SATA-IP Device Demo Instruction on AC701

Rev1.0 11-Apr-14

This document describes SATA-IP Device evaluation procedure on AC701 using SATA-IP Device reference design bit-file.

1 Environment

For real board evaluation of Device reference design, environment shown in Figure 1-1 is required.

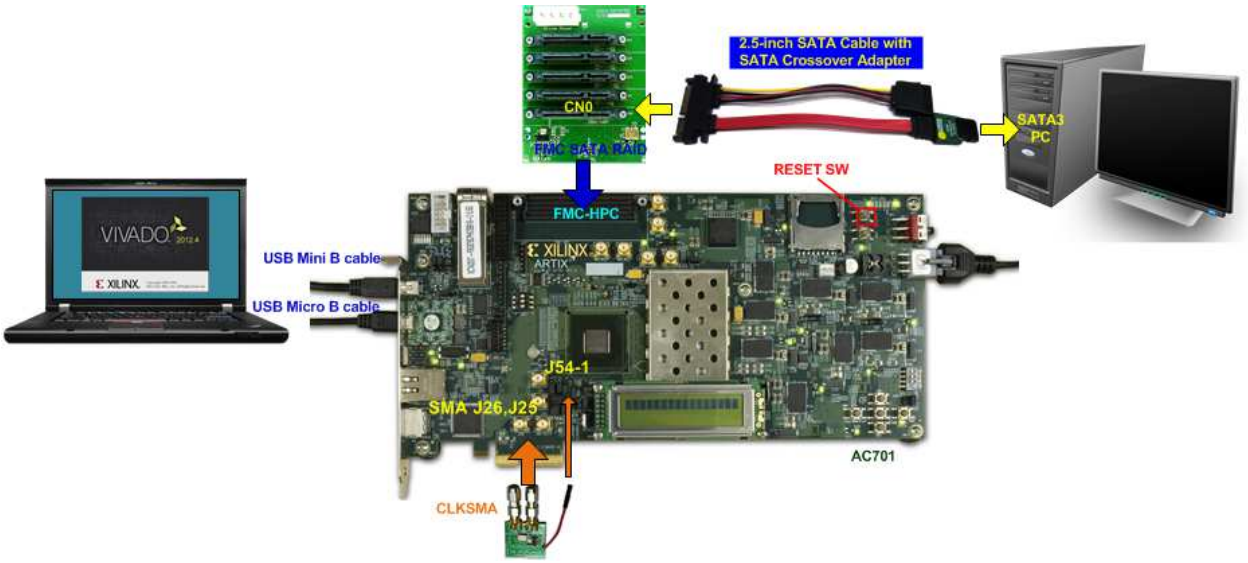

Figure 1-1 Device Evaluation environment using reference design bit-file

2 Evaluation procedure

- Check all system is power off
- Connect CLKSMA board to AC701 via SMA connector at J1, J2 on CLKSMA board to J25, J26 on AC701 board sequentially as shown in Figure 2-1.
  Note: CLKSMA board is provided by Design Gateway.
- Connect power (Red cable) on CLKSMA board to J54-1 on AC701 board as shown in Figure 2-1.

