

Product Test Report



Product Name	LS-377
Product Version	B
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Report Edition	1.2
BIOS Version	1.2
Testing Engineer	RICK
Check Engineer	BORLIN

REVISION HISTORY			
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July.11.2011	Ver. 1.0	58	New release
August.1.2011	Ver. 1.1	61	Add page codes
December.21.2011	Ver. 1.2	62	Add Vibration Test

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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	SATA 1/2	PASS
6	USB 1/2/3/4/5/6	PASS
7	DDRIII	PASS
8	COM 1/2	PASS
9	VGA Port	PASS
10	DVI	PASS
11	LVDS	PASS
12	PS2	PASS
13	CD_IN	PASS
14	CN_AUDIO	PASS
15	CN_DIO	PASS
16	CPUFAN	PASS
17	SYSFAN	PASS
18	MINI PCI	PASS
19	MINI CARD	PASS
20	LAN	PASS
21	IrDA	PASS
22	DC_IN	PASS

23	DC_OUT	PASS
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Jumper

Item	Description	Result
1	JRTC	PASS
2	JVLCD	PASS
3	JAT	PASS
4	JCSEL1	PASS
5	JCSEL2	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	Exit Saving Changes	PASS	
4	Date & Time Setting	PASS	
5	Halt On	PASS	
6	Boot priority order	PASS	
7	Keyboard Features NumLock	PASS	
8	Keyboard Features Click	PASS	
9	SATA Control Sub-Menu	PASS	
10	LAN Controller	PASS	
11	Device 29/26 USB 2.0 Enable	PASS	
12	HD Audio	PASS	
13	Onboard Serial Port	PASS	
14	Serial Port 2 IR Mode	PASS	
15	Total Graphics Size	PASS	
16	Console Redirection	PASS	
17	Watch Dog Timer Select	PASS	
18	Set Supervisor Password	PASS	
19	Set User Password	PASS	
20	CPU Warning Temperature	PASS	
21	Shutdown Temperature	PASS	
22	SATA Mode Selection	PASS	

1.3 Driver

CD Edition : ICPI 3-1.0

1. Windows XP SP2 Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	VGA Driver	PASS	6.14.10.5284
3	Audio Driver	PASS	5.10.0.5464
4	LAN Driver	PASS	10.3.49.0

2. Windows Server 2003 Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	Audio Driver	PASS	5.10.0.6101
3	LAN Driver	PASS	10.3.49.0

5. Windows Vista 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	VGA Driver	PASS	8.15.10.2021
3	Audio Driver	PASS	6.0.1.6101
4	LAN Driver	PASS	10.3.49.0

6. Windows Vista 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	VGA Driver	PASS	8.15.10.2021
3	Audio Driver	PASS	6.0.1.6101
4	LAN Driver	PASS	10.3.49.0

7. Windows Server 2008 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	Audio Driver	PASS	6.0.1.6101
3	LAN Driver	PASS	10.3.49.0

8. Windows Server 2008 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	Audio Driver	PASS	6.0.1.6101
3	LAN Driver	PASS	10.3.49.0

9. Windows 7 32-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	VGA Driver	PASS	8.15.10.2021
3	Audio Driver	PASS	6.0.1.6101
4	LAN Driver	PASS	11.4.7.0

10. Windows 7 64-bit Driver Test

Item	Description	Result	Version
1	Chipset Driver	PASS	9.1.1.1025
2	VGA Driver	PASS	8.15.10.2021
3	Audio Driver	PASS	6.0.1.6101

2. Compatibility test

2.1 CPU Test

Test environment:

OS Windows XP professional SP2

Test program : PC MARK 2005

Spec	Clock Speed	Family	Processor	DMI	Smart Cache	Result
SLBPK	2.26 GHz	Core	i3-350M	2.5 GT/s	3 MB	PASS
SLBNB	2.4 GHz	Core	i5-520M	2.5 GT/s	3 MB	PASS
SLBTQ	2.66 GHz	Core	i7-620M	2.5 GT/s	4 MB	PASS
SLBNL	1.86 GHz	Celeron	P4500	2.5 GT/s	2 MB	PASS

