# SATA-IP Device Demo Instruction on ZC706

Rev1.0   21-Nov-13

This document describes SATA-IP Device evaluation procedure on ZC706 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.
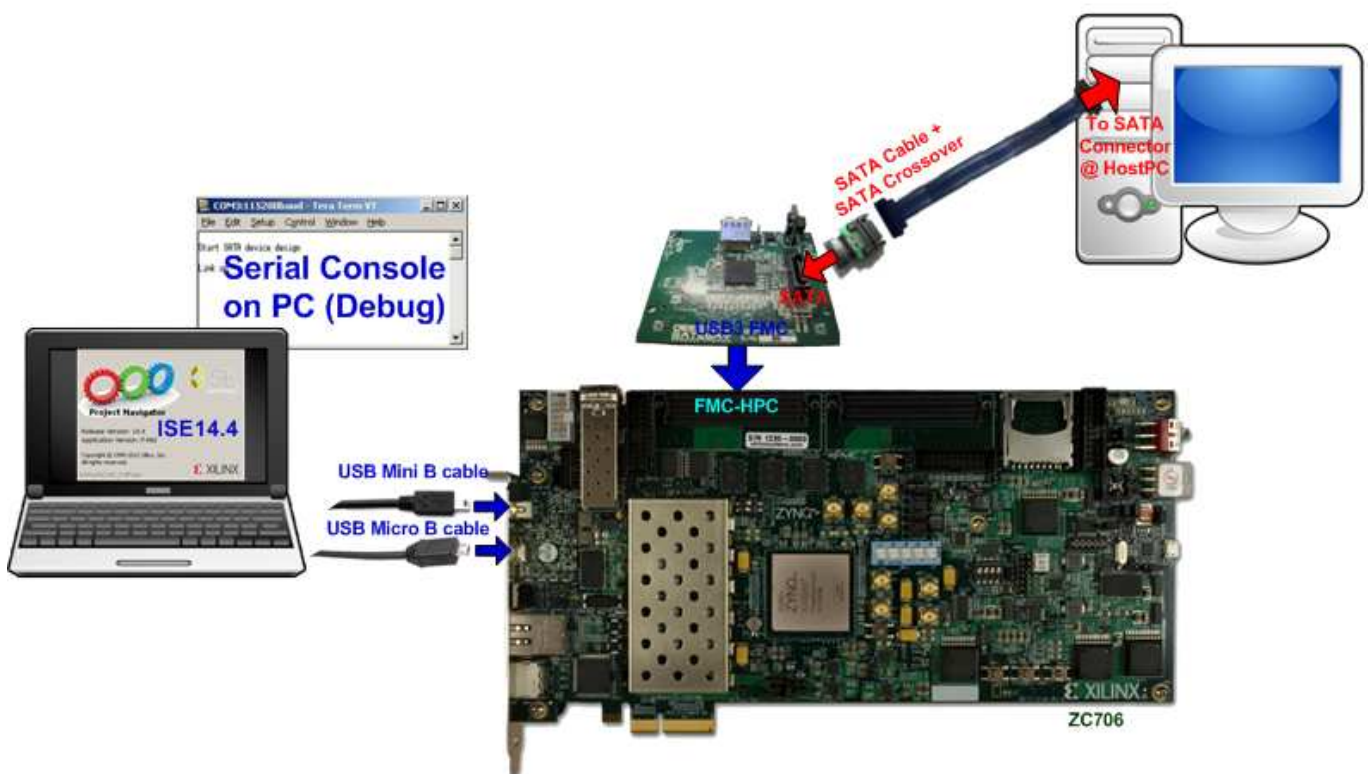


Figure 1-1 Device Evaluation environment using reference design bit-file

*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 Evaluation procedure

- Check all system is power off
- Connect AB07-USB3FMC board, provided by Design Gateway to FMC-HPC connector (J37) to use SATA connector on the board
- Connect SATA cross cable or SATA standard cable with AB02-CROSSOVER, provided by Design Gateway, between SATA3 connector on Host PC and on USB3FMC.
- Connect USB mini B cable from J21 on ZC706 to USB Port on PC for Serial Console
- Connect USB micro B cable on U30 of ZC706 to USB Port on PC for JTAG programming
- Connect Power cable to ZC706 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).
- Copy "ready_for_download" folder to PC for programming configuration and firmware.
- Open "ISE Design Suite Command Prompt" and change working directory to "ready_for_download" folder.


