SP605 Restoring Flash Contents

December 2009

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XTP061

Overview

- Xilinx SP605 Board
- Software Requirements
- SP605 Setup
- Restoring the CompactFlash
- Restoring SP605 Platform and BPI Flash
- References

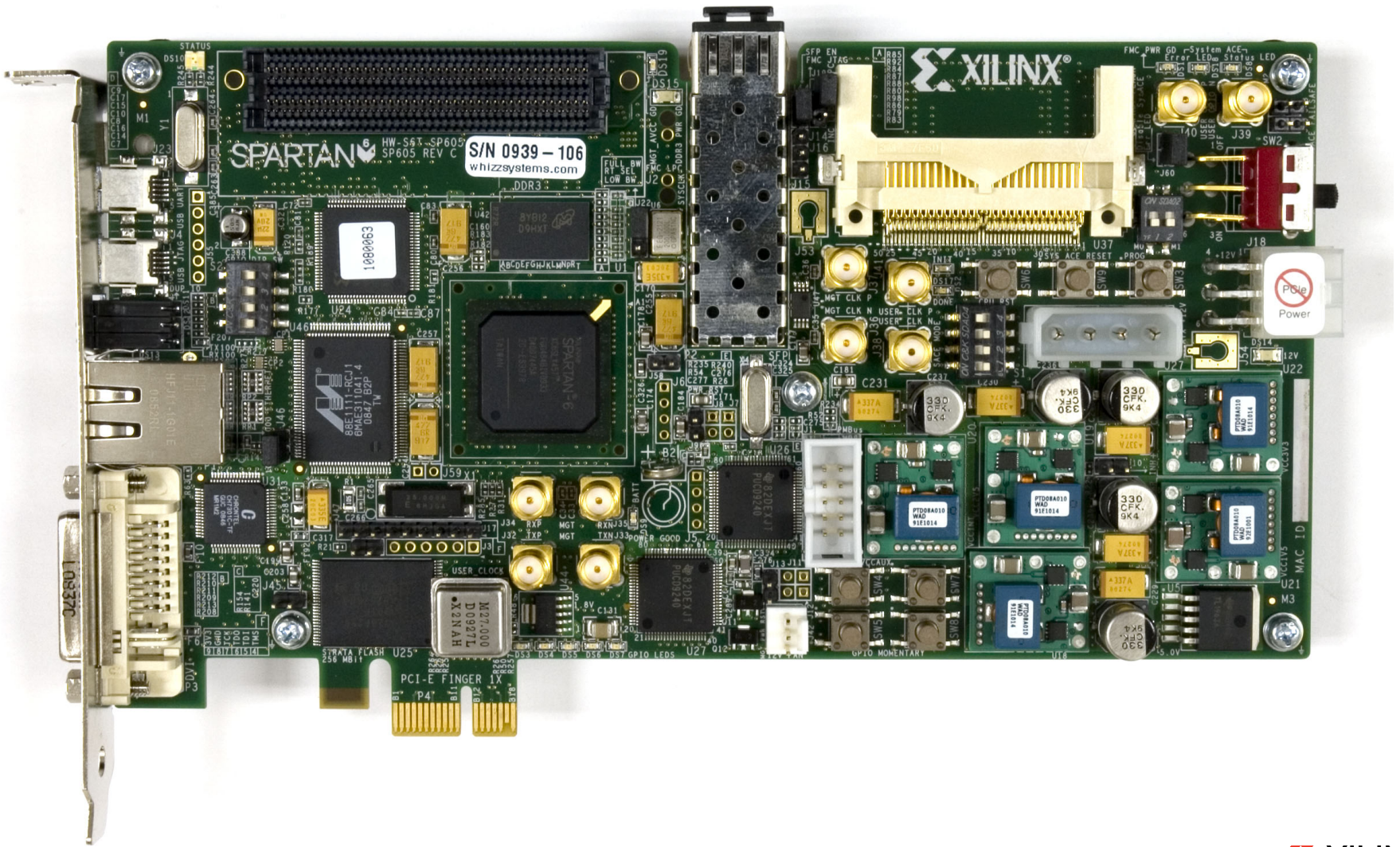
Note: This presentation applies to the SP605

SP605 Restoring Flash Contents Description

- **Description**
  - The ISE iMPACT tool is used to restore the onboard non-volatile memories with the contents used in the SP605 Getting Started Guide (UG525) for the SPI Flash and the BIST for the BPI Flash. A zip file is also provided to restore the SP605 CompactFlash card.
- **Reference Design IP**
  - Uses XTP065 PCIe output files to program SPI Flash
  - Uses XTP062 BIST output files to program the CompactFlash
- **Reference Design Source and Applications**
  - See XTP065 and XTP062
- **Files for Flash Restoration**
  - SPI and BPI Flash: rdf0030.zip
  - CompactFlash: rdf0031.zip

