



For High Performance



SATA Access from Linux



FPGA-PC data exchange

Description of SATA-IP Related Products

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SATA-IP Core Related Products List

Product Name	Description	Application
HCTL-IP core (Host Controller IP core)	It substitutes whole control for SATA-IP with pure hard-wired logic, and can reduce CPU as well as can provide the best performance.	For high performance
AHCI-IP core	AHCI adapter function that is necessary to access from LinuxOS via AHCI device driver.	For SOC device
FAT32-IP core exFAT-IP core	<ul style="list-style-type: none"> ✓ Support FAT32/exFAT file system. ✓ FPGA can store data to drive and PC can read as file. ✓ Pure hard-wired logic, no CPU necessary. ✓ Needs HCTL-IP and SATA-IP. 	FPGA – PC data exchange (w/o CPU)

- All solution requires SATA-IP core.
- Demo bit/sof file available for real board operation before purchase.



Summary of SATA-IP core related production

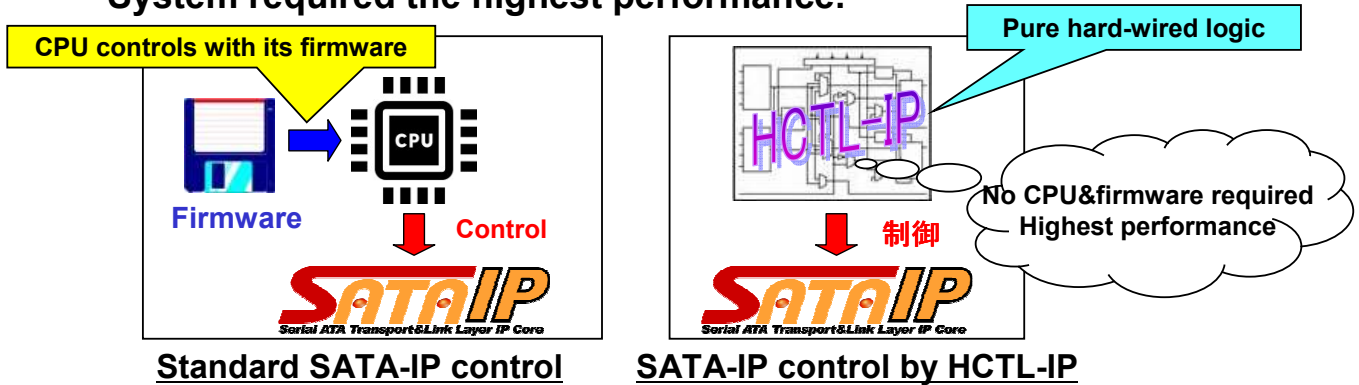
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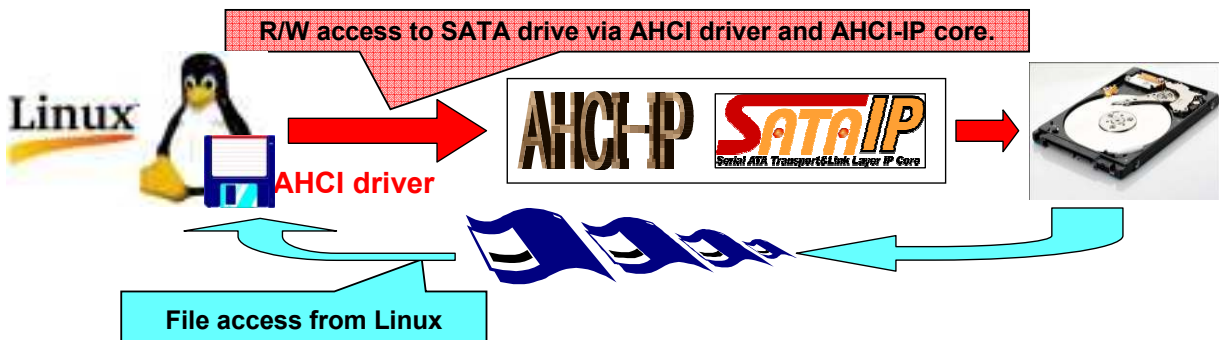
Host Controller IP (HCTL-IP)

