



## Test Results in ATTO Disk Benchmark and HD Tach Disk Benchmark 3.0.4.0

**Objective** – Performance measurement using an *X-Wall MX-256C (AES CBC 256-bit strength)* real-time crypto processor attached behind a Marvell PCIe (**Gen 2**) to **SATA 6Gbit** controller and before the connected **SATA 3Gbit** disk drives to execute commonly known hard disk benchmark. The hardware configuration is configured as below:

Host PCIe (Gen 2) Interface → Marvell PCIe to SATA Controller → *X-Wall MX-256C* Crypto Processor → SATA 3Gbit Disk Drives

**Summary** – Performance as being measured reveals insignificant performance variation using the *X-Wall MX-256C real-time crypto processor*. In some instances, the performance measurement is up only to an insignificant percentage.

### **Recommendations –**

1. Select either Hitachi or Western Digital SATA 3Gbit hard drives such as HDP725025GLA380, HDS721075KLA330, and WD1200JS-55MHB0 and avoid using Seagate ST9500325AS/ST3808110AS/ST3320620NS;
2. Both Hitachi and Western Digital hard drives appear to have a much better errors handling over the NCQ whereas specific Seagate models may cause unwanted performance degradation;



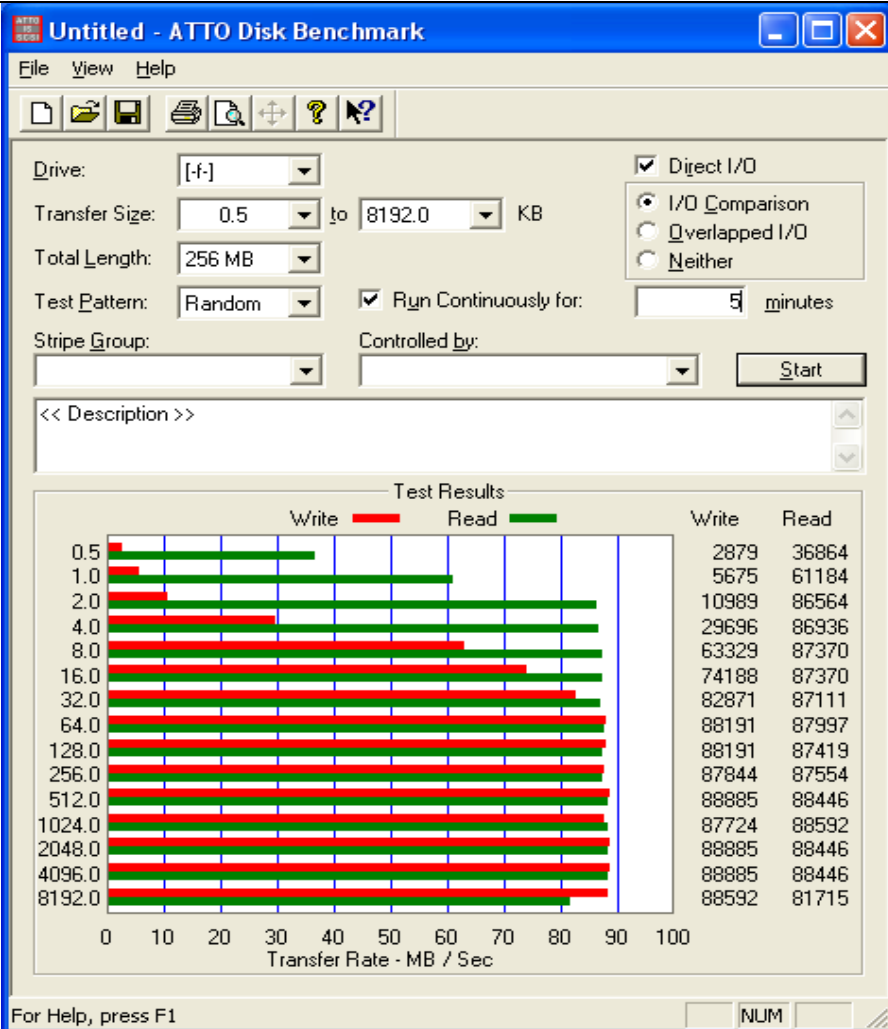
## Test Bed Configurations

Test platform configurations	
CPU	Intel Duo 2 Core E7400
Mainboard	ASUS P5QL-E
Chipset	Intel G45 + AHCI10
RAM	DDR II800 4G
OS	Windows XP 32bit SP3
OS disk drive	Seagate ST320620NS 320G SATAII 7200RPM
Test disk drive - I	Hitachi HDS721075KLA330 750G SATA II 7200RPM
Test disk drive - II	Seagate ST320620NS 320G SATAII 7200RPM
PCIe to SATA Adapter	Mavell PCIe (Gen 2) to SATA (6Gbit) Controller 88SE9128
X-Wall MX chip	X-Wall MX-256C with AES CBC 256-bit strength