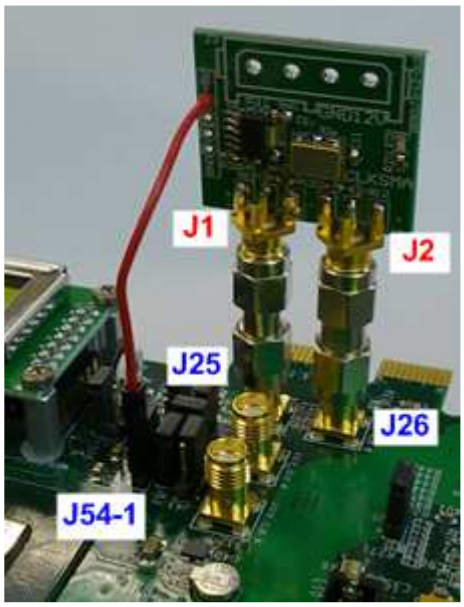

Figure 2-1 CLKSMA board connecting to AC701 board

- Connect FMC SATA RAID board to FMC-HPC connector (J30)
  Note: FMC SATA RAID board is provided by Design Gateway.
- Connect SATA cross cable or SATA standard cable with AB02-CROSSOVER, between SATA3 connector on Host PC and on FMC SATA RAID board (CN0).
  Note: AB02-CROSSOVER is provided by Design Gateway.
- Connect USB mini B cable from J17 on AC701 to USB Port on PC for Serial Console (optional).
- Connect USB micro B cable on U26 of AC701 to USB Port on PC for JTAG programming
- Connect Power cable to AC701 board and then power up.
- Open serial monitoring software such as HyperTerminal. Terminal settings should be (Baud Rate=115,200 Data=8 bit Non-Parity Stop=1).
- Download bit-file to AC701 by using iMPACT Software.
- After FPGA start operation, check GPIO LEDs status on AC701 board at LED0-LED2 that all ON, as shown in Figure 2-2. Each LED description is described as follows.

Figure 2-2 LED status after system set up complete

LED	ON	OFF
LED0	OK	150 MHz of SATA clock on CLKSMA cannot lock. Please check 150 MHz clock source on CLKSMA board.
LED1	OK	SATA-IP cannot detect SATA-III host (PC). Please check SATA-III host and the connection.
LED2	SATA-III	Not supported in current version
LED3	Always OFF	

Table 1 LED Status of device reference design on AC701 board

- At serial console on PC, “Start SATA device design” and “Link up” will be displayed as shown in Figure 2-3. Now new disk is ready for Host PC.

Figure 2-3 Main Menu of host demo

3 Operation Test on OS

- Open Device Manager on Windows7. New SATA-Device disk (DG2013 SATA Device) will be shown in “Disk drives” if the Motherboard enables Hot-plug support.
- In case Motherboard does not support auto-detect device from Hot-plug, right-click mouse at Disk drives icon and then select “Scan for hardware changes” to start new disk detection.

