

Product Test Report



Product Name	MS-C78
Product Version	B
Issued Date	2014.05.23
Report Edition	1.0
BIOS Version	1.0
Testing Engineer	RICK
Check Engineer	PERRY

REVISION HISTORY

DATE	REVISION NO.	PAGE	DESCRIPTONS
2014.05.23	Ver. 1.0	79	Initial Release

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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	PASS
6	DVI	PASS
7	LVDS	PASS
8	CN_CRT	PASS
9	PS/2	PASS
10	SATA3 1 / 2 / 3 / 4	PASS
11	LAN 1 / 2	PASS
12	DDR3 1 / 2 / 3 / 4	PASS
13	USB2.0 1 / 2 / 3 / 4 / 5 / 6	PASS
14	USB3.0 1 / 2 / 3 / 4 / 5 / 6	PASS
15	COM port 1 / 2 / 3 / 4 / 5 / 6	PASS
16	CPU FAN	PASS
17	SYS FAN	PASS
18	AUDIO	PASS
19	CN_AUDIO	PASS
20	Printer	PASS
21	IrDA (ONLY WIN XP)	PASS
22	CN_DIO	PASS

23	PCI 1 / 3	PASS
24	PCIE 16x	PASS
25	PCIE 4x	PASS
26	MINI PCI	PASS
27	MINI_CARD	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	
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 Interlan LAN	PASS	Only I217-LM
21	LAN OPROM Selection	PASS	Only I217-LM
22	Wake on PCH LAN	PASS	Only I217-LM
23	Intel ® AMT	PASS	Only I217-LM
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	Power On By RTC Alarm	PASS	
33	Wake up By PS/2 Keyboard	PASS	
34	Wake up By PS/2 Mouse	PASS	
35	Set Supervisor Password	PASS	
36	Set User Password	PASS	
37	Exit Saving Changes	PASS	

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 32/64-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

4. Windows Server 2008 R2 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	Audio Driver	PASS	12.8.33.0
4	LAN Driver (I217- LM)	PASS	12.7.28.0
5	LAN Driver (I210)	PASS	6.0.1.6873

5. 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

6. Windows Vista 32/64-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

7. 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	PASS	5.10.0.6083
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

8. 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 (Needs UAA BUS Driver)	PASS	5.10.0.6083
4	LAN Driver (I217- LM)	NONE	NO driver
5	LAN Driver (I210)	NONE	NO driver

9. Windows server 2003 32/64-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	5.10.0.6083
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
SR14H	3.10 GHz	Core	i7-4770S	65 W	8 MB	PASS
SR14J	2.90 GHz	Core	i5-4570S	65 W	6 MB	PASS
SR1NM	3.50 GHz	Core	i3-4330	54 W	4 MB	PASS
SR181	2.30 GHz	Pentium	G3320TE	35 W	3 MB	PASS
SR153	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	AHCI
9	Fedora 15 (2.6.38.6-26.rc1.fc15.i686.PAE)	PASS	AHCI
10	Red Hat 5.4 (2.6.18-164.el5xen)	PASS	AHCI

2.3 Memory Test

Test environment:

OS Windows 7

Test program : PC MARK 2005

Manufacturer	Chip	Frequency	Capacity Mbytes	Result
acpi CMA5-4GA01AAL01A00 1343	SKhynix H5TC4GB83AFR	DDR3L 1600	8 GB	PASS
Kingston KVR16N11/8	ELPIDA J4208BBBG-GN-F	DDR3 1600	8 GB	PASS
Kingston KVR1333D3N7/4G	SAMSUNG K4B2G0846B-HCF8	DDR3 1066	4 GB	PASS
Kingston KHX1600C9D3P1K2/8G	Uknown (Those chips are covered by steel)	DDR3 1600	4 GB	PASS
Kingston KVR1333D3N9/2G	Kingston D1288JEMFPGD9U	DDR3 1333	2 GB	PASS
ADATA AD31333002GOU	ADATA AD30908CBD-151G	DDR3 1333	2 GB	PASS
ADATA AD3U13331G9-B	ADATA SBCD-160BA	DDR3 1333	1 GB	PASS

2.4 Display port 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	
1400*1050	16 / 32bit	PASS	
1440*900	16 / 32bit	PASS	
1600*900	16 / 32bit	PASS	
1600*1200	16 / 32bit	PASS	
1680*1050	16 / 32bit	PASS	
1792*1344	16 / 32bit	PASS	
1856*1392	16 / 32bit	PASS	
1920*1080	16 / 32bit	PASS	
1920*1440	16 / 32bit	PASS	
2048*1152	16 / 32bit	PASS	
2560*1440	16 / 32bit	PASS	

