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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	IDE Secondary Master	PASS
8	IDE Secondary Slave	PASS
9	DIMM	PASS
10	Floppy	PASS
11	Keyboard	PASS
12	Mouse	PASS
13	VGA Port	PASS
14	AUDIO Port	PASS
15	LVDS Port	PASS
16	COM 1	PASS
17	COM 2	PASS
18	Printer Port	PASS
19	USB Port	PASS
20	IRDA	PASS
21	CDIN	PASS
22	CPUFAN	PASS
23	SYSFAN	PASS

<b>24</b>	Compact Flash	PASS
<b>25</b>		

## **2.0 PITCH (DIP)**

1	JRTC	PASS
2	JDOM	PASS
3	JCFSEL	PASS
4	JLAN	PASS
5	JVLCD	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	Drive B	PASS	
7	Quick Power On Self Test	PASS	
8	Boot Device Setting	PASS	
9	Swap Floppy Drive	PASS	
10	Boot Up Floppy Seek	PASS	
11	Boot Up NumLock Status	PASS	
12	On Chip VGA	PASS	
13	On Chip Frame Buffer Size	PASS	
14	On Chip Primary PCI IDE	PASS	
15	On Chip Secondary PCI IDE	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	Init Display First	PASS	
22	POWER ON Function	PASS	
23	Onboard FDC Controller	PASS	
24	Onboard Serial Port	PASS	
25	Onboard Parallel Port	PASS	
26	Watch Dog Timer Select	PASS	
27	ACPI Function	PASS	

28	Soft-Off by PWRBTN	PASS	
29	Modem Ring On	PASS	
30	Wake Up On LAN	PASS	
31	Wake Up by On board Lan	PASS	
32	RTC Alarm Resume	PASS	

## 1.3 Driver

### 1. Windows 98 Driver Test

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

### 2. Windows 2000 Driver Test

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

### 3. Windows Server 2000 Driver Test

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

### 4. Windows XP Driver Test

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

## 2. Compatibility test

### 2.1 CPU Test

<b>CPU</b>	<b>Operating System</b>	<b>Result</b>	<b>Remark</b>
<b>Celeron-M/512K/ 1.2 GHZ</b>	<b>Windows 98</b>	PASS	
	<b>Windows 2000</b>	PASS	
	<b>Windows Server 2000</b>	PASS	
	<b>Windows XP</b>	PASS	
<b>Celeron-M/512K/ 1.3 GHZ</b>	<b>Windows 98</b>	PASS	
	<b>Windows 2000</b>	PASS	
	<b>Windows Server 2000</b>	PASS	
	<b>Windows XP</b>	PASS	
<b>Pentium-M /1M/ 1.3 GHZ</b>	<b>Windows 98</b>	PASS	
	<b>Windows 2000</b>	PASS	
	<b>Windows Server 2000</b>	PASS	
	<b>Windows XP</b>	PASS	
<b>Pentium-M /1M/ 1.6 GHZ</b>	<b>Windows 98</b>	PASS	
	<b>Windows 2000</b>	PASS	
	<b>Windows Server 2000</b>	PASS	
	<b>Windows XP</b>	PASS	
<b>Pentium-M /1M/ 1.7 GHZ</b>	<b>Windows 98</b>	PASS	
	<b>Windows 2000</b>	PASS	
	<b>Windows Server 2000</b>	PASS	
	<b>Windows XP</b>	PASS	



## 2.2 Memory Test

DDR DRAM	DDR Freq	Capacity Mbytes	Operating System	Result
NANYA (NT5DS16M8AT-7K)	DDR266	128MB	Win98、 Win2000 WinXP	PASS
Micron (MT8VDDT1664AG-265A1)	DDR266	128MB	Win98、 Win2000 WinXP	PASS
HYUNDAI (HY5DU28822T-H)	DDR266	256MB	Win98、 Win2000 WinXP	PASS
NANYA (NT5DS16M8AT-7K)	DDR266	256MB	Win98、 Win2000 WinXP	PASS
Winbond (W942508AH-75)	DDR266	256MB	Win98、 Win2000 WinXP	PASS
SAMSUNG (K4H280838B-TCB0)	DDR266	256MB	Win98、 Win2000 WinXP	PASS
Infineon (HYB25D256800BT-6)	DDR333	512MB	Win98、 Win2000 WinXP	PASS
KINGMAX (KDL388P4EA-60)	DDR333	512MB	Win98、 Win2000 WinXP	PASS
SEITEC (DDR32M8AT-7)	DDR333	512MB	Win98、 Win2000 WinXP	PASS
SAMSUNG (K4H560838D-TCB3)	DDR333	512MB	Win98、 Win2000 WinXP	PASS
HYNIX (HY5DU12822AT-D43)	DDR400	1GB	Win98、 Win2000 WinXP	PASS

