

# SATA-IP Device Demo on SP605 Instruction

Rev1.0 22-Jan-10

This document describes SATA-IP Device evaluation procedure on SP605 by using SATA-IP Device reference design bit-file

## 1 Environment

For real board evaluation of Device reference design on SP605, environment shown as Figure 1 is required.

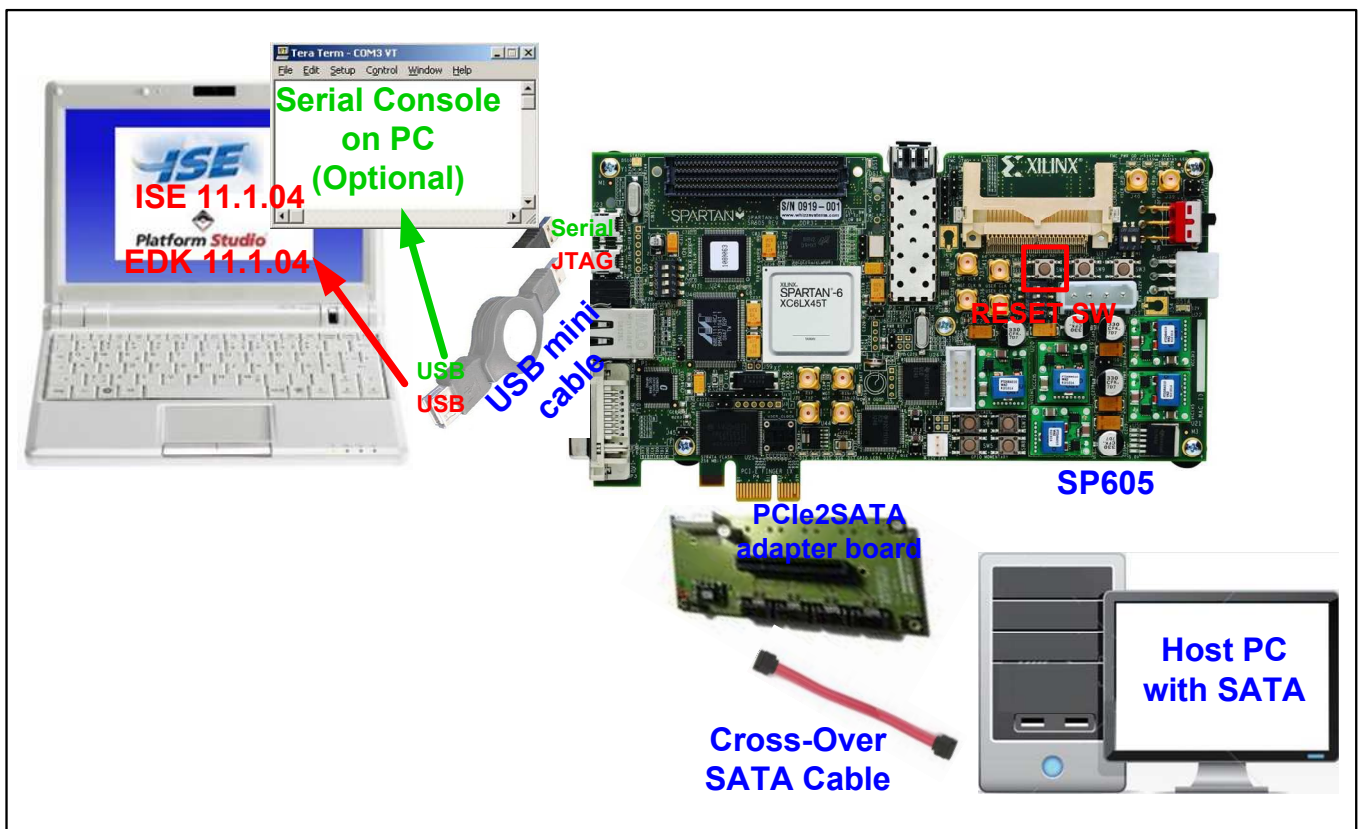


Figure 1 Device Evaluation Environment on SP605

*Note: For evaluation version, IP-Core has 1-hour time limitation to use. After 1-hour use, IP-core will stop any data transfer.*

## 2 Hardware Setup

- Check all system is power off
- Connect USB mini cable from J4 on SP605 to USB Slot on PC for JTAG programming
- Connect PCIe2SATA adapter board to SP605 board at PCIe connector
- Connect SATA cross over cable (not standard SATA cable) from SATA Ch#0 on PCIe2SATA adapter board to SATA port on Host PC.
- Power on Host PC and wait until OS boot-up finish.  
Set SW[1] at S2 to ON : for connecting SATA-II HDD/SSD, OFF : for connecting SATA-I HDD/SSD, as shown in Figure 2.