2.5 CRT 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	
1400*1050	16 / 32bit	PASS	
1440*900	16 / 32bit	PASS	
1600*900	16 / 32bit	PASS	
1680*1050	16 / 32bit	PASS	
1920*1080	16 / 32bit	PASS	

2.6 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	
3	LINE-IN	PASS	

OS Windows 7 32 & 64-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	LINE-IN	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	
3	LINE-IN	PASS	

OS Windows Server 2008 32-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	LINE-IN	PASS	

OS Windows Vista 32 & 64-bit

Driver version : 6.0.1.6873

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	LINE-IN	PASS	

OS Windows XP 32 & 64-bit

Driver version : 5.10.0.6083

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	LINE-IN	PASS	

OS Windows Server 2003 32 & 64-bit

Driver version : 5.10.0.6083

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	LINE-IN	PASS	

OS Ubuntu 12.04 LST

Item	Description	Result	Remark
1	2 CH	PASS	

OS Fedora 15

Item	Description	Result	Remark
1	2 CH	PASS	

2.7 HDD Test

Test environment: OS Windows 7

Model	Interface	Capacity	Size Detect	Data Transfer
Western Digital WD10EALX-009BA0	SATA	1.0 TB	PASS	PASS
Western Digital WD10EZEX-00RKKA0	SATA	1.0 TB	PASS	PASS
HITACHI HTS543216L9A300	SATA	160 GB	PASS	PASS

2.8 DVD-ROM Test

Test environment: OS Windows 7

Model	Interface	Detect	Data Transfer	Play DVD
PIONEER DVR-S19LBK	SATA	PASS	PASS	PASS
ASUS DRW-24D1ST	SATA	PASS	PASS	PASS
LITEON eTAU108	USB	PASS	PASS	PASS

2.9 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

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

8. Windows 8 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	

9. Ubuntu 12.04 LST

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

10. Fedora 15

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

10. Red Hat 5

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

11. Red Hat 5.4

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

2.10 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-bit

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	RS-232 Mouse Test	PASS	
3	b&b com port test	PASS	

3. Windows XP 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	
3	b&b com port 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	

2.11 PS/2 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	Description ⁴	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	

10. Fedora 15

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

11. Red Hat 5.4

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

2.12 LAN Test

Data Transfer Test environment:

-CAT 6 UTP 100M

-10 HR. continuous

1. Windows Server 2008 R2 64-bit

64-bit driver version : 12.7.28.0

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 : 12.7.28.0

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 : 12.7.28.0

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

4. Ubuntu 12.04 LST

Item	Description	Result	Remark
1	Device Manager Check	PASS	

2.13 PCIE Card

Motherboard	PCI Express mini card	Result	Remark
MS-C78	SPX-602H	PASS	

2.14 Mini-PCI Card

Motherboard	PCI Express mini card	Result	Remark
MS-C78	MP-954	PASS	
	MP-840	PASS	Only H.264
	MP-323	PASS	
	MP-541D	PASS	
	MP-541D2	PASS	
	MP-878D	PASS	
	MP-878D2	PASS	
	MP-60102	NO SUPPLY	
	MP-6100E	NO SUPPLY	
	MP-6421	Note 1	
	MP-6802T	PASS	
	MP-6816D4	PASS	
	MP-6816D8	PASS	

Note 1: MP-6421 only let SATA/IDE/CF connected for data HDD.

(No support setup OS)

2.15 PCI Express mini card

Motherboard	PCI Express mini card	Remark
MS-C78	MPX-210D	NO SUPPLY
	MPX-210D2	NO SUPPLY
	MPX-574D	NO SUPPLY
	MPX-574D2	NO SUPPLY
	MPX-643	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-5201	NO SUPPLY
	MPX-6864	NO SUPPLY
	MPX-7202	NO SUPPLY
	MPX-7767	NO SUPPLY
	MPX-9125	NO SUPPLY
	MPX-24794G2	PASS
	MPX-25858	NO SUPPLY
	MPX-TP4R	PASS
	MPX-SDVOD	NO SUPPLY
MPX-SDVOX	NO SUPPLY	