Note: Presentation applies to the SP605

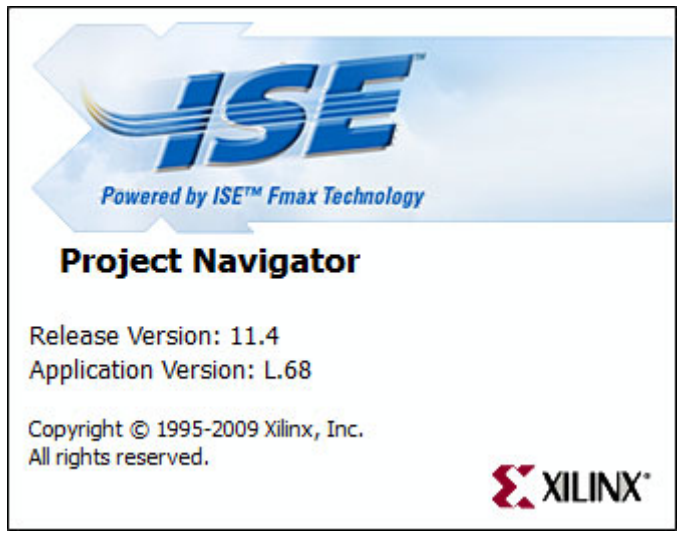
Xilinx SP605 Board



Note: Presentation applies to the SP605

ISE Software Requirement

- Xilinx ISE 11.4 software

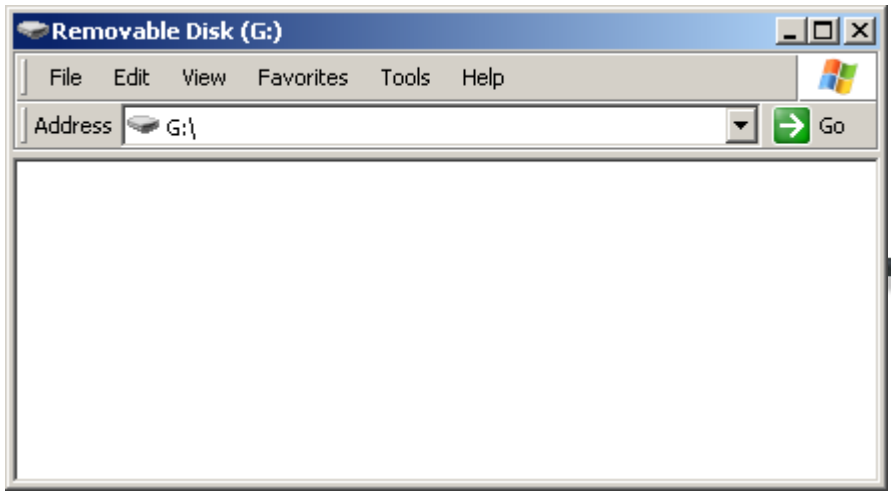


Note: Presentation applies to the SP605

Restoring SP605 CompactFlash

Restoring SP605 CompactFlash

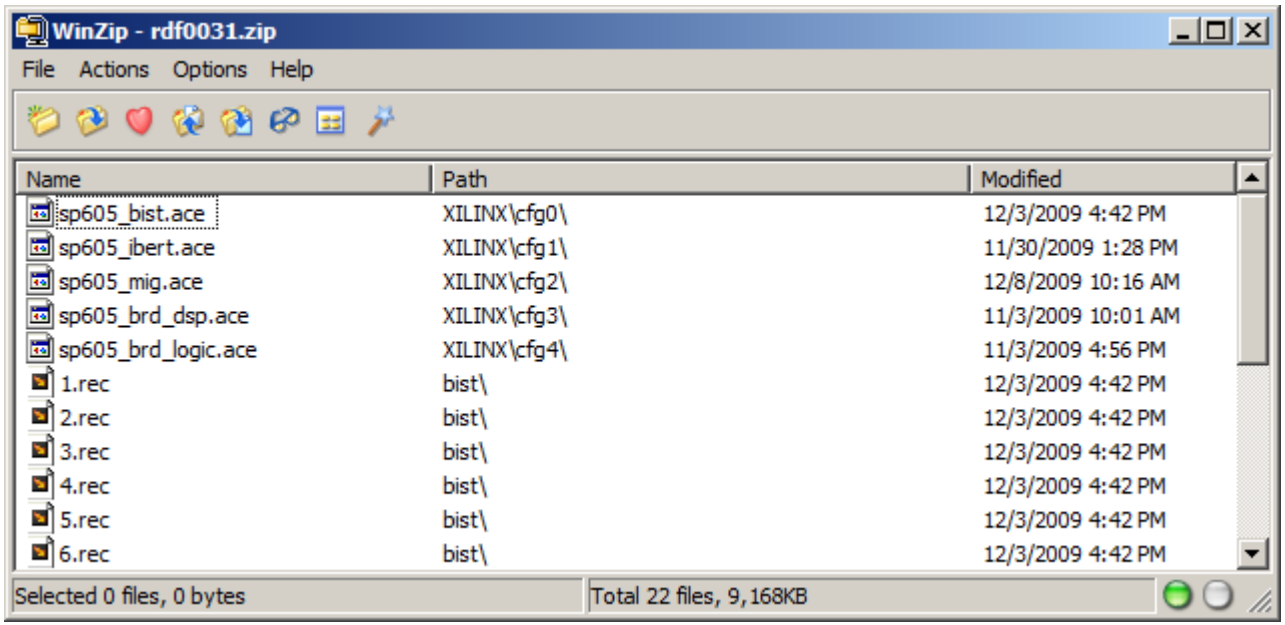
- Use a CompactFlash reader to mount the SP605 CompactFlash as a disk drive
- Delete all files on this drive



Note: Presentation applies to the SP605

Restoring SP605 CompactFlash

- **Unzip the rdf0031.zip file to your CompactFlash drive**
  - https://secure.xilinx.com/webreg/clickthrough.do?cid=140332



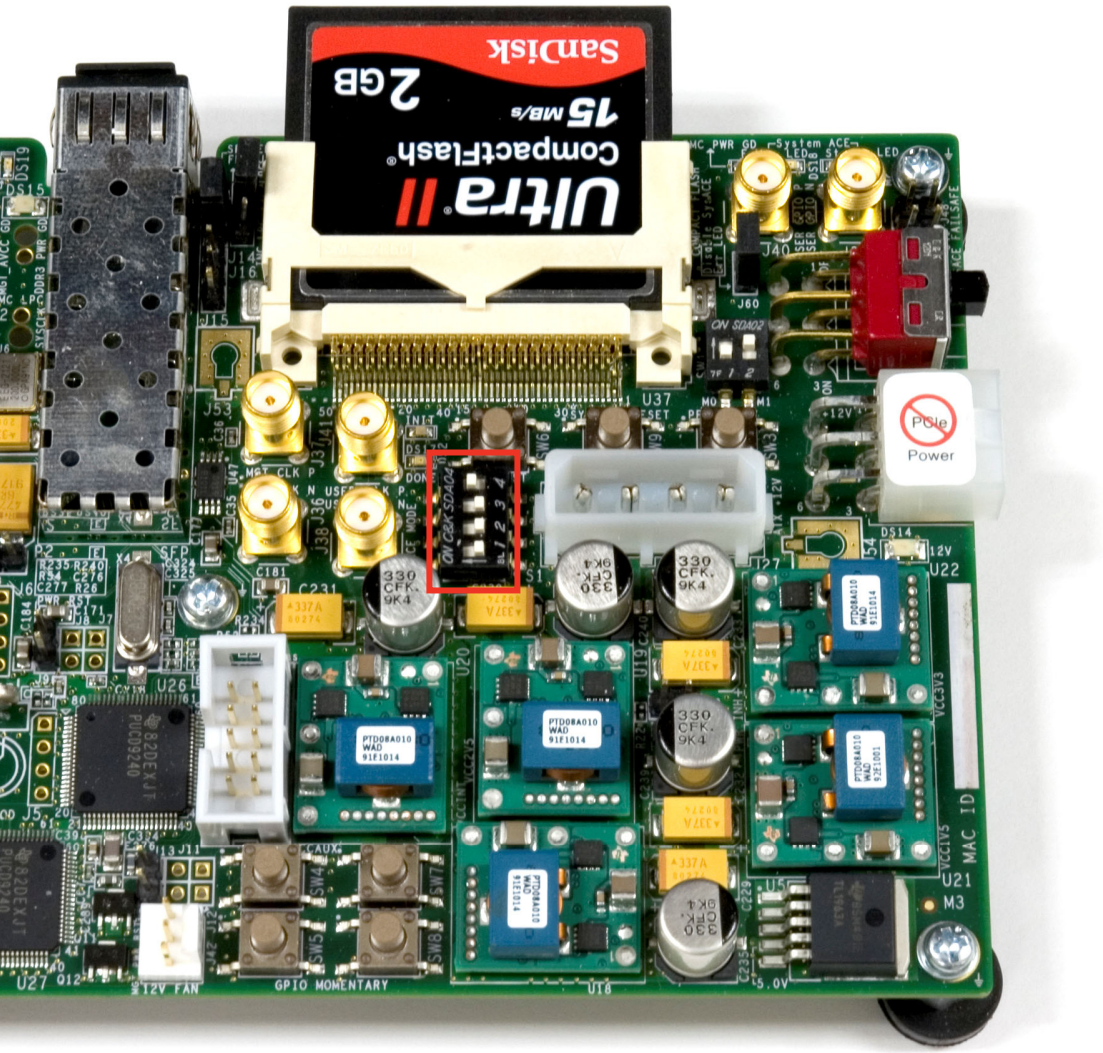
Note: Presentation applies to the SP605

Restoring SP605 CompactFlash

- **After Restoring the CompactFlash, five designs are available:**
  - CFG0 – Built-In Self Test (BIST)
    - See XTP062 – SP605 BIST Flash Application for details
  - CFG1 – IBERT
    - See XTP066 – SP605 GTP IBERT Design Creation for details
  - CFG2 – MIG
    - See XTP060 – SP605 MIG Design Creation for details
  - CFG3 – BRD DSP
    - See UG525 – SP605 Getting Started Guide for details
  - CFG4 – BRD Logic
    - See UG525 – SP605 Getting Started Guide for details

Note: Presentation applies to the SP605

Built-In Self Test (BIST)



- **To use the Built-In Self Test Application**
  - Set the DIP SW to 1000 (top to bottom) as seen here

    4 3 2 1

    1 0 0 0
  - Open a Terminal Window

Note: Presentation applies to the SP605

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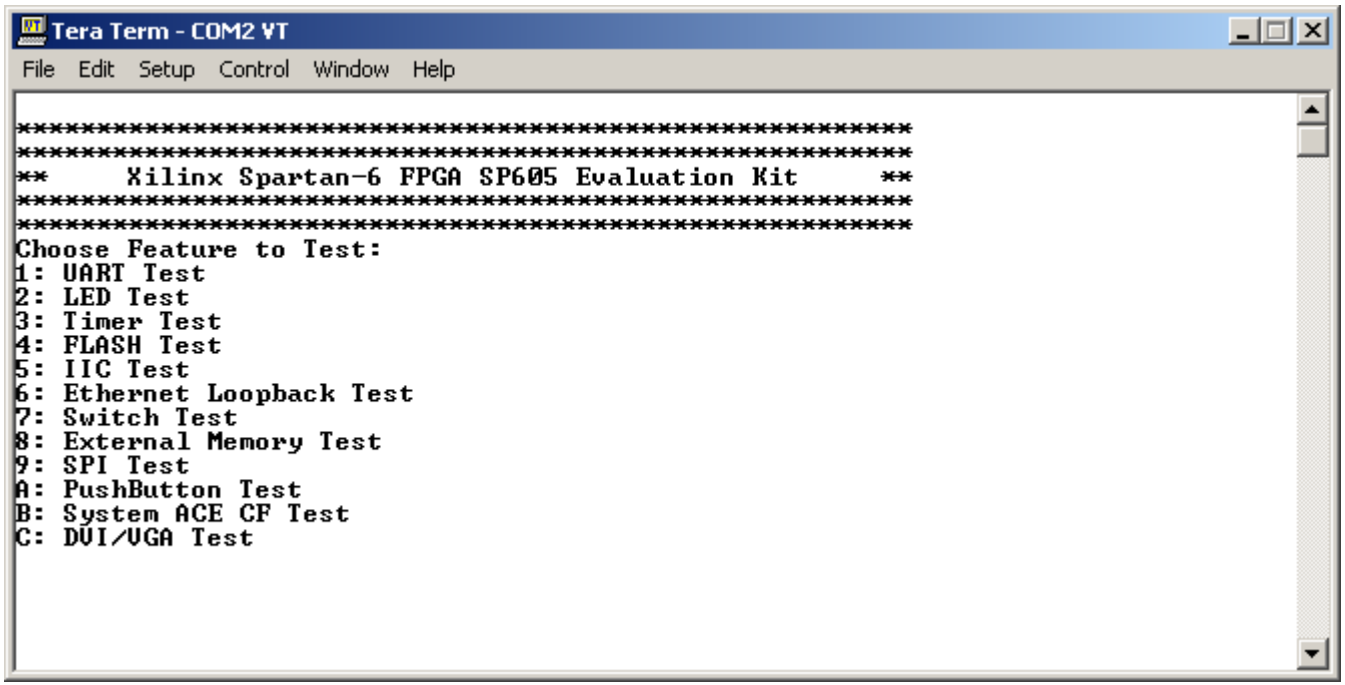
SP605 Built-In Self Test (BIST)