2.2 Operation System Test

Item	Description	Result	Remark
1	Windows 7 64-bit	PASS	
2	Windows 7 32-bit	PASS	
3	Windows Server 2008 64-bit	PASS	
4	Windows Server 2008 32-bit	PASS	
5	Windows Vista 64-bit	PASS	
6	Windows Vista 32-bit	PASS	
7	Windows XP SP2	PASS	
8	Windows Server 2003	PASS	
9	Ubuntu 10.10 (2.6.35-22-generic)	PASS	
10	Cent 5.5 (2.6.18-194.el5xen)	PASS	
11	open SUSE 11.3 (2.6.34-12-default)	PASS	

2.3 Memory Test

Test environment:

OS Windows XP professional SP2

Test program : PC MARK 2005

Manufacturer	Chip	Frequency	Capacity Mbytes	Result
A-DATA	K4B1G0846D	DDR3 1066	1 GB	PASS
A-DATA	K4B1G0846D	DDR3 1066	2 GB	PASS
TLA	H5TQ2G83BFR	DDR3 1333	4 GB	PASS
Kingston	K4B2G0846B-HCFB	DDR3 1066	4 GB	PASS

2.4 VGA Graphic Quality Test

Test environment:

OS Windows XP professional SP2

Driver version : 6.14.10.5284

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	
1440*1050	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*1200	16 / 32bit	PASS	

2.5 Audio

Test environment:

OS Windows XP professional SP2

Driver version : 5.10.0.5464

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows Server 2003

Driver version : 5.10.0.6101

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows Vista 32-bit

Driver version : 6.0.1.6101

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows Vista 64-bit

Driver version : 6.0.1.6101

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows Server 2008 32-bit**Driver version : 6.0.1.6101**

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows Server 2008 64-bit**Driver version : 6.0.1.6101**

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows 7 32-bit**Driver version : 6.0.1.6101**

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

OS Windows 7 64-bit**Driver version : 6.0.1.6101**

Item	Description	Result	Remark
1	2 CH	PASS	
2	Microphone	PASS	
3	CDIN	PASS	

2.6 HDD Test

Test environment:

OS Windows XP professional SP2

MODEL	INTERFACE	Capacity	Size Detect	Data Transfer
HITACHI HTS543216L9A300	SATA	160 GB	PASS	PASS
Western Digital WD1600AAJS-00B4A0	SATA	160 GB	PASS	PASS
Western Digital WD3200AAJS-00YZC0	SATA	320 GB	PASS	PASS
Western Digital WD5000AAKS-00V1A0	SATA	500 GB	PASS	PASS
Western Digital WD5000AAKS-00Z7B0	SATA	500 GB	PASS	PASS

2.7 DVD-ROM Test

Test environment:

OS Windows XP professional SP2

MODEL	INTERFACE	Detect	Data Transfer	PLAY DVD
LG DVD GH20NS15	SATA	PASS	PASS	PASS
LG DVD GSA-H62L	SATA	PASS	PASS	PASS
PIONEER DVD DVR-212BK	SATA	PASS	PASS	PASS
LITEON DVD SOSC-2485KX	USB	PASS	PASS	PASS
LITEON DVD SOSW-833SX	USB	PASS	PASS	PASS
LITEON DVD eTAU108	USB	PASS	PASS	PASS

2.8 USB device Test

1. Windows XP SP2

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

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 Vista 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	

4. Windows Vista 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 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-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 7 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	

