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1. Function test

1.1 Hardware function

Base Function Test

1	Power Button	PASS
2	Reset	PASS
3	Power LED	PASS
4	HDD LED	PASS
5	IDE Primary Master	PASS
6	IDE Primary Slave	PASS
7	SATA	PASS
8	DIMM	PASS
9	Floppy	PASS
10	Keyboard	PASS
11	Mouse	PASS
12	VGA Port	PASS
13	AUDIO Port	PASS
14	AUDIO (2.0 pitch)	PASS
15	Giga LAN	PASS
16	USB Port	PASS
17	IEEE 1394	PASS
18	COM 1	PASS
19	COM 2	PASS
20	PCI Express X 16	PASS
21	Mini PCI	PASS
22	IrDA	PASS
23	CDIN	PASS

24	GPIO	PASS
25	CPUFAN	PASS
26	SYSFAN	PASS

Jumper

1	JRTC	PASS
2	JDOM	PASS
3	JLAN1	PASS
4	JLAN2	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	Save & Exit Setup	PASS	
4	Date & Time Setting	PASS	
5	Drive A	PASS	
6	Quick Power On Self Test	PASS	
7	Boot Device Setting	PASS	
8	Boot Up Floppy Seek	PASS	
9	Boot Up NumLock Status	PASS	
10	VGA Control	PASS	
11	On Chip Video Memory Size	PASS	
12	Boot Display	PASS	
13	On Chip Primary IDE	PASS	
14	On Chip Serial ATA	PASS	
15	SATA Mode	PASS	
16	USB Controller	PASS	
17	USB 2.0 Controller	PASS	
18	USB Keyboard Support	PASS	
19	USB Mouse Support	PASS	
20	AC97 Audio	PASS	
21	POWER ON Function	PASS	
22	Onboard FDC Controller	PASS	
23	PWRON After PWR-Fail	PASS	
24	Watch Dog Timer Select	PASS	
25	Soft-Off by PWRBTN	PASS	
26	Wake-Up On LAN	PASS	

27	Power On by Ring	PASS	
28	Resume by Alarm	PASS	
29	Shutdown Temperature	PASS	
30	Smart CPUFAN Temp	PASS	

1.3 Driver

1. Windows 2000 Driver Test

Item	Description	Result	Remark
1	Chipset Driver	PASS	
2	VGA Driver	PASS	
3	Audio Driver	PASS	
4	LAN Driver	PASS	

2. Windows Server 2000 Driver Test

	Description	Result	Remark
1	Chipset Driver	PASS	
2	VGA Driver	PASS	
3	Audio Driver	PASS	
4	LAN Driver	PASS	

3. Windows XP Driver Test

Item	Description	Result	Remark
1	Chipset Driver	PASS	
2	VGA Driver	PASS	
3	Audio Driver	PASS	
4	LAN Driver	PASS	

4. Windows Server 2003 Driver Test

Item	Description	Result	Remark
1	Chipset Driver	PASS	
2	Audio Driver	PASS	
3	LAN Driver	PASS	

2. Compatibility test

2.1 CPU Test

CPU	Operating System	Result	Remark
Pentium 4 /1M/ 2.8 GHZ	Windows 2000	PASS	
	Windows Server 2000	PASS	
	Windows XP	PASS	
	Windows Server 2003	PASS	
Pentium 4 /1M/ 3.0 GHZ	Windows 2000	PASS	
	Windows Server 2000	PASS	
	Windows XP	PASS	
	Windows Server 2003	PASS	
Pentium 4 /1M/ 3.2 GHZ	Windows 2000	PASS	
	Windows Server 2000	PASS	
	Windows XP	PASS	
	Windows Server 2003	PASS	
Pentium 4 /1M/ 3.4 GHZ	Windows 2000	PASS	
	Windows Server 2000	PASS	
	Windows XP	PASS	
	Windows Server 2003	PASS	
Pentium 4 /1M/ 3.6 GHZ	Windows 2000	PASS	
	Windows Server 2000	PASS	
	Windows XP	PASS	
	Windows Server 2003	PASS	

