

SATA-IP Bridge Demo Instruction on KC705

Rev1.0 27-Feb-14

This document describes SATA-IP Bridge evaluation procedure using bit file from Bridge reference design.

1 Environment

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

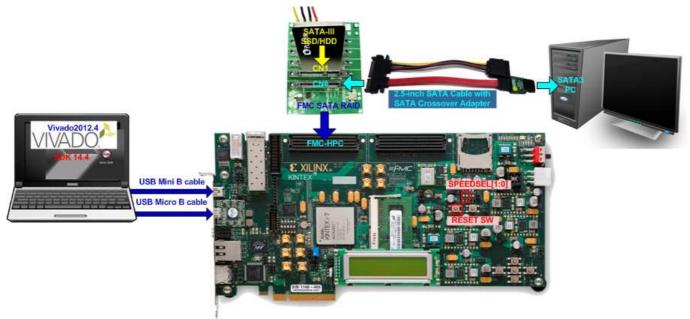


Figure 1-1 Evaluation environment using reference design bit-file



2 Evaluation procedure

- Check all system is power off
- Connect AB09-FMCRAID board to FMC-HPC connector (J22) <u>Note</u>: AB09-FMCRAID board is provided by Design Gateway.
- Connect power to power connector on FMCRAID board
- Connect SATA3 Device to CN1 on FMCRAID board
- Connect 2.5-inch SATA Cable with AB02-CROSSOVER board to change SATA cable to be cross-over SATA cable
 - <u>Note</u>: AB02-CROSSOVER board is provided by Design Gateway.
- (Optional) Connect USB mini B cable from J6 on KC705 to USB Port on PC for Serial Console
- Connect USB micro B cable on U29 of KC705 to USB Port on PC for JTAG programming
- Connect Power cable to KC705 board and then power up.
- Power up for supply to FMCRAID board
- (Optional) 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 KC705 by using iMPACT Software.
- After FPGA start operation, check GPIO LEDs status on KC705 board at LED0-LED2 and LED4-LED6 that are all ON, as shown in Figure 2-1. Each LED description is described as follows.



Figure 2-1 LED status after system set up complete

LED	ON	OFF			
LED0	OK	150 MHz of SATA clock on FMC SATA RAID cannot lock. Please check 150			
		MHz clock source on FMC SATA RAID board.			
LED1	OK	SATA-IP cannot detect SATA-III host (PC). Please check SATA-III host,			
		cross-over adapter, and SATA cable.			
LED2	SATA-III	Not support			
LED3	Always O)FF			
LED4	OK	150 MHz of SATA clock on FMC SATA RAID cannot lock. Please check 150			
		MHz clock source on FMC SATA RAID board.			
LED5	OK	SATA-IP cannot detect SATA-II/III device (HDD/SSD). Please check			
		SATA-III/II device connection.			
LED6	SATA-III	Not support			
LED7	Always OFF				

Table 2-1 LED Status of bridge reference design



 At serial console on PC, Boot message to show SATA status for both SATA sides will be displayed as shown in Figure 2-2. Now user can access the SATA device through Bridge design like typical disk.

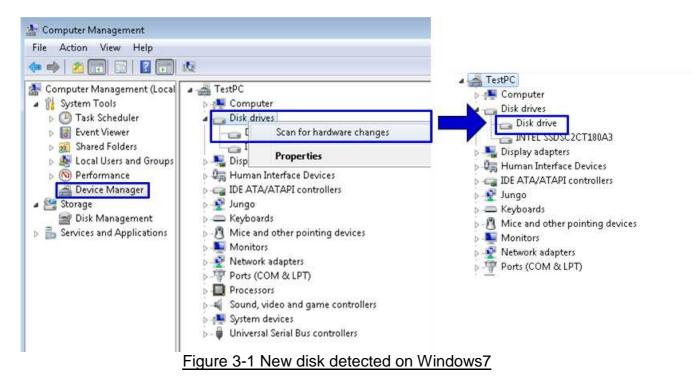
🖳 C	0M3:	115200	baud - T	era Term	VT	<u>- 🗆 ×</u>
<u>F</u> ile	<u>E</u> dit	<u>S</u> etup	Control	<u>W</u> indow	<u>H</u> elp	
Host Host	SATA Reset. Link u e Link	р	esign			
						•
	Figure 2-2 Boot message of bridge demo					



3 Operation Test on OS

3.1 Disk Detect

- Open Device Manager on Windows7. New SATA-Device disk 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.