Figure 2-1 ISE Design Suite Command Prompt

- Type "zc706_device.bat" to start downloading configuration file and the firmware. On the console, "Successfully downloaded bit file" is displayed when configuration finish, and "Download Progress .10.20 … 90.Done" is displayed when firmware downloading finish, as shown in Figure 2-2 and Figure 2-3 consecutively


Figure 2-2 Configuration File Downloading

Figure 2-3 Firmware Downloading

● Check GPIO LEDs status on ZC706 board at LEDL, LEDC, and LEDR are all ON, LED0-LED2 that all ON, as shown in Figure 2-4. Each LED description is described as follows.
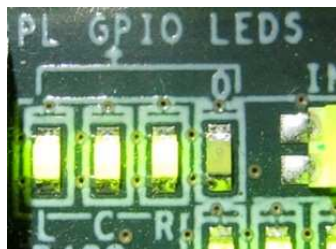

Figure 2-4 LED status after system set up complete

| LED | ON | OFF |
|------|---------|------|
| LEDL | OK | 150 MHz of SATA clock on USB3FMC cannot lock. Please check 150 MHz clock source on USB3FMC board. |
| LEDC | OK | SATA-IP cannot detect SATA device. Please check SATA device and the connection. |
| LEDR | SATA-III | N/A |
| LED0 | BLINK : 1-hour timeout | |

Table 2-1 LED Status of device reference design on ZC706 board

● At serial console on PC, "Start SATA device design" and "Link up" will be displayed as shown in Figure 2-5. Now new disk is ready for Host PC.



Figure 2-5 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.
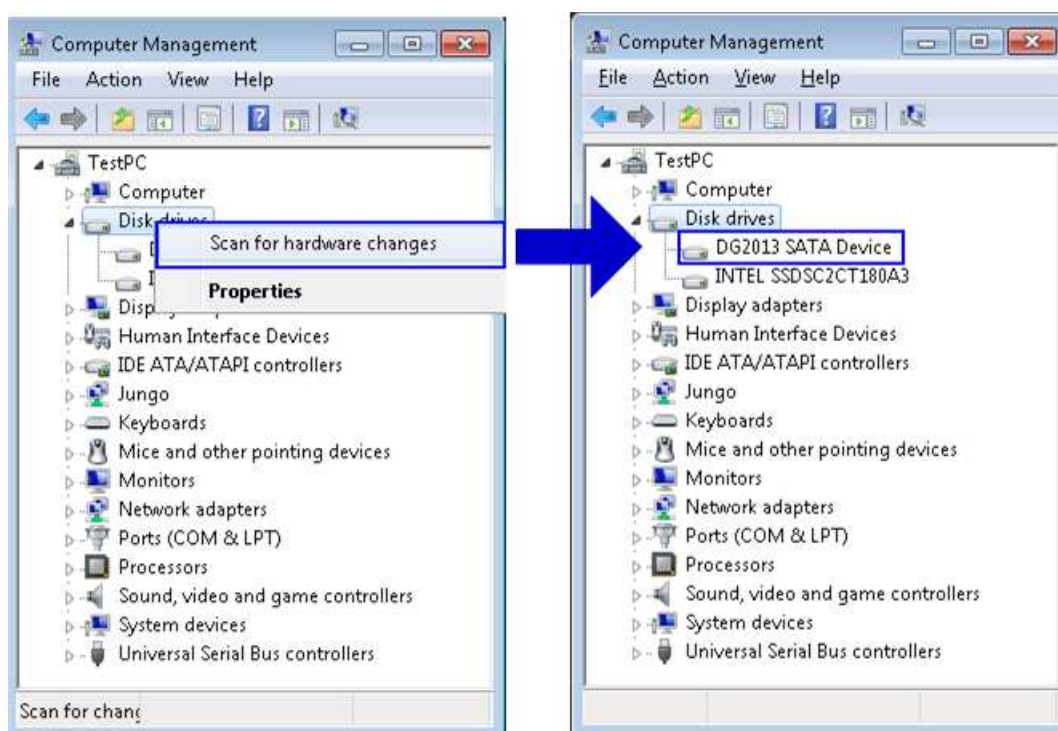