Figure 2 Switch setting on SP605 for SATA-II or SATA-I Host PC

- Power on SP605 board and download bit-file to SP605 by using iMPACT software.
- After FPGA start operation, check GPIO LEDs status on SP605 board at DS3-DS6, next to PCIe connector. All LEDs must be ON for SATA-II Host PC and three LEDs are ON for SATA-I Host PC, as shown in Figure 3. Each LED description is described as follows.



Figure 3 LED status after system set up complete at SATA-II and SATA-I speed

LED	ON	OFF
DS3	OK	SATA clock cannot lock. Please check OSC 200 MHz at U6 on SP605 board.
DS4	OK	SATA-IP cannot detect SATA Host. Please check SATA-cable connection or SATA-cable type that is cross-cable from Xilinx evaluation board, not standard cable.
DS5	SATA-II	SATA-I
DS6	OK	DDR3 cannot initialize. Please check DDR3 on SP605 board.

Table 1 LED Status of host reference design on SP605 board

*Note: All LEDs will be OFF after 1-hour timeout.*

### 3 Operation Test on OS

- Open Device Manager on Windows XP and right-click mouse at Disk drives menu to select “Scan for hardware changes”.
- New SATA-Device disk (DG2010 SATA Device) is detected as shown in Figure 4.

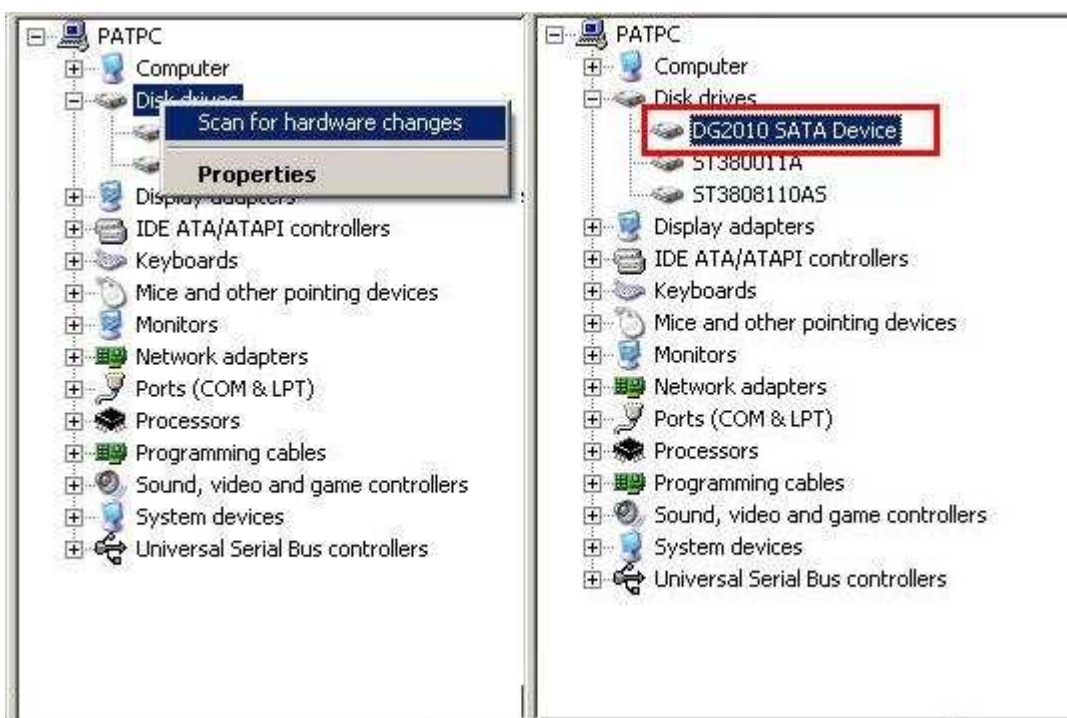


Figure 4 New disk detected on Windows XP

- Format disk by selecting Computer Management -> Disk Management and Pop-up menu will be displayed as shown in Figure 5.

*Note: If this pop-up menu is not displayed, please try to close and reopen Disk Management again.*



Figure 5 Initialize New Disk

- On pop-up menu, select Next button until disk is initialized. New disk which is unallocated will be displayed as shown in Figure 6.

