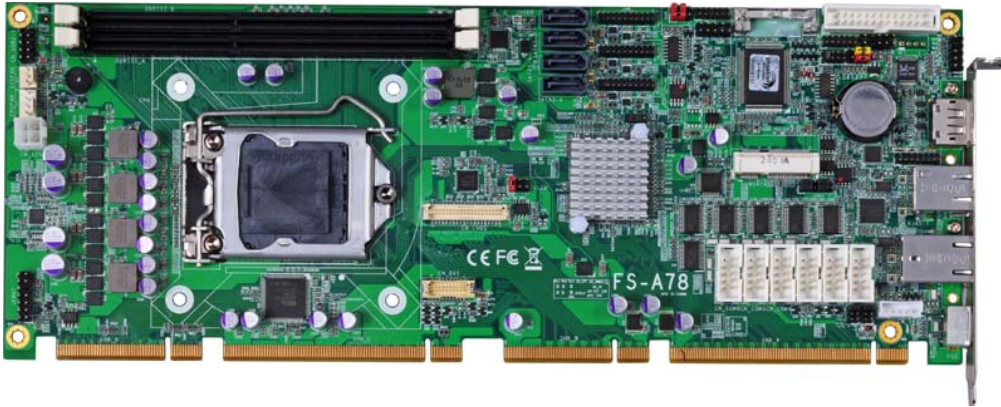


# Product Test Report



<b>Product Name</b>	<b>FS-A78</b>
<b>Product Version</b>	<b>B</b>
<b>Issued Date</b>	<b>2016.07.07</b>
<b>Report Edition</b>	<b>1.1</b>
<b>BIOS Version</b>	<b>1.0</b>
<b>Testing Engineer</b>	<b>RICK</b>
<b>Check Engineer</b>	<b>PERRY</b>

<b>REVISION HISTORY</b>			
<b>DATE</b>	<b>REVISION NO.</b>	<b>PAGE</b>	<b>DESCRIPTONS</b>
<b>2013.02.20</b>	<b>Ver. 1.0</b>	<b>102</b>	<b>Initial Release</b>
<b>2016.07.07</b>	<b>Ver. 1.0</b>	<b>102</b>	<b>Add Back Plane</b>

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# 1. Function test

## 1.1 Hardware function

### Base Function Test

Item	Description	Result
1	Power Button	PASS
2	Reset	PASS
3	Power LED	PASS
4	HDD LED	PASS
5	Display port (Product Ver. A)	PASS
6	CN_CRT	PASS
7	PS2	PASS
8	SATA 1 / 2 / 3 / 4	PASS
9	LAN 1 / 2	PASS
10	DDR3 1 / 2	PASS
11	USB2.0 1 / 2 / 3 / 4	PASS
12	USB3.0 1 / 2 / 3 / 4 / 5 / 6	PASS
13	COM port 1 / 2 / 3 / 4 / 5 / 6	PASS
14	CPU FAN	PASS
15	SYS FAN	PASS
16	DVI	PASS
17	LVDS	PASS
18	CN_AUDIO	PASS
19	CD_IN	NONE
20	MINI_CARD	PASS
21	Printer	PASS
22	IrDA (ONLY WIN XP)	PASS

23	CN_DIO	PASS
24	PCI 1 / 2 / 3 / 4	PASS
25	PCIE 16x	PASS
26	PCIE 4x (Only A78F10.bin)	PASS
27	PCIE 1x (Only A7810.bin)	PASS

### Jumper

Item	Description	Result
1	JRTC	PASS
2	JCSEL1	PASS
3	JCSEL2	PASS
4	JVLCD	PASS
5	JAT	PASS

## 1.2 BIOS function

Item	Description	Result	Remark
1	Press 'Del' to run Setup Utility	PASS	
2	Ctrl-Alt-Del – Soft-Reboot	PASS	
3	Date & Time Setting	PASS	
4	NumLock	PASS	
5	Quick Boot	PASS	
6	Diagnostic Splash Screen	PASS	
7	Diagnostic Summary Screen	PASS	
8	Console Redirection	PASS	Only DOS
9	Select Language	PASS	
10	SATA Device	PASS	
11	Active Processor Cores	PASS	
12	Interface Combination	PASS	NOTE 1
13	Memory Configuration (MAX TOLID)	PASS	Only 32-bit OS
14	DVMT Total Gfx Mem	PASS	Only WIN XP
15	IGD-Boot Type	PASS	
16	IGD-LCD Panel type	PASS	
17	Panel Color Depth	PASS	
18	USB Per-Port Disabled Control	PASS	
19	SB Azalia Configuration	PASS	
20	PCH Internal LAN	PASS	Only I217-LM
21	LAN OPROM Selection	PASS	
22	Wake on PCH LAN	PASS	Only I217-LM
23	Intel® AMT	PASS	
24	Serial Port	PASS	
25	IR Func.	PASS	ONLY WIN XP

26	Paraller Port	PASS	
27	Watch Dog Timer Select	PASS	
28	Power Control	PASS	
29	CPU Shutdown Temperature	PASS	
30	CPU Warning Temperature	PASS	
31	CPU Smart Fan Control	PASS	
32	System Smart Fan Control	PASS	
33	Power On By RTC Alarm	PASS	
34	Wake up By PS/2 Keyboard	PASS	
35	Wake up By PS/2 Mouse	PASS	
36	Set Supervisor Password	PASS	
37	Set User Password	PASS	
38	Exit Saving Changes	PASS	

**NOTE1 : RAID use SATA DVD-ROM needs new BIOS (Ver. 1.1)**

### 1.3 Driver

#### CD Edition : DIPCi1-1.0

##### 1. Windows 8 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	PASS	9.18.10.3165
3	LAN Driver (I217- LM)	PASS	12.8.33.0
4	LAN Driver (I210)	PASS	12.7.28.0
5	Audio Driver	PASS	6.0.1.6873

##### 2. Windows 8 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	PASS	9.18.10.3165
3	LAN Driver (I217- LM)	PASS	12.8.33.0
4	LAN Driver (I210)	PASS	12.7.28.0
5	Audio Driver	PASS	6.0.1.6873

##### 3. Windows 7 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	PASS	9.18.10.3165
3	LAN Driver (I217- LM)	PASS	12.8.33.0
4	LAN Driver (I210)	PASS	12.7.28.0
5	Audio Driver	PASS	6.0.1.6873



#### 4. Windows 7 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	PASS	9.18.10.3165
3	LAN Driver (I217- LM)	PASS	12.8.33.0
4	LAN Driver (I210)	PASS	12.7.28.0
5	Audio Driver	PASS	6.0.1.6873