2.2 Memory Test

DDR DRAM	DDR Freq	Capacity Mbytes	Operating System	Result
SAMSUNG (K4T56083QF-GCD5)	DDRII 533	256MB	Win2k、 Server2000 WinXP、 Server2003	PASS
Crucial (MT8HTF3264AG-53EB3)	DDRII 533	256MB	Win2k、 Server2000 WinXP、 Server2003	PASS
TwinMOS (K4T51083QB-GCD5)	DDRII 533	512MB	Win2k、 Server2000 WinXP、 Server2003	PASS
ELPIDA (E5108AB-5C-E)	DDRII 533	512MB	Win2k、 Server2000 WinXP、 Server2003	PASS
Crucial (CT16HTF6464AY53EB2)	DDRII 533	512MB	Win2k、 Server2000 WinXP、 Server2003	PASS
LEGACY (L506464K20C-37A)	DDRII 533	512MB	Win2k、 Server2000 WinXP、 Server2003	PASS
Apacer (HYB18T512)	DDRII 533	1GB	Win2k、 Server2000 WinXP、 Server2003	PASS
Kingston (K4T51083QB-GCD5)	DDRII 533	1GB	Win2k、 Server2000 WinXP、 Server2003	PASS
SAMSUNG (K4T51083QB-GCD5)	DDRII 533	1GB	Win2k、 Server2000 WinXP、 Server2003	PASS

2.3 VGA Graphic Test

1. Windows 2000

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	DVI Display Test	PASS	With PCIE-SDVO add-on card

2. Windows Server 2000

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	DVI Display Test	PASS	With PCIE-SDVO add-on card

3. Windows XP

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	DVI Display Test	PASS	With PCIE-SDVO add-on card

4. Windows Server 2003

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	DVI Display Test	PASS	With PCIE-SDVO add-on card

PCI Express VGA Card

VGA Card	Operating System	Result	Remark
MSI PCX5750 128MB	Windows 2000、XP	PASS	
ASUS EN5750 128MB	Windows 2000、XP	PASS	
GAINWARD PCX5900 128MB	Windows 2000、XP	PASS	

2.4 Audio Test

1. Windows 2000

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	
4	5.1 channel test	PASS	

2. Windows Server 2000

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	
4	5.1 channel test	PASS	

3. Windows XP

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	
4	5.1 channel test	PASS	

4. Windows XP Server 2003

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	
4	5.1 channel test	PASS	

2.5 HDD Test

HDD Type	Operating System	HDD Size Detect	HDD Data Transfer	HDD LED Check
IBM DTLA-307030 30.7GB	MS-DOS	PASS	PASS	PASS
Seagate ST340016A 40GB		PASS	PASS	PASS
Seagate ST340014A 40GB	Win2000	PASS	PASS	PASS
WD 2500JB-00EVA0 250GB	Win Server2000	PASS	PASS	PASS
HITACHI HDS722525VLSA80 250GB (SATA)	WinXP	PASS	PASS	PASS
	Win Server2003	PASS	PASS	PASS

2.6 CD-ROM Test

CD-ROM Type	Operating System	CD-ROM Detect	CD-ROM Data Transfer	PLAY DVD
BENQ 652A	Win2000	PASS	PASS	
ASUS CD-S400/A		PASS	PASS	
AOPEN DVD1648/LKY	WinServer2000	PASS	PASS	PASS
SONY DDU1621	WinXP	PASS	PASS	PASS
	WinServer2003	PASS	PASS	PASS

2.7 USB Test

1. Windows 2000

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	External USB Keyboard Test	PASS	
3	External USB Mouse Test	PASS	
4	Hot plugging test	PASS	

2. Windows Server 2000

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	External USB Keyboard Test	PASS	
3	External USB Mouse Test	PASS	
4	Hot plugging test	PASS	

3. Windows XP

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	External USB Keyboard Test	PASS	
3	External USB Mouse Test	PASS	
4	Hot plugging test	PASS	

4. Windows Server 2003

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	External USB Keyboard Test	PASS	
3	External USB Mouse Test	PASS	
4	Hot plugging test	PASS	

2.8 Serial Port Test

1. MS-DOS

Item	Description	Result	Remark
1	MS-DOS PCCheck TEST	PASS	
2	MS-DOS QuickTech Pro TEST	PASS	

2. Windows 2000

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

3. Windows XP

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

2.9 Keyboard, Mouse Test

1. MS-DOS

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

2. Windows 2000

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

3. Windows Server 2000

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

4. Windows XP

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

5. Windows Server 2003

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Keyboard Typing Test	PASS	
3	Mouse Detect Test	PASS	

2.10 LAN Test

1. Windows 2000

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

2. Windows Server 2000

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

3. Windows XP

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

4. Windows Server 2003

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

2.11 Power Supply Test

1. MS-DOS 6.22

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	Seventeam ST-402HLP
2	ATX Power On/Off	Pass	AOpen FSP300-60ATV

2. Windows 2000

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	Seventeam ST-402HLP
2	ATX Power On/Off	Pass	AOpen FSP300-60ATV

3. Windows Server 2000

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	Seventeam ST-402HLP
2	ATX Power On/Off	Pass	AOpen FSP300-60ATV

4. Windows XP

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	Seventeam ST-402HLP
2	ATX Power On/Off	Pass	AOpen FSP300-60ATV