2.9 Serial Port Test

1. MS-DOS

Item	Description	Result	Remark
1	RS-232 Mouse Test	PASS	
2	RS422/485	PASS	

2. Windows Server 2003

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 SP2

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

4. Windows Vista 32-bit

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

5. Windows Vista 64-bit

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

6. 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	

7. Windows Server 2008 64-bit

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

8. Windows 7 32-bit

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

9. Windows 7 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

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

3. Windows XP SP2

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

4. Windows Vista 32-bit

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

5. Windows Vista 64-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 32-bit

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

7. Windows Server 2008 64-bit

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

8. Windows 7 32-bit

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

9. Windows 7 64-bit

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 XP SP2

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

2. Windows Server 2003

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

3. Windows Vista 32-bit

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

4. Windows Vista 64-bit

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

5. Windows Server 2008 32-bit

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

6. Windows Server 2008 64-bit

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

2.12 Power Supply Test

Item	TYPE	Description	Result	Remark
1	AC ADAPTER	LI SHIN 0219B1280 80W	PASS	
2	ATX Power	SWITCH POWER SUPPLY MC-B530ATX	PASS	
3	ATX Power	CHANNEL WELL ECHNOLOGY CWT-300ATX12 300W	PASS	
4	ATX Power	Seventeam ST-400EAG-05F 385W	PASS	

2.13 PCI Express mini card

Motherboard	PCI Express mini card	Remark
LS-377	MPX-574D/ D2	PASS
LS-377	MPX-643	PASS
LS-377	MPX-827	PASS
LS-377	MPX-885	PASS
LS-377	MPX-954E	PASS
LS-377	MPX-1040	PASS
LS-377	MPX-3132	PASS
LS-377	MPX-6864	NO SUPPLY
LS-377	MPX-7202	PASS
LS-377	MPX-7767	PASS
LS-377	MPX-TP4R	PASS
LS-377	MPX-SDVOD	NO SUPPLY
LS-377	MPX-SDVOX	NO SUPPLY
LS-377	MPX-XDOM	PASS

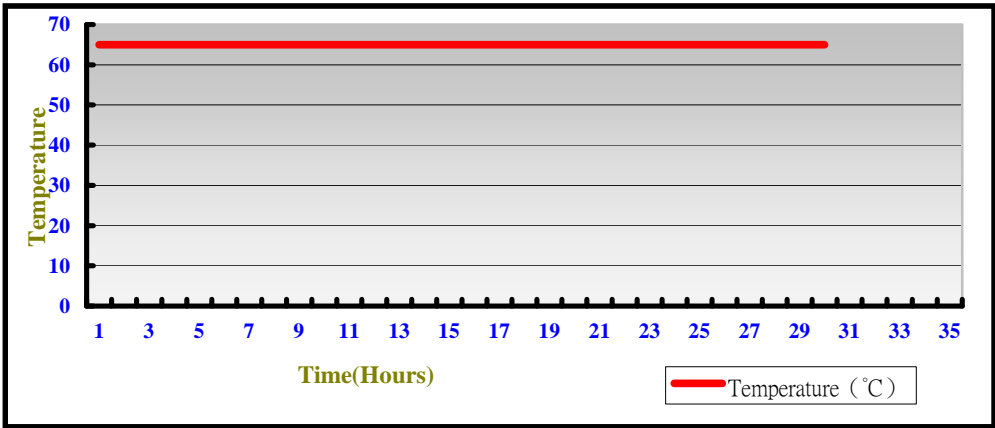
3. Environmental test

3.1 Temperature Test

Hardware Device list:

System Board	LS-377
CPU	Intel(R) Celeron(TM) P4500 1.86 GHz
Memory	Kingston DDR3 1066 2GB (K4B1G0846D)
HDD	HITACHI HTS543216L9A300 160GB
Operating OS	Windows XP
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark 2003

