FlashPro Software and Hardware

Installation Guide

Microsemi

Table of Contents

1 – General Information

FlashPro software is downloadable for free from
http://www.microsemi.com/products/fpga-soc/design-resources

Note: You must have Administrator rights on the Windows installation machine and root access on the
Linux installation machine to install FlashPro software and hardware.

Microsemi Supported Platforms and Software System Requirements

FlashPro software works on all Windows platforms XP and up, on both x64 and x86 architectures.

FlashPro3, FlashPro4, and FlashPro5 drivers are supported on:

- XP: x86 and x64
- Vista: x86 and x64
- Win 7: x86 and x64
- Win 8: x64

FlashPro and FlashPro Lite Parallel Port drivers support:

- XP: x86 and x64
- Win7: x86
- Vista: x86

Note: XP x64 does not work on versions prior to sp9.0sp1.

See the Microsemi website for a full list of supported platforms: http://www.micromsemi.com/soc/
products/software/libero/sysreqs.aspx

If you are installing an older version of FlashPro, please consult the installation instructions that were
included with your software.

FlashPro Minimum System Requirements

File System: NTFS or FAT32

Minimum disk space for installation: 500 MB

Other: HTML browser; 1024x768 resolution

2 – Installing FlashPro Software

FlashPro software supports all FlashPro programmers, i.e. FlashPro5, FlashPro4, FlashPro3x, FlashPro3, FlashPro Lite, FlashPro and the Low Cost Programming Stick (LCPS).

Note: Libero SoC v11.3 and FlashPro v11.3 are the MINIMUM versions required for FlashPro5 on Windows. Libero IDE v8.6 SP1 and FlashPro 8.6 SP1 are the MINIMUM versions required for FlashPro4.

FlashPro software is included as part of the Microsemi Libero SoC and automatically placed in the installation folder: c:\Microsemi\Libero_<version>. You can also download a standalone version of FlashPro from the Microsemi website. See "Installing FlashProExpress Standalone for Linux". For both installation options, follow the FlashPro InstallShield Wizard instructions.

Note: You must have Administrator rights on the Windows installation machine and root access on the Linux installation machine to install FlashPro software and hardware.

Installing the FlashPro Software

1. Install from the Libero SoC DVD or download the FlashPro software from http://www.microsemi.com/products/fpga-soc/design-resources.
2. If you have FlashPro5, FlashPro4, FlashPro3x, FlashPro3, LCPS or FlashPro programmer connected to the USB port of your PC, disconnect it now.
3. Libero SoC installation and stand-alone FlashPro installation vary slightly. When the InstallShield Wizard starts, click **Yes** to accept the license agreement, and follow the wizard.
4. Click **Next** to install Libero SoC or FlashPro software to the default destination folder. To install to a different folder, click **Browse** and select another folder.
5. Click **Next** to complete your installation.
6. Click **OK**. Software setup is complete.

To install the FlashPro hardware USB driver after you install software, see "Installing USB Drivers for the FlashPro5/4/3x/3 and Low Cost Programming Stick (LCPS) for IGLOO, ProASIC3 and Fusion Device Programmers" on page 8.

Installing FlashProExpress Standalone for Linux

1. Launch FlashProstandalone_v*X.X* Linux.bin installer with the same login as the user/group that will use the FlashProExpress software.
2. Run the udev_install script on the Linux machine in order for the FlashProExpress software to be able to access the FlashPro5 hardware, or the SmartFusion2 starter kit board, without root permissions or sudo rights.

The udev_install script helps you setup a udev rule file for the FlashPro5 hardware and the SmartFusion2 starter kit board.

This udev rule authorizes the Linux group (that you specify during execution of the udev_install script) to access the hardware without root permissions or sudo rights.

udev_install should be run with root permissions, once for each machine:

Usage: udev_install [-h][-t <DIR_PATH>]

Options:

none :Interactive installation of udev rule file 70-microsemi.rules

under /etc/udev/rules.d.

-h :Returns usage of udev_install script

-t <DIR_PATH> :Creates a template of 70-microsemi.rules under <DIR_PATH>.

The superuser has to replace <GROUPID> tag in the template with the groupid of the Linux group assigned to use the FlashPro5 hardware and the superuser must copy the file 70-microsemi.rules under /etc/udev/rules.d.