5. Windows Server 2003

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	Seventeam ST-402HLP
2	ATX Power On/Off	Pass	AOpen FSP300-60ATV

2.12 Floppy Drive Test

Model: SAMSUNG SFD321S

1. MS-DOS 6.22

Item	Description	Result	Remark
1	Floppy Drive Detect	PASS	
2	Boot from Floppy	PASS	
3	Floppy Data Transfer	PASS	

2. Windows 2000

Item	Description	Result	Remark
1	Floppy Drive Detect	PASS	
2	Floppy Data Transfer	PASS	

3. Windows Server 2000

Item	Description	Result	Remark
1	Floppy Drive Detect	PASS	
2	Floppy Data Transfer	PASS	

4. Windows XP

Item	Description	Result	Remark
1	Floppy Drive Detect	PASS	
2	Floppy Data Transfer	PASS	

5. Windows Server 2003

Item	Description	Result	Remark
1	Floppy Drive Detect	PASS	
2	Floppy Data Transfer	PASS	

2.13 Boot Up Test

Item	Description	Result	Remark
1	Soft boot from HDD	PASS	
2	Soft boot from CD-ROM	PASS	
3	Soft boot from Floppy	PASS	
4	Reboot test with Win 2000	PASS	
5	Reboot test with Win Server 2000	PASS	
6	Reboot test with Win XP	PASS	
7	Reboot test with Win Server 2003	PASS	

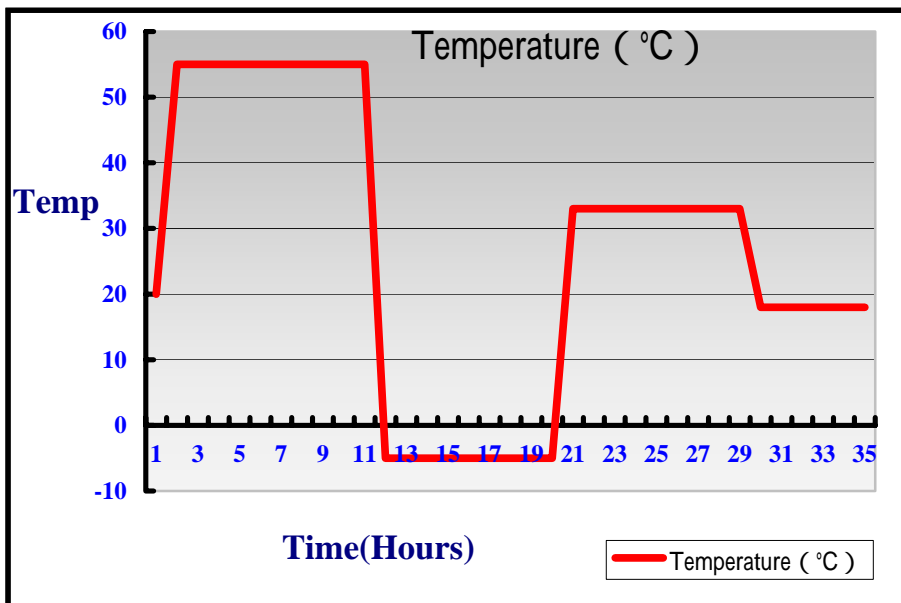
3. Environmental test

3.1 Temperature Test

Hardware Device list:

System Board	LV-672
CPU	Pentium 4 /1M/ 3.0 GHZ
Memory	SAMSUNG 240 Pin DDR533 256MB*2
HDD	Seagate ST340014A 40GB
Operating OS	Windows XP
Test Equipment	THERMOTRON 2800 Programmer/Controller
Test Program	3D WinMark 2003

Test Result:



4. Reliability Test

4.1 Power Consumption Test

1.Test Environment:

CPU	Pentium 4 /1M/ 2.8 GHZ
Memory	SAMSUNG 240 Pin DDRII 533 256MB*2
HDD	Seagate ST340014A 40G
CDROM	SONY DDU1621 DVD-ROM
Operating System	Windows 2000
Test Program	3DwinMark 2003

Voltae	Current (A)	Power (W)	Remark
3.3V	0.5	1.65	
5V	2	10	
5VSB	2.6	13	
12V	7.5	90	

2.Test Environment:

CPU	Pentium 4 /1M/ 3.0 GHZ
Memory	TwinMOS 240 Pin DDRII 533 512MB*2
HDD	Seagate ST340014A 40G
CDROM	SONY DDU1621 DVD-ROM
Operating System	Windows XP
Test Program	3DwinMark 2003

Voltae	Current (A)	Power (W)	Remark
3.3V	0.5	1.65	
5V	2	10	

5VSB	2.7	13.5	
12V	7.7	92.4	

3.Test Environment:

CPU	Pentium 4 /1M/ 3.2 GHZ
Memory	Apacer 240 Pin DDRII 533 1GB*2
HDD	Seagate ST340014A 40G
CDROM	SONY DDU1621 DVD-ROM
Operating System	Windows XP
Test Program	3DwinMark 2003

Voltae	Current (A)	Power (W)	Remark
3.3V	0.5	1.65	
5V	2.1	10.5	
5VSB	2.7	13.5	
12V	8.3	99.6	

4.Test Environment:

CPU	Pentium 4 /1M/ 3.4 GHZ
Memory	TwinMOS 240 Pin DDRII 533 512MB*2
HDD	Seagate ST340014A 40G
CDROM	SONY DDU1621 DVD-ROM
Operating System	Windows XP
Test Program	3DwinMark 2003

Voltae	Current (A)	Power (W)	Remark
3.3V	0.5	1.65	
5V	2.2	11	

5VSB	2.7	13.5	
12V	8.7	104.4	

5.Test Environment:

CPU	Pentium 4 /1M/ 3.6 GHZ
Memory	Apacer 240 Pin DDRII 533 1GB*2
HDD	Seagate ST340014A 40G
CDROM	SONY DDU1621 DVD-ROM
Operating System	Windows 2000
Test Program	3DwinMark 2003

Voltae	Current (A)	Power (W)	Remark
3.3V	0.5	1.65	
5V	2.3	11.5	
5VSB	2.8	14	
12V	12	144	

4.2 Thermal measurements at various points on the board

Test Environment :

CPU	Pentium 4/1M/3.6GHz (with fan)
Memory	Apacer 240 Pin DDRII 533 1GB*2
HDD	Seagate ST340014A 40G
DVD-ROM	SONY DDU1621
Power	Seventeam ST-402HLP
Operating System	Windows XP
Test Program	3D WinMark2003

Test Result:

CPU	65.4°C
915G (Northbridge)	48.4°C
ICH6R (Southbridge)	42.3°C
Q2	71.4°C
Q4	70.6°C
Q13	68.3°C
L3	68.1°C
L4	63.4°C

5. Performance Test

5.1 Business Win Stone

1. Windows 2000

WEIGHTED SUITE	Test Environment	Result	Remark
Business Win stone2001	Pentium-4/1M/ 3.4 GHZ	Pass	76.4
	Apacer DDRII 533 1GB*2		77.8
	Seagate ST340014A 40GB		77.8
			78
			77.9
Business Win stone2002	Pentium-4/1M/ 3.4 GHZ	Pass	35.1
	Apacer DDRII 533 1GB*2		36.4
	Seagate ST340014A 40GB		36.9
			36.8
			37

2. Windows XP

WEIGHTED SUITE	Test Environment	Result	Remark
Business Win stone2002	Pentium 4/1M/ 3.6 GHZ	Pass	39
	Apacer DDRII 533 1GB*2		39.2
	Seagate ST340014A 40GB		39.7
			39.3
			39

5.2 Content Creation Winstone

1. Windows 2000

WEIGHTED SUITE	Test Environment	Result	Remark
Winstone Content Creation2001	Pentium-4/1M/ 3.4 GHZ Apacer DDRII 533 1GB*2 Seagate ST340014A 40GB	Pass	105.1
			105.8
			105.1
			105.7
			105
Winstone Content Creation2003	Pentium-4/1M/ 3.4 GHZ Apacer DDRII 533 1GB*2 Seagate ST340014A 40GB	Pass	53.9
			55.7
			54.5
			54.4
			54.7

2. Windows XP

WEIGHTED SUITE	Test Environment	Result	Remark
Winstone Content Creation2001	Pentium-4/1M/ 3.2 GHZ ELPIDA DDRII 533 512MB*2 Seagate ST340014A 40GB	Pass	109.3
			109
			110.3
			110
			110.7
Winstone Content Creation2004	Pentium-4/1M/ 3.2 GHZ ELPIDA DDRII 533 512MB*2 Seagate ST340014A 40GB	Pass	30.6
			30.8
			30.9
			30.9
			30.9

5.3 3D MARK

1. Windows 2000

WEIGHTED SUITE	Test Environment	Result	Remark
3DMARK2001 Scores	Pentium-4/1M/ 3.4 GHZ Apacer DDRII 533 1GB*2	Pass	4576
3DMARK2003 Scores	Seagate ST340014A 40GB	Pass	1640

2. Windows XP

WEIGHTED SUITE	Test Environment	Result	Remark
3DMARK2001 Scores	Pentium 4/1M/ 3.6 GHZ Apacer DDRII 533 1GB*2	Pass	5974
3DMARK2003 Scores	Seagate ST340014A 40GB	Pass	1812