- See XTP062 – SP605 BIST Flash Application for details



Note: Presentation applies to the SP605

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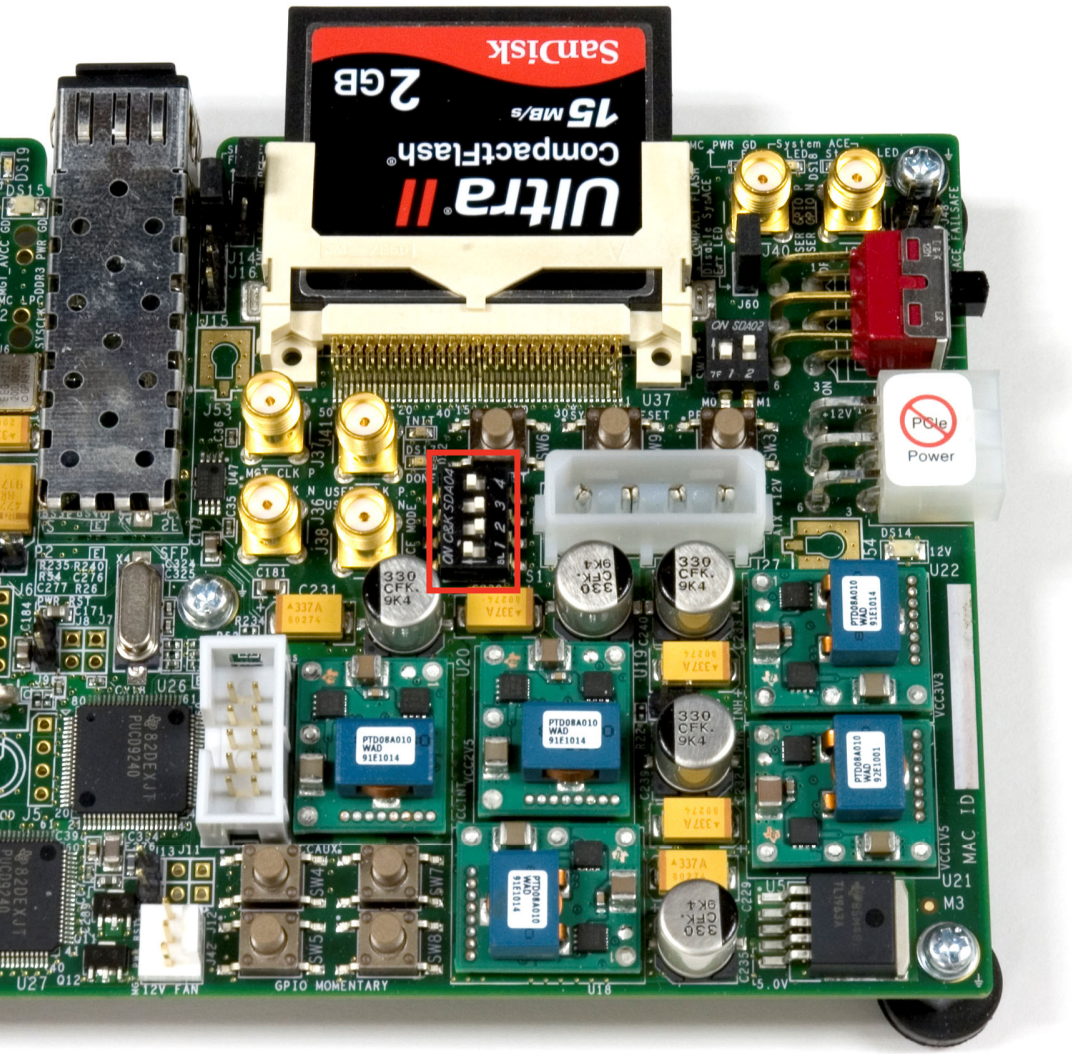
SP605 IBERT



- **To use the IBERT Application**
  - Set the DIP SW to 1001 (top to bottom) as seen here