2.16 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	

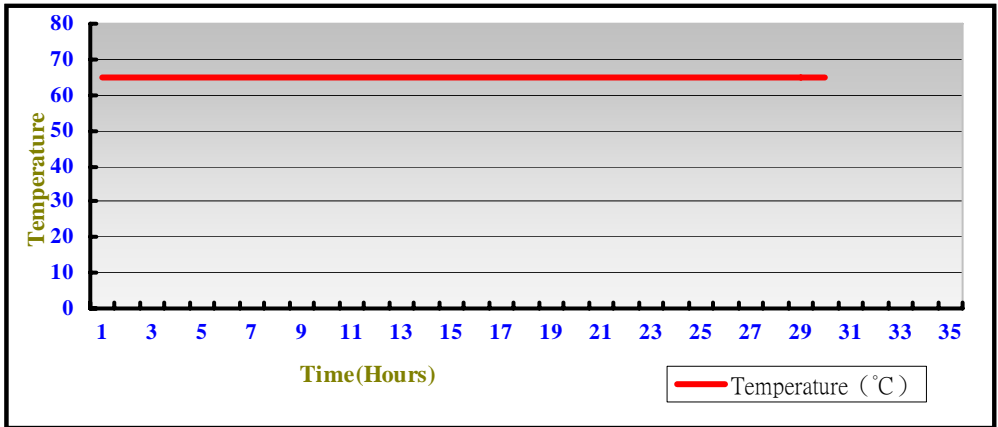
2.17 Power Supply Test

Item	TYPE	Description	Result	Remark
1	ATX Power	CORSAIR CMPSU-500CX V2 500W	PASS	
2	ATX Power	AcBel PC7008 380W	PASS	
3	ATX Power	Enhance ENH-0630A 300W	PASS	
4	ATX Power	CHANNEL WELL TECHNOLOGY CO.,LTD. CWT-250ATX12 250W	PASS	
5	ATX Power	Seasonic SS-500ET 500W	PASS	

3. Environmental test

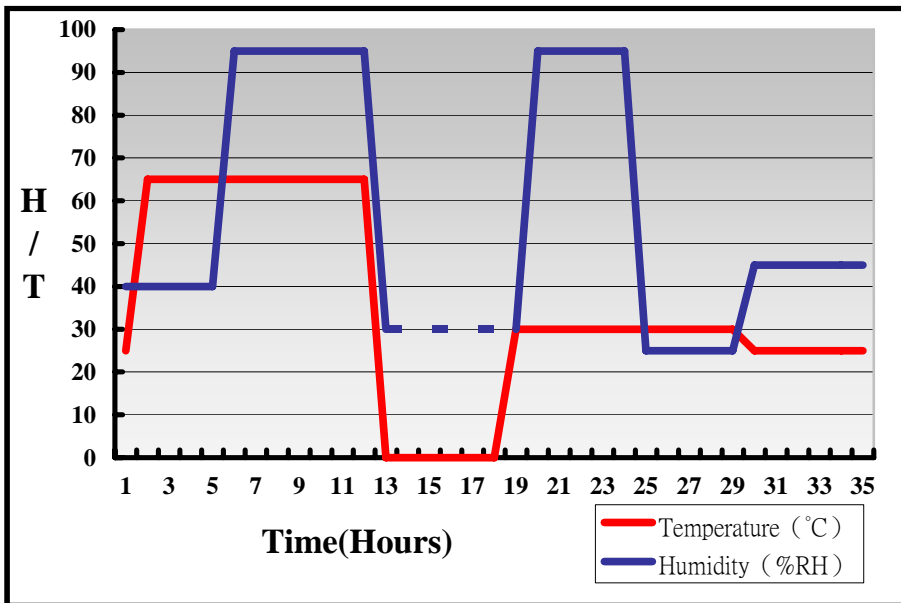
3.1 Temperature Test

System Board	MS-C78_B
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB
Operating OS	Windows 7 32-bit
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark 2006



Hardware Device list:

System Board	MS-C78_B
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB
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:

System Board	MS-C78_B
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB
Operating OS	Windows 7