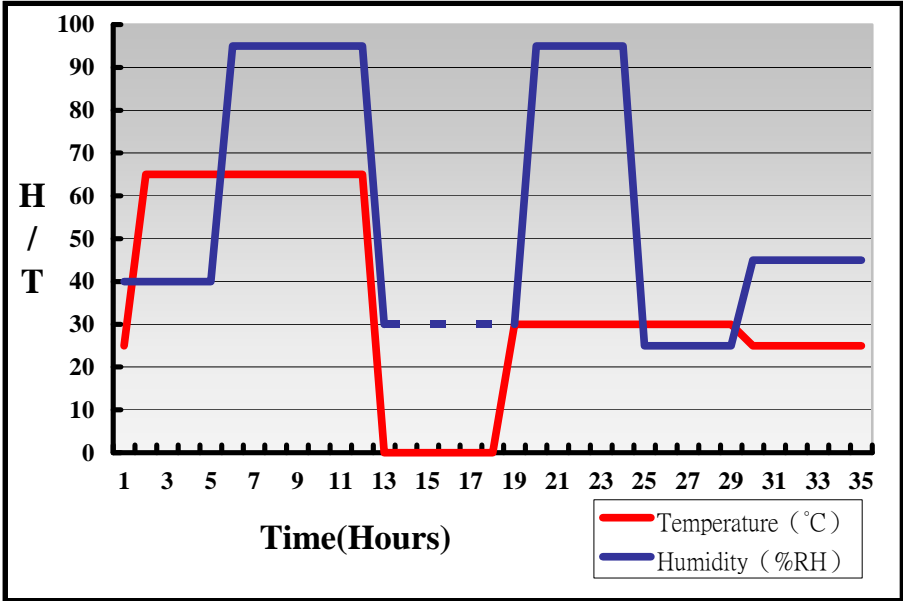
Test Result:



Hardware Device list:

System Board	LS-377
CPU	Intel(R) Celeron(TM) P4500 1.86 GHz
Memory	Kingston DDR3 1066 2GB (K4B1G0846D)
HDD	HITACHI HTS543216L9A300 160GB
Operating OS	Windows XP
Test Equipment	GIANT FORCE (GTH-150-60-CP-AR)
Test Program	3DMark 2003

Test Result:



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	LS-377
CPU	Intel(R) Celeron(TM) P4500 1.86 GHz
Memory	Kingston DDR3 1066 4GB (K4B2G0846B-HCFB)
HDD	Western Digital WD5000AAKS-00Z7B0 500GB

Temperature	Result	Remark
-40°C	PASS	50 Times
75°C	PASS	50 Times

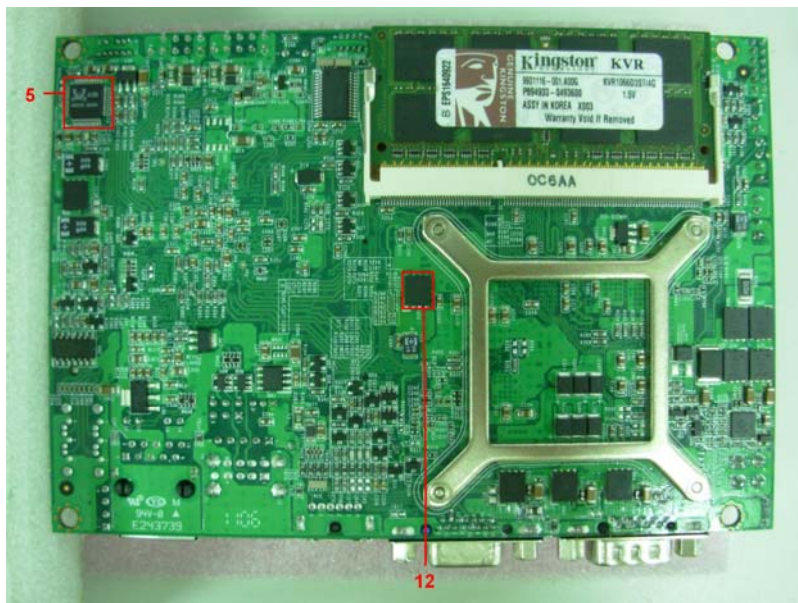
3.2 Thermal measurements at various points on the board

Test Environment :

CPU	Intel(R) Celeron(TM) P4500 1.86 GHz
Memory	Kingston DDR3 1066 4GB (K4B2G0846B-HCFB)
HDD	Western Digital WD5000AAKS-00Z7B0 500GB
Power	LI SHIN 0219B1280
Operating System	Windows XP
Test Program	Burnin 5.3