• After that, you can use any disk benchmark to test disk performance. Some disk benchmark such as CrystalDiskMark needs to use the disk which has already formatted. Next topic describes the brief step to format to disk.



3.2 Disk Format

 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. <u>Note:</u> If this pop-up menu is not displayed, please try to close and reopen Disk Management

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

Initialize Disk				
You must initialize a disk before Logical Disk Manager can access it.				
Select disks:				
☑ Disk 1				
Use the following partition style for the selected disks:				
MBR (Master Boot Record)				
○ <u>G</u> PT (GUID Partition Table)				
Note: The GPT partition style is not recognized by all previous versions of Windows. It is recommended for disks larger than 2TB, or disks used on Itanium-based computers.				
OK Cancel				
Figure 3-2 Initialize New Disk				

 In Disk Management, right-click at the new disk area and select "New Simple Volume" menu to start disk format, as shown in Figure 3-3.

Le Computer Management File Action View Help					
	e i				
Computer Management (Local System Tools Carlow Task Scheduler Event Viewer Sared Folders Coal Users and Groups OPerformance Device Manager Storage Storage Storage Storage Storage Storage Storage Storage	Volume	Simple Basic M	ile System JTFS JTFS	em Status Healthy (Boot, Page File, Crash Dump, Prima Healthy (System, Active, Primary Partition)	
	•	m			۲
			167.58 GE) .58 GB NTFS olthy (Boot, Page File, Crash Dump, Primary Partit	
	Disk 1 Basic 238.47 GB Online	238.47 GB Unallocated		New Simple Volume	
* III +	Unallocated	Primary nartition		New Spanned Volume New Striped Volume	*
		o 3-3 Start die		New Mirrored Volume	

Figure 3-3 Start disk format



• "New Simple Volume Wizard" window will be displayed. Click "Next" button until completing window, as shown in Figure 3-4 and Figure 3-5.

New Simple Volume Wizard		X
	Welcome to the New Simple Volume Wizard	
	This wizard helps you create a simple volume on a disk. A simple volume can only be on a single disk.	
	To continue, click Next.	
	< Back Next > Can	cel

Figure 3-4 New Volume Wizard

New Simple Volume Wizard		×
	Completing the New Simple Volume Wizard	
	You have successfully completed the New Simple Volume Wizard.	
	You selected the following settings:	
	Volume type: Simple Volume Disk selected: Disk 1 Volume size: 244196 MB Drive letter or path: D: File system: NTFS Allocation unit size: Default Volume label: New Volume Quick format: Yes	
	To close this wizard, click Finish.	-
	< <u>B</u> ack Finish Can	cel

Figure 3-5 Completing New Volume Wizard



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

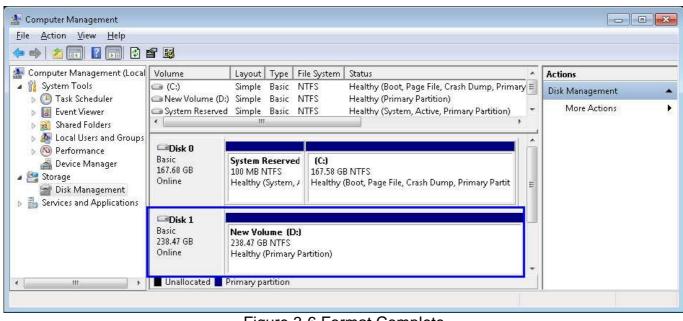
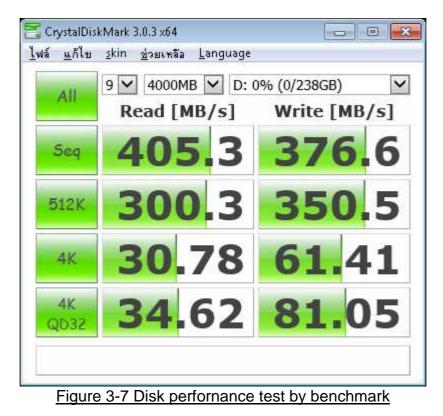


Figure 3-6 Format Complete



3.3 Disk Benchmark

• This document shows the example test result from CrystalDiskMark when connecting system to Samsung 840 Pro SSD.





dg_sata_ip_bridge_demo_instruction_kt7_en.doc **4 Revision History**

Revision	Date	Description
1.0	03-Mar-14	Initial version release