Figure 3-1 New disk detected on Windows7

- 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.*
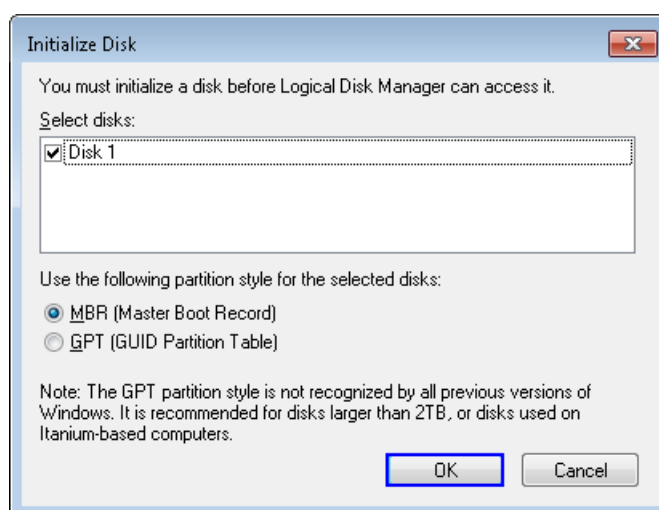


Figure 3-2 Initialize New Disk

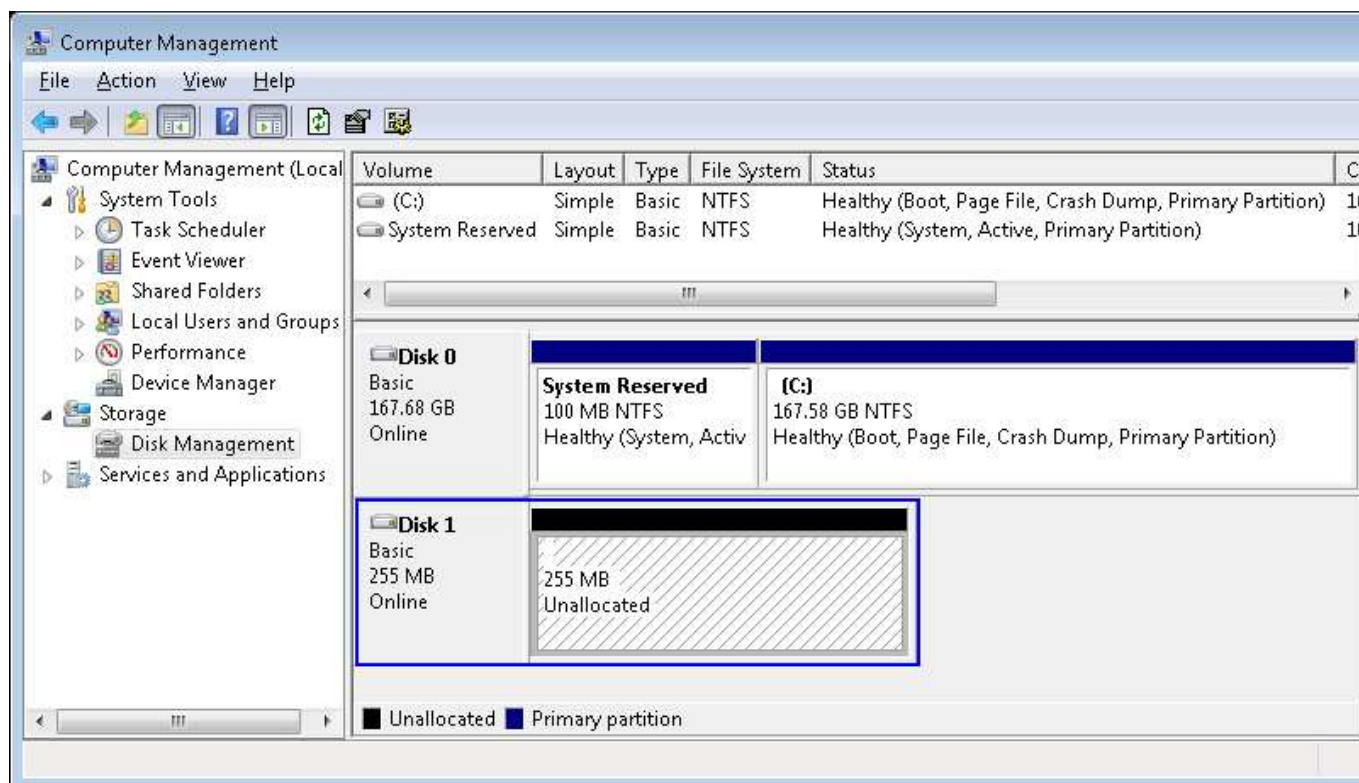● After that, new 255 MB disk which is unallocated will be displayed as shown in Figure 3-3.



