

AVDP Rescue Procedure

1.1 Overview

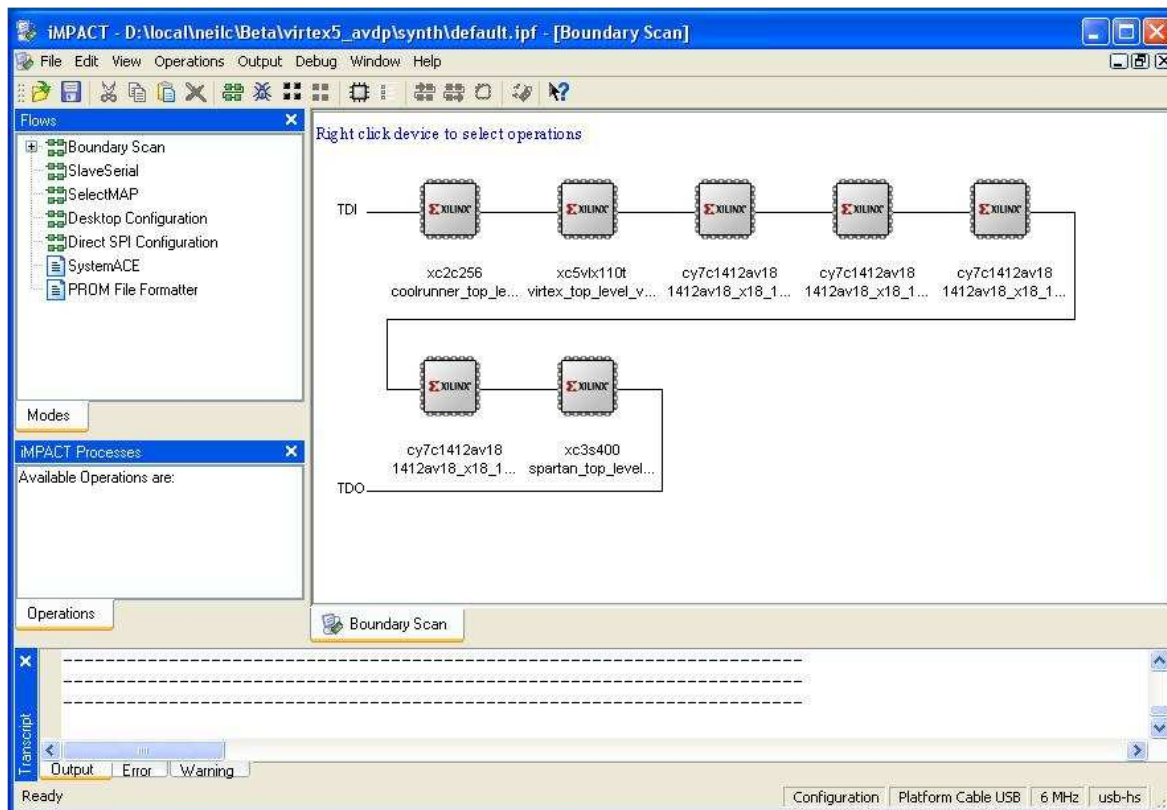
To recover an AVDP card where the Flash has been corrupted you will need a Xilinx JTAG programming cable connected to a second pc (the avdp host pc will be unavailable). This should be connected to the programming header which, unfortunately, is located under the IO module which must first be removed.

1.2 Cold Boot Procedure

Turn on the pc containing the AVDP, while the pc is displaying the POST screen press the pause key. On most keyboards this is one of the group of 3keys to the right of the function keys. An alternative option is to enter the BIOS setup page, either method should pause the boot sequence. This is required since the FPGAs must be configured before the PC boots.

You can now run the Xilinx impact programming tool on the second pc with the JTAG cable attached. At the first dialogue choose "create a new project", on the next dialogue leave the default selection on "Configure devices using Boundary-Scan (JTAG)" and press finish.

You should now be presented with a JTAG chain containing the coolrunner, virtex, 4srams and the Spartan (in that order), as shown below.



The bitstreams and a BSD file for the SRAMs are all provided in the development kit.

The three programmable devices should now be programmed, after which the LEDs connected to the done lines D22 and D23 should be lit. In addition D21 should be flashing to indicate that the pci-express clock is alive. It is sometimes necessary to programme both the FPGAs a second time should this led not be flashing.

At this point the host pc should be reset (which cannot include a power cycle) to allow the host system to boot into windows.