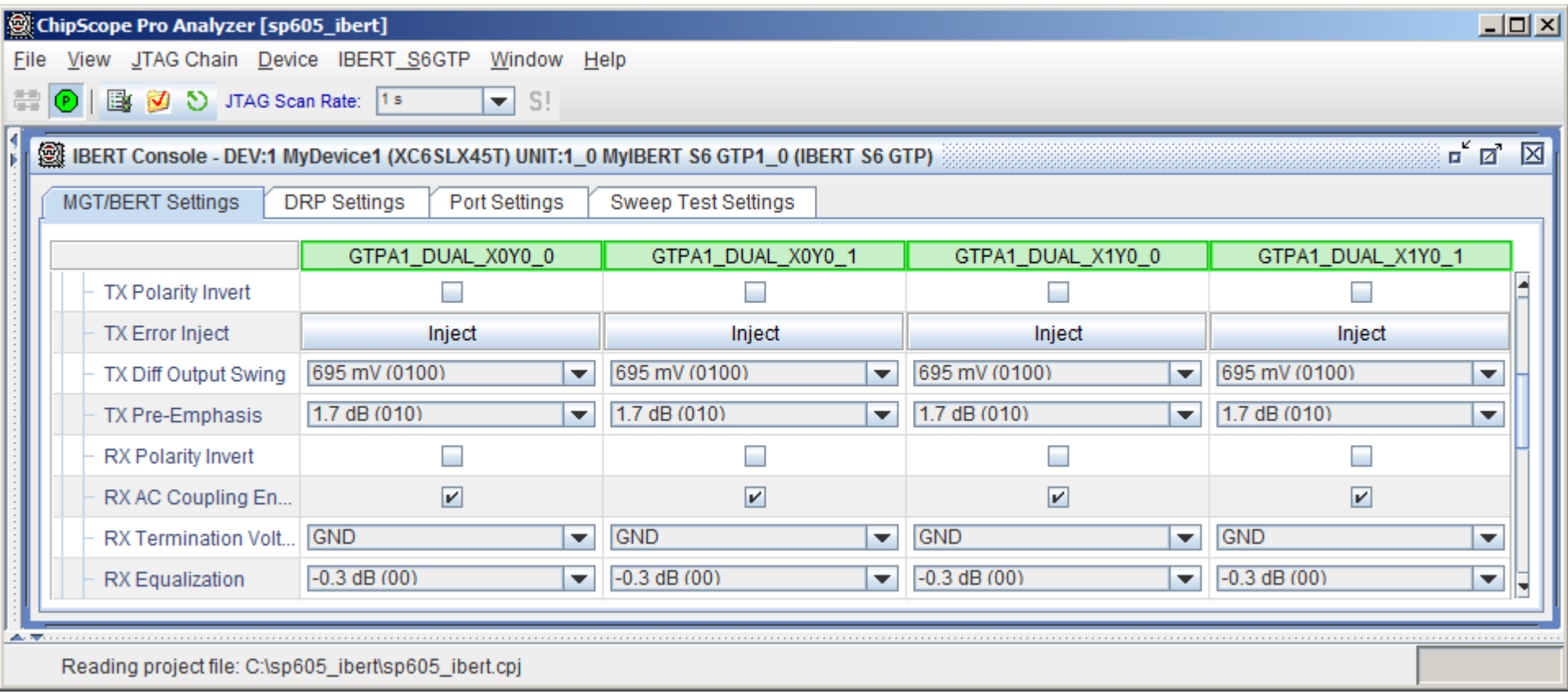
    4 3 2 1

    1 0 0 1

Note: Presentation applies to the SP605

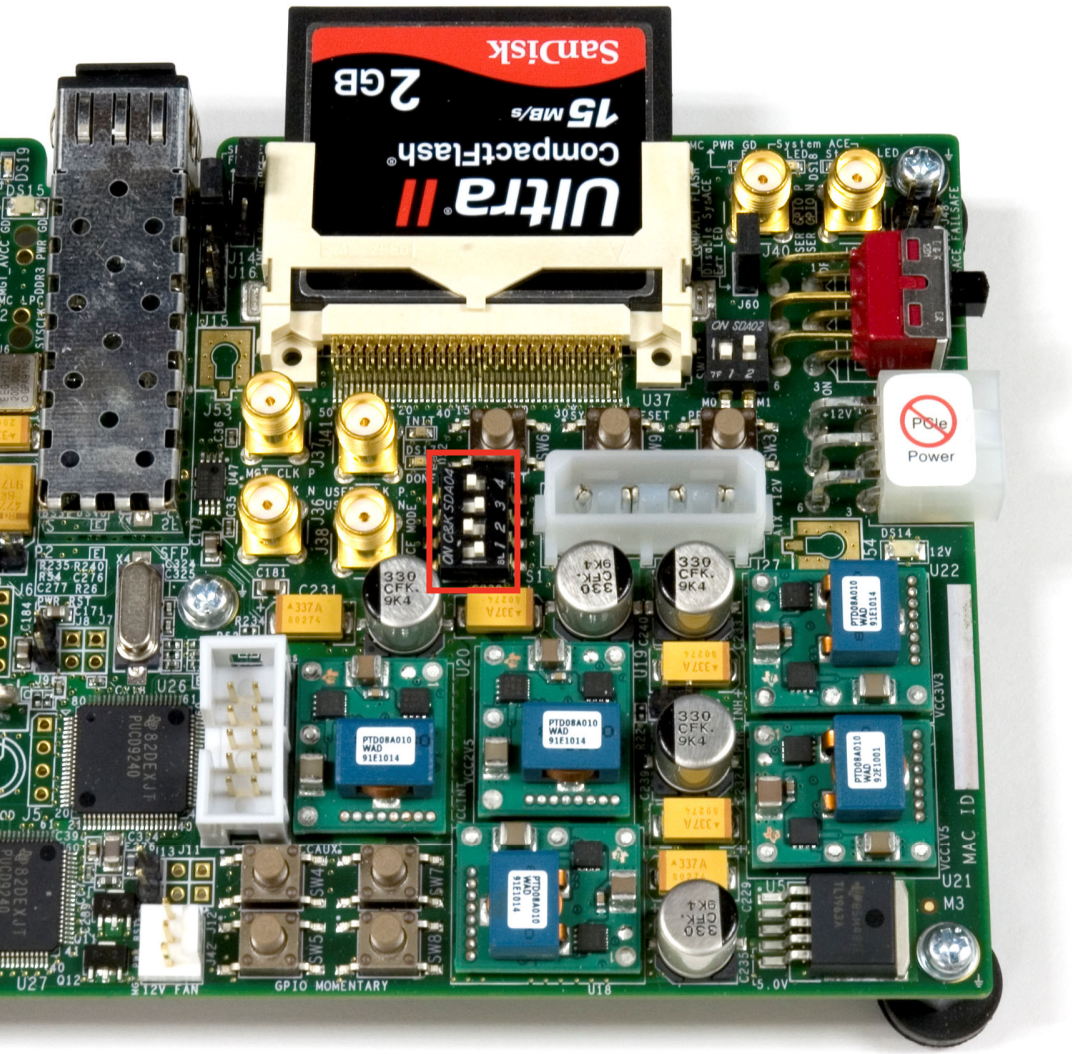
SP605 IBERT

- See XTP066 – SP605 GTP IBERT Design Creation for details



Note: Presentation applies to the SP605

SP605 MIG



- **To use the MIG Application**
  - Set the DIP SW to 1010 (top to bottom) as seen here