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.
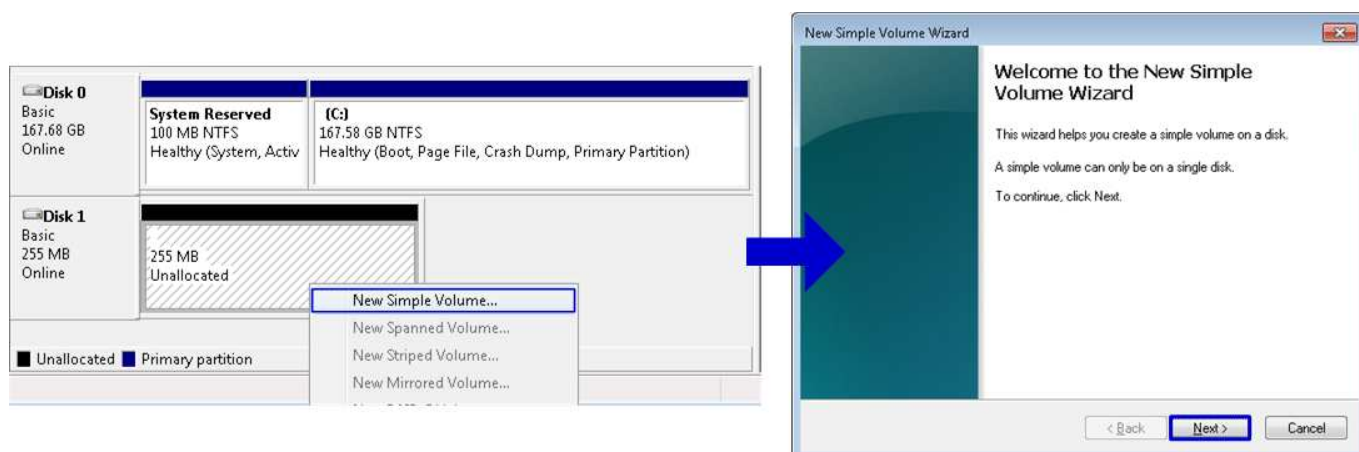