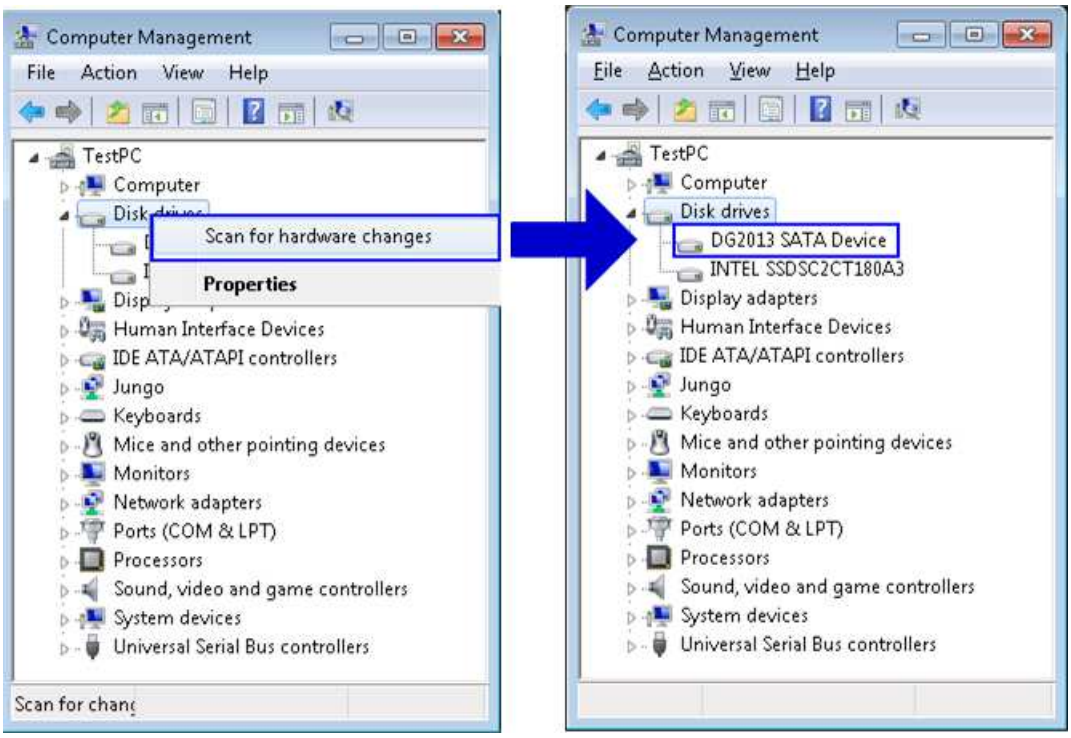

Figure 3-1 New disk detected on Windows7

- Select Computer Management -> Disk Management and Pop-up menu will be displayed as shown in Figure 3-2. Click “OK” button to start initialize disk.
  Note: If this pop-up menu is not displayed, please try to close and reopen Disk Management again.

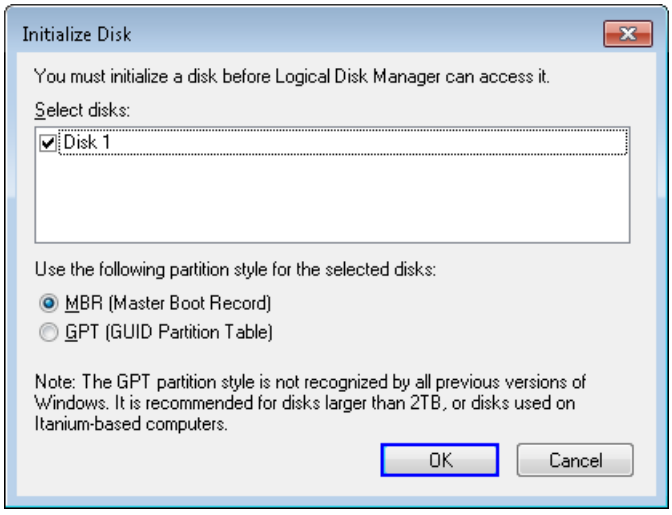

Figure 3-2 Initialize New Disk

- After that, new 768 MB disk which is unallocated will be displayed as shown in Figure 3-3.