Installing the FlashPro5 Driver

To install the FlashPro5 driver, do the following:

1. Unzip the attached files into your local directory.
2. Go to **Control Panel** -> **System and Security** -> **System**
3. Click **Advanced system settings**.
4. Click the **Hardware** tab.
5. Click **Device Manager**.
6. You should see FlashPro5 under "Other devices", as shown in the following example.
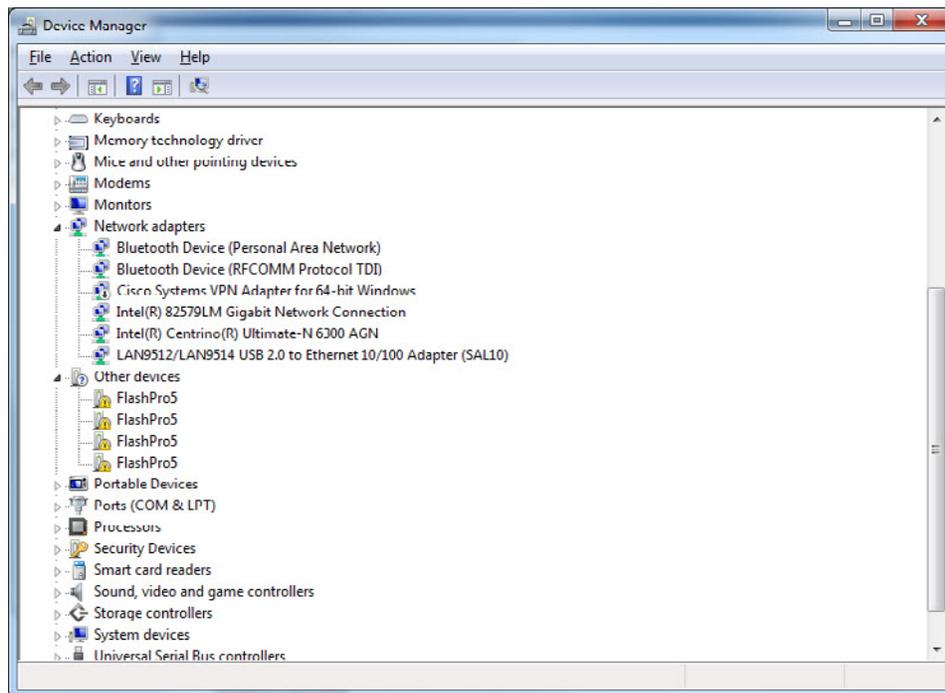