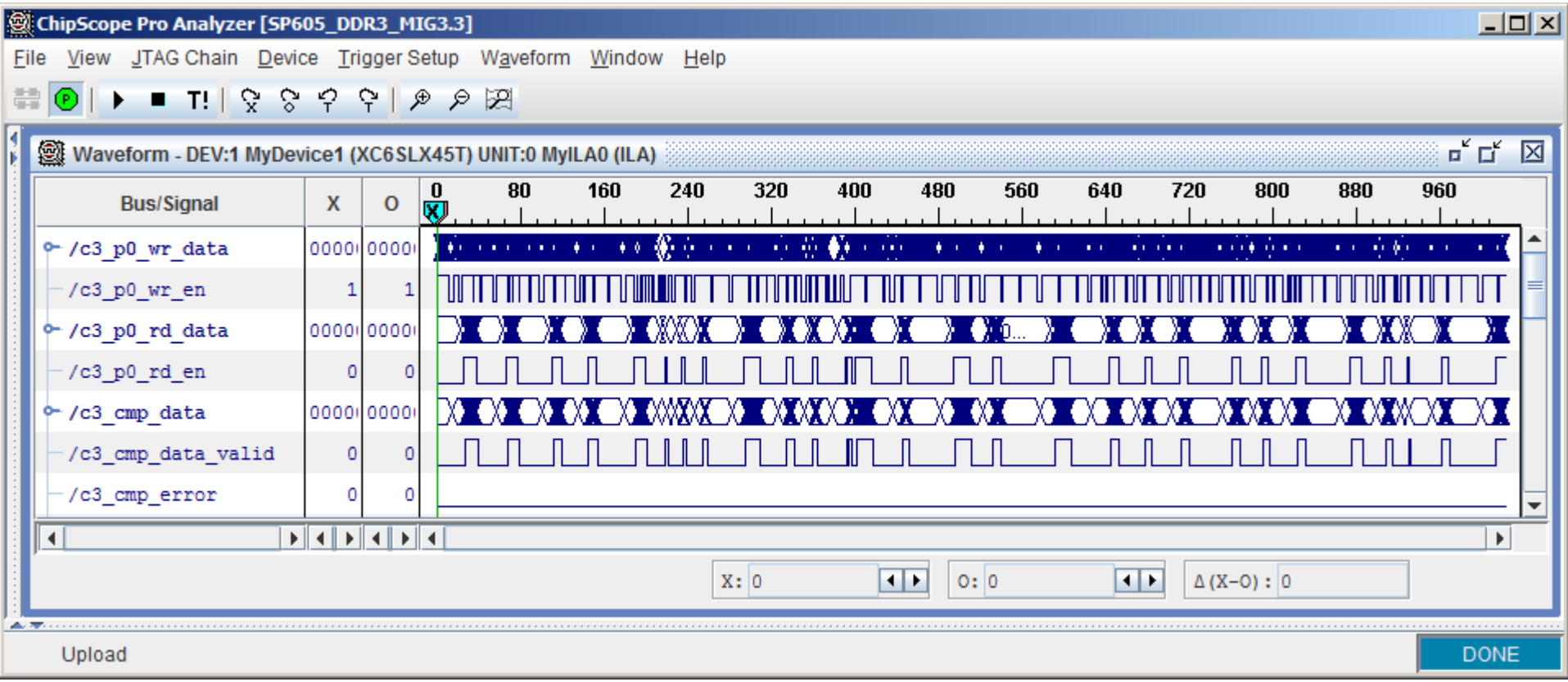
    4 3 2 1

    1 0 1 0

Note: Presentation applies to the SP605

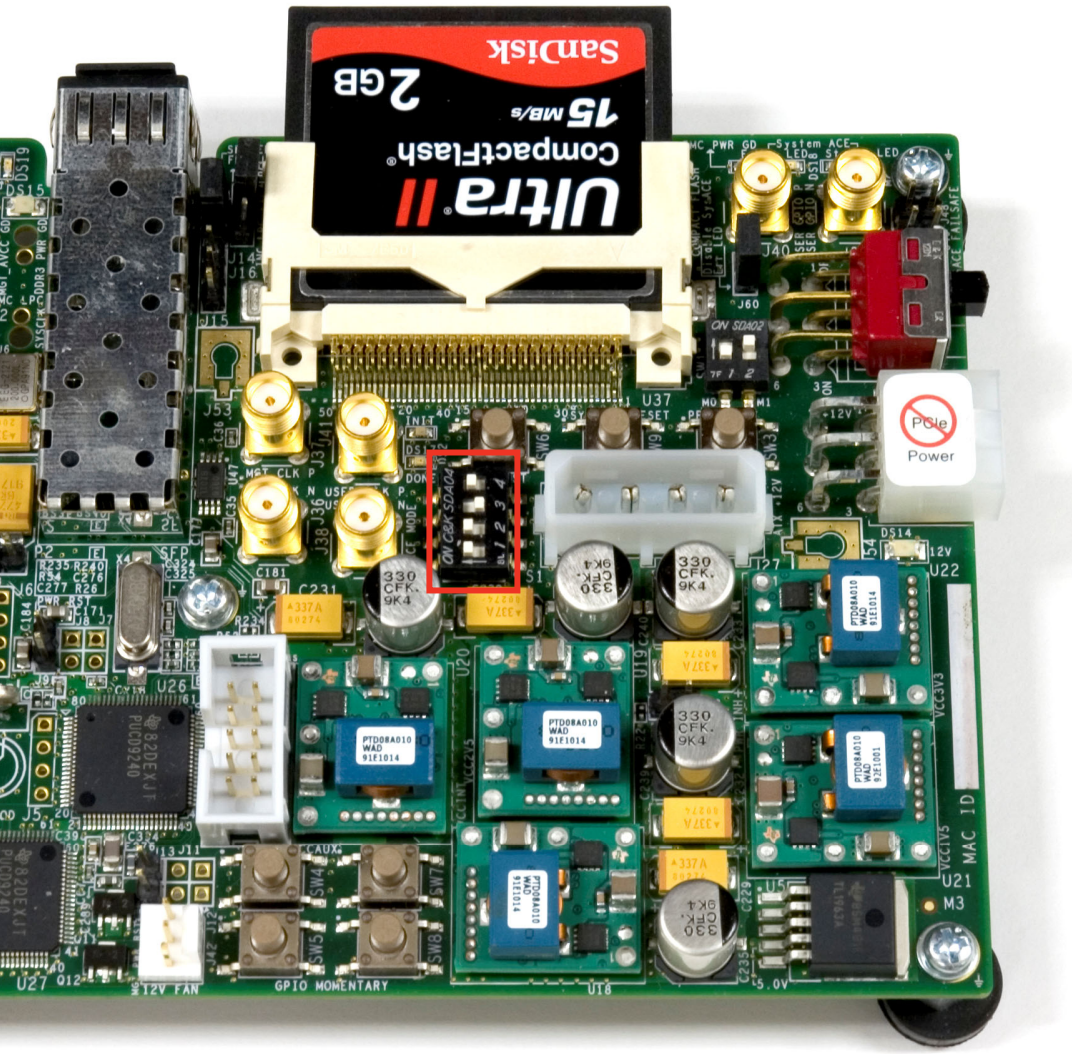
SP605 MIG

- See XTP060 – SP605 MIG Design Creation for details



Note: Presentation applies to the SP605

SP605 BRD



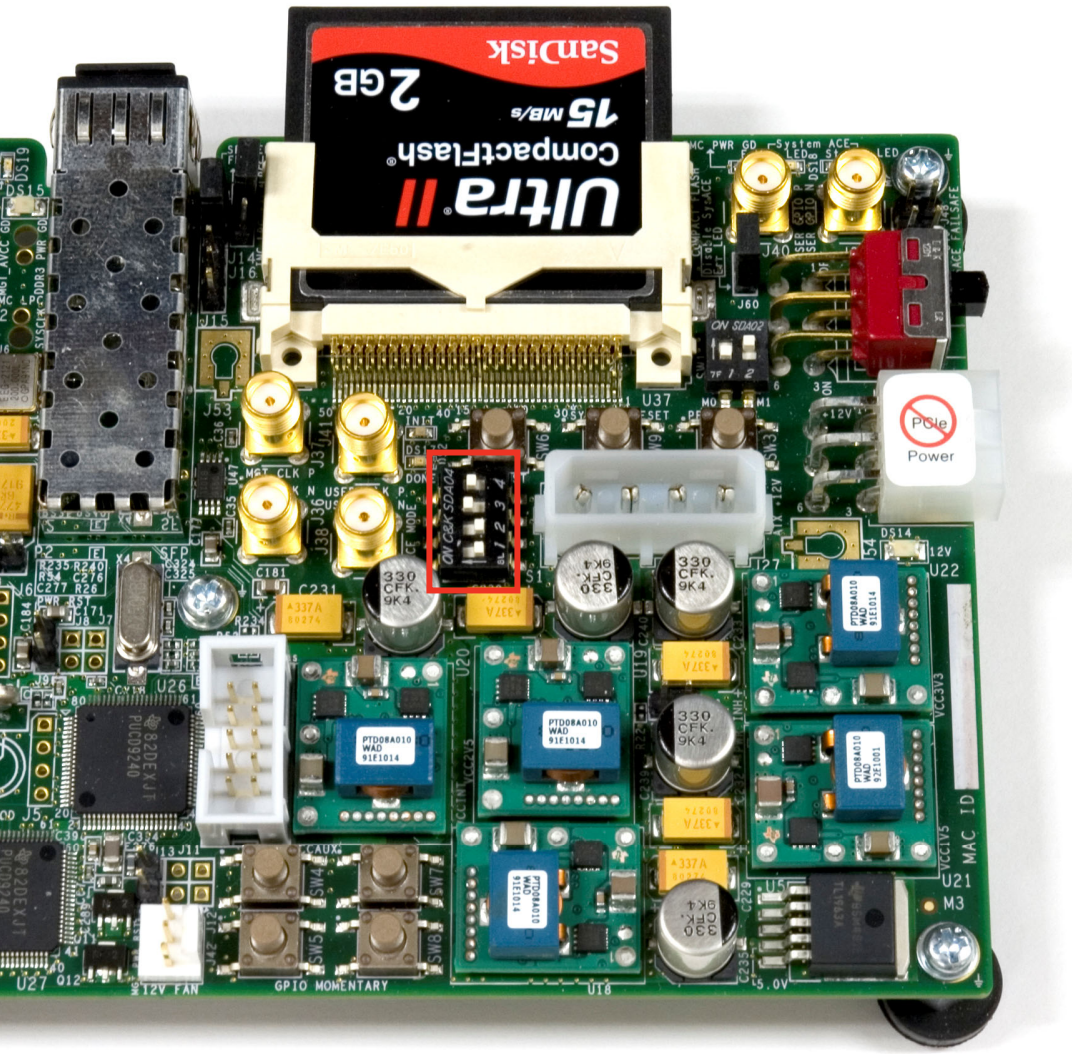
- **To use the BRD DSP Application**
  - Set the DIP SW to 1011 (top to bottom) as seen here

    4 3 2 1

    1 0 1 1

Note: Presentation applies to the SP605

SP605 BRD



- **To use the BRD Logic Application**
  - Set the DIP SW to 1100 (top to bottom) as seen here