Test Result:

Item	Environmental temperature	25 °C
1	CPU	59 °C
2	PCH (ICHQM57)	62 °C
3	LPCIO (ICH83627DHG-P)	46.4 °C
4	U7 (ICS9LP505)	67.3 °C
5	U31 (ICHALC888)	63.2 °C
6	L7 (LLC3.3UH/063T)	61.4 °C
7	Q3 (TMSIRFH7914PBF)	58 °C
8	Q4 (TMSIRFH7914PBF)	60 °C
9	Q6 (TMSIRFH7914PBF)	56.8 °C
10	Q22 (TMSIRFH7914PBF)	73.9 °C
11	Q23 (TMSIRFH7914PBF)	77 °C
12	Q52 (TMSIRFH7914PBF)	77.6 °C



4. Reliability Test

4.1 Power Consumption Test

1. Test Environment:

Motherboard	LS-377
CPU	Intel(R) Core(TM) i3 CPU M 350 2.26GHz
Memory	TLA DDR3 1333 4GB (H5TQ2G83BFR)
HDD	Western Digital WD1600AAJS-00B4A0 160GB

AC ADAPTER: LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.58	42.96	4.11	49.32

1.a. Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	6.33	75.96	6.96	83.52

2.Test Environment:

Motherboard	LS-377
CPU	Intel(R) Core(TM) i5 CPU M 520 2.4GHz
Memory	TLA DDR3 1333 4GB (H5TQ2G83BFR)
HDD	Western Digital WD1600AAJS-00B4A0 160GB

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.76	45.12	5.04	60.48

2.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	6.38	76.56	7.11	85.32

3.Test Environment:

Motherboard	LS-377
CPU	Intel(R) Core(TM) i3 CPU M 350 2.26GHz
Memory	Kingston DDR3 1066 4GB (K4B2G0846B-HCFB)
HDD	Western Digital WD1600AAJS-00B4A0 160GB

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.56	42.72	4.19	50.28

3.a.Test Environment:

The same as above but with LCD panel

Display Panel	AUO M170EG01 17"LCD
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AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	6.38	75.56	7	84

4.Test Environment:

Motherboard	LS-377
CPU	Intel(R) Core(TM) i5 CPU M 520 2.4GHz
Memory	Kingston DDR3 1066 4GB (K4B2G0846B-HCFB)
HDD	Western Digital WD1600AAJS-00B4A0 160GB

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.66	43.92	4.29	51.48

4.a.Test Environment:

The same as above but with LCD panel

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

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	6.24	74.88	6.93	83.16

5.Test Environment:

Motherboard	LS-377
CPU	Intel(R) Core(TM) i7 CPU M 620 2.66GHz
Memory	TLA DDR3 1333 4GB (H5TQ2G83BFR)
HDD	Western Digital WD5000AAKS-00V1A0 500GB

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	3.74	44.88	4.61	55.32

5.a.Test Environment:**The same as above but with LCD panel**

Display Panel	AUO M170EG01 17"LCD
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AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	5.6	67.2	6.58	78.96

6.Test Environment:

Motherboard	LS-377
CPU	Intel(R) Celeron(TM) CPU P4500 1.86GHz
Memory	Kingston DDR3 1066 4GB (K4B2G0846B-HCFB)
HDD	Western Digital WD5000AAKS-00Z7B0 500GB

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	4.27	51.24	4.51	54.12

6.a.Test Environment:**The same as above but with LCD panel**

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

AC ADAPTER : LI SHIN 0219B1280

Voltage	MS-DOS Boot up		Windows XP SP2 3DMARK 2003 + PRIME 95	
	Current (A)	Power (W)	Current (A)	Power (W)
12V	7.18	86.16	7.35	88.2