7. Right-click the first instance of FlashPro5.
8. Click **Update Driver Software**.
9. Click **Browse my computer for driver software** and point to the directory where you unzipped the attached file.
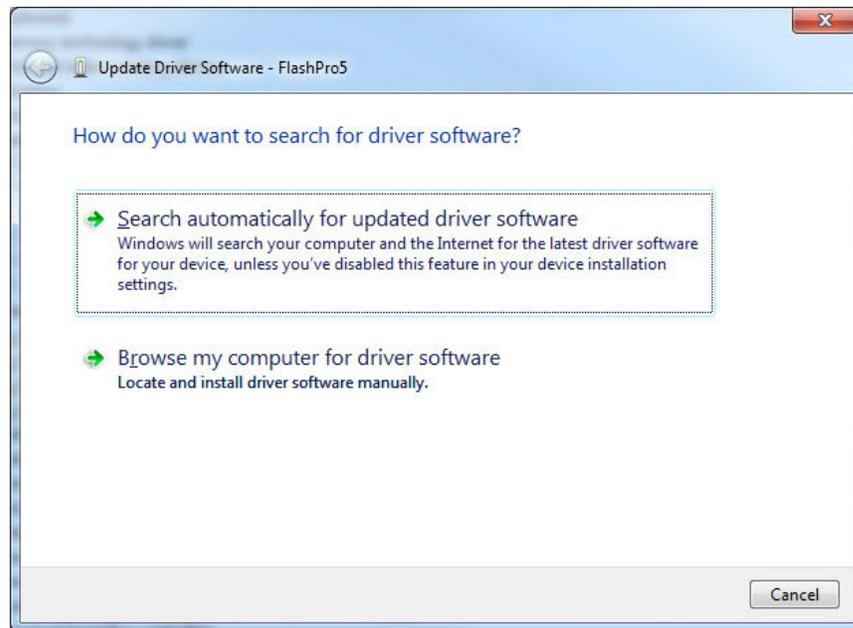
10. Click **Install this driver software anyway**.
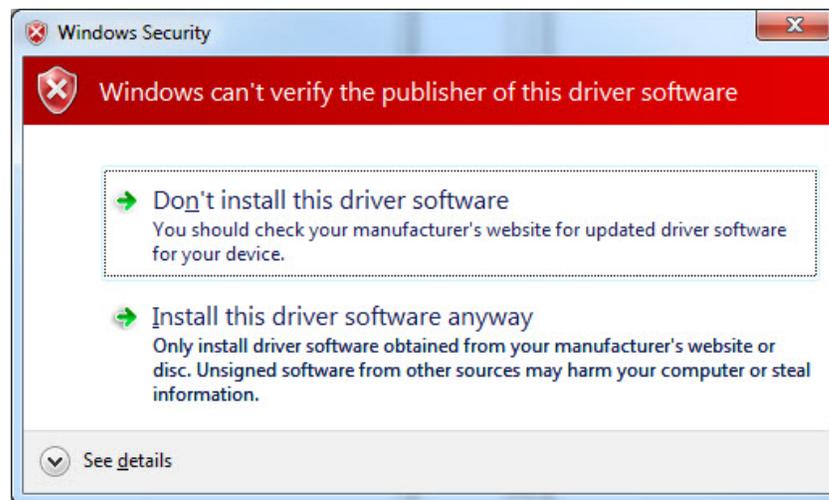
11. You will see the following message.
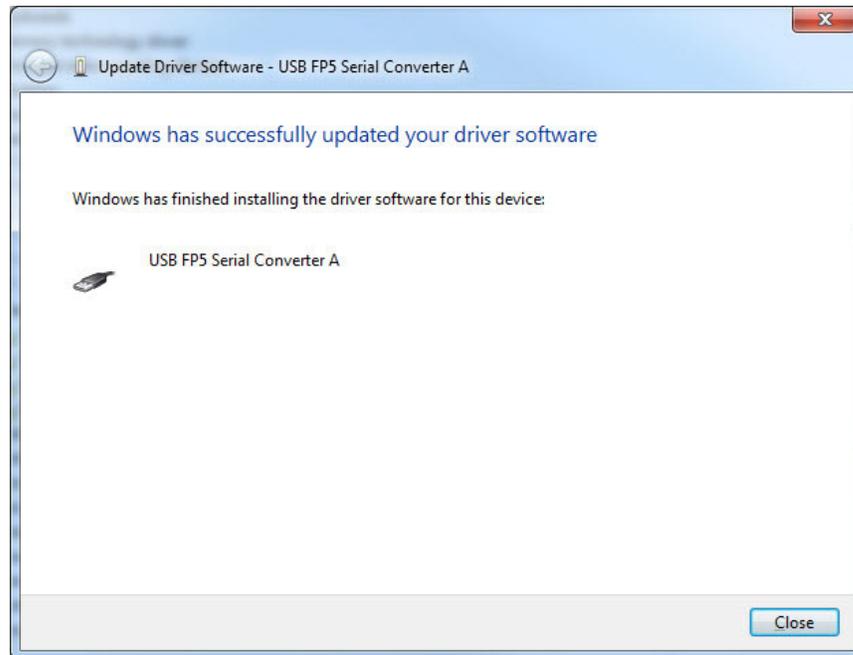
12. Repeat for each FlashPro5 device in the list.