Figure 3-4 Create New Partition on New Disk

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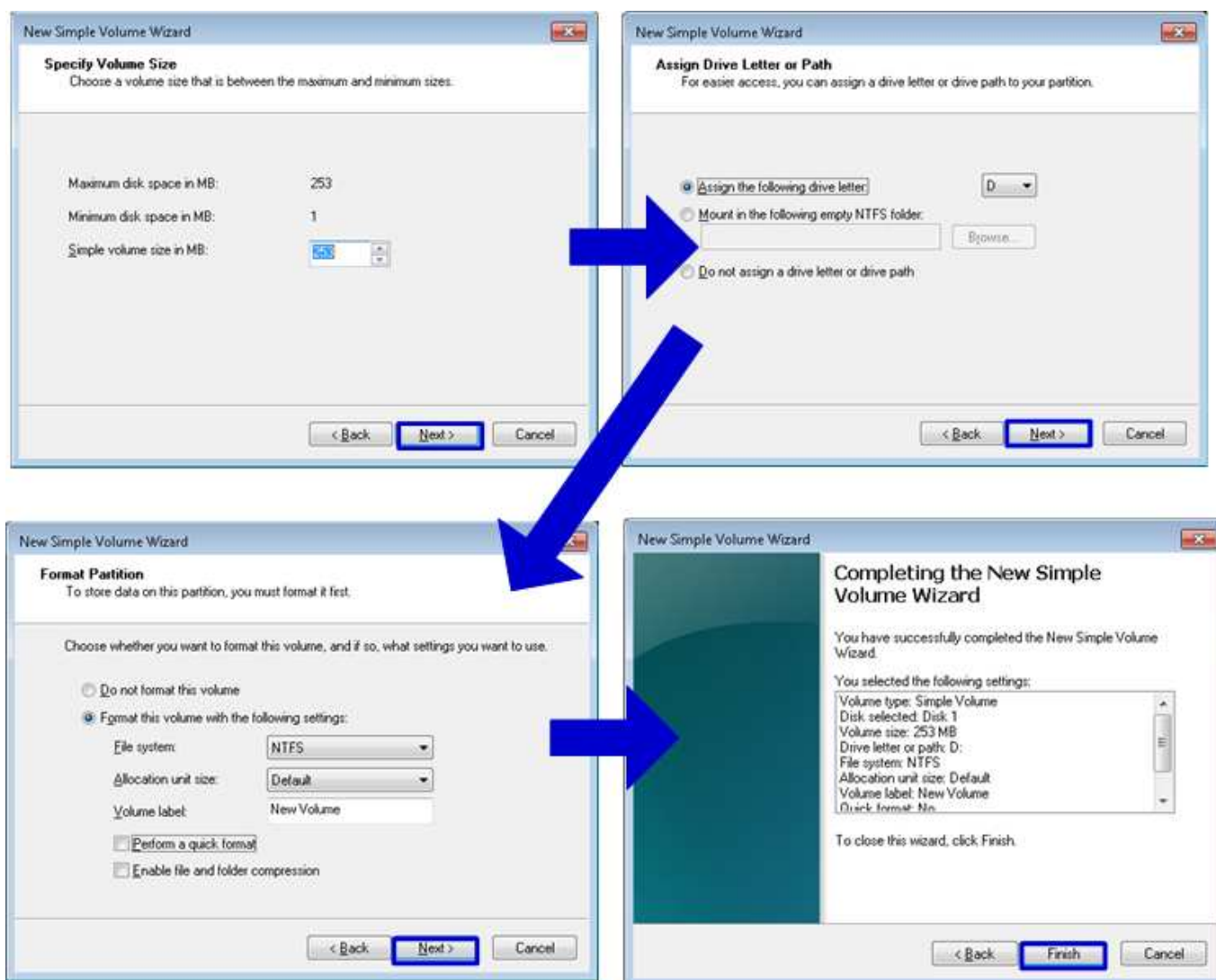