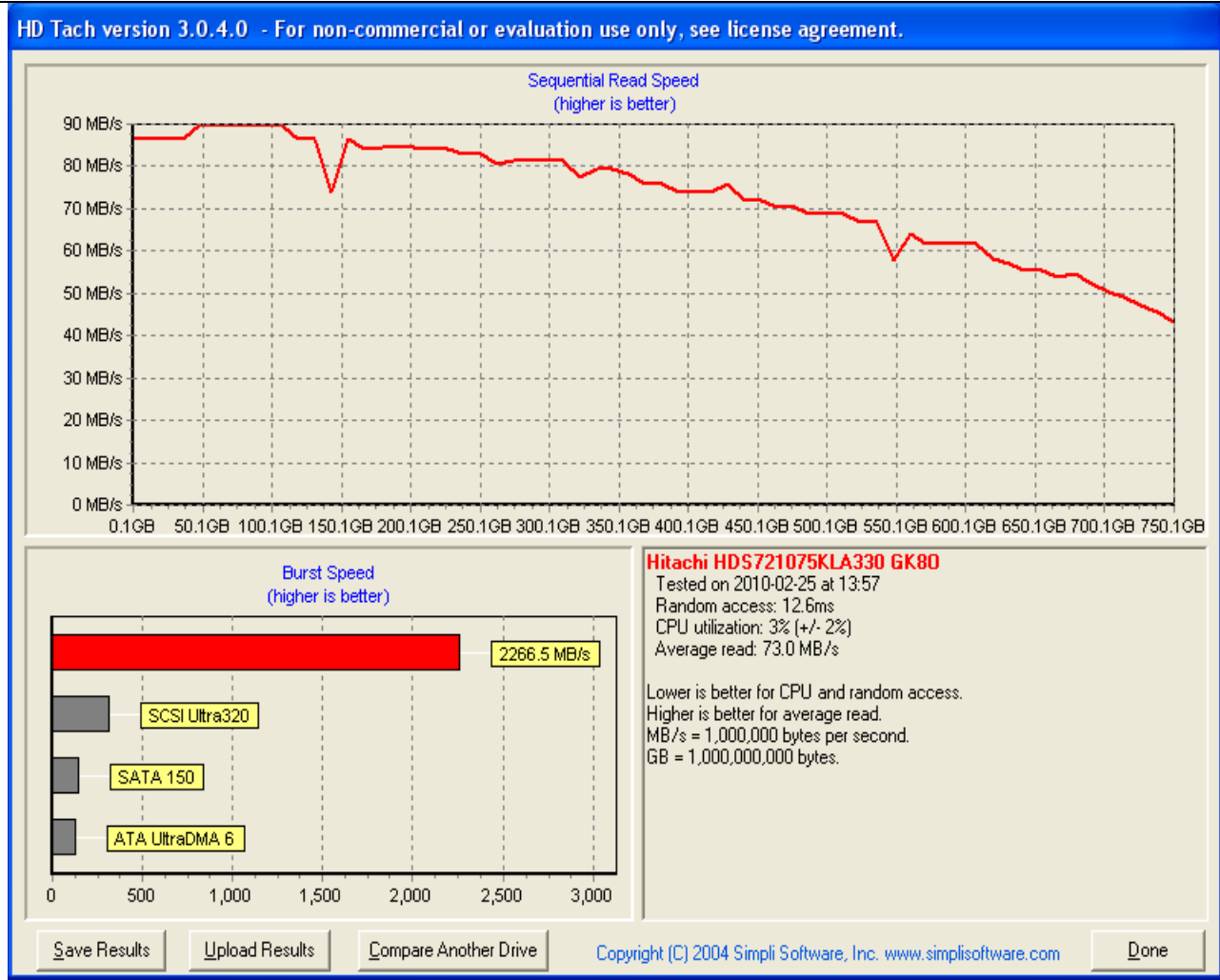


## Hitachi SATA 3Gbit disk drive **WITHOUT** the X-Wall MX-256C Crypto Processor

ATTO Disk benchmark



HD Tach disk benchmark 3.0.4.0





## Hitachi SATA 3Gbit disk drive WITH X-Wall MX-256C Crypto Processor

### ATTO Disk benchmark

Untitled - ATTO Disk Benchmark

File View Help

Drive: [-:]  Direct I/O

Transfer Size: 0.5 to 8192.0 KB  I/O Comparison  Overlapped I/O  Neither

Total Length: 256 MB

Test Pattern: Random  Run Continuously for: 5 minutes

Stripe Group: Controlled by:

<< Description >>

**Test Results**

Transfer Size	Write (MB/s)	Read (MB/s)
0.5	2714	35072
1.0	5376	55413
2.0	10489	71538
4.0	20428	82468
8.0	62396	85540
16.0	69468	86082
32.0	76951	85686
64.0	81456	87611
128.0	87997	86849
256.0	87844	87410
512.0	88446	88446
1024.0	88446	88156
2048.0	87724	88156
4096.0	88592	88156
8192.0	88592	81840

For Help, press F1

### HD Tach disk benchmark 3.0.4.0

HD Tach version 3.0.4.0 - For non-commercial or evaluation use only, see license agreement.

**Sequential Read Speed (higher is better)**

**Burst Speed (higher is better)**

**Hitachi HDS721075KLA330 GK80**  
 Tested on 2010-02-25 at 14:56  
 Random access: 12.7ms  
 CPU utilization: 2% (+/- 2%)  
 Average read: 73.1 MB/s

Lower is better for CPU and random access.  
 Higher is better for average read.  
 MB/s = 1,000,000 bytes per second.  
 GB = 1,000,000,000 bytes.

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