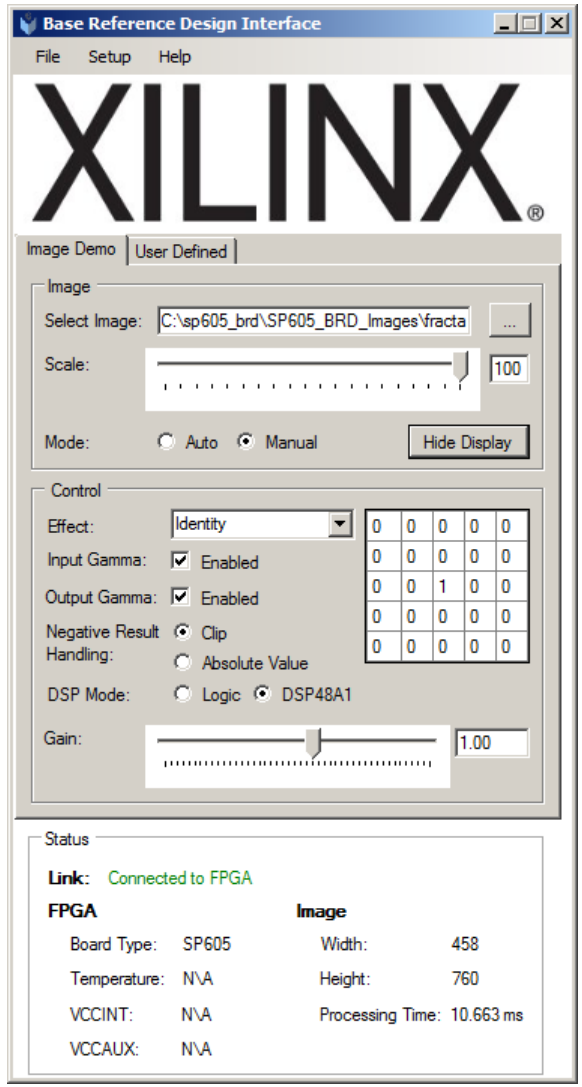
    4 3 2 1

    1 1 0 0

Note: Presentation applies to the SP605

SP605 BRD

- See UG525 – SP605 Getting Started Guide for details

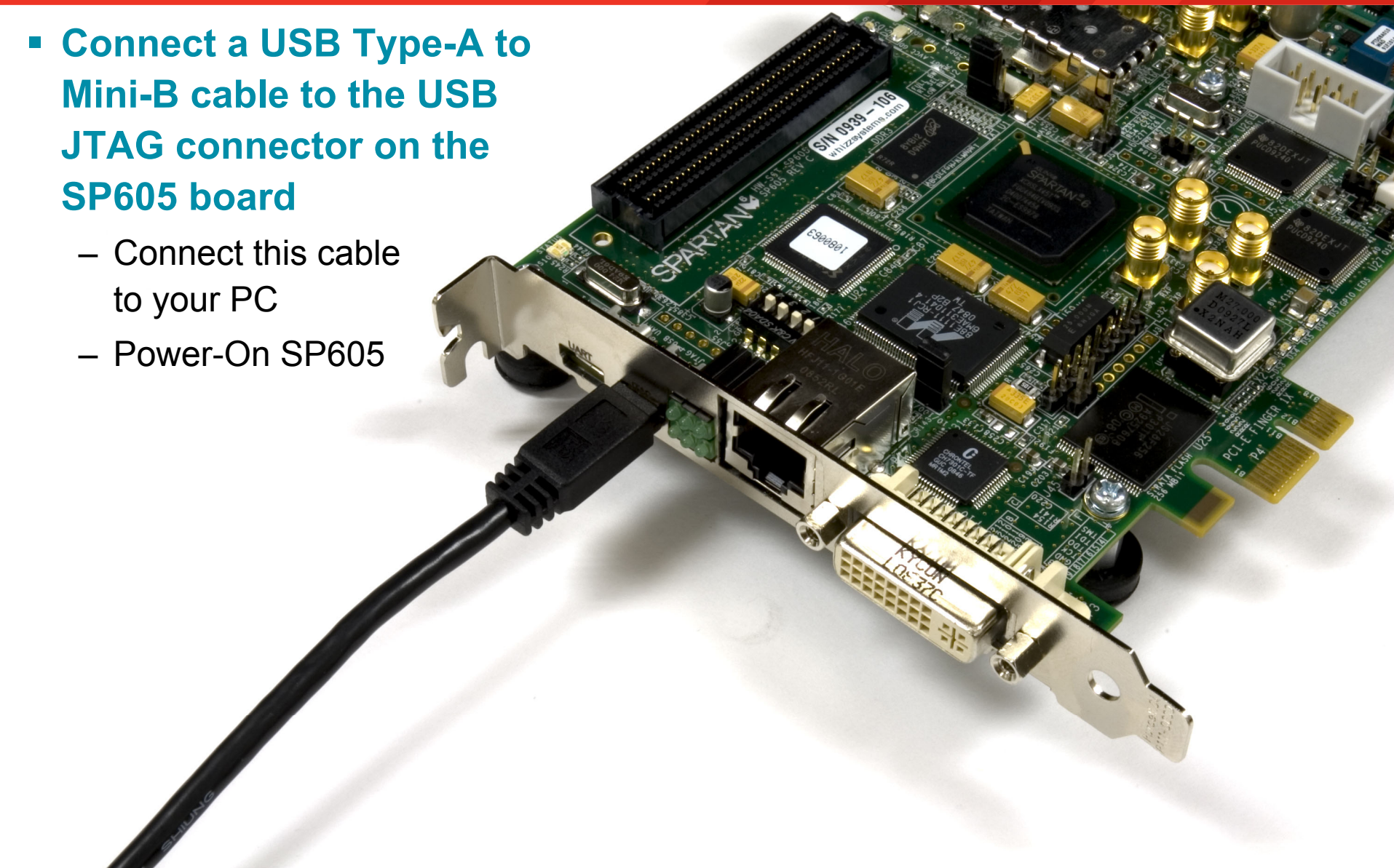


Note: Presentation applies to the SP605

Restoring SP605 Platform and BPI Flash

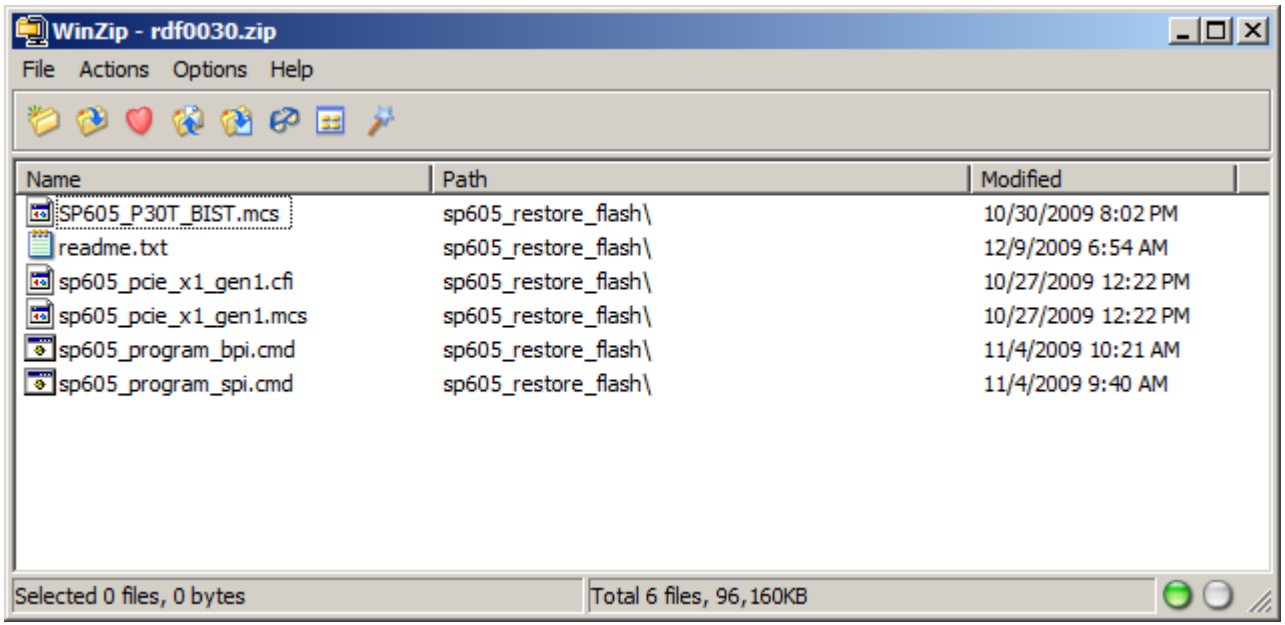
Restoring SPI and BPI Flash

- **Connect a USB Type-A to Mini-B cable to the USB JTAG connector on the SP605 board**
  - Connect this cable to your PC
  - Power-On SP605



