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# SATA-IP Device Demo Instruction on KC705

Rev1.0 20-Jun-13

This document describes SATA-IP Device evaluation procedure on KC705 using SATA-IP Device reference design bit-file.

#### 1 Environment

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



<u>Note</u>: 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-LPC connector (J2) 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 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.
- 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 that all ON, as shown in Figure 2. Each LED description is described as follows.



Figure 2 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 MHz clock source on FMC SATA RAID board. |  |
| LED1   | OK                     | SATA-IP cannot detect SATA device. Please check SATA device and the connection.                           |  |
| LED2   | SATA-III               | Not supported in current version  |  |
| LED3   | BLINK : 1-hour timeout |   |  |
| Table 1 LED Status of device reference design on KC705 board |                        |   |  |

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

| 💯 COM3:115200baud - Tera Term ¥T |            |          |         |        |      |         |
|----------------------------------|------------|----------|---------|--------|------|---------|
| File                             | Edit       | Setup    | Control | Window | Help |         |
| Start<br>Link                    | sata<br>ud | device d | esign   |        |      | <b></b> |
|                                  | ar.        |          |         |        |      |         |
|                                  |            |          |         |        |      |         |



## 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 4 New disk detected on Windows7

 Select Computer Management -> Disk Management and Pop-up menu will be displayed as shown in Figure 5. 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 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<br>Windows. It is recommended for disks larger than 2TB, or disks used on<br>Itanium-based computers. |
| OK Cancel   |
| Figure 5 Initialize New Disk  |



• After that, new 768 MB disk which is unallocated will be displayed as shown in Figure 6.



 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.

|                              |   |  | New Simple Volume Wizard    |   |
|------------------------------|---|--|-----------------------------|---|
| Basic<br>167.68 GB<br>Online | System Reserved<br>100 MB NTFS<br>Healthy (System, Active, Pr | (C:)<br>167.58 GB NTFS<br>Healthy (Boot, Page File, Crash Dump, Primary Partition) |                             | Welcome to the New Simple<br>Volume Wizard              |
|                              |   |  |                             | This wizard helps you create a simple volume on a disk. |
| Basic                        | 12/////////////////////////////////////                       |  |                             | A simple volume can only be on a single disk.           |
| 767 MB                       | 767 MB  |  | Sec. 1. Control in the sec. | To continue, click Next.                                |
| Online                       | Unallocated   | New Simple Volume  |                             |   |
|                              |   | New Spanned Volume   |                             |   |
|                              |   | New Striped Volume   |                             |   |
| Unallocated                  | d 📕 Primary partition   | New Mirrored Volume  |                             |   |
|                              |   | New RAID-5 Volume  |                             |   |
|                              |   |  |                             |   |
|                              |   |  |                             | < <u>Back</u> Next> Cancel                              |
|                              |   |  |                             |   |

Figure 7 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 8 Format menu setup



Wait until format completed, new drive is ready to use, as shown in Figure 9.



Figure 9 Format Complete

 Now disk can be read/write by file system operation. Figure 10 shows disk performance by using CrystalDiskMark benchmark.





dg\_sata\_ip\_dev\_demo\_instruction\_kt7\_en.doc **4 Revision History** 

| Revision | Date      | Description             |
|----------|-----------|-------------------------|
| 1.0      | 20-Jun-10 | Initial version release |
|          |           |                         |