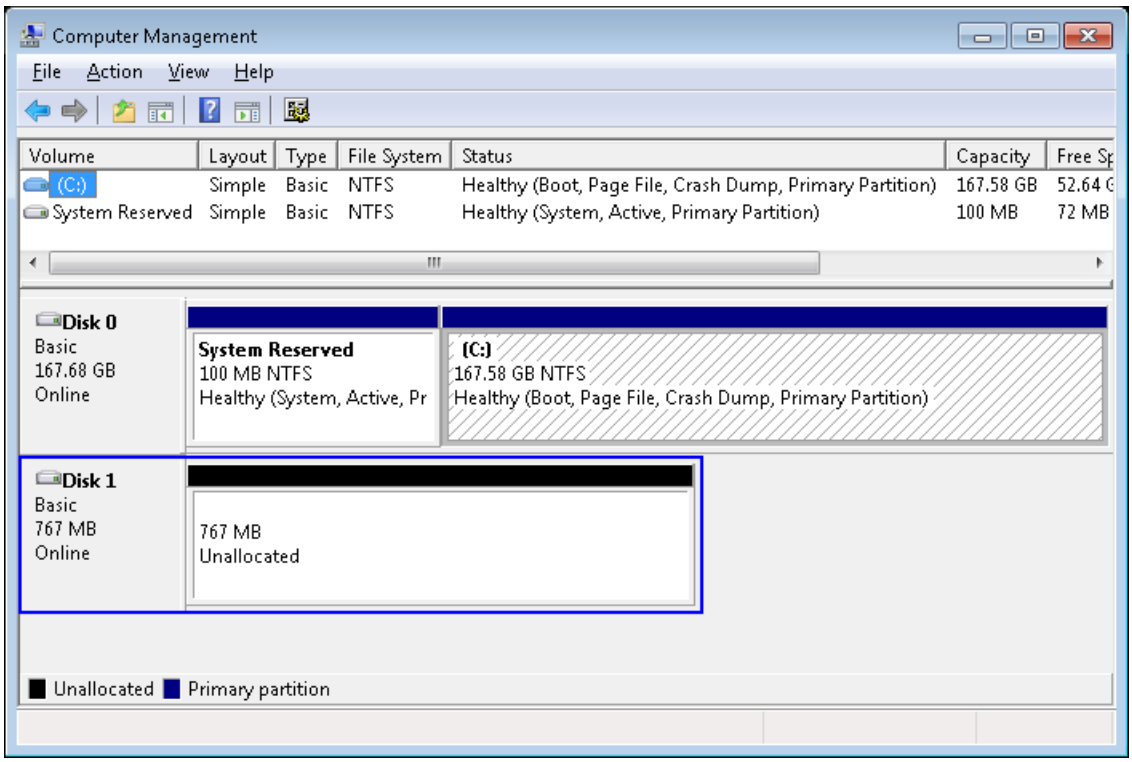

Figure 3-3 Initialize Disk Completed

- Create new partition by right-click mouse at unallocated disk, and select “New Simple Volume…”. After that, “New Simple Volume Wizard” will be displayed. Click “Next” button to continue next step.

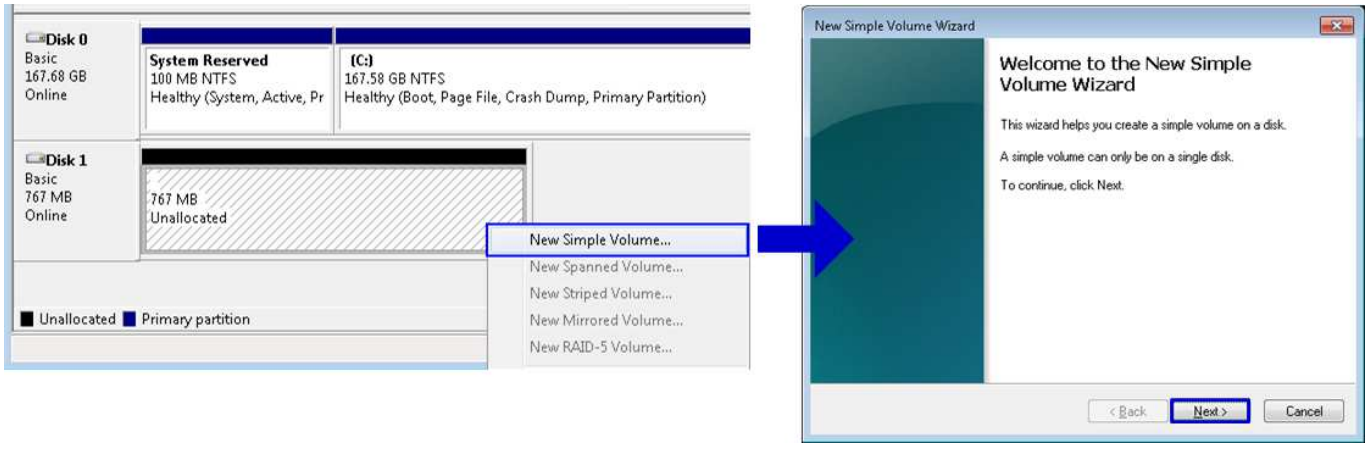

Figure 3-4 Create New Partition on New Disk

- Click “Next” button for 3 times to continue next step, and then click “Finish” button for last step to start Format disk.