#### 5. Windows Server 2008 R2 64-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	PASS	6.0.1.6873
4	LAN Driver (I217- LM)	PASS	12.8.33.0
5	LAN Driver (I210)	PASS	12.7.28.0

#### 6. Windows Server 2008 32-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	PASS	6.0.1.6873
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

#### 7. Windows Vista 32-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	PASS	6.0.1.6873
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

#### 8. Windows Vista 64-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	PASS	6.0.1.6873
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

#### 9. Windows XP 32-bit driver test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	NONE	NO driver
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

**10. Windows XP 64-bit driver test**

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	NONE	NO driver
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

**11. Windows server 2003 32-bit driver test**

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	NONE	NO driver
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

**12. Windows server 2003 64-bit driver test**

Item	Description	Result	Version
1	Chipset Driver	PASS	9.4.0.1022
2	VGA Driver	NONE	NO driver
3	Audio Driver	NONE	NO driver
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

## 2. Compatibility test

### 2.1 CPU Test

Test environment:

OS Windows 7

Test program : PC MARK 2005

Spec	CPU Speed	Family	Processor	MAX TDP	Smart Cache	Result
<a href="#">SR14J</a>	2.90 GHz	Core	i5-4570S	65 W	6 MB	PASS
<a href="#">SR1NM</a>	3.50 GHz	Core	i3-4330	54 W	4 MB	PASS
<a href="#">SR181</a>	2.30 GHz	Pentium	G3320TE	35 W	3 MB	PASS
<a href="#">SR14H</a>	3.10 GHz	Core	i7-4770S	65 W	8 MB	PASS
<a href="#">SR153</a>	3.30 GHz	Xeon	E3-1230V3	80 W	8 MB	PASS

### 2.2 Operation System Test

Item	Description	Result	Remark
1	Windows 8 32/64-bit	PASS	
2	Windows 7 32/64-bit	PASS	
3	Windows Server 2008 R2 64-bit	PASS	
4	Windows Server 2008 32-bit	PASS	
5	Windows Vista 32/64-bit	PASS	
6	Windows XP 32/64-bit	PASS	
7	Windows Server 2003 32/64bit	PASS	
8	Ubuntu 12.04 LST	PASS	

## 2.3 Memory Test

Test environment:

OS Windows 7

Test program : PC MARK 2005

Manufacturer	Chip	Frequency	Capacity Mbytes	Result
Kingston KVR16N11/8	ELPIDA J4208BBBG-GN-F	DDR3 1600	8 GB	PASS
Kingston KVR1333D3N9/4G	ELPIDA J2108BCSE-DJ-F	DDR3 1333	4 GB	PASS
Kingston KHX1600C9D3P1K2/8G	Unknown (Those chips are covered by steel)	DDR3 1600	4 GB	PASS
Kingston KVR1333D3N9/2G	Kingston D1288JEMFPGD9U	DDR3 1333	2 GB	PASS
Transcend 240840-0088	SEC K4B1G0846D	DDR3 1333	2 GB	PASS
ADATA NMI-8C0388	ADATA AD30908CBD-151G	DDR3 1333	2 GB	PASS
ADATA A70-982559	ADATA AD30908CBD-151G	DDR3 1333	1 GB	PASS
ADATA AD3U13331G9-B	ADATA SBCD-160BA	DDR3 1333	1 GB	PASS

## 2.4 VGA Graphic Quality Test

Test environment:

OS Windows 7 32 / 64-bit

Driver version : 9.18.10.3165

Resolution	Color	Result	Remark
800*600	16 / 32bit	PASS	
1024*768	16 / 32bit	PASS	
1152*864	16 / 32bit	PASS	
1280*600	16 / 32bit	PASS	
1280*720	16 / 32bit	PASS	
1280*768	16 / 32bit	PASS	
1280*800	16 / 32bit	PASS	
1280*960	16 / 32bit	PASS	
1280*1024	16 / 32bit	PASS	
1360*768	16 / 32bit	PASS	
1366*768	16 / 32bit	PASS	
1440*900	16 / 32bit	PASS	
1920*1080	16 / 32bit	PASS	

## 2.5 Audio

Test environment:

OS Windows 8 32 & 64-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	

OS Windows 7 32 & 64-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	

OS Windows Server 2008 R2 64-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	

OS Windows Server 2008 32-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	

**OS Windows Vista 32 & 64-bit****Driver version : 6.0.1.6873**

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	

**OS Ubuntu 12.04 LST**

Item	Description	Result	Remark
1	2 CH	PASS	



## 2.6 HDD Test

Test environment: OS Windows 7

Model	Interface	Capacity	Size Detect	Data Transfer
Western Digital WD10EZEX-00RKKA0	SATA	1.0 TB	PASS	PASS
Western Digital WD5000AAKX-22ERMA0	SATA	500 GB	PASS	PASS
Western Digital WD3200BPVT-00J5T0	SATA	320 GB	PASS	PASS
Western Digital WD2500AAKS-00VYA0	SATA	250 GB	PASS	PASS
HITACHI HTS543216L9A300	SATA	160 GB	PASS	PASS
Memo Right MRSAD4B060GC225C00	SSD	60 GB	PASS	PASS

## 2.7 DVD-ROM Test

Test environment: OS Windows 7

Model	Interface	Detect	Data Transfer	Play DVD
ASUS DRW-24D1ST	SATA	PASS	PASS	PASS
LITEON iHES312	SATA	PASS	PASS	PASS
BUFFALO DVSM-PC58U2V	USB	PASS	PASS	PASS

## 2.8 USB device Test

### 1. MS-DOS

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

### 2. Windows Server 2003 32&64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

### 3. Windows XP 32&64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

#### 4. Windows Server Vista 32&64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

#### 5. Windows Server 2008 32-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

#### 6. Windows Server 2008 R2 64-bit

Item	Result	Remark
External USB Keyboard Test	PASS	
External USB Mouse Test	PASS	
Hot plugging test	PASS	
CD ROM	PASS	
USB Mass storage	PASS	

**7. Windows 7 32& 64-bit**

<b>Item</b>	<b>Result</b>	<b>Remark</b>
<b>External USB Keyboard Test</b>	PASS	
<b>External USB Mouse Test</b>	PASS	
<b>Hot plugging test</b>	PASS	
<b>CD ROM</b>	PASS	
<b>USB Mass storage</b>	PASS	