5. Performance Test

5.1 Business Win Stone 2002

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
Business Win stone2002	Intel(R) Core(TM) i3-350M 2.4GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD1600AAJS-00B4A0 160GB	PASS	43.1 44.7 43.1 44.6
Business Win stone2002	Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 2GB (K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	45.6 42.6 45 45.1
Business Win stone2002	Intel(R) Core(TM) i7-620M 2.66GHz TLA DDR3 1066 1GB (H5TQ1G83BFR) Western Digital WD5000AAKX-001CA0 500GB	PASS	48.4 48.6 49 47.9

Business Win stone2002	Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB	PASS	42.9 42.5 42.4 42
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5.2 Business Win Stone 2004

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
Business Win stone2004	Intel(R) Core(TM) i3-350M 2.4GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD1600AAJS-00B4A0 160GB	PASS	24.7 24.4 24.4 24.4
Business Win stone2004	Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 2GB (K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	25.9 24.5 25.2 26
Business Win stone2004	Intel(R) Core(TM) i7-620M 2.66GHz TLA DDR3 1066 1GB (H5TQ1G83BFR) Western Digital WD5000AAKX-001CA0 500GB	PASS	26.1 26.9 27 26.6

Business Win stone2004	Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB	PASS	23.5 23.8 23.4 23.5
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5.3 Content Creation Winstone 2004

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
Content Creation Winstone 2004	Intel(R) Core(TM) i3-350M 2.4GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD1600AAJS-00B4A0 160GB	PASS	43 43.5 43.4 43.5
Content Creation Winstone 2004	Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 2GB (K4B1G0846D) Western Digital WD5000AAKS-00V1A0 500GB	PASS	46 46.5 46.5 45.9
Content Creation Winstone 2004	Intel(R) Core(TM) i7-620M 2.66GHz TLA DDR3 1066 1GB (H5TQ1G83BFR) Western Digital WD5000AAKX-001CA0 500GB	PASS	50.8 51 50.7 50.6

<p>Content Creation Winstone 2004</p>	<p>Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB</p>	<p>PASS</p>	<p>38.7 38.8 39.5 39.2</p>
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5.4 3D MARK(2001、2003、2005)

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
3DMARK2001 Scores	Intel(R) Core(TM) i3-350M 2.26GHz TLA DDR3 1333 4GB (H5TQ2G83BFR) Western Digital WD1600AAJS-00B4A0 160GB	PASS	9236
3DMARK2003 Scores		PASS	3247
3DMARK2005 Scores		PASS	2201

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
3DMARK2001 Scores	Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 1GB (K4B1G0846D) Western Digital WD1600AAJS-00B4A0 160GB	PASS	9116
3DMARK2003 Scores		PASS	3179
3DMARK2005 Scores		PASS	2152

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
3DMARK2001 Scores	Intel(R) Core(TM) i7-620M 2.66GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB	PASS	9844
3DMARK2003 Scores		PASS	3273
3DMARK2005 Scores		PASS	2203

Windows XP SP2

WEIGHTED SUITE	Test Environment	Result	Remark
3DMARK2001 Scores	Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB	PASS	8582
3DMARK2003 Scores		PASS	3211
3DMARK2005 Scores		PASS	2195

5.5 3D MARK2006

Windows XP SP2

Item	WEIGHTED SUITE	Test Environment	Result	Remark
1	3DMARK Scores	Intel(R) Core(TM) i3-350M 2.26GHz TLA DDR3 1333 4GB (H5TQ2G83BFR) Western Digital WD1600AAJS-00B4A0 160GB	PASS	1440
2	SM2.0 Scores		PASS	436
3	HDR/SM3.0 Scores		PASS	581
4	CPU Scores		PASS	2330

Windows XP SP2

Item	WEIGHTED SUITE	Test Environment	Result	Remark
1	3DMARK Scores	Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 1GB (K4B1G0846D) Western Digital WD1600AAJS-00B4A0 160GB	PASS	1412
2	SM2.0 Scores		PASS	426
3	HDR/SM3.0 Scores		PASS	568
4	CPU Scores		PASS	2464