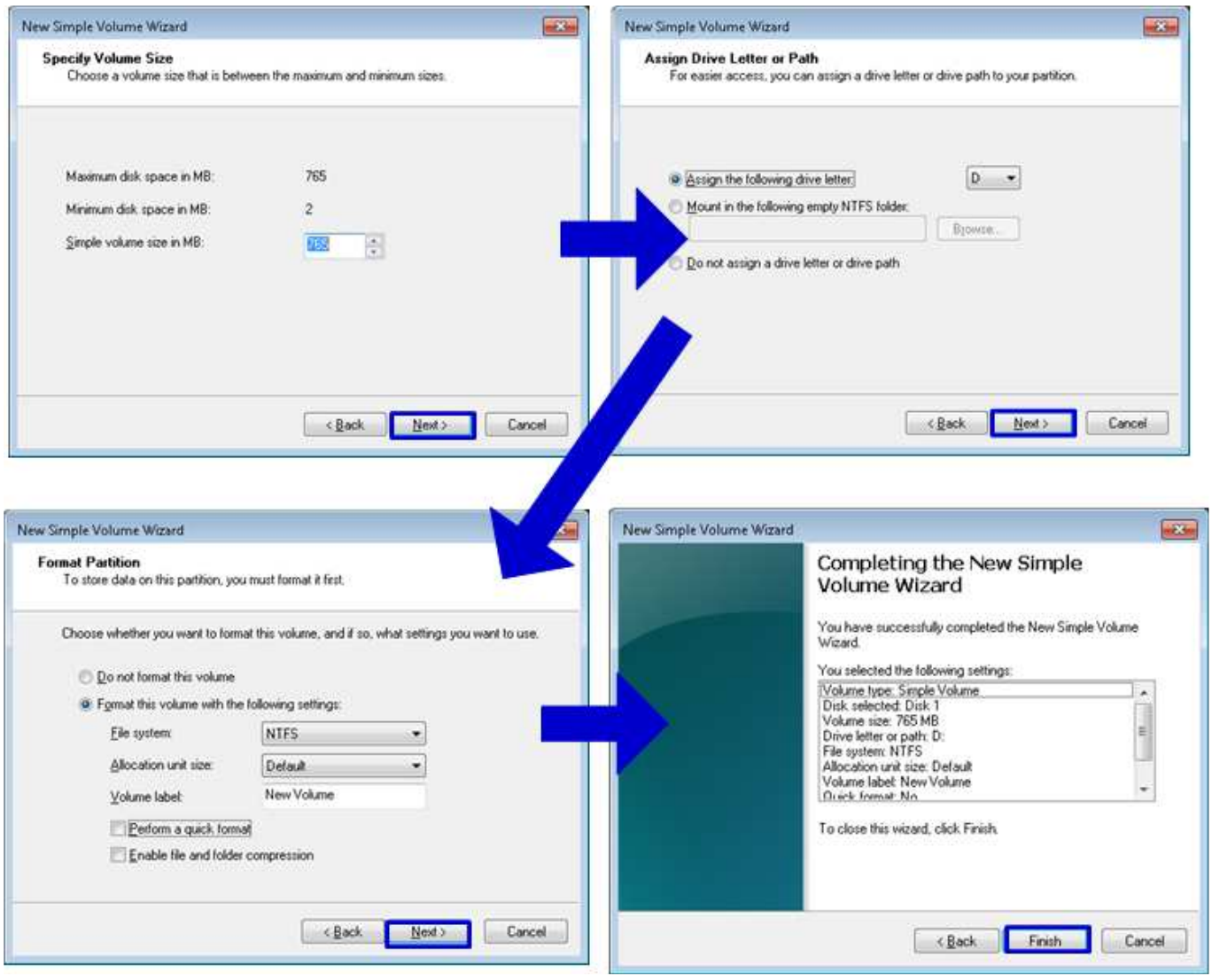

Figure 3-5 Format menu setup

- Wait until format completed, new drive is ready to use, as shown in Figure 3-6.

