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| ASUSTeK COMPUTER INC. | EAH4870 Standard Operation Procedure | Doc. No: | |
| | | Date: May. 24, 2010 Revision: 1.11 | |
| | | Page: 11 | Grade: |

| Rev. | Modified Chapters | Modification Description | Issued Dept. | Issued by | Revised Date |
|------|-------------------|-------------------------------|--------------|-------------|---------------|
| 1.00 | | First Release | GTC | Robin_Jiang | |
| 1.01 | | Add New P/N (C1CLR0&C1CM20) | GTC | Robin_Jiang | |
| 1.02 | | Add New P/N (C1CLGF) | GTC | Robin_Jiang | |
| 1.03 | | ADD New P/N(C1CM00&C1CM25) | GTC | Robin_Jiang | |
| 1.04 | | ADD New P/N (C1CM2A) | GTC | Robin_Jiang | |
| 1.05 | | Modify for new test structure | GTC | Janice_pang | |
| 1.06 | | Add C1CLG5-A17 | GTC | Robin_Jiang | May. 27. 2009 |
| 1.07 | | Add C1CLGP and C1CLGK | GTC | Robin_Jiang | Jun. 15. 2009 |
| 1.08 | | Add new P/N (C1CLGZ-A11) | GTC | Ariel_wang | Apr.2.2010 |
| 1.09 | | Add new PCBA (C1CLGZ-A01) | GTC | Ariel_wang | Apr.7.2010 |
| 1.10 | | Add new P/N (C1CLGU-A01) | GTC | Chongling | Apr.19.2010 |
| 1.11 | | Add new PCBA (C1CLGU-A11) | GTC | Ariel_wang | May.24.2020 |

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| Authorize by | | Review by | | Originator By | Robin |
|--------------|--|-----------|--|---------------|-------|

1.Objectives

Create test procedure.

