

DediProg solutions for FPGA SPI configuration memories

FPGA suppliers are now offering access to the standard Serial Flash memories to configure their chips. These new configuration memories provide a large and cheap portfolio of solutions for the end applications with many suppliers, densities and packages solutions.

FPGA Developers need adapted and optimized tools to work on this SPI memories efficiently.

DediProg offers a complete portfolio of SPI programmers, emulators and accessories to satisfy the FPGA developers. The Dedicated programmers **SF100** and **SF200** are the ideal solutions to improve **your performance** (timing divided by ten versus standard solution), increase your programming **flexibility** (via innovative solution for In System Programming) for the **lowest cost** (often 5 times cheaper).

Examples of our programmer performances:

Programming performances	1Mb	2Mb	4Mb	8Mb	16Mb	32Mb	64Mb	128M
USB mode (typ)	1s	2 s	4 s	8 s	17 s	34 s	68 s	140
Stand Alone mode (typ)	1s	2 s	3 s	6 s	11 s	24 s	40 s	80

Our programmers and tools have been defined in close cooperation with Serial flash suppliers and customers to offer the best solution for development, production, storage area, repairing or Quality teams.

→ Dedicated solutions for your entire satisfaction

Solution 1: **SPI Backup configuration Card and SPI emulation solution**

Schematic Requirement: Hold Pin pulled high through a resistor
(schematics and documentations available under request)

How it works:

- ➔ Program the new configuration code to our DediProg backup flash card through its SF100 programmer.
- ➔ Reconfigure your system with our backup flash card connected to the Serial Flash package soldered on board with our test clip (no connector needed). Our Backup Flash card disables automatically your main Serial Flash on board at the connection. The FPGA is configured automatically with our Backup Flash Card content.
- ➔ After your FPGA configuration, update your main Serial Flash soldered on board by making an automatic copy of our backup flash card to your Main Serial Flash soldered on board. A switch is available to disable the Backup Flash Card and enable the main Serial Flash soldered on board.
- ➔ Use our Backup Flash card with its SF100 programmer as a “SPI Emulator” for development. The Backup Flash Card can be updated at any time by the programmer without any conflict with your FPGA (smart isolation). This tool is powerful and convenient to save development time (no need to unsolder the Main serial Flash on board, no need to manipulate or disconnect the tool to run your application test).

Features:

- ✓ USB interface
- ✓ Signals conflict protections
- ✓ Image download speed at 1Mbits/s to SPI flash
- ✓ No need to remove the main SPI flash soldered on board during development or repairing
- ✓ Can be used as **SPI flash emulator** for development (no need to remove the kit for reboot)

Accessories:

- ✓ SF100 Programmer
- ✓ Backup flash card for single SPI Flash with or without SO socket (SO8N, SO8W or SO16)
- ✓ Test Clip for SO8N and SO8W or SO16 (don't need connector on motherboard)



Solution 2:

In system programming solution with application ON

Schematic Requirement:

- FPGA reset pin with SPI buffer switched in high impedance state.
(schematics and documentations available under request)

How it works:

➔ Connect the SF100 programmer on your application with the help of the connector or by using our Test Clip for a direct connection on the SPI Flash SO package.

➔ Our SF100 programmer is completely transparent for your application as all its signals are in High Impedances (can stay connected during your application running test)

➔ Click the update button on our DediProg tool to reset the FPGA (with our dedicated I/O) and start the Serial Flash update via the SPI bus. After the update, the programmer releases the bus and the FPGA reset pin allowing you to start a new application running test.

Features:

- ✓ USB interface
- ✓ Signals conflict protections
- ✓ Image download speed at 1Mbits/s to SPI flash
- ✓ No need to remove the SPI flash for development or repair

Accessories:

- ✓ SF100 Programmer with its ISP cable
- ✓ SO Test Clip (if no connector on board)
- ✓ Flash Card to store the reference code when SF100 is used in Stand alone mode (no computer)



Solution 3

In system programming solution with application OFF

Schematic Requirement:

- One diode on the Vcc power supply to not supply all your application with our programmer power supply
 - 4 isolations (Mosfet, Strap, Resistor if low frequency..) on the FPGA SPI bus to protect the Chip from leakage current.
- (Schematics and documentations available under request)

How it works:

- ➔ Connect the SF100 programmer on your application with the help of the connector or by using our Test Clip for a direct connection on the SPI Flash SO package.
- ➔ Our SF100 programmer is completely transparent for your application as all its signals are in High Impedances (can stay connected during your application running test)
- ➔ Click the update button on our DediProg tool to supply the application Serial Flash and update it. The power supply and SPI signals are automatically turned OFF after the update.

Features:

- ✓ USB interface
- ✓ Signals conflict protections
- ✓ Image download speed at 1Mbits/s to SPI flash
- ✓ No need to supply the application or to set it in normal application environment (no peripherals..) to perform the update: convenient for production or update in the storage area..

Accessories:

- ✓ SF100 Programmer with its ISP cable
- ✓ SO Test Clip (if no connector on board)
- ✓ Flash Card to store the reference code when SF100 is used in Stand alone mode (no computer)



Solution 4: OFF line programming with our SF200 engineering programmer

How it works:

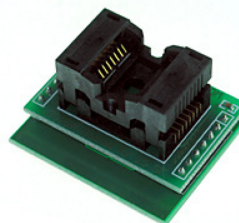
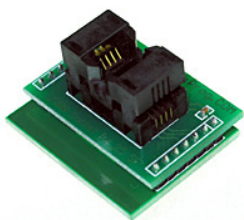
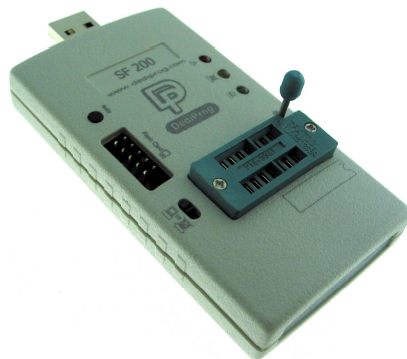
- ➔ Connect the appropriate socket adapter on our SF200 programmer
- ➔ Insert your Serial Flash memory in the socket for update

Features:

- ✓ USB interface
- ✓ Signals conflict protections
- ✓ Image download speed at 1Mbits/s to SPI flash

Accessories:

- ✓ SF200 Programmer
- ✓ Socket adapters (TSSOP, SO8N, SO8W, SO16, MLP5X6, MLP8X6)
- ✓ Flash Card to store the reference code when SF100 is used in Stand alone mode (no computer)



Solution 5: OFF line programming with few SF200 used as Gang programmers

How it works:

- ➔ Few SF200 programmers are connected in parallel on our power supply Rack. Up to 30 SF200.
- ➔ Connect our Flash Card on each of them, to provide the reference code for each programmer
- ➔ Click on the programmer RUN button to start the copy of the Flash Card content to your Serial Flash

Features:

- ✓ Stand alone mode switch
- ✓ Signals conflict protections
- ✓ Image download speed at 1Mbits/s to SPI flash

Accessories:

- ✓ SF200
- ✓ Sockets adapters (TSSOP, SO8N, SO8W, SO16, MLP5X6, MLP8X6)
- ✓ Flash Card to store the reference code (up to 128Mb)
- ✓ Power Rack to supply all the SF200 in Stand alone mode

DediProg's other services:

DediProg also proposes programming service optimized for serial flash memories. Please refer to www.Dediprogram.com for details.

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www.DediProg.com