

# SATA IP

Serial ATA Transport & Link Layer IP Core

high-reliability & high-performance  
IP core proven by NASA!!

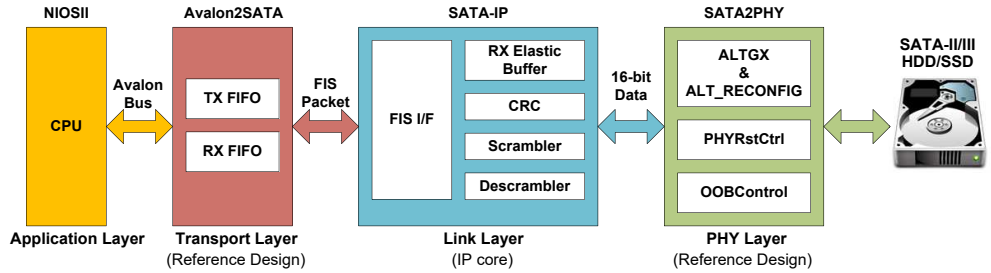
6G  
bps



Evaluation on Intel®Arria® 10 SX FPGA Dev. Kit with AB09-FMCRAID + SATA3 SSD x 4ch RAID

SATA IP core provides link layer to implement SATA channel to Intel® FPGAs. It supports SATA3 (6Gbps) and matches with SATA3 SSDs. It can connect with SSD/HDD without external PHY chip. The IP core license includes the reference design for Intel® FPGA boards to shorten development time and reduce the cost.

### Block diagram



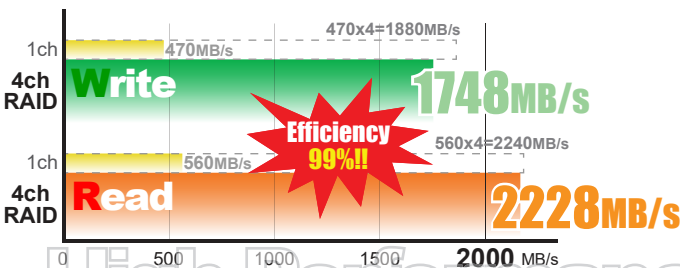
## Features

- Compliant with SATA 3.0 6Gbps
- Support both Host and Device
- AHCI for Linux boot up from SoC devices
- FAT32 access without CPU  
\* with optional HOST-IP and FAT32-IP
- Free evaluation before purchasing  
IP core Evaluation Demo are available on youtube
- Reference Design is contained with IP core license

### Enhanced development support

## Suitable for RAID System

### High-Efficiency Loss less RAID system !!

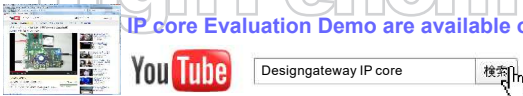


### Able to build RAID system by Small Resource !!

Compilation Hierarchy Node	ALMs needed (A, B, C)
[nios_sata3]	12960.0 (4.9)
[qsys:u0]	11766.3 (0.0)
[MMMt2SATA128:mmmt2sata128_0]	1738.6 (276.2)
[sata_it_ll:u_SATAIP]	ch0 1350.7 (0.9)
[MMMt2SATA128:mmmt2sata128_1]	1685.1 (253.3)
[sata_it_ll:u_SATAIP]	ch1 1321.0 (1.0)
[MMMt2SATA128:mmmt2sata128_2]	1694.3 (255.2)
[sata_it_ll:u_SATAIP]	ch2 1328.0 (1.0)
[MMMt2SATA128:mmmt2sata128_3]	1706.1 (253.3)
[sata_it_ll:u_SATAIP]	ch3 1342.1 (1.0)
[sata3phy:u_sata3phy]	1099.6 (0.0)
[OoBComCtrl:u_CHO_3:0:u_OoBComCtrl0]	18.5 (18.5)
[OoBComCtrl:u_CHO_3:0:u_OoBComCtrl1]	17.4 (17.4)

On Arria® V GX (5AGXFB3H4F, ALMs=136,880), the resource usage for 1 channel (SATA-IP + Avalon Bridge + PHY) is, **Only 1%!!**

IP core Evaluation Demo are available on youtube



## Product Line up

### IP core

SATA-IP-S5GX	1 project Netlist License for Stratix® V GX
SATA-IP-S4GX	1 project Netlist License for Stratix® IV GX
SATA-IP-A10SX	1 project Netlist License for Arria® 10 SX
SATA-IP-A5ST	1 project Netlist License for Arria® V ST
SATA-IP-A5GX	1 project Netlist License for Arria® V GX
SATA-IP-C5SX	1 project Netlist License for Cyclone® V SX

### IP core

SATA-IP-A10SX-AHC1	AHC1 project Netlist License for Arria® 10 SX
SATA-IP-A5ST-AHC1	AHC1 project Netlist License for Arria® V ST
SATA-IP-C5SX-AHC1	AHC1 project Netlist License for Cyclone® V SX
SATA-IP-HOST-A	HOST IP for SATA-IP. Purchase with SATA-IP core
SATA-IP-FAT32-A	FAT32 file system for SATA-IP. Purchase with SATA-IP core
SATA-IP-exFAT-A	exFAT file system for SATA-IP. Purchase with SATA-IP core

For more detail and technical information on our web site [www.dgway.com/SATA-IP\\_A\\_E.html](http://www.dgway.com/SATA-IP_A_E.html)

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