3 – Installing Programmer Hardware

Installing USB Drivers for the FlashPro5/4/3x/3 and Low Cost Programming Stick (LCPS) for IGLOO, ProASIC3 and Fusion Device Programmers

Note: You must have Administrator rights on the Windows installation machine and root access on the Linux installation machine to install FlashPro software and hardware.

To connect a single FlashPro5/4/3x/3/LCPS to your PC using a USB port:

1. After installing the software successfully, connect one end of the USB cable to the FlashPro4/3x/3/LCPS device programmer and the other end to your PC USB port.

   Depending on your operating system, the Found Hardware Wizard opens during the installation. This occurs because FlashPro5/4/3x/3 and the LCPS require a software driver for the programmer. If the Found Hardware Wizard does not open then your drivers were installed successfully.

2. The **Found New Hardware Wizard** may ask you to specify the driver location from the Files Needed dialog box. If so, click the **Browse** button to navigate to your driver (if necessary). Once the file location is in the **Copy Files From** text box, click **OK**.

   If FlashPro was installed as part of the Libero IDE default installation, the drivers are located at C:/Libero/Designer/Drivers/<DriverDirectory>, where <DriverDirectory> corresponds to the directory assigned by your operating system. If you installed standalone FlashPro your drivers location depends on your install directory and operating system.

3. If you are using the x86 version of Windows (XP, Vista, or Windows 7), the Hardware Installation box may display a warning message regarding hardware testing. If you see the warning message click **Continue Anyway**. Click **Finish** to complete the hardware installation process. If the Found New Hardware Wizard starts again, repeat the steps to complete your hardware installation.

To connect multiple FlashPro4/3x/3/LCPSs using a powered USB hub:

1. Make sure your hub is a powered USB hub. Only powered USB hubs can be used.

2. Connect the USB hub to the PC. If the powered USB hub is not already connected, then follow the instructions for the hub setup and connect the cable from the hub to the PC.

3. Connect programmer to powered USB hub.

4. Connect one end of the USB cable to the programmer's USB connector. Plug the other end of the cable into a free port on the USB hub.

5. After you have successfully installed the driver, the amber LEDs activate and the power LED marked ON remains illuminated, indicating a connection to a powered USB port. The ACTIVITY LED turns off after 2 seconds.

6. Repeat steps 3-4 for each programmer you wish to add.

Note: USB is hot-swappable, which means you do not have to power down the PC when plugging/unplugging the FlashPro4/3x/3LCPS programmer.

   Do not unplug the programmer while the programmer is performing a programming sequence.

FlashPro5/4/3x/3/LCPS Troubleshooting

Note: If using FlashPro4, the minimum version of Libero IDE or FlashPro software required is v8.6 Service Pack 1. You must have Libero IDE v8.6 SP1 or FlashPro v8.6 SP1 to use FlashPro4.

When installing/using a FlashPro5/4/3x/3/LCPS programmer for the first time, the Windows device wizard may not always find the driver automatically. In this case you may have to use the Install Drivers wizard. If FlashPro was installed as part of the Libero IDE default installation, the drivers are located at C:/Libero/Designer/Drivers/<DriverDirectory>, where <DriverDirectory> corresponds to the directory assigned by your operating system. If you installed standalone FlashPro your drivers location depends on your install directory and operating system.

If you are using Windows XP, the Hardware Installation box may display a warning message regarding hardware testing. If you see the warning message click **Continue Anyway**. Click **Finish** to complete the hardware installation process. The Found New Hardware Wizard starts again. Click through the wizard again to complete your hardware installation.

Note: The Low Cost Programming Stick (LCPS) is not intended to be a replacement or alternative for FlashPro5/4/3x/3. It has a completely different header connection to the PCB. The LCPS only supports various Microsemi demo and development kits.

Uninstalling Old FlashPro5/4/3x/3/LCPS Drivers

If Windows uses the wrong device driver, the FlashPro5/4/3x/3/LCPS programmers will not work. Symptoms of an incorrect driver include FlashPro being unable recognize the programmer, freezing, or both. Because Windows retains information about each device that has ever been plugged in, it may not be as simple as uninstalling one software package and installing another.

You may need to manually uninstall the wrong device driver. Below are the steps to manually uninstall the wrong device driver and indicate to Windows to use the correct FlashPro4/3x/3/LCPS driver.

Uninstalling Drivers in v9.0SP1 Software and Above

To uninstall a driver for software v9.0SP1 and above, open the **Control Panel** and click **Add/Remove Programs**. Select the Driver Package for the specific software version you wish to uninstall and click **Change/Remove**.

For example, your Driver Package may be listed as:

```
Windows Driver Package - Microsemi Corporation (FP3B-CYUSB) USB <install date and
version>
```

Uninstalling the Driver in Pre v9.0SP1 Software

FlashPro5, FlashPro4, and FlashPro3 have a dual-driver installation. The device is assigned a PID when it is connected and the PID changes when the driver is installed.