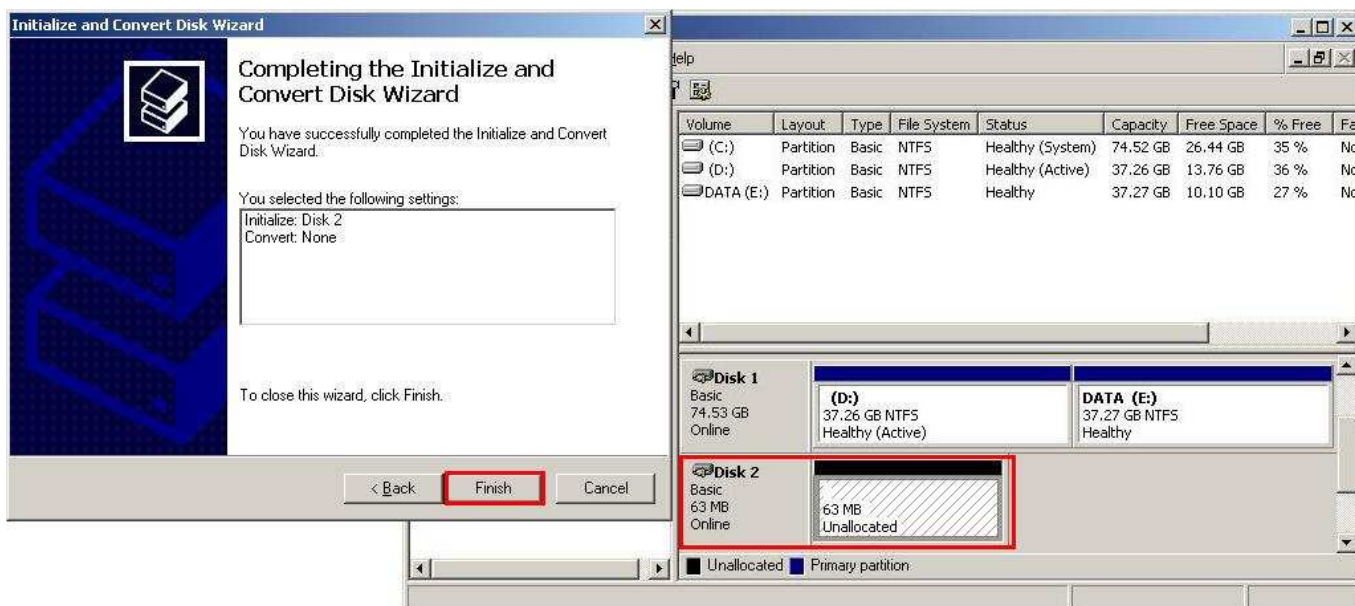


Figure 6 Initialize Disk Completed

- Create new partition and format new disk by right-click mouse at unallocated disk, and then click Next on pop-up menu until disk format is finished.

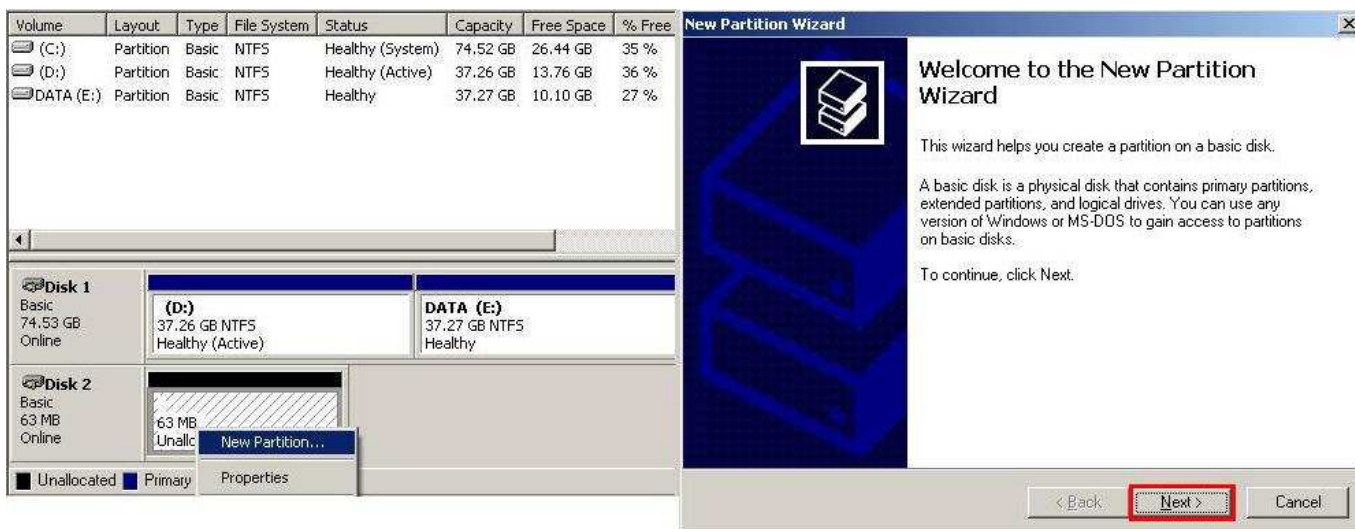


Figure 7 Create New Partition on New Disk

- After disk partition is finished. New disk is ready to use, as shown in Figure 8.