Temperature	Result	Remark
-40°C	PASS	50 Times
60°C	PASS	50 Times

3.2 Thermal measurements at various points on the board

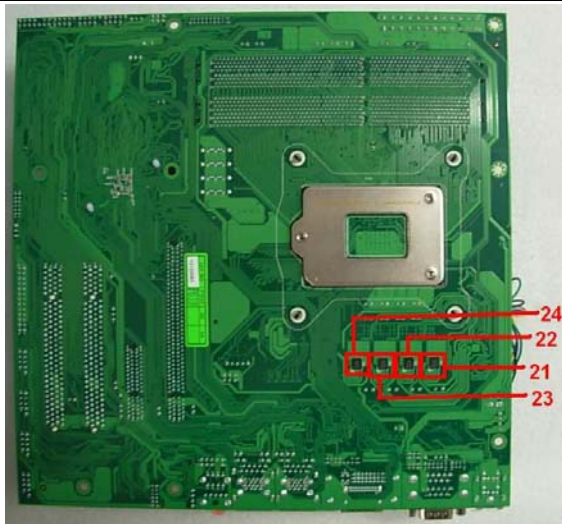
Test Environment :

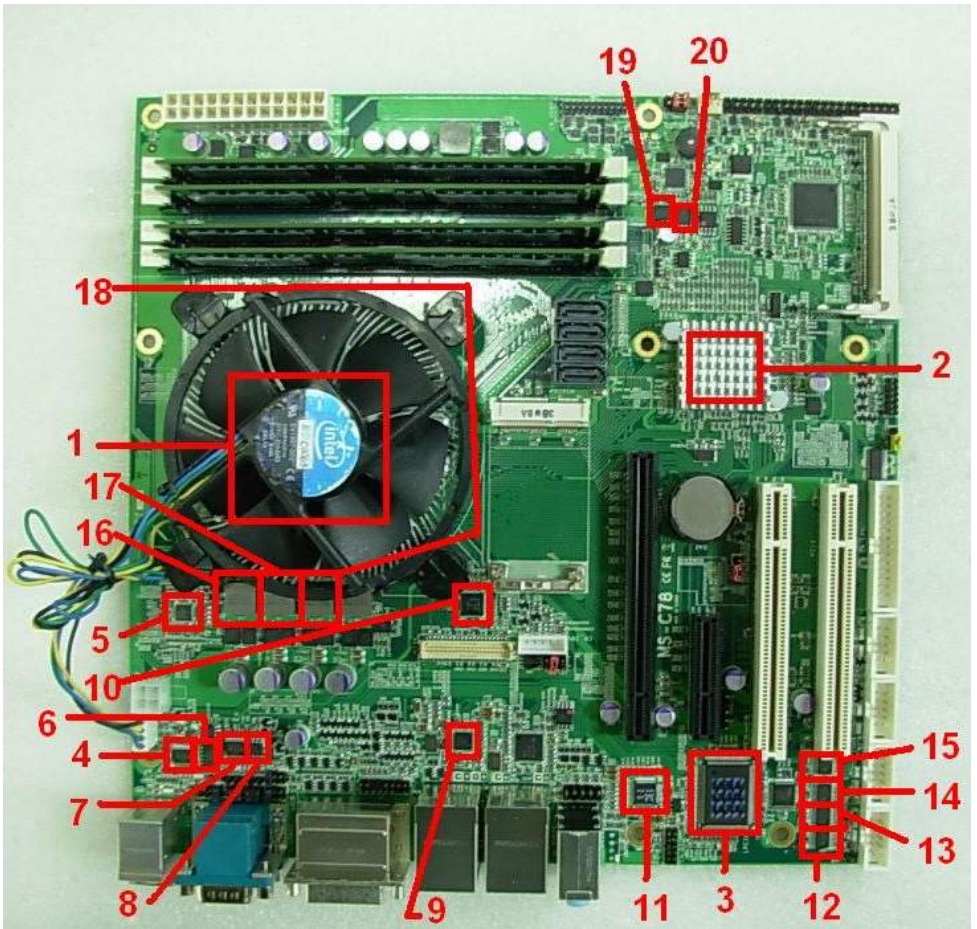
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB
Power	AcBel PC7008
Operating System	Windows 7
Test Program	Burnin 6.0

Test Result:

Item	Environmental temperature	24.1°C
1	CPU	42°C
2	PCH (Q87)	39.7°C
3	LPCIO (ICH83627DHG-P+OBLPMB-1)	33.4°C
4	U1 (ITS75232S)	48.9°C
5	U2 (ISL95820CRTZ)	49.3°C
6	U3 (ITS74F125)	43.7°C
7	U5 (ITS75232S)	48.7°C
8	U6 (ICADM485S)	41.1°C
9	U22 (ICI217)	49.3°C
10	U23 (ICPTN3460BS)	42.2°C
11	U34 (ICHALC888)	42.9°C