Figure 3-5 Format menu setup

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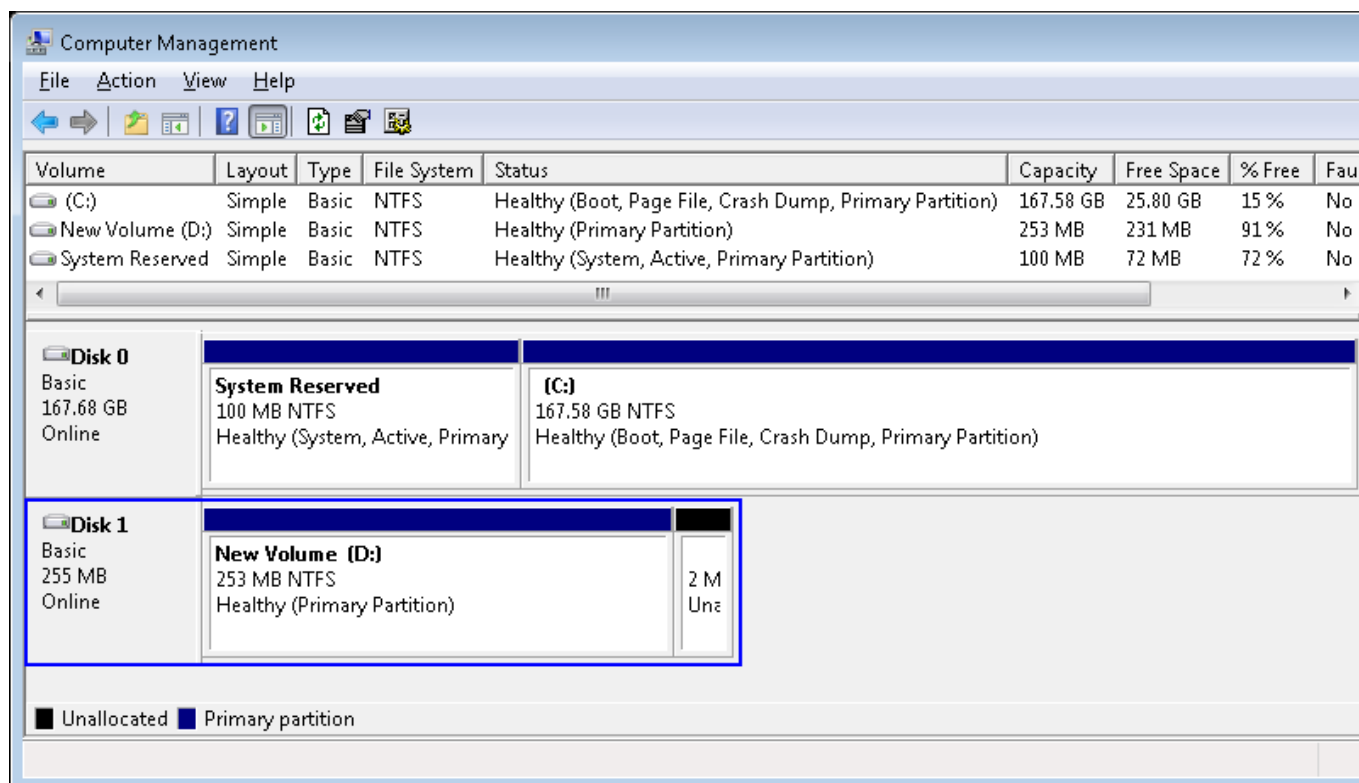


Figure 3-6 Format Complete

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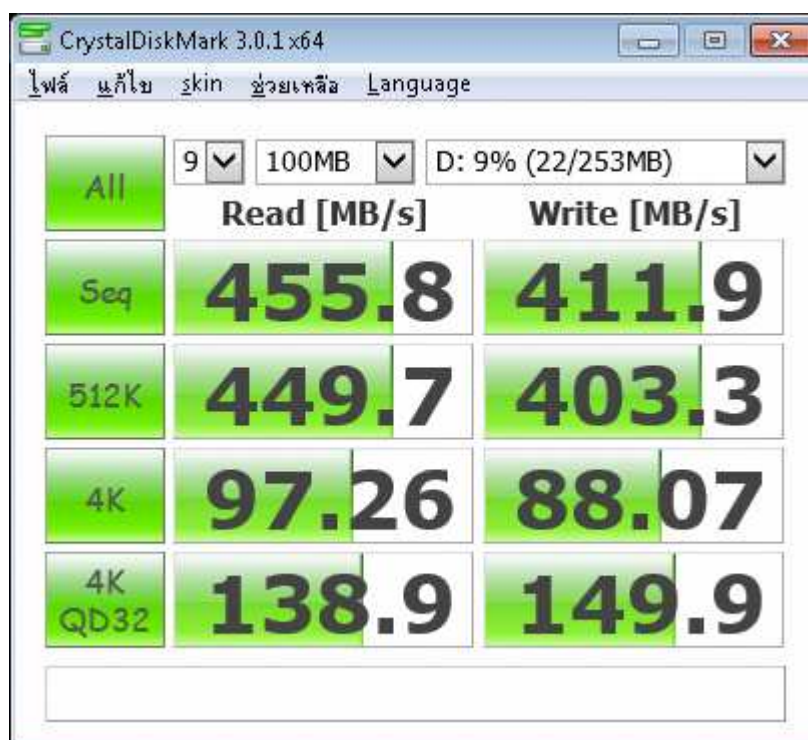


Figure 3-7 Disk performance test by benchmark

# 4   Revision History

| Revision | Date | Description |
|----------|------|-------------|
| 1.0 | 21-Nov-10 | Initial version release |
| | | |