1.3 Flash Programming Procedure

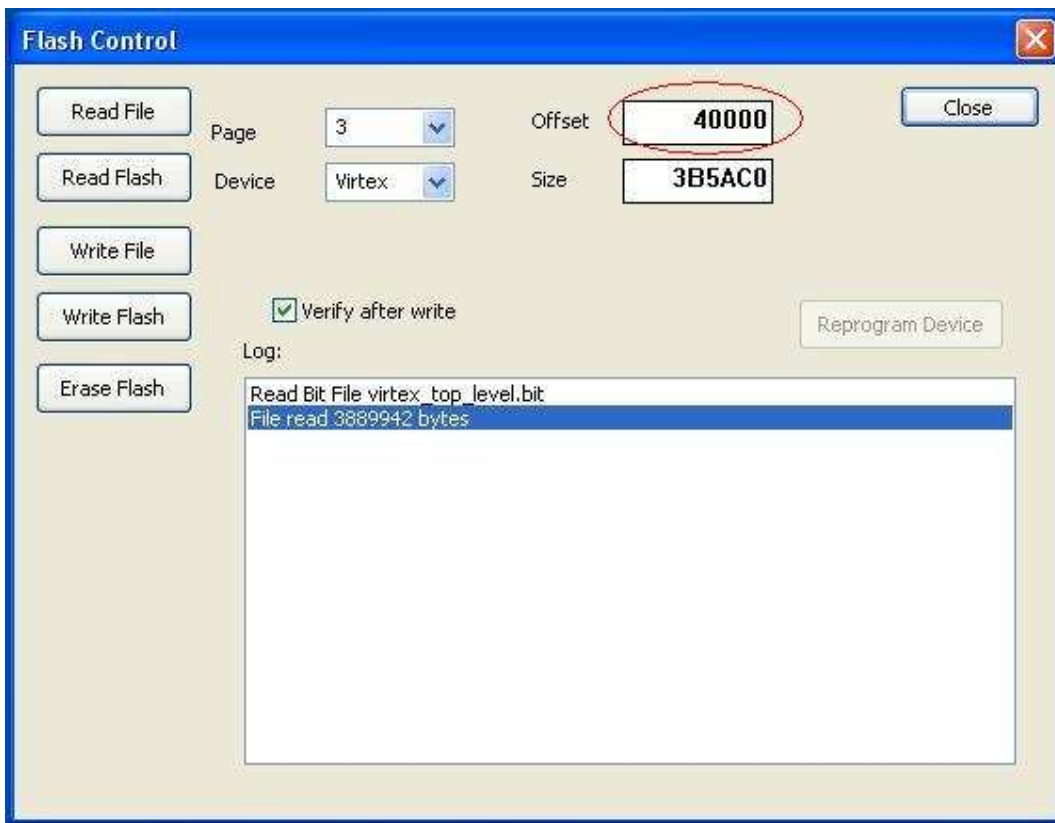
Once the system is booted AVDPDebug should be started to programme the flash.

If AVDPDebug reports that it cannot find the hardware and is entering debug mode then either:

1. The driver is not installed, in which case the AVDP will be listed in the windows device manager as an unknown device. In this case install the driver and continue.
2. Windows has not found the AVDP card due to pci-express problems. In this case check the status of the LEDs on the AVDP as described in the cold boot procedure. It may be necessary to shutdown the pc and repeat the cold boot procedure.

By default AVDPDebug does not allow you to select flash page0 for programming, this is to prevent accidental reprogramming of the rescue partition. In order to override this restriction the flash offset must be manually entered.

This should be done immediately before pressing the "Write Flash" button *after* the file has been read into the application memory, this is because the application sets the automatic address when a file is read and will overwrite any manually entered address.



The correct flash locations depend on the version of the coolrunner used, and are given below.

Coolrunner v1.0 and newer

Page	Device	Start Address
0	Spartan	0x000000
	Virtex	0x040000
1	Spartan	0x400000
	Virtex	0x440000
2	Spartan	0x800000
	Virtex	0x840000
3	Spartan	0xC00000
	Virtex	0xC40000

Coolrunner v0.9 and older

Page	Device	Start Address
0	Virtex	0x000000
	Spartan	0x3C0000
1	Virtex	0x400000
	Spartan	0x7C0000
2	Virtex	0x800000
	Spartan	0xBC0000
3	Virtex	0xC00000
	Spartan	0xFC0000