**8. Windows 8 32& 64-bit**

<b>Item</b>	<b>Result</b>	<b>Remark</b>
<b>External USB Keyboard Test</b>	PASS	
<b>External USB Mouse Test</b>	PASS	
<b>Hot plugging test</b>	PASS	
<b>CD ROM</b>	PASS	
<b>USB Mass storage</b>	PASS	

**9. Ubuntu 12.04 LST**

<b>Item</b>	<b>Result</b>	<b>Remark</b>
<b>External USB Keyboard Test</b>	PASS	
<b>External USB Mouse Test</b>	PASS	
<b>Hot plugging test</b>	PASS	
<b>CD ROM</b>	PASS	
<b>USB Mass storage</b>	PASS	

## 2.9 Serial Port Test

### 1. MS-DOS

Item	Description	Result	Remark
1	RS-422 & RS-485	PASS	

### 2. Windows Server 2003 32&64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

### 3. Windows XP 32&64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

### 4. Windows Vista 32&64-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

### 5. Windows Server 2008 32-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

**6. Windows Server 2008 R2 64-bit**

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

**7. Windows 7 32&64-bit**

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

**8. Windows 8 32&64-bit**

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	

## 2.10 PS2 Keyboard 、 Mouse Test

### 1. MS-DOS

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

### 2. Windows Server 2003 32&64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

### 3. Windows XP 32&64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

### 4. Windows Vista 32&64-bit

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

**5. Windows Server 2008 32-bit**

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

**6. Windows Server 2008 R2 64-bit**

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

**7. Windows 7 32&64-bit**

Item	Description4	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

**8. Windows 8 32&64-bit**

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	



### 9. Ubuntu 12.04 LST

Item	Description	Result	Remark
1	Keyboard LED Status Test	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

## 2.11 LAN Test

Data Transfer Test environment:

-CAT 6 UTP 100M

-8 HR. continuous

1. Windows Server 2008 R2 64-bit

64-bit driver version : 12.8.33.0

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Data Transfer Test	PASS	

2. Windows 7 32 & 64-bit

32/64-bit driver version : 12.8.33.0

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Data Transfer Test	PASS	

3. Windows 8 32& 64-bit

32/64-bit driver version : 12.8.33.0

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Data Transfer Test	PASS	

## 2.12 PCI Express mini card

Motherboard	PCI Express mini card	Remark
FS-A78	MPX-574D	NO SUPPLY
	MPX-574D2	NO SUPPLY
	MPX-643	NO SUPPLY
	MPX-750	NO SUPPLY
	MPX-827	PASS
	MPX-885	NO SUPPLY
	MPX-954	NO SUPPLY
	MPX-954E	NO SUPPLY
	MPX-2515	PASS
	MPX-3132	NO SUPPLY
	MPX-6864	NO SUPPLY
	MPX-7202	NO SUPPLY
	MPX-9125	NO SUPPLY
	MPX-24794G2	PASS
	MPX-25858	NO SUPPLY
	MPX-TP4R	PASS
	MPX-SDVOD	NO SUPPLY
MPX-SDVOX	NO SUPPLY	

## 2.13 Print Port Test

### 1. Windows Server 2003 32&64-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

### 2. Windows XP 32&64-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

### 3. Windows Vista 32&64-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

### 4. Windows Server 2008 32-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

### 5. Windows Server 2008 R2 64-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

### 6. Windows 7 32&64-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

### 7. Windows 8 32&64-bit

Item	Description	Result	Remark
1	ECP/EPP PRINT TEST	PASS	

## 2.14 Back plane

Item	Brand	Model	Result	Remark
1	IEI	PE-6S2-R20	PASS	Rev:2.0
2	AXIOMTEK	FAB113-13A7P4	PASS	Rev:A0-RC
3	AXIOMTEK	FAB114-13A3P8	PASS	Rev:B0-RC
4	Acel	1011-AA05E1-140	PASS	Rev:1.1
5	Acel	1011-1413S1-040	PASS	Rev:1.0

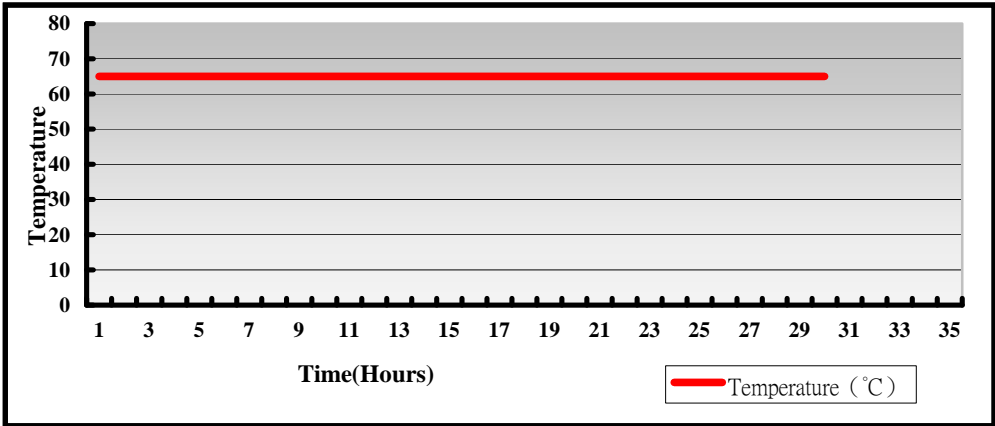
## 2.15 Power Supply Test

Item	TYPE	Description	Result	Remark
1	ATX Power	COOLER MASTER RS-390-PMSR-A3 390W	PASS	
2	ATX Power	Seventeam SS-500ET 500W	PASS	
3	ATX Power	CORSAIR CMPSU-500CX V2 500W	PASS	
4	ATX Power	AcBel PC7008 380W	PASS	
5	ATX Power	AcBel ATX-350P-DNSS 350W	PASS	
6	ATX Power	CHANNEL WELL TECHNOLOGY CO.,LTD. CWT-250ATX12 250W	PASS	