2.Scope

Model: EAH4870

PN: C1CLG5 C1CLR0 C1CM20 C1CLGF
C1CM00 C1CM25 C1CM2A C1CLG5-A17
C1CLGP C1CLGK C1CLGZ(A11&A01) C1CLGU-A01/A11

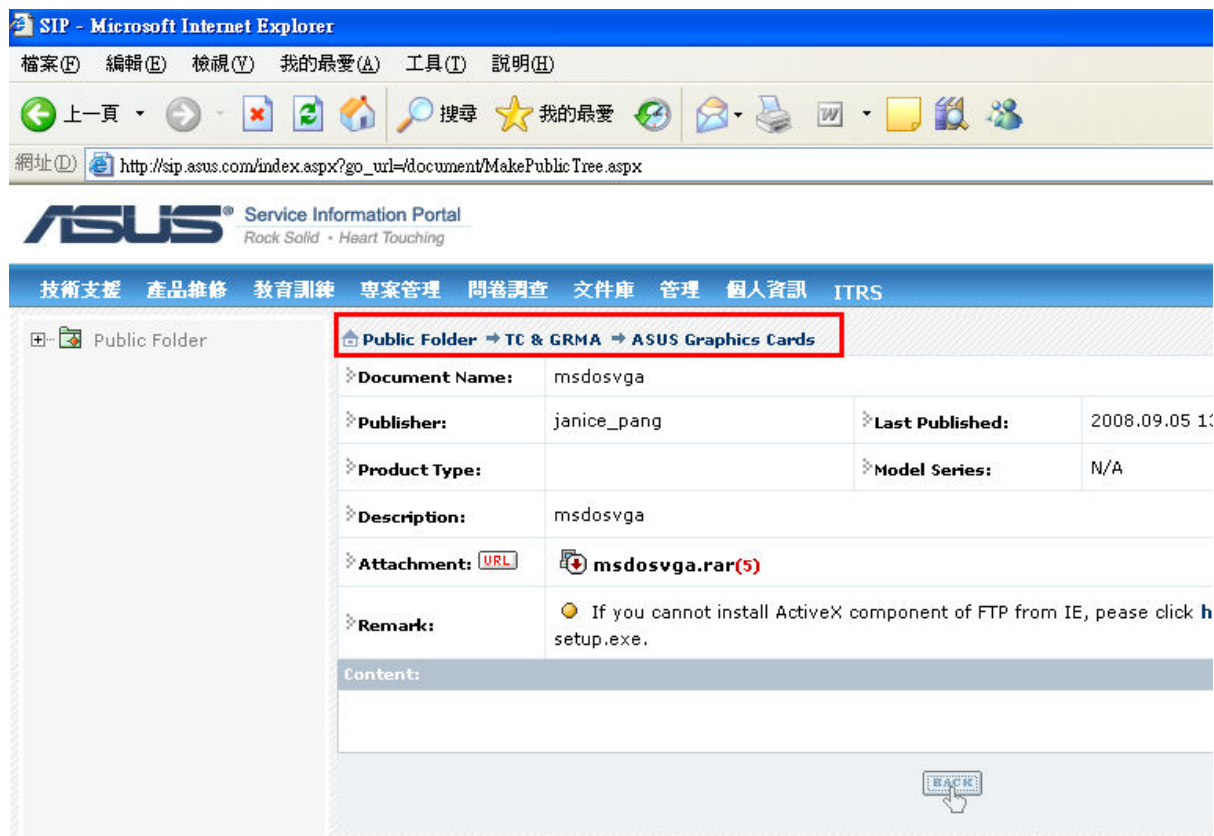
3.Test Item

- 3.1 Diagnostic test in DOS
- 3.2 3DMark06(contain HDMI test)
- 3.3 Temperature test
- 3.4 Suspend Test

4.Relevant Document

None.

- 5.Definition :**
- 1.Please download test program and msdosvga.gho from SIP. Make a test HDD with MS-DOS system. Then copy test program to this HDD to test this Model.
 2. If the model name contains P, please test HDCP function.
Ex: EAH***/HTDP/512M/A
 3. If you test HDMI already, it's unnecessary to test HDCP. The HDMI contains HDCP function.



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6. Operation Procedures:

6.1 Attention

- 6.1.1 To avoid damaging devices or M/B, please turn off A/C power then unplug VGA card.
- 6.1.2 While unplugging the card, do it in upright direction to avoid damaging slot & golden finger.
- 6.1.3 If any problem happens, please inform test supervisor. Base on ATX power specification, +5V standby voltage is existed while AC power is connecting. For safety reason, please turn off main power during break time or idling test.
- 6.1.4 Some test items should be tested under Windows environment. (Please install windows test environment by yourself).

6.2 Fixture connect

6.2.1 Install Intel P5 CPU & CPU Fan.

6.2.2 Install DDR2 **667/800M** 1GB Memory to DIMM1~2.

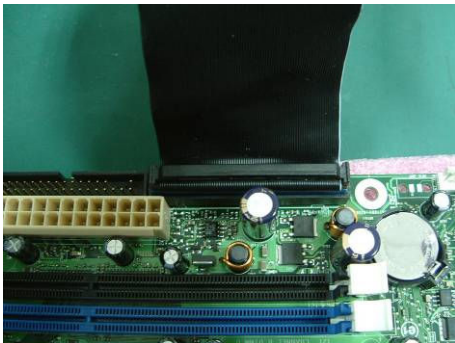
6.2.3 Plug PS/2 Mouse and PS/2 Keyboard into MB.