12	U48 (ITS75232S)	53.9°C
13	U49 (ITS75232S)	54.3°C
14	U50 (ITS75232S)	52.6°C
15	U51 (ITS75232S)	50.9°C
16	L12 (LLC0.36UH/0445)	41.7°C
17	L15 (LLC0.36UH/0445)	42.2°C
18	L17 (LLC0.36UH/0445)	40.3°C
19	Q33 (TMSIRFH7914PBF)	41.4°C
20	Q34 (TMSIRFH7914PBF)	41.9°C
21	Q51 (TMSIRFH7914PBF)	44°C
22	Q52 (TMSIRFH7914PBF)	44.7°C
23	Q53 (TMSIRFH7914PBF)	43.9°C
24	Q54 (TMSIRFH7914PBF)	42.5°C





4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Memo Right MRSAD4B060GC225C00 60GB

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.34	28.08	3.48	41.76
5V	1.47	7.35	2.67	13.35
3.3V	0.78	2.574	0.77	2.541
5VSB	0.368	1.84	0.013	0.065

1.a. Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.44	53.28	5.72	68.64
5V	2.24	11.2	3.67	18.35
3.3V	0.78	2.574	0.79	2.607
5VSB	0.367	1.835	0.013	0.065

2.Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Core(TM) i5-4570S 2.90GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Memo Right MRSAD4B060GC225C00 60GB

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.49	29.88	4.09	49.08
5V	1.48	7.4	2.67	13.35
3.3V	0.78	2.574	0.78	2.574
5VSB	0.345	1.725	0.002	0.01

2.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17”LCD
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Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.18	38.16	5.39	64.68
5V	2.33	11.65	3.63	18.15
3.3V	0.8	2.64	0.79	2.607
5VSB	0.362	1.81	0.006	0.03

3.Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Core(TM) i7-4770S 3.10GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.47	53.64	4.42	53.04
5V	1.61	8.05	3.04	15.2
3.3V	0.76	2.508	0.76	2.508
5VSB	0.37	1.85	0.009	0.045

3.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17”LCD
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Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Current (A)
12V	4.52	54.24	5.85	70.2
5V	2.55	12.75	3.91	19.55
3.3V	0.78	2.574	0.78	2.574
5VSB	0.366	1.83	0.004	0.02

4.Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Core(TM) i5-4570S 2.90GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.35	52.2	4.15	49.8
5V	1.58	7.9	3.01	15.05
3.3V	0.73	2.409	0.71	2.343
5VSB	0.369	1.845	0.003	0.015

4.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17”LCD
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Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.38	52.56	5.5	66
5V	2.58	12.9	4.05	20.25
3.3V	0.76	2.508	0.76	2.508
5VSB	0.37	1.85	0.005	0.025

5.Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Core(TM) i3-4330 3.50GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.12	49.44	4.36	52.32
5V	1.62	8.1	2.94	14.7
3.3V	0.77	2.541	0.76	2.508
5VSB	0.418	2.09	0.004	0.02

5.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17”LCD
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Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.2	50.4	5.63	67.56
5V	2.63	13.15	3.91	19.55
3.3V	0.79	2.607	0.79	2.607
5VSB	0.428	2.14	0.008	0.04

6.Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Pentium(TM) G3320TE 2.30GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	2.4	28.8	2.69	32.28
5V	1.61	8.05	2.71	13.55
3.3V	0.78	2.574	0.77	2.541
5VSB	0.377	1.885	0.005	0.025

6.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17”LCD
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Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.34	40.08	3.93	47.16
5V	2.64	13.2	3.62	18.1
3.3V	0.78	2.574	0.77	2.541
5VSB	0.421	2.105	0.013	0.065

7.Test Environment:

Motherboard	MS-C78_B
CPU	Intel(R) Xeon(R) E3-1230v3 3.30GHz
Memory	ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
HDD	Western Digital WD10EALX-009BA0 1.0TB
VGA Card	NVIDIA GeForce PX9800GT

Power Supply : AcBel PC7008

Voltage	MS-DOS Boot up		Windows 7 32-bit 3DMARK 2006+PRIME95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.25	39	3.55	42.6
5V	1.61	8.05	2.6	13
3.3V	0.73	2.409	0.68	2.244
5VSB	0.417	2.085	0.009	0.045

5. Performance Test

5.1 Performance Test

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
Performance Test 7.0	Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	PassMark Rating 1785.9 CPU Mark 6511.5 2D Graphics Mark 487.5 3D Graphics Mark 739.1 Memory Mark 1093.7 Disk Mark 813.4