Restoring SPI and BPI Flash

- Unzip the rdf0030.zip file to your C:\ drive



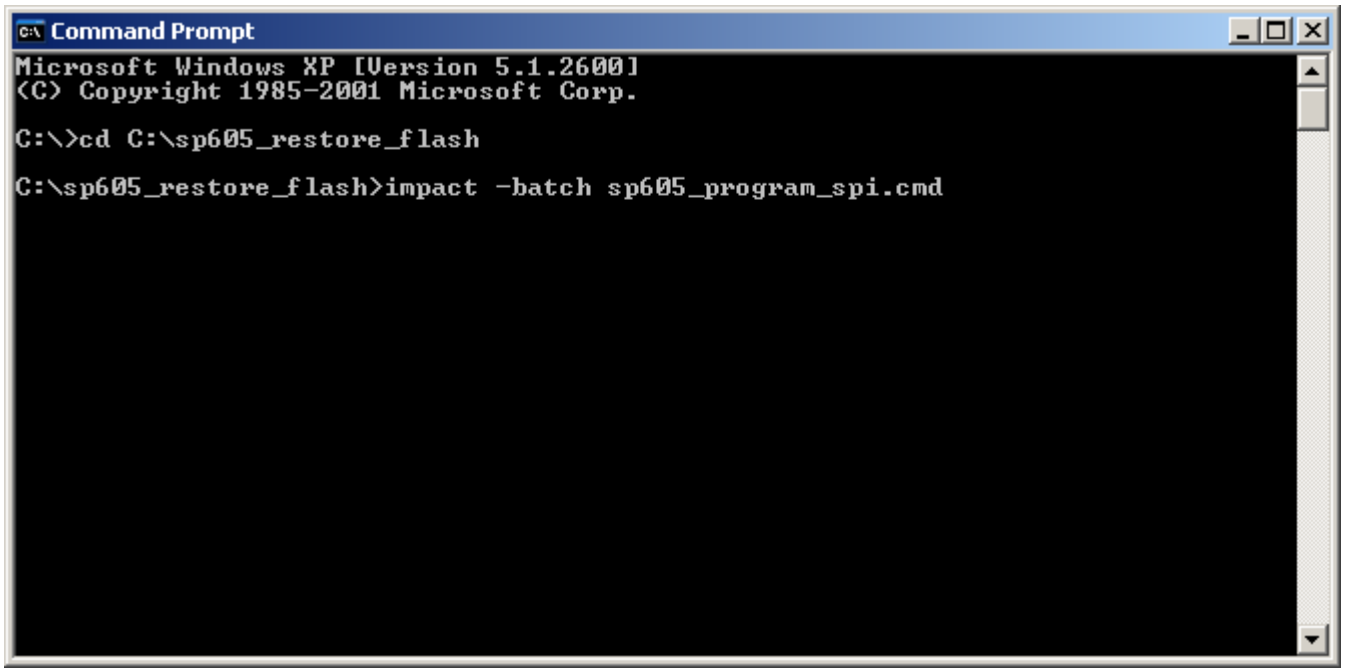
Note: Presentation applies to the SP605

Restoring SPI and BPI Flash

- **Program the SPI Flash**

  cd C:\sp605_restore_flash

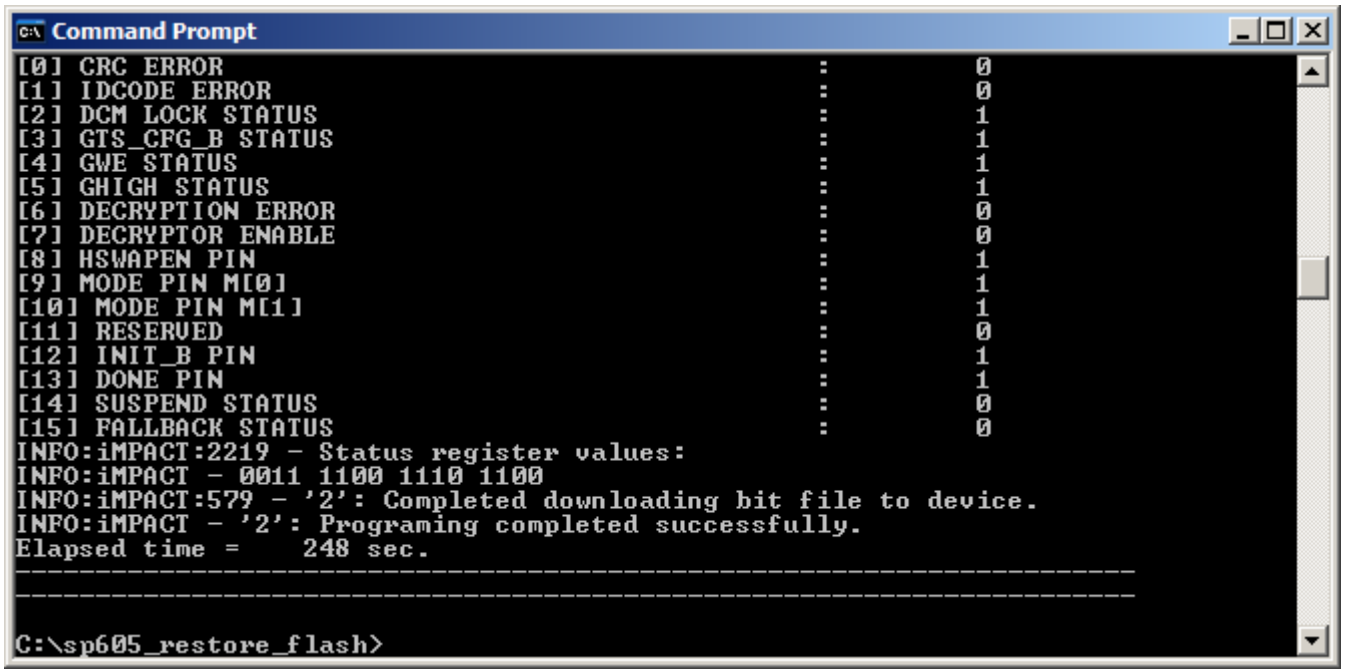
  impact -batch sp605_program_spi.cmd



Note: Takes about 4 minutes

Restoring SPI and BPI Flash

- SPI Flash programmed successfully

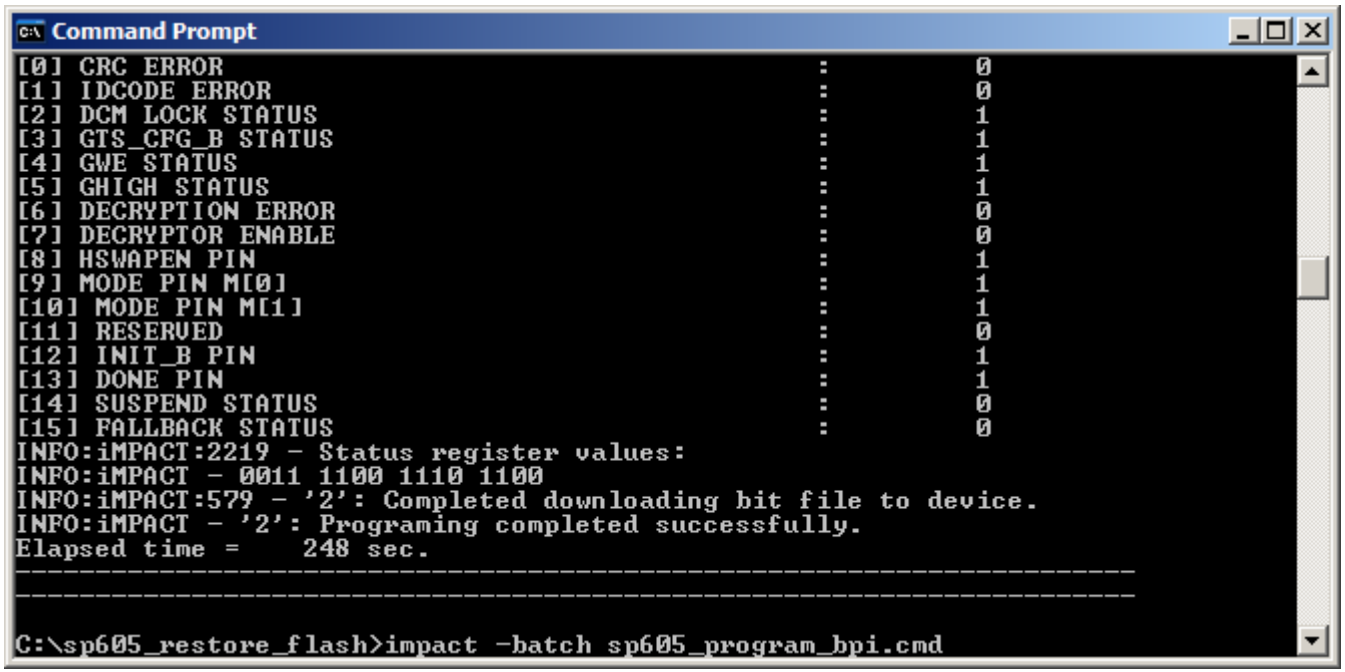


Note: Presentation applies to the SP605

Restoring SPI and BPI Flash

- **Program the BPI Flash**

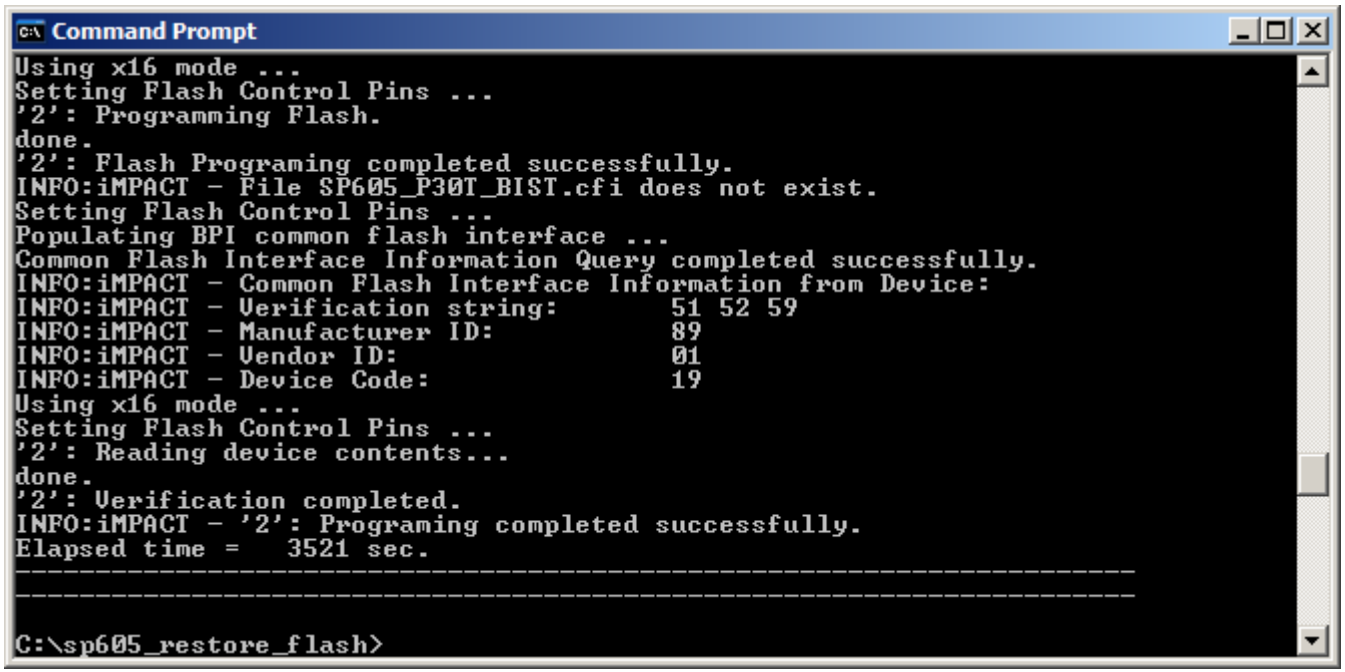
  impact -batch sp605_program_bpi.cmd



Note: Takes about 60 minutes

Restoring SPI and BPI Flash

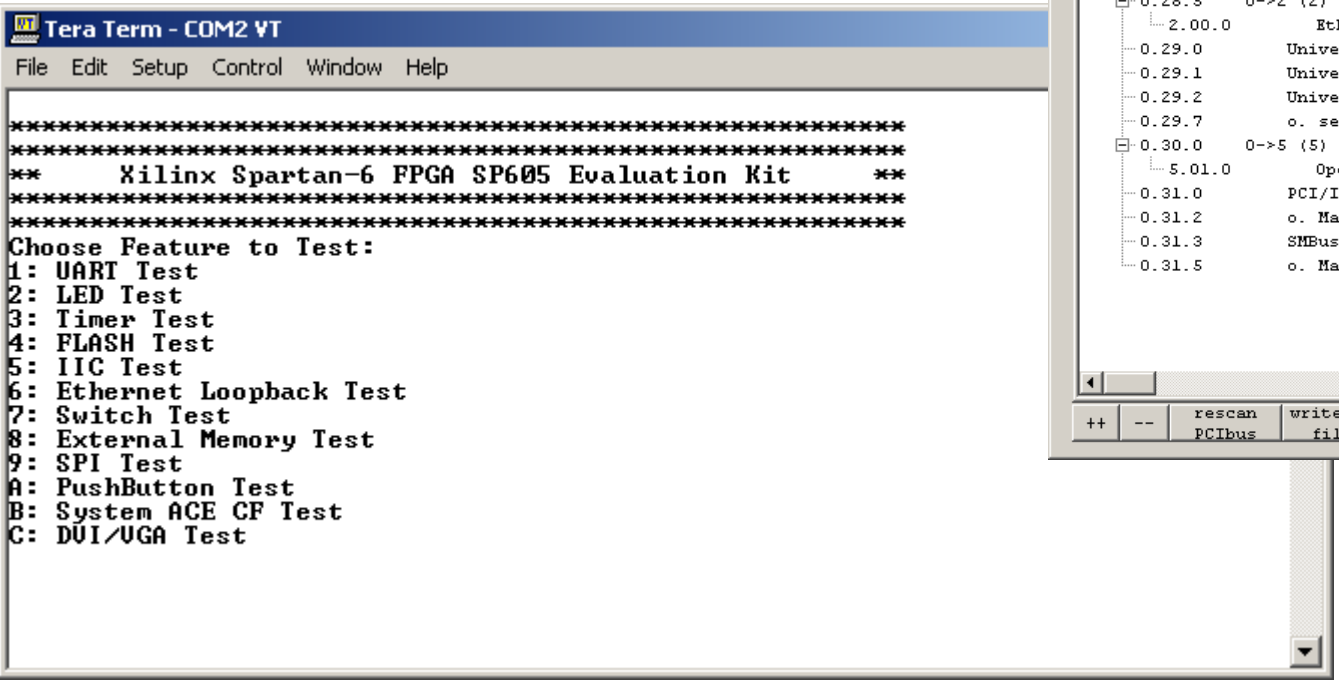
- BPI Flash programmed successfully

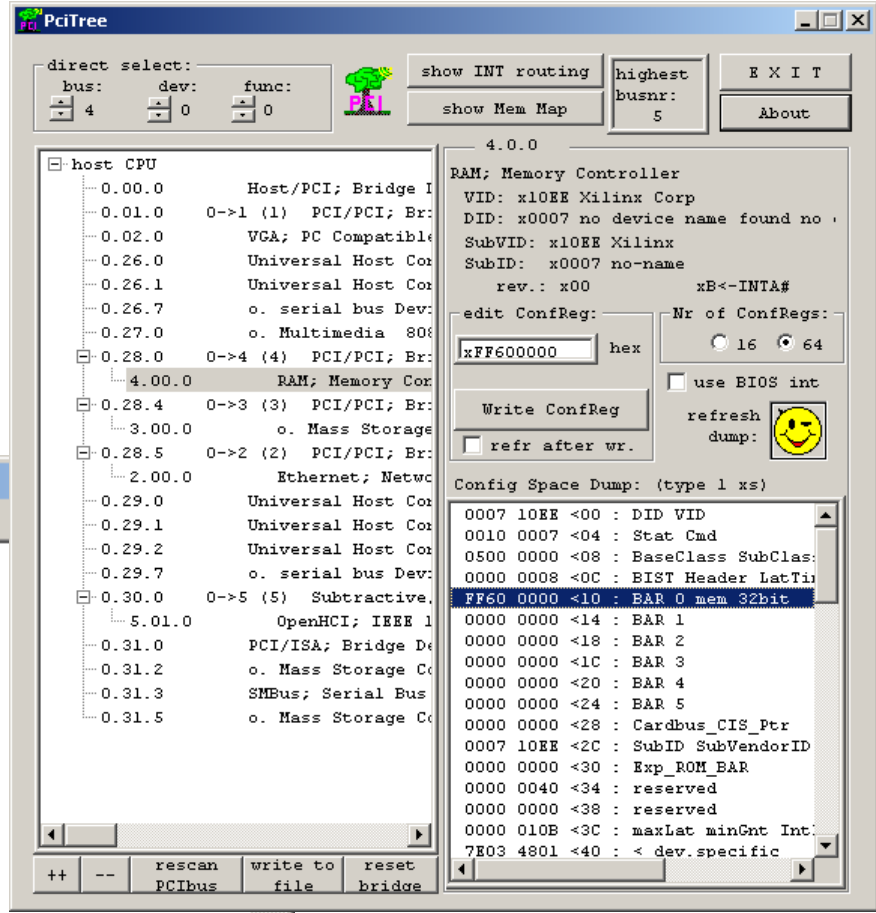


Note: Presentation applies to the SP605

Restoring SPI and BPI Flash

- **After Restoring the flash, two designs are loaded in Flash**
  - BPI – Built-In Self Test (BIST)
    - XTP062 – BIST Flash Application
  - SPI – PCIe x1 Gen1 Design
    - XTP065 – PCIe x1 Gen1 Design Creation





Note: Presentation applies to the SP605

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References

References

- **Spartan-6 Configuration**
  - Spartan-6 FPGA Configuration User Guide
    http://www.xilinx.com/support/documentation/user_guides/ug380.pdf
- **SP605 Documentation**
  - SP605 Built-In Self Test Flash Application
    http://www.xilinx.com/support/documentation/boards_and_kits/xtp041.pdf
  - SP605 Getting Started Guide
    http://www.xilinx.com/support/documentation/boards_and_kits/ug523.pdf
  - SP605 Base System Reference Design Flash Application
    http://www.xilinx.com/support/documentation/boards_and_kits/xtp042.pdf

Documentation

Documentation

- **Spartan-6**
  - Spartan-6 FPGA Family
    http://www.xilinx.com/products/spartan6/index.htm
- **SP605 Documentation**
  - Spartan-6 FPGA SP605 Evaluation Kit
    http://www.xilinx.com/products/devkits/EK-S6-SP605-G.htm
  - SP605 Hardware User Guide
    http://www.xilinx.com/support/documentation/boards_and_kits/ug526.pdf
  - SP605 Reference Design User Guide
    http://www.xilinx.com/support/documentation/boards_and_kits/ug527.pdf