## 2.3 VGA Graphic Test

### 1. Windows 98

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	LVDS Display Test	PASS	

### 2. Windows 2000

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	LVDS Display Test	PASS	

### 3. Windows Server 2000

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	

### 4. Windows XP

Item	Description	Result	Remark
1	Resolution/Color Change	PASS	
2	CRT Display Test	PASS	
3	CRT Display Quality Test	PASS	
4	LVDS Display Test	PASS	

## 2.4 Audio Test

### 1. Windows 98

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	

### 2. Windows 2000

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	

### 3. Windows Server 2000

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	

### 4. Windows XP

Item	Description	Result	Remark
1	Sound Effect	PASS	
2	Equalizer	PASS	
3	Microphone	PASS	

## 5. Sound Card

<b>Sound Card</b>	<b>Operating System</b>	<b>Result</b>	<b>Remark</b>
ESS ES1869F (ISA)	Windows 98	PASS	
Yamaha YMF724C-V (PCI)	Windows XP	PASS	
ESS ES1989S (PCI)	Windows XP	PASS	

## 2.5 HDD Test

HDD Type	Operating System	HDD Size Detect	HDD Data Transfer	HDD LED Check
IBM DTL/307030 30.6GB	MS-DOS	PASS	PASS	PASS
Maxtor 6E040L0 40GB	Win98	PASS	PASS	PASS
Seagate ST340014A 40GB	Win2000	PASS	PASS	PASS
Seagate ST380011A 80GB	WinXP	PASS	PASS	PASS

## 2.6 CD-ROM Test

CD-ROM Type	Operating System	CD-ROM Detect	CD-ROM Data Transfer	PLAY DVD
BENQ 652A	Win98	PASS	PASS	
AOPEN DVD1648/LKY	Win2000	PASS	PASS	PASS
SONY DDU1621	WinXP	PASS	PASS	PASS

## 2.7 USB Test

### 1. Windows 98

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 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	

## 2.8 Serial Port & Printer Port Test

### 1. Windows 98

Item	Description	Result	Remark
1	MS-DOS PCCheck TEST	PASS	
2	Device Manager Check	PASS	
3	RS-232 Modem 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 6.22

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

### 2. Windows 98

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

### 3. Windows 2000

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

### 4. Windows Server 2000

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

### 5. Windows XP

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 98

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

### 2. Windows 2000

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

### 3. Windows Server 2000

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

### 4. Windows XP

Item	Description	Result	Remark
1	Device Manager Check	PASS	
2	Data Transfer Test (With 100M Standard Cable)	PASS	

### 5. LAN Card

LAN Card	Operating System	Result	Remark
Realtek RTL8019 (ISA)	Windows 98	PASS	
Realtek RTL8139D(PCI)	Windows XP	PASS	
Realtek RTL8029AS(PCI)	Windows XP	PASS	
D-link DFE-530TX (PCI)	Windows XP	PASS	

## 2.11 Power Supply Test

### 1. MS-DOS 6.22

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	AOpen FSP300-60ATV
2	AT Power On/Off	Pass	MAGITRONIC D-P350

### 2. Windows 98

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	AOpen FSP300-60ATV
2	AT Power On/Off	Pass	MAGITRONIC D-P350

### 3. Windows 2000

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	AOpen FSP300-60ATV
2	AT Power On/Off	Pass	MAGITRONIC D-P350

### 4. Windows XP

Item	Description	Verification	
		Result	Remark
1	ATX Power On/Off	Pass	AOpen FSP300-60ATV
2	AT Power On/Off	Pass	MAGITRONIC D-P350

## 2.12 Floppy Drive Test

Model: Newtronics D353T6

### 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 98

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

### 3. Windows 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	

## 2.13 Boot Up Test

<b>Item</b>	<b>Description</b>	<b>Result</b>	<b>Remark</b>
1	Soft boot from HDD	PASS	Times
2	Soft boot from CD-ROM	PASS	Times
3	Reboot test with Win 98	PASS	Times
4	Reboot test with Win 2000	PASS	Times
5	Reboot test with Win Server 2000	PASS	Times
6	Reboot test with Win XP	PASS	Times
7	Reboot test with Win Server 2003	PASS	Times
8	Reboot test with WinNT 4.0	PASS	Times
9	Reboot test with Red Hat Linux 9.0	PASS	Times