Windows XP SP2

Item	WEIGHTED SUITE	Test Environment	Result	Remark
1	3DMARK Scores	Intel(R) Core(TM) i7-620M 2.66GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB	PASS	1455
2	SM2.0 Scores		PASS	433
3	HDR/SM3.0 Scores		PASS	588
4	CPU Scores		PASS	2812

Windows XP SP2

Item	WEIGHTED SUITE	Test Environment	Result	Remark
1	3DMARK Scores	Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB	PASS	1411
2	SM2.0 Scores		PASS	436
3	HDR/SM3.0 Scores		PASS	576
4	CPU Scores		PASS	1609

5.6 PC MARK2002

Test Environment
Intel(R) Core(TM) i3-350M 2.26GHz TLA DDR3 1333 4GB (H5TQ2G83BFR) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	CPU test Scores	PASS	8411
2	Memory test Scores	PASS	29982
3	HDD test Scores	PASS	1840

Test Environment
Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 1GB (K4B1G0846D) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	CPU test Scores	PASS	9010
2	Memory test Scores	PASS	32478
3	HDD test Scores	PASS	1899

Test Environment
Intel(R) Core(TM) i7-620M 2.66GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	CPU test Scores	PASS	10305
2	Memory test Scores	PASS	36050
3	HDD test Scores	PASS	2214

Test Environment
Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	CPU test Scores	PASS	6931
2	Memory test Scores	PASS	19414
3	HDD test Scores	PASS	2244

5.7 PC MARK2004

Test Environment
Intel(R) Core(TM) i3-350M 2.26GHz TLA DDR3 1333 4GB (H5TQ2G83BFR) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP PS2

Item	WEIGHTED SUITE	Result	Remark
1	PCMark Scores	PASS	N/A
2	CPU test Scores	PASS	N/A
3	Memory test Scores	PASS	5800
4	Graphic test Scores	PASS	2163
5	HDD test Scores	PASS	5000

Test Environment
Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 1GB (K4B1G0846D) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP PS2

Item	WEIGHTED SUITE	Result	Remark
1	PCMark Scores	PASS	N/A
2	CPU test Scores	PASS	N/A
3	Memory test Scores	PASS	5805
4	Graphic test Scores	PASS	2132
5	HDD test Scores	PASS	5167

Test Environment
Intel(R) Core(TM) i7-620M 2.66GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB

Windows XP PS2

Item	WEIGHTED SUITE	Result	Remark
1	PCMark Scores	PASS	N/A
2	CPU test Scores	PASS	N/A
3	Memory test Scores	PASS	7665
4	Graphic test Scores	PASS	2172
5	HDD test Scores	PASS	6152

Test Environment
Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB

Windows XP PS2

Item	WEIGHTED SUITE	Result	Remark
1	PCMark Scores	PASS	5994
2	CPU test Scores	PASS	6239
3	Memory test Scores	PASS	5050
4	Graphic test Scores	PASS	2019
5	HDD test Scores	PASS	5982

5.8 PC MARK2005

Test Environment
Intel(R) Core(TM) i3-350M 2.26GHz A-DATA DDR3 1066 1GB (K4B1G0846D) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	N/A
2	CPU test Scores	PASS	5699
3	Memory test Scores	PASS	5173
4	Graphic test Scores	PASS	N/A
5	HDD test Scores	PASS	6077

Test Environment
Intel(R) Core(TM) i3-350M 2.26GHz TLA DDR3 1333 4GB (H5TQ2G83BFR) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	N/A
2	CPU test Scores	PASS	6102
3	Memory test Scores	PASS	5206
4	Graphic test Scores	PASS	N/A
5	HDD test Scores	PASS	6092

Test Environment
Intel(R) Core(TM) i3-350M 2.26GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	N/A
2	CPU test Scores	PASS	6123
3	Memory test Scores	PASS	5206
4	Graphic test Scores	PASS	N/A
5	HDD test Scores	PASS	6108

