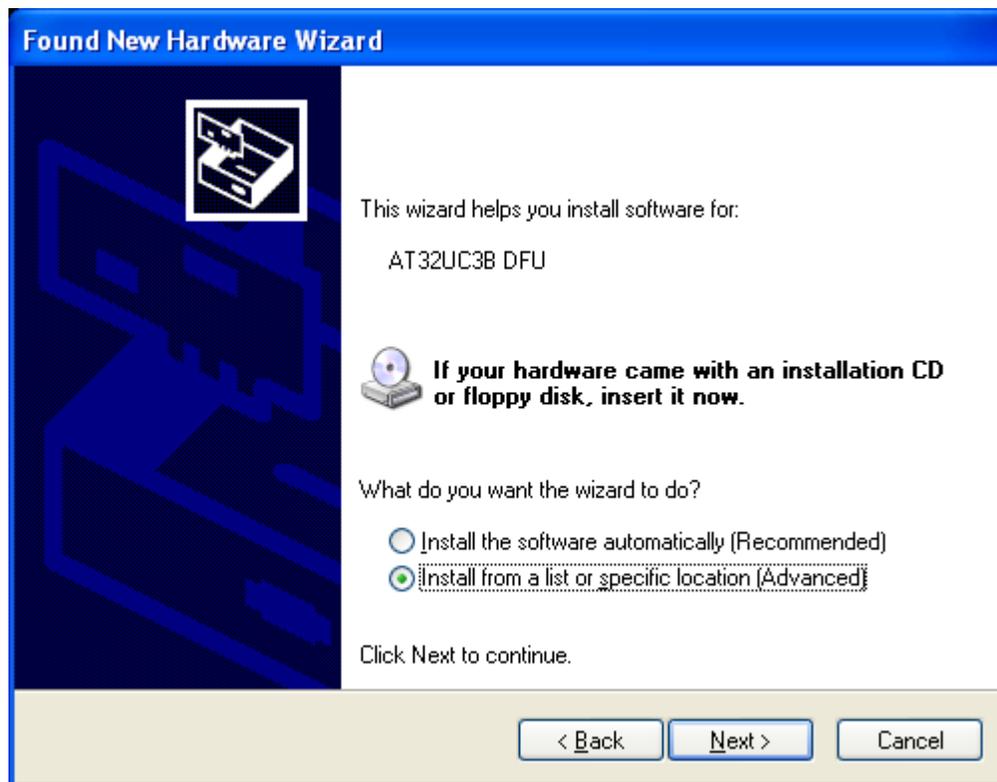
Appendix B: How to Install the Cycle Analogger Bootloader Device Driver in Windows XP

In order to install the driver, you must first plug the Cycle Analogger into your USB port and put it into programming mode as described earlier. You may also need to be an administrator on your system.

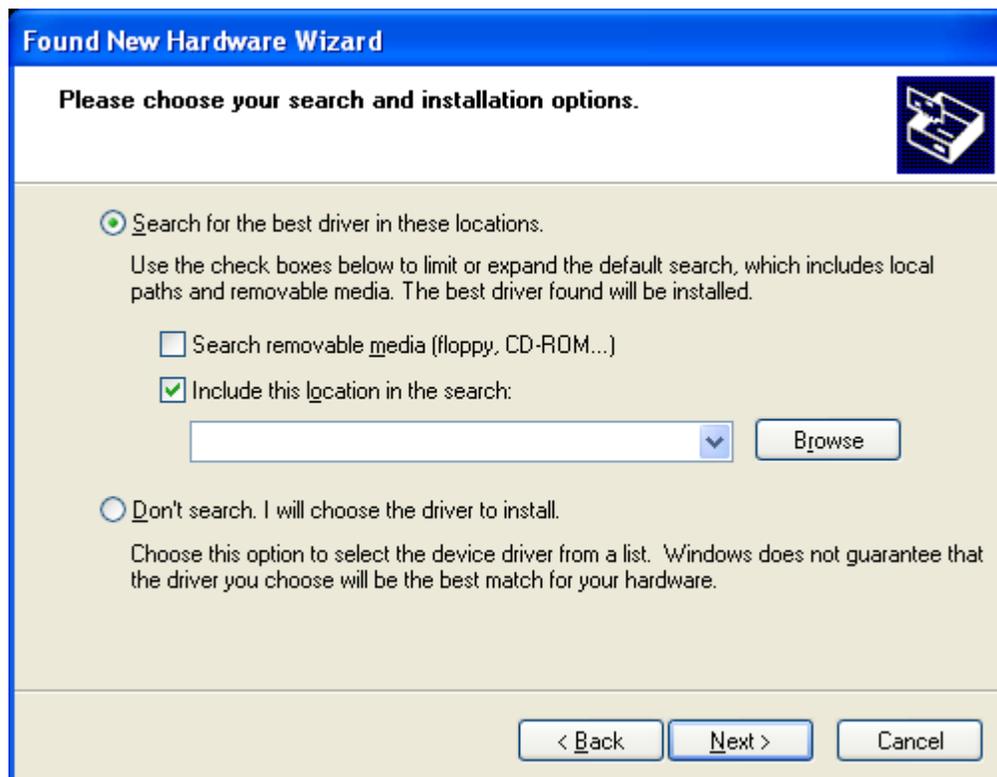
The first screen you should see for the Device Driver installation process, upon plugging your Cycle Analogger into your computer in Bootloader mode, should look like this:



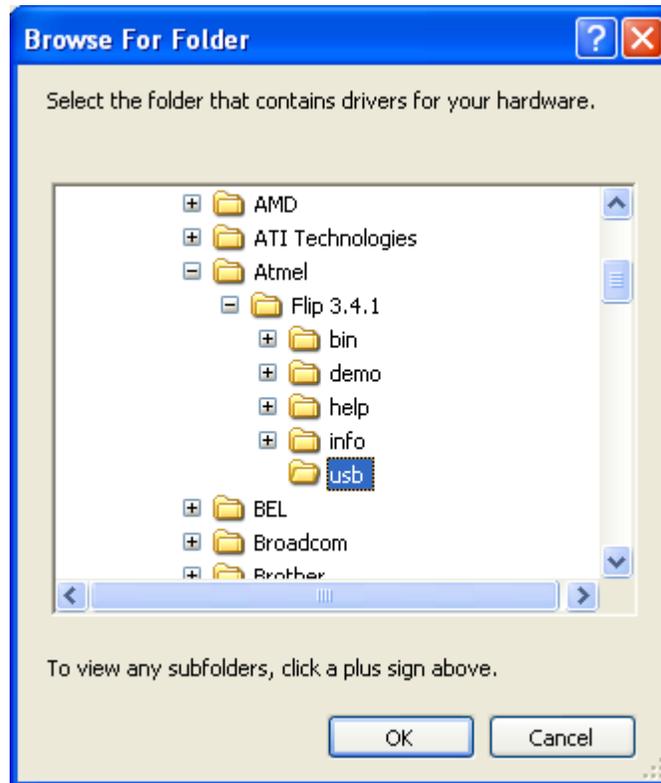
I've clicked "No, not at this time" to the request to search Windows Update for the driver, as we have just installed Atmel Flip, and thus the bootloader driver we are looking for. Please click the "Next" button.



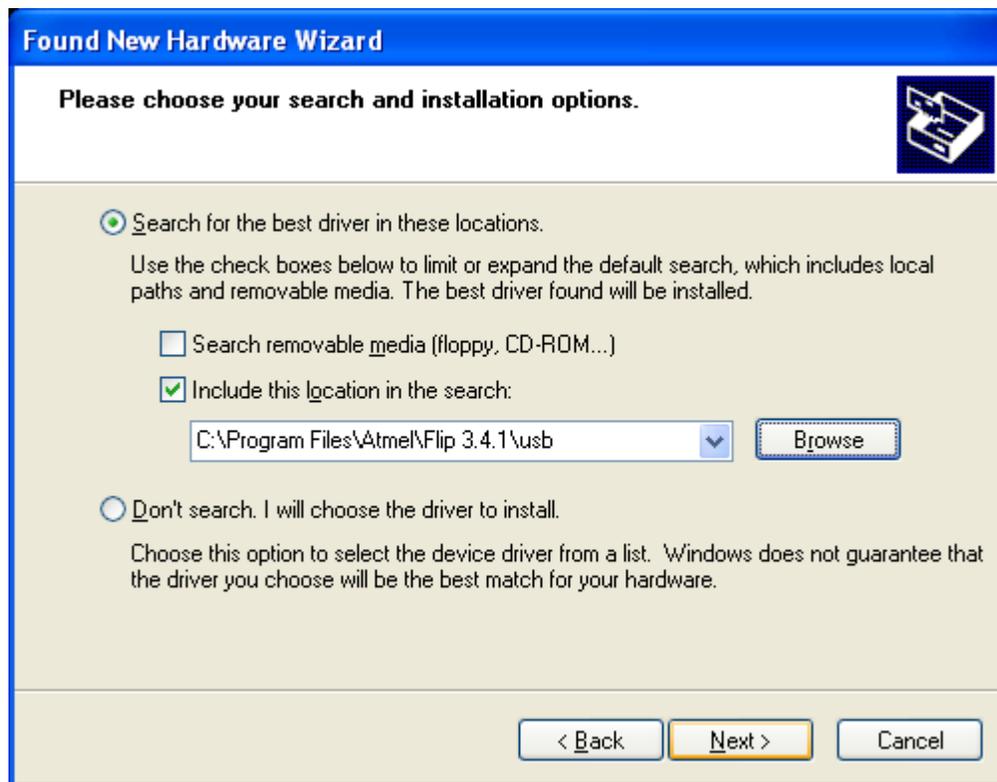
On the next screen, shown above, please select “Install from a list or specific location (Advanced)” and click the “Next” button.