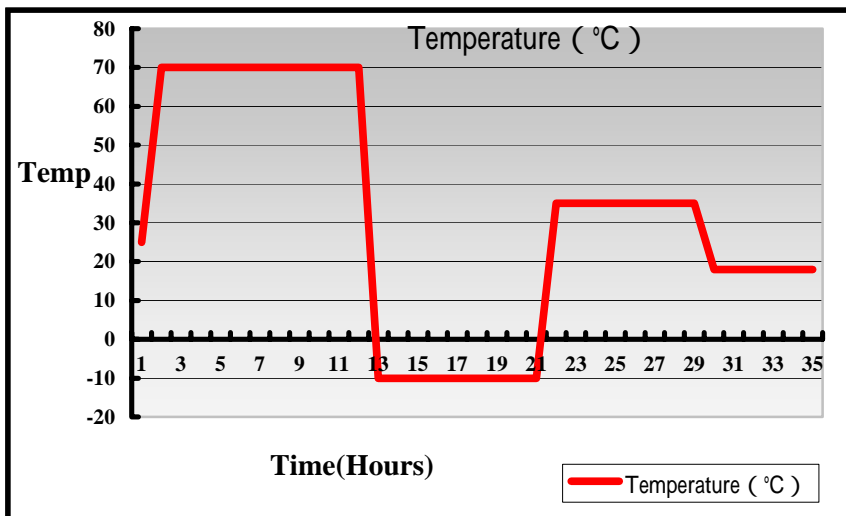
### 3. Environmental test

#### 3.1 Temperature & Humidity Test

##### Hardware Device list:

System Board	HS-870P
CPU	Pentium-M / 1M / 1.6 GHZ
Memory	SEITEC 184 Pin DDR333 512MB
HDD	Seagate ST340014A 40GB
Operating OS	Windows XP
Test Equipment	THERMOTRON 2800 Programmer/Controller
Test Program	3D WinMark 2001

##### Test Result:



## 4. Reliability Test

### 4.1 Power Consumption Test

#### 1.Test Environment:

CPU	<b>Celeron-M/ 512K /1.3 GHZ</b>
Memory	<b>SEITEC 184 Pin DDR333 512MB</b>
HDD	<b>Seagate ST340014A 40G</b>
CDROM	<b>AOPEN DVD1648/LKY</b>
Operating System	<b>Windows XP</b>
Test Program	<b>3DwinMark 2001</b>

<b>5V</b> Current	6.0A
<b>5V</b> Power	30W
<b>12V</b> Current	0.3A
<b>12V</b> Power	3.6W

#### 2.Test Environment:

CPU	<b>Pentium-M/1M/1.3 GHZ</b>
Memory	<b>SEITEC 184 Pin DDR333 512MB</b>
HDD	<b>Seagate ST340014A 40G</b>
CDROM	<b>AOPEN DVD1648/LKY</b>
Operating System	<b>Windows XP</b>
Test Program	<b>3DwinMark 2001</b>

<b>5V</b> Current	6.3A
<b>5V</b> Power	31.5W
<b>12V</b> Current	0.5A
<b>12V</b> Power	6W

### 3.Test Environment:

CPU	<b>Pentium-M/2M/1.5 GHZ (Dothan)</b>
Memory	<b>SEITEC 184 Pin DDR333 512MB</b>
HDD	<b>Seagate ST340014A 40G</b>
CDROM	<b>AOPEN DVD1648/LKY</b>
Operating System	<b>Windows XP</b>
Test Program	<b>3DwinMark 2001</b>

<b>5V</b> Current	6.5A
<b>5V</b> Power	32.5W
<b>12V</b> Current	0.5A
<b>12V</b> Power	6W

### 4.Test Environment:

CPU	<b>Pentium-M/1M/1.6 GHZ</b>
Memory	<b>SEITEC 184 Pin DDR333 512MB</b>
HDD	<b>Seagate ST340014A 40G</b>
CDROM	<b>AOPEN DVD1648/LKY</b>
Operating System	<b>Windows XP</b>
Test Program	<b>3DwinMark 2001</b>

<b>5V</b> Current	6.8A
<b>5V</b> Power	34W
<b>12V</b> Current	0.5A
<b>12V</b> Power	6W

## 5. Test Environment:

CPU	<b>Pentium-M/1M/1.7 GHZ</b>
Memory	<b>SAMSUNG 184 Pin DDR333 512MB</b>
HDD	<b>IBM DTLA-307030</b>
CDROM	<b>AOPEN DVD1648/LKY</b>
Operating System	<b>Windows XP</b>
Test Program	<b>3DMark 2001</b>