To uninstall the wrong device driver:

1. Right-click **My Computer** on the PC desktop and choose **Properties** to open the System Properties dialog box.
2. Click the **Hardware** tab.
3. Open the **Device Manager**.

    If Windows is using the wrong device driver for the FlashPro5/4/3x/3/LCPS, the offending device driver must be removed. To do this, the device driver needs to be identified. The device driver could appear under:

    –   The Human Interface Devices (HID) list: If you have multiple HID devices, you will need to check the driver properties and find one with Vendor ID (VID)=1514 and Product ID as specified in Table 3-1.

Table 3-1 • **HID and USB Controller List**

Product ID (PID)	Programmer
2008	FlashPro5
2007	FlashPro4
2006	

Table 3-1 • HID and USB Controller List (continued)

Product ID (PID)	Programmer
2005	FlashPro3x/3/LCPS
2004	
2003	FlashPro

- – The Universal Serial Bus (USB) controllers list: If there is an unknown USB device with a yellow ! or red X through it, check the driver properties and view the VID (1514) and PID to verify it refers to the FlashPro5/4/3x/3/LCPS as specified in Table 3-1.
- – The Other Devices list: A yellow ! or red X will display indicating there is a problem communicating with this device.

4. Once you find the incorrect device, **right-click** the device and choose **Uninstall** from the drop-down menu. Click **OK** in the warning message.

5. Unplug the FlashPro5/4/3x/3/LCPS and wait 20 seconds, then plug the programmer back in. If the correct drivers are installed on the PC when the FlashPro5/4/3x/3/LCPS is plugged back in, the Found New Hardware Wizard appears and you will be able to direct it to the correct driver files.

Example: Uninstalling FlashPro3 Driver - Pre v9.0SP1 Software

Bad Loader Driver - If your loader driver is bad your Device Manager displays:

```
PID 2004 "FlashPro 3 Firmware Loader"
```

The uninstall targets the Firmware Loader driver. Once the is driver reinstalled it attempts to use the USB driver. If the USB driver is bad, you will need to uninstall it now.

Bad USB Driver - If your USB driver is bad your Device Manager displays:

```
PID 2005 – "FlashPro 3 USB Driver"
```

The uninstall applies to the USB driver serving PID 2005.

Installing the Parallel Port Driver for FlashPro/FlashPro Lite for ProASICPLUS and ProASIC Devices

FlashPro and FlashPro Lite programmers support any type of hardware port that uses an I/O address. Also, multiple parallel ports may be used in the same FlashPro session.

Recommended PCMCI card for laptops without a parallel port:

- StarTech CB1PECP
- Chipset: Oxford MPCI952

http://www.startech.com/item/CB1PECP-1-Port-Parallel-EPPECP-CardBus-Adapter.aspx

Note: FlashPro Lite supports only ProASIC^{PLUS}; you cannot use FlashPro Lite with ProASIC.

Do not install parallel port drivers on 64-bit systems using v9.0 and older installers. You can install parallel port drivers if you are using v9.0sp1 or above.

(ProASIC^{PLUS} ONLY) To connect the FlashPro Lite programmer to your PC using the parallel port:

1. Connect the programmer to a parallel printer port on your PC. Connect one end of the IEEE 1284 cable to the programmer's connector.

2. Plug the other end of the cable into your parallel printer port and tighten the screws. You should not have any licensing dongles connected between the parallel port and cable. Your port settings must be EPP or bidirectional. Microsemi also supports the ECP mode with the FlashPro v2.1 software and newer.

3. Verify that you are connected to the correct parallel port on your computer. Microsemi recommends that you dedicate a port to the programmer. Connecting to a serial port or a third party card may damage the programmer. This type of damage is not covered by the warranty.

4. Connect the FlashPro ribbon cable with the programming header and turn the target board on.

Note: If you see two blinking LEDs on the programmer after you have connected the programmer to the parallel port, make sure the parallel port cable is connected firmly to the PC parallel port.

To connect the FlashPro programmer to your PC using a parallel port:

1. Verify that the FlashPro power switch is in the 0 position.
2. Connect the FlashPro programmer to a parallel printer port on your PC. Connect one end of the IEEE 1284 cable to the programmer's connector.
3. Plug the other end of the cable into your parallel printer port and tighten the screws.