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
Performance Test 7.0	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	PassMark Rating 1436.6 CPU Mark 3166.3 2D Graphics Mark 492.9 3D Graphics Mark 622.4 Memory Mark 1017.2 Disk Mark 812.9

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
Performance Test 7.0	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	PassMark Rating 1928.9 CPU Mark 4090.8 2D Graphics Mark 573.7 3D Graphics Mark 618.4 Memory Mark 6997.9 Disk Mark 784.9

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
<p>Performance Test 7.0</p>	<p>Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB (Hynix H5TC4G83AFR) HITACHI HTS543216L9A300 160GB</p>	<p>PASS</p>	<p>PassMark Rating 1421 CPU Mark 77.7.1 2D Graphics Mark 456.8 3D Graphics Mark 594.1 Memory Mark 1144.4 Disk Mark 371.5</p>

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
Performance Test 7.0	Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB (Hynix H5TC4G83AFR) HITACHI HTS543216L9A300 160GB	PASS	PassMark Rating 1497 CPU Mark 9661.4 2D Graphics Mark 554.9 3D Graphics Mark 580.9 Memory Mark 2470.6 Disk Mark 291.7

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
<p>Performance Test 8.0</p>	<p>Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB (Hynix H5TC4G83AFR) HITACHI HTS543216L9A300 160GB</p>	<p>PASS</p>	<p>PassMark Rating 1422 CPU Mark 6477 2D Graphics Mark 655 3D Graphics Mark 602 Memory Mark 1196 Disk Mark 396.5</p>

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
Performance Test 7.0	Intel(R) Pentium(TM) G3320TE 2.30GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F) Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G) ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	PASS	PassMark Rating 778.3 CPU Mark 2091.5 2D Graphics Mark 323.4 3D Graphics Mark 356.6 Memory Mark 662.2 Disk Mark 247.6

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
Performance Test 7.0	Intel(R) Pentium(TM) G3320TE 2.30GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F) Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G) ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	PASS	PassMark Rating 719.1 CPU Mark 1926.5 2D Graphics Mark 369.4 3D Graphics Mark 316.2 Memory Mark 950.2 Disk Mark 179.7

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
<p>Performance Test 8.0</p>	<p>Intel(R) Pentium(TM) G3320TE 2.30GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F) Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G) ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB</p>	<p>PASS</p>	<p>PassMark Rating 886 CPU Mark 1953 2D Graphics Mark 422.8 3D Graphics Mark 368.1 Memory Mark 1050 Disk Mark 301.2</p>

5.2 3D MARK(2001SE 、 2003 、 2005)

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	33136
3DMARK2003 SCORE		PASS	20992
3DMARK2005 SCORE		PASS	15511

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1066 4GB (SAMSUNG K4B2G0846D-HCF8) Kingston DDR3 1600 4GB Western Digital WD10EALX-009BA0 1.0TB	PASS	16457
3DMARK2003 SCORE		PASS	10652
3DMARK2005 SCORE		NO SUPPLY	N/A

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	29579
3DMARK2003 SCORE		PASS	19046
3DMARK2005 SCORE		PASS	12511

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	30191
3DMARK2003 SCORE		PASS	19152
3DMARK2005 SCORE		PASS	3848

Windows 7 32-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F)	PASS	31479
3DMARK2003 SCORE	Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G)	PASS	19863
3DMARK2005 SCORE	ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	PASS	14100

Windows 7 64-bit

Weighted Suite	Test Environment	Result	Remark
3DMARK2001 SE SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F)	PASS	35073
3DMARK2003 SCORE	Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G)	PASS	17641
3DMARK2005 SCORE	ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	N/A	NO SUPPLY

5.3 3D MARK2006

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	9870
2	SM2.0 SCORE		PASS	3238
3	HDR/SM3.0 SCORE		PASS	4186
4	CPU SCORE		PASS	6174

Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1066 4GB (SAMSUNG K4B2G0846D-HCF8) Kingston DDR3 1600 4GB Western Digital WD10EALX-009BA0 1.0TB	PASS	5366
2	SM2.0 SCORE		PASS	1586
3	HDR/SM3.0 SCORE		PASS	2270
4	CPU SCORE		PASS	6005

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	8411
2	SM2.0 SCORE		PASS	2742
3	HDR/SM3.0 SCORE		PASS	3697
4	CPU SCORE		PASS	4515