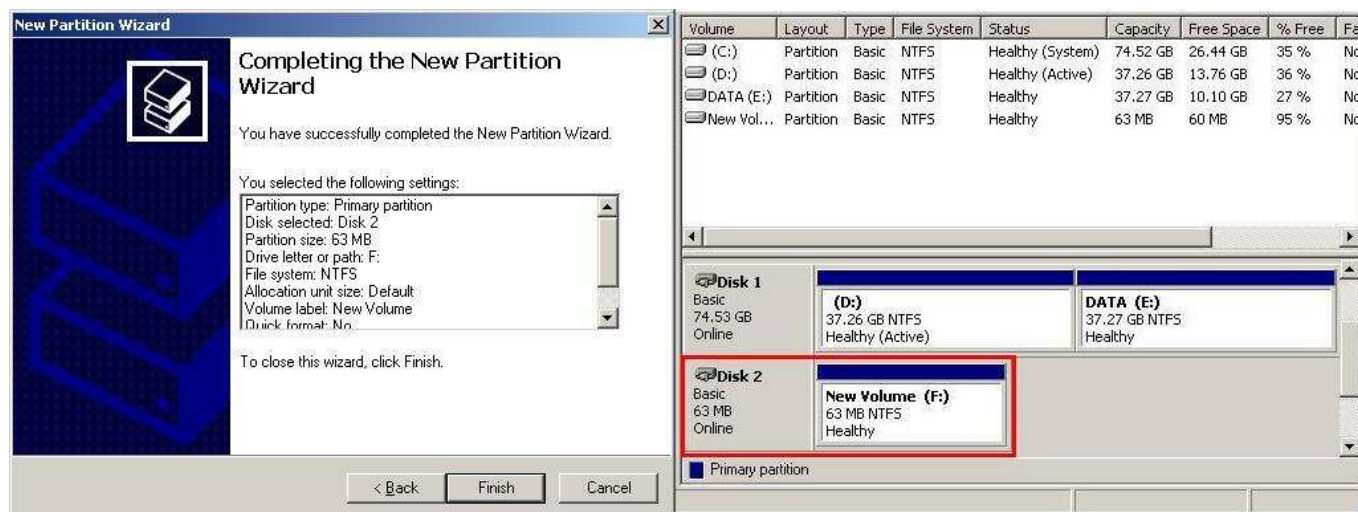


Figure 8 Format Complete

- Now disk can be read/write by file system operation. Figure 9 shows disk speed of SATA-IP comparing with typical SATA disk.

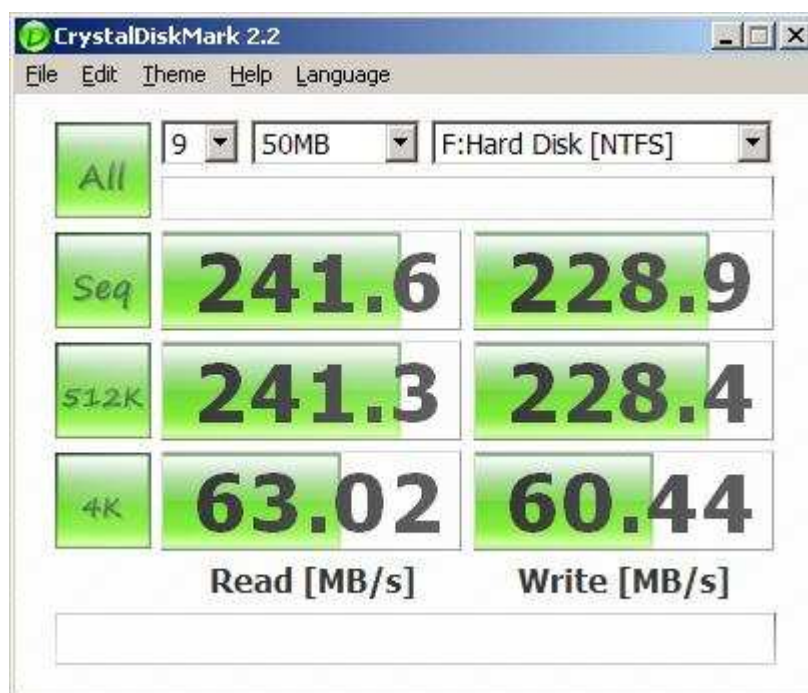


Figure 9 Disk performance test by benchmark

## 4 Revision History

Revision	Date	Description
1.0	22-Jan-10	Initial version release