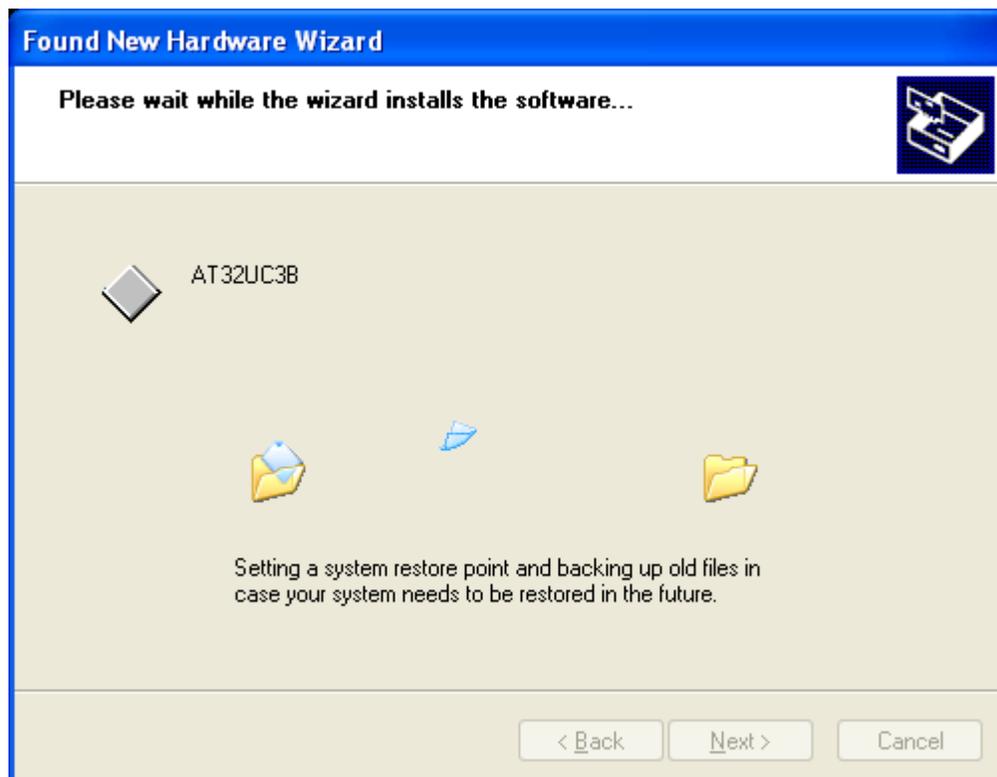
This is the next screen you will get, which will allow you to point Windows XP to the correct device drivers. Uncheck “Search removable media”, and click “Include this location in the search”, then click the “Browse” button.



In the windows explorer window provided, please navigate to your Atmel Flip installation (The default is “C:\Program Files\Atmel\FliP 3.4.1”), select the folder named “usb”, and click the “OK” button. You will be returned to the previous screen:



With the path to the drivers clearly indicated, you can now click the “Next” button to start the driver installation process, shown in the window below:



When it is finished successfully, you will be presented with the following window:



Click the “Finish” button, and you will be done! Congratulations!