<b>5V</b> Current	7A
<b>5V</b> Power	35W
<b>12V</b> Current	0.5A
<b>12V</b> Power	6W



## 4.2 Thermal measurements at various points on the board

### Test Environment :

CPU	<b>Pentium-M/1M/1.3GHz (with fan)</b>
Memory	<b>SAMSUNG 184 Pin DDR333 512MB</b>
HDD	<b>Seagate ST340014A 40G</b>
Operating System	<b>Windows XP</b>
Test Program	<b>3DMark 2001</b>

### Test Result:

CPU	51.1°C
INTEL 82855GME	48.4°C
INTEL 82801DB	40.2°C
LC4	47.6°C
Q3	45.5°C
Q7	43.5°C
U3	45.2°C

## 5. Performance Test

### 5.1 Business Win Stone 2001

#### 1. Windows 98

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Business Win stone2001	Pentium-M /1M/ 1.3 GHZ	Pass	56.7
	SAMSUNG DDR333 512MB		57.1
	IBM DTLA -307030 30.7GB		56.2
			60.1
			57.2

#### 2. Windows 2000

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Business Win stone2001	Pentium-M /1M/ 1.3 GHZ	Pass	61.5
	SAMSUNG DDR333 512MB		63.5
	IBM DTLA -307030 30.7GB		62.7
			62.6
			62.9

## 5.2 Business Win Stone 2002

### 1. Windows 98

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Business Win stone2002	Pentium-M /1M/ 1.3 GHZ SAMSUNG DDR333 512MB IBM DTLA -307030 30.7GB	Pass	29.3 30.5 30.4 26.3 30

### 2. Windows 2000

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Business Win stone2002	Pentium-M /1M/ 1.3 GHZ SAMSUNG DDR333 512MB IBM DTLA -307030 30.7GB	Pass	29.4 28.6 29 28.9 28.8

### 3. Windows XP

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Business Win stone2002	Pentium-M /1M/ 1.7 GHZ SAMSUNG DDR333 512MB Seagate ST340014A 40GB	Pass	33.7 33.8 34.3 34.1 34.1

## 5.3 Winstone Content Creation 2001

### 1. Windows 98

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Winstone Content Creation2001	Pentium-M /1M/ 1.3 GHZ SAMSUNG DDR333 512MB IBM DTLA -307030 30.7GB	Pass	70
			70.7
			70.5
			70.1
			71

### 2. Windows 2000

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Winstone Content Creation2001	Pentium-M /1M/ 1.3 GHZ SAMSUNG DDR333 512MB IBM DTLA -307030 30.7GB	Pass	78
			85
			85.2
			84.5
			85.5

### 3. Windows XP

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Winstone Content Creation2001	Pentium-M /1M/ 1.7 GHZ SAMSUNG DDR333 512MB Seagate ST340014A 40GB	Pass	103
			103.9
			103.1
			103.4
			103.3

## 5.4 Winstone Content Creation 2003

### 1. Windows 98

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Winstone Content Creation2003	Pentium-M /1M/ 1.3 GHZ	Pass	28
	SAMSUNG DDR333 512MB		28
	IBM DTLA -307030 30.7GB		27.5
			28.7
			28.7

### 2. Windows 2000

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Winstone Content Creation2003	Pentium-M /1M/ 1.3 GHZ	Pass	34.3
	SAMSUNG DDR333 512MB		34.9
	IBM DTLA -307030 30.7GB		34.6
			34.6
			34.7

### 3. Windows XP

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
Winstone Content Creation2003	Pentium-M /1M/ 1.7 GHZ		42.7
	SAMSUNG DDR333 512MB		43.1
	Seagate ST340014A 40GB		42.8
			43.1
			43.1

## 5.5 3D MARK

### 1. Windows 98

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
3DMARK2001 Scores	Pentium-M /1M/ 1.3 GHZ	Pass	2209
3DMARK2003 Scores	SAMSUNG DDR333 512MB IBM DTLA -307030 30.7GB	Pass	119

### 2. Windows 2000

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
3DMARK2001 Scores	Pentium-M /1M/ 1.3 GHZ	Pass	2139
3DMARK2003 Scores	SAMSUNG DDR333 512MB IBM DTLA -307030 30.7GB	Pass	97

### 3. Windows XP

<b>WEIGHTED SUITE</b>	<b>Test Environment</b>	<b>Result</b>	<b>Remark</b>
3DMARK2001 Scores	Pentium-M /1M/ 1.7 GHZ	Pass	2147
3DMARK2003 Scores	SAMSUNG DDR333 512MB Seagate ST340014A 40GB	Pass	115