6.2.4 Plug VGA Card EAH4870 into PCIEX16.

6.2.5 Connect power con of VGA card & Power supply via bundled power cable(*.2).

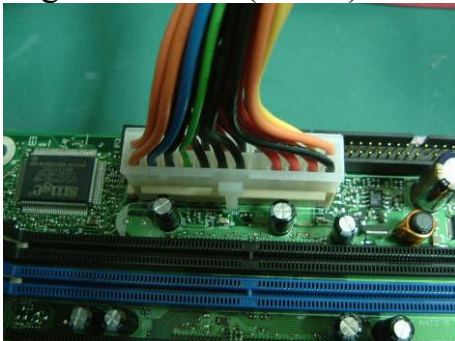


6.2.6 Connect IDE HDD with IDE CON.



6.2.7 Plug 4PIN 12V (**600W**) power cable into CON12V.

6.2.8 Plug ATX Power(**600W**) on Power Connector.



6.3 Certain test.

6.3.1 Diagnostic test in DOS

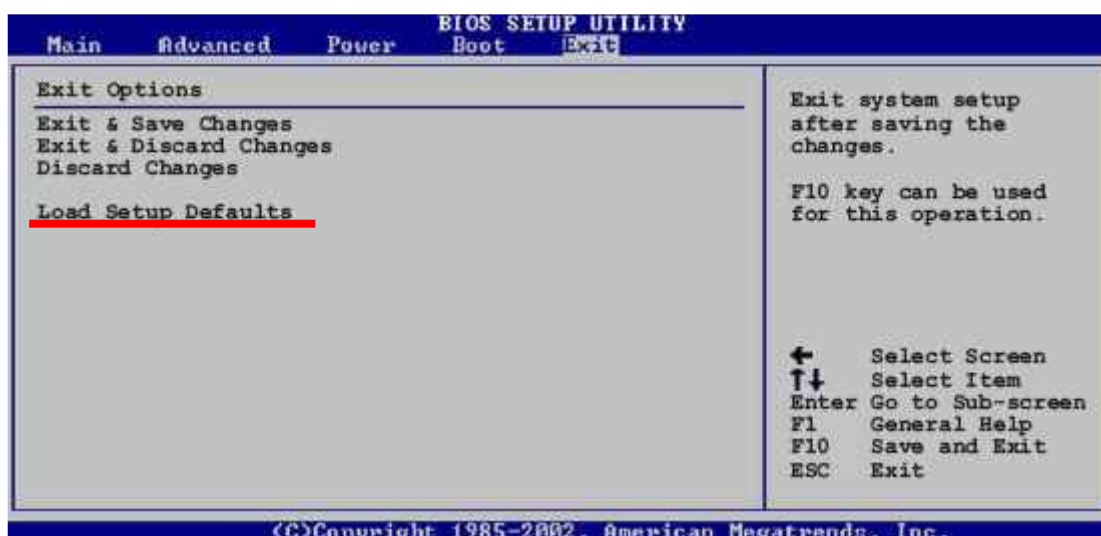
6.3.1.1 Please connect LCD monitor & card's DVI CON via a DVI cable.



6.3.1.2 Press Power Switch then turn on power button.

6.3.1.3 Press “Del” to enter CMOS setup menu while boot screen is displaying.

EXIT -> Load Setup Defaults.



6.3.1.4 System will reboot, select DOS to run test program.

Path: VBAT\ EAH4870\ BATCH\

Run the test program refer to the prompt.

6.3.1.5 Memory test

If you want to test memory, please run memfa.bat.

Path: VBAT\ EAH4870\ MEMFA

Path: VBAT\ EAH4870\ V770P147 (FOR C1CLGU-A01&A11/ C1CLGZ-A01)

6.3.1.6 BIOS flash

Please use the following command to flash bios and notice the size of character.

Path: VBAT\ EAH4870\ BIOS Or: VBAT\ EAH4870\ BIOS1

Command: **atiflash -p -f 0 xxx.rom**

6.3.1.7 After finish DOS testing, please enter Windows environment to test 3DMark.

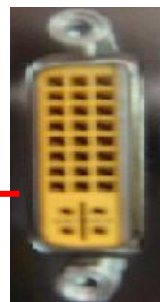
6.3.2 3DMark test(contain HDMI test)