Test Environment
Intel(R) Core(TM) i5-520M 2.4GHz A-DATA DDR3 1066 1GB (K4B1G0846D) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	N/A
2	CPU test Scores	PASS	6095
3	Memory test Scores	PASS	5727
4	Graphic test Scores	PASS	N/A
5	HDD test Scores	PASS	6051

Test Environment
Intel(R) Core(TM) i7-620M 2.66GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD1600AAJS-00B4A0 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	N/A
2	CPU test Scores	PASS	7363
3	Memory test Scores	PASS	5960
4	Graphic test Scores	PASS	N/A
5	HDD test Scores	PASS	5911

Test Environment
Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 4GB (K4B2G0846B-HCFB) Western Digital WD5000AAKS-00Z7B0 500GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	4271
2	CPU test Scores	PASS	4648
3	Memory test Scores	PASS	4673
4	Graphic test Scores	PASS	3215
5	HDD test Scores	PASS	N/A

Test Environment
Intel(R) Celeron(TM) P4500 1.86GHz Kingston DDR3 1066 2GB (K4B1G0846D) HITACHI HTS543216L9A300 160GB

Windows XP SP2

Item	WEIGHTED SUITE	Result	Remark
1	System test Scores	PASS	N/A
2	CPU test Scores	PASS	4636
3	Memory test Scores	PASS	4584
4	Graphic test Scores	PASS	N/A
5	HDD test Scores	PASS	4345

5.9 Storage Performance

5.9.1 HDD

Test environment:

OS Windows XP professional SP2

Program (HD Tune)

HDD MODEL	INTERFACE	capacity	Average	Burst Rate	Access time
HITACHI HTS543216L9A300	SATA	160 GB	46.2 MB/sec	105.6 MB/sec	18.1 ms
Western Digital WD1600AAJS-00B4A0	SATA	160 GB	93.7 MB/sec	103 MB/sec	15.9 ms
Western Digital WD3200AAJS-00YZC0	SATA	320 GB	88.6 MB/sec	116.3 MB/sec	15.8 ms
Western Digital WD5000AAKS-00V1A0	SATA	500 GB	103.2 MB/sec	117.7 MB/sec	15 ms
Western Digital WD5000AAKS-00Z7B0	SATA	500 GB	74.2 MB/sec	86.4 MB/sec	12.9 ms
TDK LoR Trans-It Drive	USB	4 GB	14.1 MB/sec	10.7 MB/sec	1.1 ms

Apacer USB FLASH DRIVE	USB	515 MB	8.3 MB/sec	4.4 MB/sec	2.1 ms
CSS HEH74-016G	MINI CARD (XDOM)	16 GB	55.3 MB/sec	53.3 MB/sec	0.4 ms

5.9.2 DVD-ROM

Test environment:

OS Windows XP professional SP2

Program (NERO)

CD-ROM MODEL	INTERFACE	Average speed	Full Read	Burst Rate	CD
PIONEER DVD DVR-212BK	SATA	8.85 x	204 ms	46 MB/s	52X CD-R
LG DVD GSA-H62L	SATA	11.66 x	194 ms	49 MB/s	52X CD-R
LG DVD GH20NS15	SATA	36.19 x	175 ms	36 MB/s	52X CD-R
LITEON DVD SOSC-2485KX	USB	17.24 x	191 ms	19 MB/s	52X CD-R
LITEON DVD SOSW-833SX	USB	17.58 x	199 ms	115 MB/s	52X CD-R
LITEON DVD eTAU108	USB	5.84 x	232 ms	20 MB/s	52X CD-R

5.10 Vibration Test

Motherboard	LS-377			
Test Equipment	VS-5060L			
Amplitude	Degree	Frequency	Time (1min/1Time)	Result
0.75mm	40	5 → 55 → 5 Hz	10	PASS
1.00mm	55	5 → 55 → 5 Hz	10	PASS
1.25mm	70	5 → 55 → 5 Hz	10	PASS
1.5mm	90	5 → 55 → 5 Hz	10	PASS
1.5mm	90	5 → 55 → 5 Hz	120	PASS