- **Feature**
 - Standard design use CPU to control SATA-IP.
 - HCTL-IP is substitution of SATA-IP controller by pure logic core.
 - Minimum latency by state machine provides the best performance.
- **Application**
 - System without CPU or remove CPU resource for SATA control.
 - System required the highest performance.



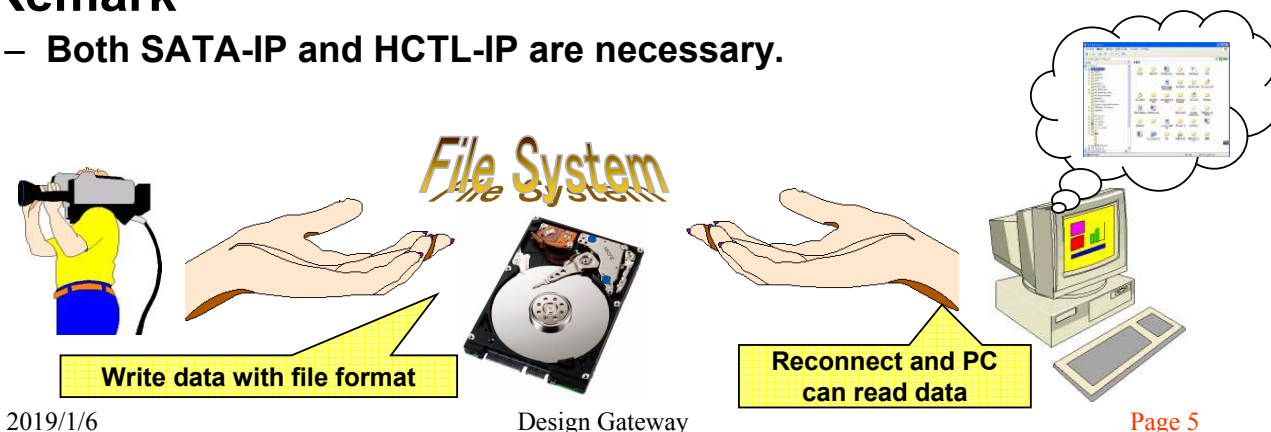
AHCI-IP

- **Feature**
 - Converts SATA-IP upper layer interface to AHCI standard.
 - SATA access is possible from embedded Linux via AHCI driver and AHCI-IP.
- **Application**
 - Intel SOC family (with Angstrom) or Xilinx Zynq family (with PetaLinux)
 - System requires SATA drive access under file-system (such as EXT3).



File System IP (FAT32-IP/exFAT-IP)

- **Feature**
 - Implements file system by hard-wired logic, no CPU necessary.
 - Supports 3 commands of Format, FileWrite, and FileRead (for check).
- **Application**
 - Record data to SATA drive, reconnect to PC, then PC can read data.
- **Remark**
 - Both SATA-IP and HCTL-IP are necessary.



Comparison of FAT32-IP and exFAT-IP

Item	FAT32-IP	exFAT-IP
Drive Capacity	64MB - 2TB	8GB - 64PetaB
File Size	32MB - 2GB	32MB - 512GB
Directory count	No (Root directry only)	16 directory
Resource (Intel) *1	700ALM+42Kbit(Ram)	1440ALM+98Kbit(Ram)
Resource (Xilinx) *2	240CLB+1.5BRAMTile	400CLB+3BRAMTile
Name Hash	Not supported	Supported
Check Sum	Not supported	Supported

Comparison of FAT32-IP and exFAT-IP

*1 Device family = Arria10SX

*2 Device family = Kintex-Ultrascale

