

0 Before Starting

This Quick Start Guide illustrates the typical steps required to set up FlashRunner and perform your first programming session. However, this guide is by no means exhaustive—both the FlashRunner FR01LAN User's Manual and the FlashRunner Programmer's Manual (available in PDF format in the System Software CD-ROM) must be carefully studied.

Additionally, successful in-system programming requires that PCB design takes ISP issues into account. Some important topics about ISP design include:

- **Power source**—target powered by FlashRunner or on-board power supply
- **Clock source**—provided by on-board oscillator or auxiliary clock from FlashRunner
- **ISP signal lines**—proper resistors should be added, please refer to specific target device datasheet
- **Interconnection with other on-board devices**—POR state and I/O direction of all devices should be taken into account
- **Physical connections**—test points for fixture probe or dedicated ISP connector must be provided

1 Install Software

Insert the "System Software" CD-ROM into your computer's CD-ROM drive.

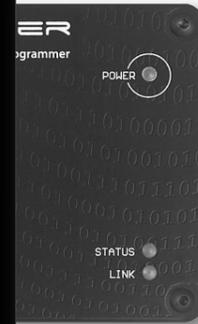
A startup window will automatically appear.

Choose "Install Instrument Software" from the main menu and follow the on-screen instructions.



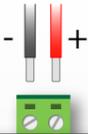
2 Insert SD Card

FlashRunner comes with an SD card pre-installed with the programming algorithms and licenses you specified at the moment of purchase. Insert the SD card into the FlashRunner card receptacle.



DO NOT FORMAT THE SD CARD!

3 Power Up FlashRunner



Power up FlashRunner by connecting the output of a power supply to the terminal block connector located in the FlashRunner's bottommost layer.

FlashRunner accepts any DC voltage between 9V and 24V.

Upon powering up, the "POWER" LED turns on. The "STATUS" LED also turns on while FlashRunner performs a startup self-diagnostic test.



4 Connect to PC

Connect FlashRunner to the host PC through either the RS-232 or LAN port. FlashRunner FR01LAN comes with a serial cable and an Ethernet cross cable to connect directly to a host PC.



If you connect FlashRunner to the host PC using the Ethernet connection, you might need to change the FlashRunner's default IP address. FlashRunner is factory configured with IP address **192.168.1.100** and TCP port **2101**. For learning how to modify the FlashRunner IP address, please refer to the FlashRunner Programmer's Manual.

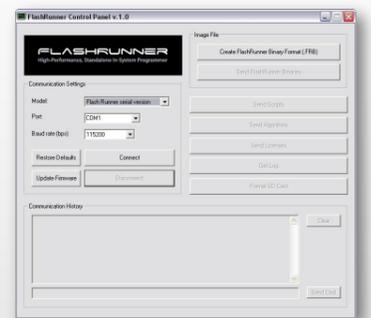
5 Launch Control Panel

Launch the FlashRunner Control Panel utility by selecting **Start > Programs > SofTec Microsystems > FlashRunner > Control Panel**. The Control Panel utility will open.

Depending on the connection method, select either "FlashRunner serial version" or "FlashRunner LAN version".

Next, specify the COM port you are using and the baud rate (default is 115200 bps), or the instrument IP address (default is 192.168.1.100).

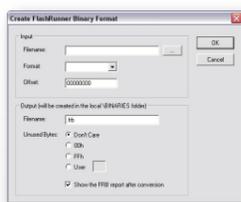
Click the "Connect" button.



6 Prepare Image File

FlashRunner accepts only image files in a .frb (FlashRunner Binary) format.

To convert your binary, Intel-Hex or S19 image file to the FlashRunner format, click the "Create FlashRunner Binary Format" button. A dialog box will appear.



In the "Input" section, specify the source file to be converted, its format, and the address from which the file conversion will start (offset). In the "Output" section, specify the output filename and the value used to fill unused locations.

Click the "OK" button. The FlashRunner Binary file will be created in the local \BINARIES folder.



For a correct .frb file conversion, it is important to know the addressing mode of the source binary file and the memory organization of the target device. In some cases, a wrong conversion will cause a programming error, in other cases incorrect content is programmed.

7 Prepare Script

A script file is a text file (with .frs suffix) stored in the SD card and used as a programming project. A sample script for every device supported by FlashRunner is provided under the \EXAMPLES folder (both in the SD card and in the FlashRunner system software installation directory in the PC).

On the PC, browse for the .frs sample file for your target device and open it with a text editor (for example, Notepad).

The comments in the script sample highlight the parameters that can be changed to suit your particular programming needs. In particular, make sure that the **TPSETSRC FILE** command specifies the .frb file you created in the previous step.



The specific commands (with relative parameters) contained in a script depend highly on target device, ISP communication settings, ISP mode, PCB design, etc. Each target device/board combination requires careful analysis in order to achieve successful programming with the desired programming flow. Please study carefully both the FlashRunner documentation and the target device datasheets.

8 Transfer Image and Script

To transfer the image file created in step 6 to the FlashRunner unit, click the "Send FlashRunner Binary" button. A file transfer dialog box will appear. Click the "..." button to browse for the .frb file, then click "Start" to begin the transfer. The file will be saved to the FlashRunner SD card, in the \BINARIES folder.



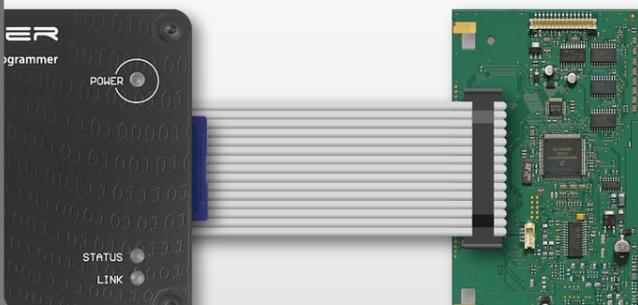
In a similar way, to transfer the script file created in step 7 to the FlashRunner unit, click the "Send Script" button. A file transfer dialog box will appear. Click the "..." button to browse for the .frs file, then click "Start" to begin the transfer. The file will be saved to the FlashRunner SD card, in the \SCRIPTS folder.

The "LINK" LED will blink during file transfers.

9 Connect to Target System

Build an ISP cable to connect from the FlashRunner's 15-way, D-Sub "ISP" connector (located below the SD card) to your target board (make sure the target board is powered off). Make all the required connections (power, oscillator, ISP signals) to the target microcontroller, by wiring the required ISP lines.

Typical connections for all of the device families supported by FlashRunner are shown in the FlashRunner Programmer's Manual.



10 Program

In the FlashRunner Control Panel "Communication History" box, type **RUN** followed by the name of the script you created in step 7 (for example **RUN MYSCRIPT.FRS**), then press Return. FlashRunner will execute the script and program the target microcontroller.

While programming, the "BUSY" LED turns on. At the end of programming, either the "PASS" or "FAIL" LED turns on, depending whether programming has been successful or not.

Click the "Disconnect" button to free the serial port or Ethernet resource.



11 Congratulations!

You have successfully completed this tutorial!

For detailed information about FlashRunner hardware, commands and their syntax, including specific commands for specific family of microcontrollers, please refer to both the FlashRunner FR01LAN User's Manual and the FlashRunner Programmer's Manual, available in PDF format in the System Software CD-ROM.