### 3. Environmental test

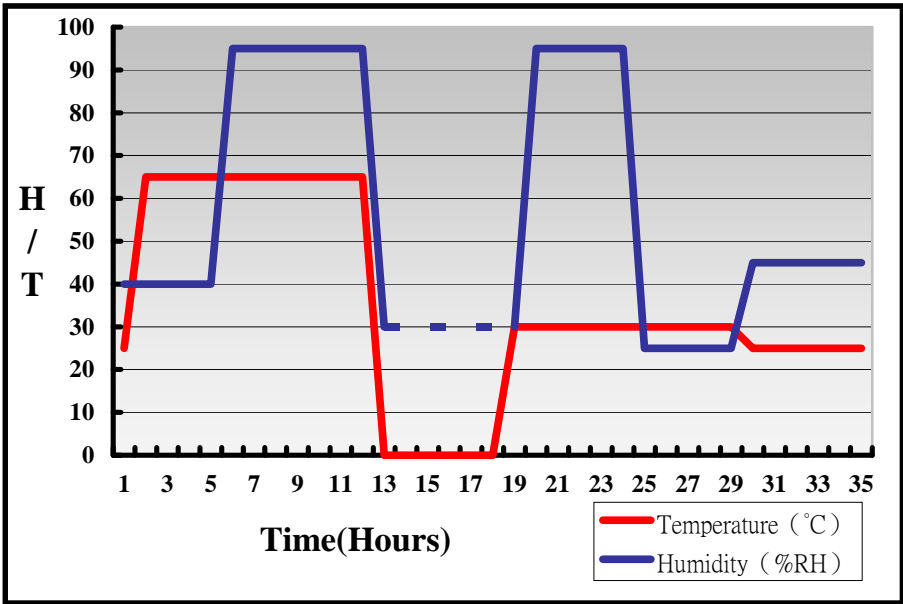
#### 3.1 Temperature Test

System Board	FS-A78
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)
HDD	HITACHI HTS543216L9A300 160GB
Operating OS	Windows 7 32-bit
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark 2006



**Hardware Device list:**

System Board	FS-A78_A + PE-6S2-R20
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)
HDD	HITACHI HTS543216L9A300 160GB
Operating OS	Windows 7 32-bit
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark 2006



**Definition :** When the temperature is 30 degrees below arrive, humidity measurements have not, so by the dashed line express.

**Boot Up Test:****Hardware Device list:**

<b>System Board</b>	<b>FS-A78+ DFAB114-13A3P8-RC</b>
<b>CPU</b>	<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b>
<b>Memory</b>	<b>Kingston DDR3 1600 8GB*2 (ELPIDA J4208BBBG-GN-F)</b>
<b>HDD</b>	<b>Western Digital WD5000AAKX-22ERMA0 500GB</b>
<b>Operating OS</b>	<b>Windows 7</b>

<b>Temperature</b>	<b>Result</b>	<b>Remark</b>
<b>-35℃</b>	<b>PASS</b>	<b>50 Times</b>
<b>65℃</b>	<b>PASS</b>	<b>50 Times</b>



### 3.2 Thermal measurements at various points on the board

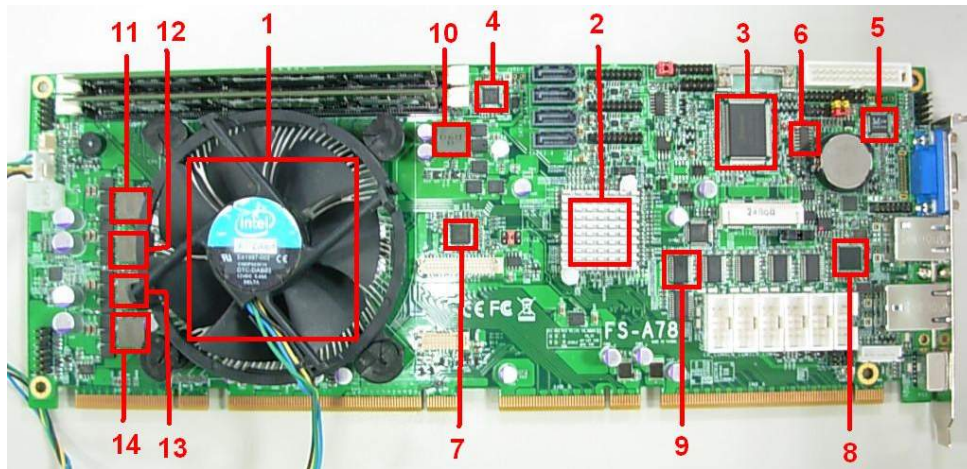
Test Environment :

<b>CPU</b>	Intel(R) Core(TM) i7-4770S 3.10GHz
<b>Memory</b>	Kingston DDR3 1600 8GB*2 (ELPIDA J4208BBBG-GN-F)
<b>HDD</b>	Western Digital WD5000AAKS-00V1A0 500GB
<b>Power</b>	Seventeam SS-500ET
<b>Operating System</b>	Windows 7
<b>Test Program</b>	Burnin 6.0

Test Result:

Item	Environmental temperature	24°C
1	CPU	39°C
2	PCH(Q87)	37.9°C
3	LPCIO( )	32.4°C
4	U3 (ISL6537CR)	33.4°C
5	U7 (ICHALC888)	47.1°C
6	U9 (ITS74F125)	37.3°C
7	U21 (ICPTN3460BS)	37°C
8	U23 (ICI210AT)	34.2°C
9	U24 (ICADM213ECA-T)	32.5°C
10	L3 (LLC0.9UH/0445)	36.2°C
11	L6 (LLC0.36UH/0445)	39.4°C

12	L10 (LLC0.36UH/0445)	39.9°C
13	L11 (LLC0.36UH/0445)	39.8°C
14	L14 (LLC0.36UH/0445)	39.7°C



## 4. Reliability Test

### 4.1 Power Consumption Test

#### 1. Test Environment:

Motherboard	FS-A78 + DFAB114-13A3P8-RC
CPU	Intel(R) Core(TM) i5-4570S 2.90GHz
Memory	Kingston DDR3 1600 8GB*2 (ELPIDA J4208BBBG-GN-F)
HDD	Western Digital WD5000AAKS-00V1A0 500GB

#### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	3.17	38.04	4.13	49.56
5V	1.5	7.5	2.78	13.9
3.3V	1.07	3.531	1.12	3.696
5VSB	0.968	4.84	0.013	0.065

#### 1.a. Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
---------------	---------------------

#### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	3.84	46.08	5.67	68.04
5V	2.14	10.7	3.36	16.8
3.3V	1.13	3.729	1.14	3.762
5VSB	1.01	5.05	0.009	0.045

## 2.Test Environment:

Motherboard	FS-A78 + DFAB114-13A3P8-RC
CPU	Intel(R) Core(TM) i3-4330M 3.50GHz
Memory	Kingston DDR3 1600 8GB*2 (ELPIDA J4208BBBG-GN-F)
HDD	Western Digital WD5000AAKS-00V1A0 500GB

### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	2.77	33.24	3.54	42.48
5V	1.48	7.4	2.53	12.65
3.3V	1.13	3.729	1.1	3.63
5VSB	0.727	3.635	0.007	0.035

## 2.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
---------------	---------------------

### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	3.54	42.48	5.11	61.32
5V	2.22	11.1	3.16	15.8
3.3V	1.16	3.828	1.09	3.597
5VSB	0.731	3.655	0.011	0.055

### 3.Test Environment:

Motherboard	FS-A78 + DFAB114-13A3P8-RC
CPU	Intel(R) Pentium(TM) G3320TE 2.30GHz
Memory	Kingston DDR3 1600 8GB*2 (ELPIDA J4208BBBG-GN-F)
HDD	Western Digital WD5000AAKS-00V1A0 500GB

#### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	2.17	26.04	2.22	26.64
5V	1.09	5.45	1.8	9
3.3V	1.11	3.663	1.11	3.63
5VSB	0.631	3.155	0.015	0.075

### 3.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
---------------	---------------------

#### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Current ( A )
12V	3.8	15.8	3.77	45.24
5V	2.2	11	2.88	14.4
3.3V	1.13	3.729	1.13	3.729
5VSB	0.867	43.35	0.018	0.09

#### 4.Test Environment:

Motherboard	FS-A78 + DFAB114-13A3P8-RC
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	Kingston DDR3 1600 8GB*2 (ELPIDA J4208BBBG-GN-F)
HDD	Western Digital WD5000AAKS-00V1A0 500GB

#### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	3.01	36.12	4.13	49.56
5V	1.45	7.25	2.56	12.8
3.3V	1.1	3.63	1.1	3.63
5VSB	0.745	3.725	0.016	0.08

#### 4.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
---------------	---------------------

#### Power Supply : Seventeam SS-500ET

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current ( A )	Power ( W )	Current ( A )	Power ( W )
12V	3.71	44.52	5.05	60.6
5V	2.16	10.8	3.27	16.35
3.3V	1.11	3.663	1.11	3.663
5VSB	0.812	4.06	0.015	0.075

### 5.Test Environment:

<b>Motherboard</b>	<b>FS-A78 + PE-6S2-R20</b>
<b>CPU</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b>
<b>Memory</b>	<b>Kingston DDR3 1600 8GB (ELPIDA 4208BBBG-GN-F)*2</b>
<b>HDD</b>	<b>HITACHI HTS543216L9A300 160GB</b>
<b>VGA Card</b>	<b>NVIDIA GeForce PX9800GT</b>

### Power Supply : Seventeam SS-500ET

<b>Voltage</b>	<b>MS-DOS Boot up</b>		<b>Windows 7 32-bit 3DMARK 2006+PRIME95</b>	
	<b>Current ( A )</b>	<b>Power ( W )</b>	<b>Current ( A )</b>	<b>Power ( W )</b>
<b>12V</b>	4.39	52.68	5.69	68.28
<b>5V</b>	2.61	13.05	1.42	7.1
<b>3.3V</b>	0.7	2.31	0.7	2.31
<b>5VSB</b>	0.981	4.905	0.038	0.19

## 5. Performance Test

### 5.1 Performance Test

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 7.0</b>	<b>Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	PassMark Rating 1674 CPU Mark 6025.2 2D Graphics Mark 448.4 3D Graphics Mark 664.9 Memory Mark 1019.6 Disk Mark 816.5



**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<p><b>Performance Test</b> <b>7.0</b></p>	<p><b>Intel(R) Core(TM) i5-4570S</b> <b>2.90GHz</b> <b>Kingston DDR3 1600 8GB</b> <b>(ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB</b> <b>(SEC K4B1G0846D)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b></p>	<p>PASS</p>	<p>PassMark Rating 1905.6 CPU Mark 7122.4 2D Graphics Mark 497.1 3D Graphics Mark 502.7 Memory Mark 2675.2 Disk Mark 717</p>

**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<p><b>Performance Test</b> <b>8.0</b></p>	<p><b>Intel(R) Core(TM) i5-4570S</b> <b>2.90GHz</b> <b>Kingston DDR3 1600 8GB</b> <b>(ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB</b> <b>(SEC K4B1G0846D)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b></p>	<p>PASS</p>	<p>PassMark Rating 1709.1 CPU Mark 5142 2D Graphics Mark 612 3D Graphics Mark 606 Memory Mark 1306 Disk Mark 721</p>

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test</b>  <b>7.0</b>	<b>I Intel(R) Core(TM) i3-4330</b> <b>3.50GHz</b> <b>Kingston DDR3 1333 4GB</b> <b>(ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB</b> <b>(Kingston</b> <b>D1288JEMFPGD9U)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b>	<b>PASS</b>	<b>PassMark Rating</b> <b>1369.4</b> <b>CPU Mark</b> <b>3183.8</b> <b>2D Graphics Mark</b> <b>491.4</b> <b>3D Graphics Mark</b> <b>600.9</b> <b>Memory Mark</b> <b>933.4</b> <b>Disk Mark</b> <b>652.5</b>

**Windows 7 64-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test</b>  <b>7.0</b>	<b>Intel(R) Core(TM) i3-4330</b> <b>3.50GHz</b> <b>Kingston DDR3 1333 4GB</b> <b>(ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB</b> <b>(Kingston</b> <b>D1288JEMFPGD9U)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b>	<b>PASS</b>	<b>PassMark Rating</b> 1654.8 <b>CPU Mark</b> 4127.1 <b>2D Graphics Mark</b> 562.4 <b>3D Graphics Mark</b> 484.9 <b>Memory Mark</b> 1907.7 <b>Disk Mark</b> 720.1

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test</b>  <b>8.0</b>	<b>Intel(R) Core(TM) i3-4330</b> <b>3.50GHz</b> <b>Kingston DDR3 1333 4GB</b> <b>(ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB</b> <b>(Kingston</b> <b>D1288JEMFPGD9U)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b>	<b>PASS</b>	<b>PassMark Rating</b> 1564 <b>CPU Mark</b> 2956 <b>2D Graphics Mark</b> 639 <b>3D Graphics Mark</b> 579 <b>Memory Mark</b> 1330 <b>Disk Mark</b> 811

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 7.0</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G) ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G) Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	PassMark Rating 967.8 CPU Mark 2102.9 2D Graphics Mark 328.8 3D Graphics Mark 320.2 Memory Mark 650.5 Disk Mark 805.8