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i3-4330 3.50GHz Kingston DDR3 1600 4GB Western Digital WD10EALX-009BA0 1.0TB	PASS	6356
2	SM2.0 SCORE		PASS	2016
3	HDR/SM3.0 SCORE		PASS	2778
4	CPU SCORE		PASS	3870

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	8259
2	SM2.0 SCORE		PASS	2778
3	HDR/SM3.0 SCORE		PASS	3664
4	CPU SCORE		PASS	3864

Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	6961
2	SM2.0 SCORE		PASS	2393
3	HDR/SM3.0 SCORE		PASS	2921
4	CPU SCORE		PASS	3821

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Xeon(R) E3-1230v3 3.30GHz NVIDIA GeForce PX9800GT ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	6850
2	SM2.0 SCORE		PASS	2529
3	HDR/SM3.0 SCORE		PASS	2450
4	CPU SCORE		PASS	6396

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F)	PASS	9360
2	SM2.0 SCORE	Kingston DDR3 1333 2GB (D1288JEMFPGD9U)	PASS	3021
3	HDR/SM3.0 SCORE	ADATA DDR3 1333 2GB (AD30908CBD-151G) ADATA DDR3 1333 1GB (SBCD-160BA)	PASS	3940
4	CPU SCORE	Western Digital WD800BEVS-00RST0 80GB	PASS	6548

Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB	PASS	6761
2	SM2.0 SCORE	(J4208BBBG-GN-F) Kingston DDR3 1333 2GB	PASS	2026
3	HDR/SM3.0 SCORE	(D1288JEMFPGD9U) ADATA DDR3 1333 2GB	PASS	2880
4	CPU SCORE	(AD30908CBD-151G) ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	PASS	6551

5.4 3D VANTAGE

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB	PASS	P4797
2	GPU SCORE		PASS	4100
3	CPU SCORE		PASS	9789

Windows 7 32-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F)	PASS	P5509
2	GPU SCORE	Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G)	PASS	4394
3	CPU SCORE	ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	PASS	23090

Windows 7 64-bit

Item	Weighted Suite	Test Environment	Result	Remark
1	3DMARK SCORE	Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F)	PASS	P5466
2	GPU SCORE	Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G)	PASS	4355
3	CPU SCORE	ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB	PASS	23227

5.5 PC MARK2002

Test Environment
Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	71233
3	HDD SCORE	PASS	3247

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1066 4GB (SAMSUNG K4B2G0846D-HCF8) Kingston DDR3 1600 4GB Western Digital WD10EALX-009BA0 1.0TB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	66010
3	HDD SCORE	PASS	2911

Test Environment
Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	63326
3	HDD SCORE	PASS	3136

Test Environment
Intel(R) Core(TM) i7-4770S 3.10GHz Kingston DDR3 1600 8GB (J4208BBBG-GN-F) Kingston DDR3 1333 2GB (D1288JEMFPGD9U) ADATA DDR3 1333 2GB (AD30908CBD-151G) ADATA DDR3 1333 1GB (SBCD-160BA) Western Digital WD800BEVS-00RST0 80GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	71458
3	HDD SCORE	PASS	1206

Test Environment

Intel(R) Core(TM) i7-4770S 3.10GHz

Kingston DDR3 1600 8GB (J4208BBBG-GN-F)

Kingston DDR3 1333 2GB (D1288JEMFPGD9U)

ADATA DDR3 1333 2GB (AD30908CBD-151G)

ADATA DDR3 1333 1GB (SBCD-160BA)

Western Digital WD800BEVS-00RST0 80GB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	CPU SCORE	PASS	N/A
2	Memory SCORE	PASS	71462
3	HDD SCORE	PASS	690

5.6 PC MARK2004

Test Environment
Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB

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	20281
4	Graphic SCORE	PASS	11411
5	HDD SCORE	PASS	N/A

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1066 4GB (SAMSUNG K4B2G0846D-HCF8) Kingston DDR3 1600 4GB Western Digital WD10EALX-009BA0 1.0TB

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	15571
4	Graphic SCORE	PASS	9364
5	HDD SCORE	PASS	N/A

Test Environment
Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB

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	15709
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment
Intel(R) Core(TM) i3-4330 3.50GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	10825
3	Memory SCORE	PASS	13054
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment

Intel(R) Core(TM) i7-4770S 3.10GHz
Kingston DDR3 1600 8GB (J4208BBBG-GN-F)
Kingston DDR3 1333 2GB (D1288JEMFPGD9U)
ADATA DDR3 1333 2GB (AD30908CBD-151G)
ADATA DDR3 1333 1GB (SBCD-160BA)
Western Digital WD800BEVS-00RST0 80GB

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	19881
4	Graphic SCORE	PASS	18675
5	HDD SCORE	PASS	N/A

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	19691
4	Graphic SCORE	PASS	13621
5	HDD SCORE	PASS	N/A

5.7 PC MARK2005

Test Environment
Intel(R) Core(TM) i7-4770S 3.10GHz ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR) Western Digital WD10EALX-009BA0 1.0TB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	14031
3	Memory SCORE	PASS	15220
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment
Intel(R) Core(TM) i5-4570S 2.90GHz Kingston DDR3 1066 4GB (SAMSUNG K4B2G0846D-HCF8) Kingston DDR3 1600 4GB Western Digital WD10EALX-009BA0 1.0TB

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	13353
3	Memory SCORE	PASS	9781
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment

**Intel(R) Core(TM) i3-4330 3.50GHz
ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
Western Digital WD10EALX-009BA0 1.0TB**

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	11865
3	Memory SCORE	PASS	12575
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment

**Intel(R) Pentium(TM) G3320TE 2.30GHz
ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)
Western Digital WD10EALX-009BA0 1.0TB**

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	7182
3	Memory SCORE	PASS	8779
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment

Intel(R) Xeon(R) E3-1230v3 3.30GHz

NVIDIA GeForce PX9800GT

ACPI DDR3 1600 8GB*4 (Hynix H5TC4G83AFR)

Western Digital WD10EALX-009BA0 1.0TB

Windows 7 32-bit

Item	WEIGHTED SUITE	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	13909
3	Memory SCORE	PASS	14936
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Test Environment

Intel(R) Core(TM) i7-4770S 3.10GHz
Kingston DDR3 1600 8GB (J4208BBBG-GN-F)
Kingston DDR3 1333 2GB (D1288JEMFPGD9U)
ADATA DDR3 1333 2GB (AD30908CBD-151G)
ADATA DDR3 1333 1GB (SBCD-160BA)
Western Digital WD800BEVS-00RST0 80GB

Windows 7 32-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	14137
3	Memory SCORE	PASS	14497
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

Windows 7 64-bit

Item	Weighted Suite	Result	Remark
1	PCMark SCORE	PASS	N/A
2	CPU SCORE	PASS	13978
3	Memory SCORE	PASS	12416
4	Graphic SCORE	PASS	N/A
5	HDD SCORE	PASS	N/A

5.8 Storage Performance

5.8.1 HDD

Test environment:

OS Windows 7

Program (HD Tune)

HDD Model	Interface	Capacity	Average	Burst Rate	Access time
Western Digital WD10EALX-009BA0	SATA	1.0 TB	97.2 MB/sec	197 MB/sec	13.3 ms
Western Digital WD10EZEX-00RKA0	SATA	1.0 TB	129.1 MB/sec	238.5 MB/sec	15.2 ms
Western Digital WD5000AAKS-00V1A0	SATA	500 GB	83 MB/sec	116.7 MB/sec	15.8 ms
HITACHI HTS543216L9A300	SATA	160 GB	46.4 MB/sec	115.3 MB/sec	18 ms
Western Digital WD800BEVS-00RST0	SATA	80 GB	34.6 MB/sec	63.1 MB/sec	17.6 ms
BUFFALO BUF-HP-HXU3(B)	USB 3.0	1 TB	113.7 MB/sec	109.2 MB/sec	17.8 ms
Kingston DDTHX30	USB 3.0	64 GB	234.8 MB/sec	72.4 MB/sec	1.1 ms
ADATA C906	USB	8 GB	17.7 MB/sec	17.1 MB/sec	0.7 ms
TDK LoR Trans-It Drive	USB	4 GB	18.6 MB/sec	17.4 MB/sec	0.8 ms

5.8.2 DVD-ROM

Test environment:

OS Windows 7

Program (NERO)

DVD-ROM Model	Interface	Average Speed	Full Read	Burst Rate	DVD
PIONEER DVR-S19LBK	SATA	10.30 x	193 ms	46 MB/s	16 X DVD-R
ASUS DRW-24D1ST	SATA	10.18 x	169 ms	70 MB/s	16 X DVD-R
LITEON eTAU108	USB	5.17 x	207 ms	19 MB/s	16 X DVD-R