   You should not have any licensing dongles connected between the parallel port and cable. Your port settings should be EPP or bidirectional. Microsemi also supports the ECP mode with the FlashPro version 2.1 software and newer versions.
4. Verify that you are connected to the correct parallel port on your computer. Microsemi recommends that you dedicate a port to the programmer. Connecting to a serial port or a third party card may damage the programmer. This type of damage is not covered by the warranty.
5. Plug the DC adapter into a power socket.
6. Plug the other end of the AC power supply to the DC-IN input at the back of the FlashPro.
7. Turn on the programmer by turning the FlashPro power switch to the 1 position. The power LED on the front of the programmer lights up. If it does not contact Microsemi Technical Support at soctech@microsemi.com.

To connect a FlashPro programmer to your PC using a USB port:

1. Connect the programmer to a USB port on your PC. Connect one end of the USB cable to the programmer's USB connector. Plug the other end of the cable into your USB port.
2. Plug the DC adapter into a power socket.
3. Plug the other end of the AC power supply to the DC-IN input at the back of the FlashPro.
4. Turn on the programmer by turning the FlashPro power switch to the 1 position. The power LED on the front of the programmer lights up. If it does not, contact Microsemi Technical Support at soctech@microsemi.com.

Note: USB programming is slower than programming through the parallel port for a single device. USB is hot-swappable, which means you do not have to power down the PC when plugging/unplugging the FlashPro programmer. Do not unplug the programmer while programming is active and performing a programming sequence.

Error After Software Installation for FlashPro5/4/3x/3/LCPS and FlashPro/FlashPro Lite

After successfully installing the software, the programmer may not be recognized by the software and you will be unable to program. In this scenario manually copy and paste the driver files in

C: WINDOWS\system32\drivers

Restart the software. If the problem persists, contact Microsemi Technical Support; see "Product Support" on page 12.

A – Product Support

Microsemi SoC Products Group backs its products with various support services, including Customer Service, Customer Technical Support Center, a website, electronic mail, and worldwide sales offices. This appendix contains information about contacting Microsemi SoC Products Group and using these support services.

Customer Service

Contact Customer Service for non-technical product support, such as product pricing, product upgrades, update information, order status, and authorization.

From North America, call 800.262.1060
From the rest of the world, call 650.318.4460
Fax, from anywhere in the world, 408.643.6913

Customer Technical Support Center

Microsemi SoC Products Group staffs its Customer Technical Support Center with highly skilled engineers who can help answer your hardware, software, and design questions about Microsemi SoC Products. The Customer Technical Support Center spends a great deal of time creating application notes, answers to common design cycle questions, documentation of known issues, and various FAQs. So, before you contact us, please visit our online resources. It is very likely we have already answered your questions.

Technical Support

Visit the Customer Support website (www.microsemi.com/soc/support/search/default.aspx) for more information and support. Many answers available on the searchable web resource include diagrams, illustrations, and links to other resources on the website.

Website

You can browse a variety of technical and non-technical information on the SoC home page, at www.microsemi.com/soc.

Contacting the Customer Technical Support Center

Highly skilled engineers staff the Technical Support Center. The Technical Support Center can be contacted by email or through the Microsemi SoC Products Group website.

Email

You can communicate your technical questions to our email address and receive answers back by email, fax, or phone. Also, if you have design problems, you can email your design files to receive assistance. We constantly monitor the email account throughout the day. When sending your request to us, please be sure to include your full name, company name, and your contact information for efficient processing of your request.

The technical support email address is soc_tech@microsemi.com.

My Cases

Microsemi SoC Products Group customers may submit and track technical cases online by going to My Cases.

Outside the U.S.

Customers needing assistance outside the US time zones can either contact technical support via email (soc_tech@microsemi.com) or contact a local sales office. Sales office listings can be found at www.microsemi.com/soc/company/contact/default.aspx.

ITAR Technical Support

For technical support on RH and RT FPGAs that are regulated by International Traffic in Arms Regulations (ITAR), contact us via soc_tech_itar@microsemi.com. Alternatively, within My Cases, select **Yes** in the ITAR drop-down list. For a complete list of ITAR-regulated Microsemi FPGAs, visit the ITAR web page.

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