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<p><b>Performance Test</b> <b>7.0</b></p>	<p><b>Intel(R) Pentium(TM) G3320TE</b> <b>2.30GHz</b> <b>ADATA DDR3 1333 2GB</b> <b>(ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA AD30908CBD-151G)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b></p>	<p>PASS</p>	<p>PassMark Rating 1098.1 CPU Mark 2695.9 2D Graphics Mark 384.1 3D Graphics Mark 293.9 Memory Mark 846.6 Disk Mark 716.9</p>

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 8.0</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G) ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G) Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	<b>PassMark Rating 1063 CPU Mark 1964 2D Graphics Mark 419.9 3D Graphics Mark 297 Memory Mark 1039 Disk Mark 760</b>



**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>Performance Test 7.0</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G) ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G) Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	<b>PassMark Rating 967.8 CPU Mark 2102.9 2D Graphics Mark 328.8 3D Graphics Mark 320.2 Memory Mark 650.5 Disk Mark 805.8</b>

**Windows 7 64-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 7.0</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G) ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G) Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	PassMark Rating 1098.1 CPU Mark 2695.9 2D Graphics Mark 384.1 3D Graphics Mark 293.9 Memory Mark 846.6 Disk Mark 716.9

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 8.0</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G) ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G) Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	<b>PassMark Rating 1063 CPU Mark 1964 2D Graphics Mark 419.9 3D Graphics Mark 297 Memory Mark 1039 Disk Mark 760</b>

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test</b> <b>7.0</b>	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b>	PASS	PassMark Rating 1714.1 CPU Mark 5916.3 2D Graphics Mark 491.5 3D Graphics Mark 678.8 Memory Mark 1121.1 Disk Mark 747.7

**Windows 7 64-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test</b> <b>7.0</b>	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b>	PASS	PassMark Rating 1698.5 CPU Mark 5883.5 2D Graphics Mark 425.7 3D Graphics Mark 614.9 Memory Mark 1477.9 Disk Mark 726.1

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test</b>  <b>8.0</b>	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0</b> <b>500GB</b>	PASS	PassMark Rating 1765 CPU Mark 5439 2D Graphics Mark 668 3D Graphics Mark 631 Memory Mark 1318 Disk Mark 715

**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 7.0</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA 4208BBBG-GN-F)*2 HITACHI HTS543216L9A300 160GB</b>	<b>PASS</b>	PassMark Rating 1344.4 CPU Mark 8062.3 2D Graphics Mark 488.5 3D Graphics Mark 355.5 Memory Mark 1166.7 Disk Mark 375.6

**Windows 7 64-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 7.0</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) HITACHI HTS543216L9A300 160GB</b>	<b>PASS</b>	PassMark Rating 1544.2 CPU Mark 10072.1 2D Graphics Mark 566.2 3D Graphics Mark 368.6 Memory Mark 2373.5 Disk Mark 372.9



**Windows 7 32-bit**

Weighted Suite	Test Environment	Result	Remark
<b>Performance Test 8.0</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA 4208BBBG-GN-F)*2 HITACHI HTS543216L9A300 160GB</b>	<b>PASS</b>	PassMark Rating 1184 CPU Mark 6905 2D Graphics Mark 650 3D Graphics Mark 311.9 Memory Mark 1410 Disk Mark 352.4

## 5.2 3D MARK(2001SE、2003、2005)

### Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE Score	<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB</b> <b>(ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB</b> <b>(SEC K4B1G0846D)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	29868
3DMARK2003 Score		PASS	19061
3DMARK2005 Score		PASS	4615

### Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE Score	<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB</b> <b>(ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB</b> <b>(SEC K4B1G0846D)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	28853
3DMARK2003 Score		PASS	18273
3DMARK2005 Score		PASS	9414

**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB</b> <b>(ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB</b> <b>(Kingston D1288JEMFPGD9U)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	28976
<b>3DMARK2003 Score</b>		PASS	18170
<b>3DMARK2005 Score</b>		PASS	11671

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB</b> <b>(ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB</b> <b>(Kingston D1288JEMFPGD9U)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	28034
<b>3DMARK2003 Score</b>		PASS	17428
<b>3DMARK2005 Score</b>		PASS	9531

**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b>	<b>PASS</b>	<b>17328</b>
<b>3DMARK2003 Score</b>	<b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b>	<b>PASS</b>	<b>10345</b>
<b>3DMARK2005 Score</b>	<b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	<b>6396</b>

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b>	<b>PASS</b>	<b>14788</b>
<b>3DMARK2003 Score</b>	<b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b>	<b>PASS</b>	<b>10297</b>
<b>3DMARK2005 Score</b>	<b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>	<b>PASS</b>	<b>6330</b>

**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	32227
<b>3DMARK2003 Score</b>		PASS	19737
<b>3DMARK2005 Score</b>		PASS	14100

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	32738
<b>3DMARK2003 Score</b>		PASS	19382
<b>3DMARK2005 Score</b>		PASS	13819

**Windows 7 32-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b>	PASS	40096
<b>3DMARK2003 Score</b>	<b>NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2</b>	PASS	16089
<b>3DMARK2005 Score</b>	<b>HITACHI HTS543216L9A300 160GB</b>	PASS	10501

**Windows 7 64-bit**

<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>3DMARK2001 SE Score</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b>	PASS	40240
<b>3DMARK2003 Score</b>	<b>NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b>	PASS	46075
<b>3DMARK2005 Score</b>	<b>HITACHI HTS543216L9A300 160GB</b>	PASS	10488

### 5.3 3D MARK2006

#### Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Score	Intel(R) Core(TM) i5-4570S 2.90GHz	PASS	7211
2	SM2.0 Score	Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)	PASS	2404
3	HDR/SM3.0 Score	Transcend DDR3 1333 2GB (SEC K4B1G0846D)	PASS	2900
4	CPU Score	Western Digital WD5000AAKS-00V1A0 500GB	PASS	5723

#### Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK Score	Intel(R) Core(TM) i5-4570S 2.90GHz	PASS	5270
2	SM2.0 Score	Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)	PASS	1669
3	HDR/SM3.0 Score	Transcend DDR3 1333 2GB (SEC K4B1G0846D)	PASS	2127
4	CPU Score	Western Digital WD5000AAKS-00V1A0 500GB	PASS	5665

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i3-4330 3.50GHz Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F) Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U) Western Digital WD5000AAKS-00V1A0 500GB	PASS	6593
2	SM2.0 Score		PASS	2246
3	HDR/SM3.0 Score		PASS	2747
4	CPU Score		PASS	3870

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i3-4330 3.50GHz Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F) Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U) Western Digital WD5000AAKS-00V1A0 500GB	PASS	6100
2	SM2.0 Score		PASS	2017
3	HDR/SM3.0 Score		PASS	2565
4	CPU Score		PASS	3863