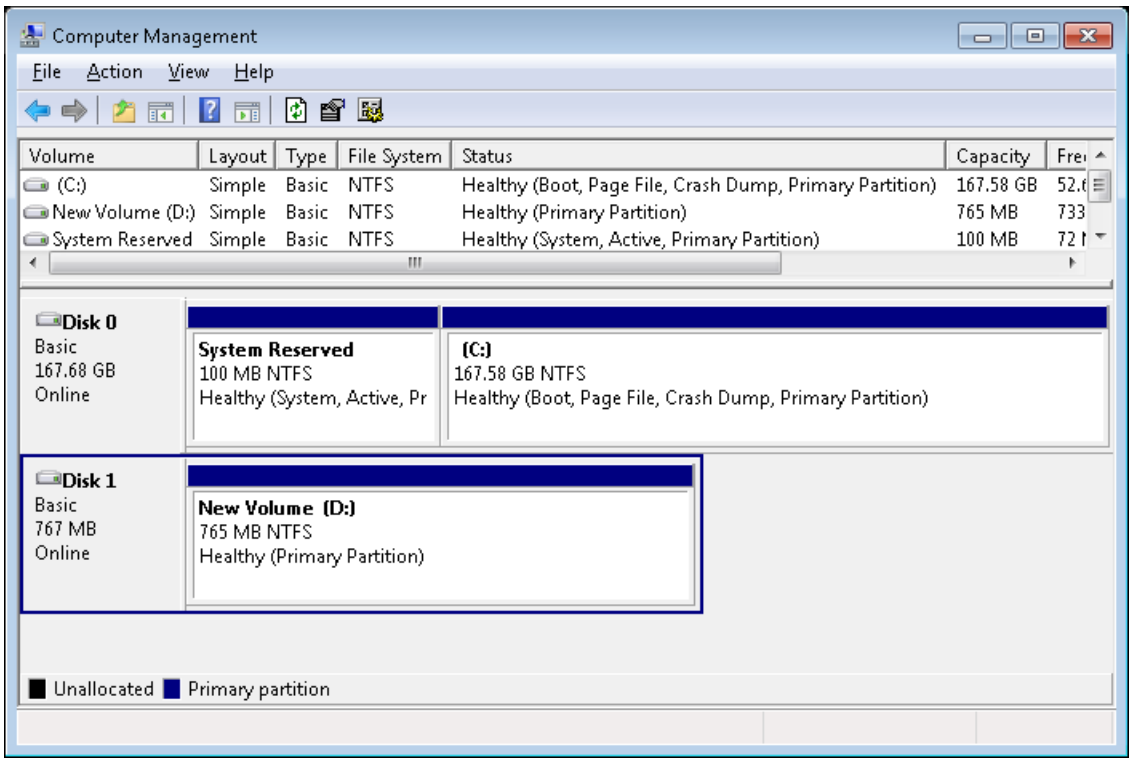

Figure 3-6 Format Complete

- Now disk can be read/write by file system operation. Figure 3-7 shows disk performance by using CrystalDiskMark benchmark.

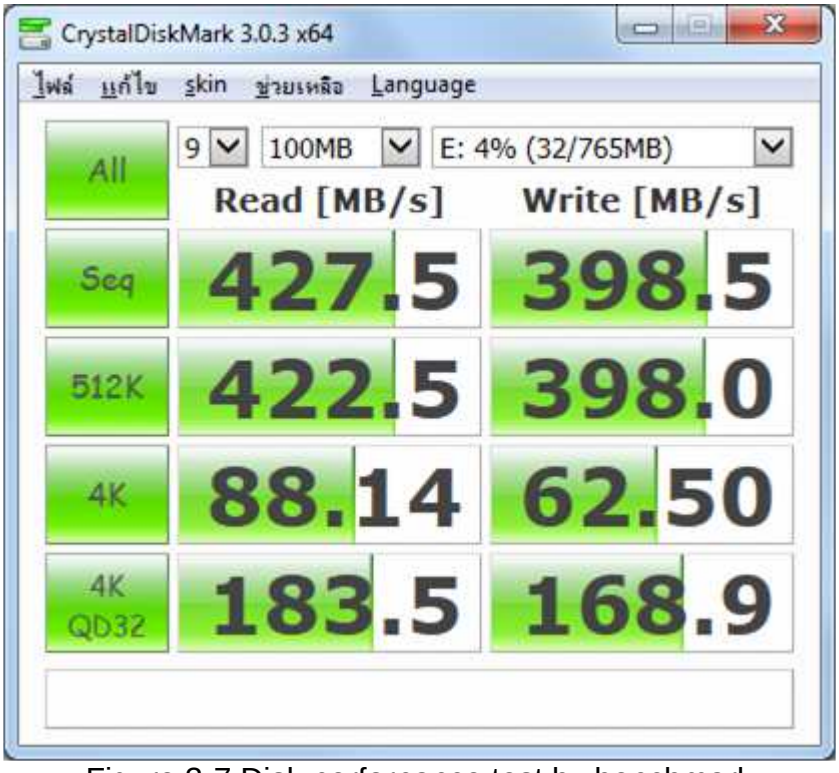

Figure 3-7 Disk perfornance test by benchmark

4 Revision History

Revision	Date	Description
1.0	11-Apr-14	Initial version release