**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Pentium(TM) G3320TE 2.30GHz	PASS	3592
2	SM2.0 Score	ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)	PASS	1235
3	HDR/SM3.0 Score	ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)	PASS	1432
4	CPU Score	Western Digital WD5000AAKS-00V1A0 500GB	PASS	2553

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Pentium(TM) G3320TE 2.30GHz	PASS	3499
2	SM2.0 Score	ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)	PASS	1180
3	HDR/SM3.0 Score	ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)	PASS	1413
4	CPU Score	Western Digital WD5000AAKS-00V1A0 500GB	PASS	2551

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	7463
2	SM2.0 Score		PASS	2468
3	HDR/SM3.0 Score		PASS	3010
4	CPU Score		PASS	6087

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>ADATA DDR3 1333 1GB</b> <b>(ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	5787
2	SM2.0 Score		PASS	1799
3	HDR/SM3.0 Score		PASS	2374
4	CPU Score		PASS	6101

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>Kingston DDR3 1600 8GB*2</b> <b>(ELPIDA J4208BBBG-GN-F)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	8189
2	SM2.0 Score		PASS	2754
3	HDR/SM3.0 Score		PASS	3310
4	CPU Score		PASS	3081

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	<b>Intel(R) Core(TM) i7-4770S</b> <b>3.10GHz</b> <b>Kingston DDR3 1600 8GB*2</b> <b>(ELPIDA J4208BBBG-GN-F)</b> <b>Western Digital</b> <b>WD5000AAKS-00V1A0 500GB</b>	PASS	5787
2	SM2.0 Score		PASS	1799
3	HDR/SM3.0 Score		PASS	2374
4	CPU Score		PASS	6101

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2 HITACHI HTS543216L9A300 160GB</b>	PASS	6877
2	SM2.0 Score		PASS	2535
3	HDR/SM3.0 Score		PASS	2444
4	CPU Score		PASS	6781

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) HITACHI HTS543216L9A300 160GB</b>	PASS	6869
2	SM2.0 Score		PASS	2531
3	HDR/SM3.0 Score		PASS	2448
4	CPU Score		PASS	6659

**5.4 3D VANTAGE**

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i5-4570S 2.90GHz	PASS	P5132
2	GPU Score	Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)	PASS	4172
3	CPU Score	Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	16568

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i5-4570S 2.90GHz	PASS	P4091
2	GPU Score	Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)	PASS	3268
3	CPU Score	Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	16736

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i3-4330 3.50GHz Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F) Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U) Western Digital WD5000AAKS-00V1A0 500GB	PASS	P4701
2	GPU Score		PASS	4009
3	CPU Score		PASS	9747

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i3-4330 3.50GHz Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F) Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U) Western Digital WD5000AAKS-00V1A0 500GB	PASS	P4265
2	GPU Score		PASS	3596
3	CPU Score		PASS	9658

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i7-4770S 3.10GHz	PASS	P5348
2	GPU Score	ADATA DDR3 1333 1GB (ADATA SBCD-160BA)	PASS	4334
3	CPU Score	Kingston DDR3 1600 4GB Western Digital WD5000AAKS-00V1A0 500GB	PASS	17956

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
1	3DMARK Score	Intel(R) Core(TM) i7-4770S 3.10GHz	PASS	E18856
2	GPU Score	ADATA DDR3 1333 1GB (ADATA SBCD-160BA)	PASS	19164
3	CPU Score	Kingston DDR3 1600 4GB Western Digital WD5000AAKS-00V1A0 500GB	PASS	17990

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>3DMARK Score</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b>	<b>PASS</b>	<b>P1916</b>
<b>2</b>	<b>GPU Score</b>	<b>NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2</b>	<b>PASS</b>	<b>1465</b>
<b>3</b>	<b>CPU Score</b>	<b>HITACHI HTS543216L9A300 160GB</b>	<b>PASS</b>	<b>24851</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>3DMARK Score</b>	<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b>	<b>PASS</b>	<b>P1926</b>
<b>2</b>	<b>GPU Score</b>	<b>NVIDIA GeForce PX9800GT Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b>	<b>PASS</b>	<b>1473</b>
<b>3</b>	<b>CPU Score</b>	<b>HITACHI HTS543216L9A300 160GB</b>	<b>PASS</b>	<b>24550</b>



## 5.5 PC MARK2002

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU Score	PASS	N/A
2	Memory Score	PASS	65747
3	HDD Score	PASS	2718

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	CPU Score	PASS	N/A
2	Memory Score	PASS	66207
3	HDD Score	PASS	2725

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	64625
<b>3</b>	<b>HDD Score</b>	PASS	2682

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	64851
<b>3</b>	<b>HDD Score</b>	PASS	3411

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	40125
<b>3</b>	<b>HDD Score</b>	PASS	2776

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	40643
<b>3</b>	<b>HDD Score</b>	PASS	3207

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	70494
<b>3</b>	<b>HDD Score</b>	PASS	2397

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	72042
<b>3</b>	<b>HDD Score</b>	PASS	2007

<b>Test Environment</b>
<b>Intel(R)Xeon(R) E3-1230v3 3.30GHz</b> <b>GIGABYTE GV-NX76G256D-RX</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	68329
<b>3</b>	<b>HDD Score</b>	PASS	1326

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>CPU Score</b>	PASS	N/A
<b>2</b>	<b>Memory Score</b>	PASS	68245
<b>3</b>	<b>HDD Score</b>	PASS	1396

## 5.6 PC MARK2004

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

### Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	17381
4	Graphic Score	PASS	12853
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

### Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	16835
4	Graphic Score	PASS	12941
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	15424
4	Graphic Score	PASS	13014
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	14618
4	Graphic Score	PASS	12769
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	10563
4	Graphic Score	PASS	6590
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	10529
4	Graphic Score	PASS	6673
5	HDD Score	PASS	N/A



<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	19955
4	Graphic Score	PASS	13601
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	19763
4	Graphic Score	PASS	13586
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>GIGABYTE GV-NX76G256D-RX</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	19518
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	4130

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	N/A
3	Memory Score	PASS	19408
4	Graphic Score	PASS	10983
5	HDD Score	PASS	N/A

## 5.7 PC MARK2005

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

### Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	13152
3	Memory Score	PASS	13131
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

### Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	13045
3	Memory Score	PASS	10776
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	<b>PCMark Score</b>	PASS	N/A
2	<b>CPU Score</b>	PASS	10902
3	<b>Memory Score</b>	PASS	12771
4	<b>Graphic Score</b>	PASS	N/A
5	<b>HDD Score</b>	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	<b>PCMark Score</b>	PASS	N/A
2	<b>CPU Score</b>	PASS	10851
3	<b>Memory Score</b>	PASS	11575
4	<b>Graphic Score</b>	PASS	N/A
5	<b>HDD Score</b>	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>WEIGHTED SUITE</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	7102
3	Memory Score	PASS	8795
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	6866
3	Memory Score	PASS	8721
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>WEIGHTED SUITE</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	14087
3	Memory Score	PASS	14693
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	14069
3	Memory Score	PASS	12314
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>GIGABYTE GV-NX76G256D-RX</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 32-bit**

<b>Item</b>	<b>WEIGHTED SUITE</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	13952
3	Memory Score	PASS	14770
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	4516

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	N/A
2	CPU Score	PASS	14015
3	Memory Score	PASS	13045
4	Graphic Score	PASS	N/A
5	HDD Score	PASS	N/A

**5.8 PC MARK 7**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	3607

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	3331



<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	2411

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Score	PASS	3677

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	PCMark Score	PASS	2386

## 5.9 PC MARK 8

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD10EZEX-00RKKA0 1TB

Windows 8 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark Work Score	PASS	4715

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD10EZEX-00RKKA0 1TB

Windows 8 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark Work Score	PASS	4611

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD10EZEX-00RKKA0 1TB</b>

**Windows 8 32-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Work Score	PASS	4709

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD10EZEX-00RKKA0 1TB</b>

**Windows 8 64-bit**

Item	Weighted Suite	Result	Remark
1	PCMark Work Score	PASS	4543

## 5.10 CINEBENCH\_R15

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F) Transcend DDR3 1333 2GB (SEC K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	17.69 fps
2	CPU	PASS	440 cb

Test Environment
Intel(R) Core(TM) i3-4330 3.50GHz Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F) Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U) Western Digital WD5000AAKS-00V1A0 500GB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	OpenGL	PASS	20.09 fps
2	CPU	PASS	263 cb

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	OpenGL	PASS	9.45 fps
2	CPU	PASS	175 cb

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
1	OpenGL	PASS	21.55 fps
2	CPU	PASS	475 cb

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 64-bit**

<b>Item</b>	<b>Weighted Suite</b>	<b>Result</b>	<b>Remark</b>
<b>1</b>	<b>OpenGL</b>	N/A	No supply
<b>2</b>	<b>CPU</b>	PASS	7.25 cb

**5.11 ZD CPUMARK**

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	<b>SCORE</b>	PASS	623

<b>Test Environment</b>
<b>Intel(R) Core(TM) i5-4570S 2.90GHz</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>Transcend DDR3 1333 2GB (SEC K4B1G0846D)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	<b>SCORE</b>	PASS	624



<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	SCORE	PASS	607

<b>Test Environment</b>
<b>Intel(R) Core(TM) i3-4330 3.50GHz</b> <b>Kingston DDR3 1333 4GB (ELPIDA J2108BCSE-DJ-F)</b> <b>Kingston DDR3 1333 2GB (Kingston D1288JEMFPGD9U)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	SCORE	PASS	608

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	<b>SCORE</b>	PASS	400

<b>Test Environment</b>
<b>Intel(R) Pentium(TM) G3320TE 2.30GHz</b> <b>ADATA DDR3 1333 2GB (ADATA AD30908CBD-151G)</b> <b>ADATA DDR3 1333 1GB (ADATA AD30908CBD-151G)</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	<b>SCORE</b>	PASS	398

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	<b>SCORE</b>	PASS	675

<b>Test Environment</b>
<b>Intel(R) Core(TM) i7-4770S 3.10GHz</b> <b>ADATA DDR3 1333 1GB (ADATA SBCD-160BA)</b> <b>Kingston DDR3 1600 4GB</b> <b>Western Digital WD5000AAKS-00V1A0 500GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	<b>SCORE</b>	PASS	638

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)*2</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 32-bit**

Item	Weighted Suite	Result	Remark
1	SCORE	PASS	642

<b>Test Environment</b>
<b>Intel(R) Xeon(R) E3-1230v3 3.30GHz</b> <b>NVIDIA GeForce PX9800GT</b> <b>Kingston DDR3 1600 8GB (ELPIDA J4208BBBG-GN-F)</b> <b>HITACHI HTS543216L9A300 160GB</b>

**Windows 7 64-bit**

Item	Weighted Suite	Result	Remark
1	SCORE	PASS	641

## 5.12 Storage Performance

### 5.12.1 HDD

Test environment:

OS Windows 7

Program (HD Tune)

HDD Model	Interface	Capacity	Average	Burst Rate	Access time
Western Digital WD10EZEX-00RKKA0	SATA	1.0 TB	130.3 MB/sec	240.2 MB/sec	15.1 ms
Western Digital WD5000AAKX-22ERMA0	SATA	500 GB	100.1 MB/sec	182.5 MB/sec	15.3 ms
Western Digital WD3200BPVT-00J5T0	SATA	320 GB	64.2 MB/sec	71.8 MB/sec	18.6 ms
Western Digital WD2500AAKS-00VYA0	SATA	250 GB	61.4 MB/sec	69.9 MB/sec	12.6 ms
HITACHI HTS543216L9A300	SATA	160 GB	46.5 MB/sec	73.7 MB/sec	17.9 ms
BUFFALO BUF-HP-HXU3(B)	USB 3.0	1 TB	113.2 MB/sec	110.3 MB/sec	14.1 ms
Kingston DDTHX30	USB 3.0	64 GB	236.3 MB/sec	88 MB/sec	1.1 ms
ADATA C906	USB	8 GB	17.9 MB/sec	16.2 MB/sec	0.7 ms
TDK LoR Trans-It Drive	USB	4 GB	18.9 MB/sec	17.4 MB/sec	0.8 ms
Memo Right MRSAD4B060GC225C00	SSD	60 GB	235.4 MB/sec	120 MB/sec	0.2 ms

### 5.12.2 DVD-ROM

Test environment:

OS Windows 7

Program (NERO)

DVD-ROM Model	Interface	Average Speed	Full Read	Burst Rate	DVD
ASUS DRW-24D1ST	SATA	10.18 x	165 ms	36 MB/s	16 X DVD-R
LITEON iHES312	SATA	9.93 x	153 ms	40 MB/s	16 X DVD-R
BUFFALO DVSM-PC58U2V	USB	5.11 x	221 ms	22 MB/s	16 X DVD-R