6.3.2.1 Please install 3DMark program by yourself.

6.3.2.2 Please connect VGA card to LCD via HDMI cable.



DVI-HDMI cable

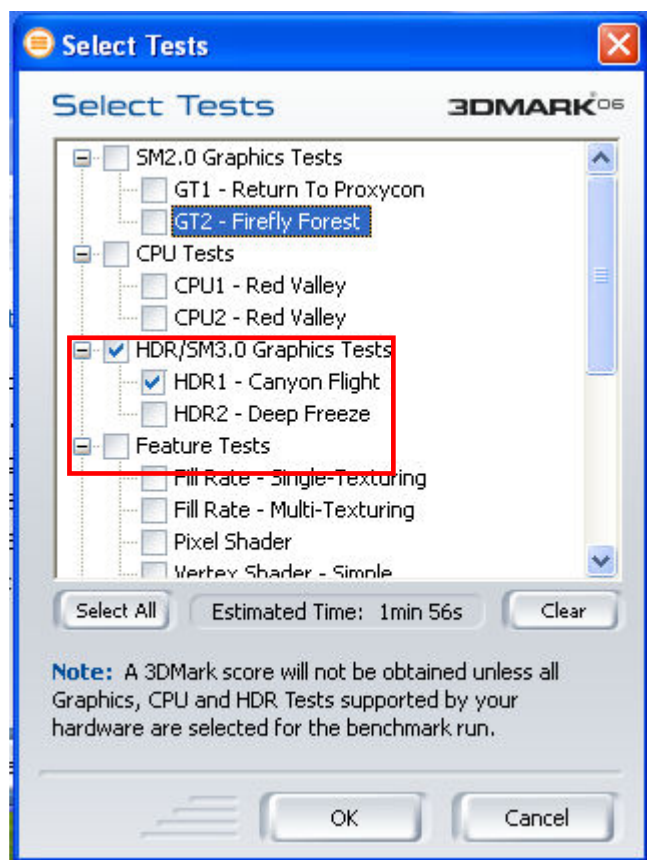


YELLOW DVI CON

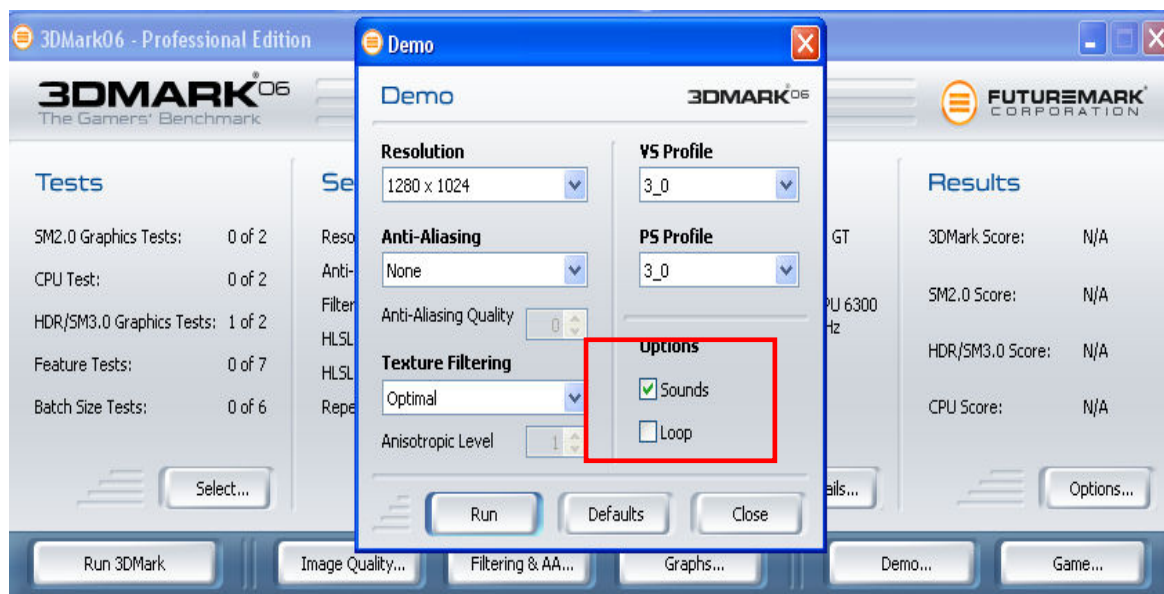
6.3.2.3 Please install VGA card driver in Windows(You must use individual driver of this card).

6.3.2.4 Please run 3DMark06 base on this card (please test 1 cycle).

6.3.2.5 Press “Select” to enter Select test menu. You can choose “HDR1” for default setting.



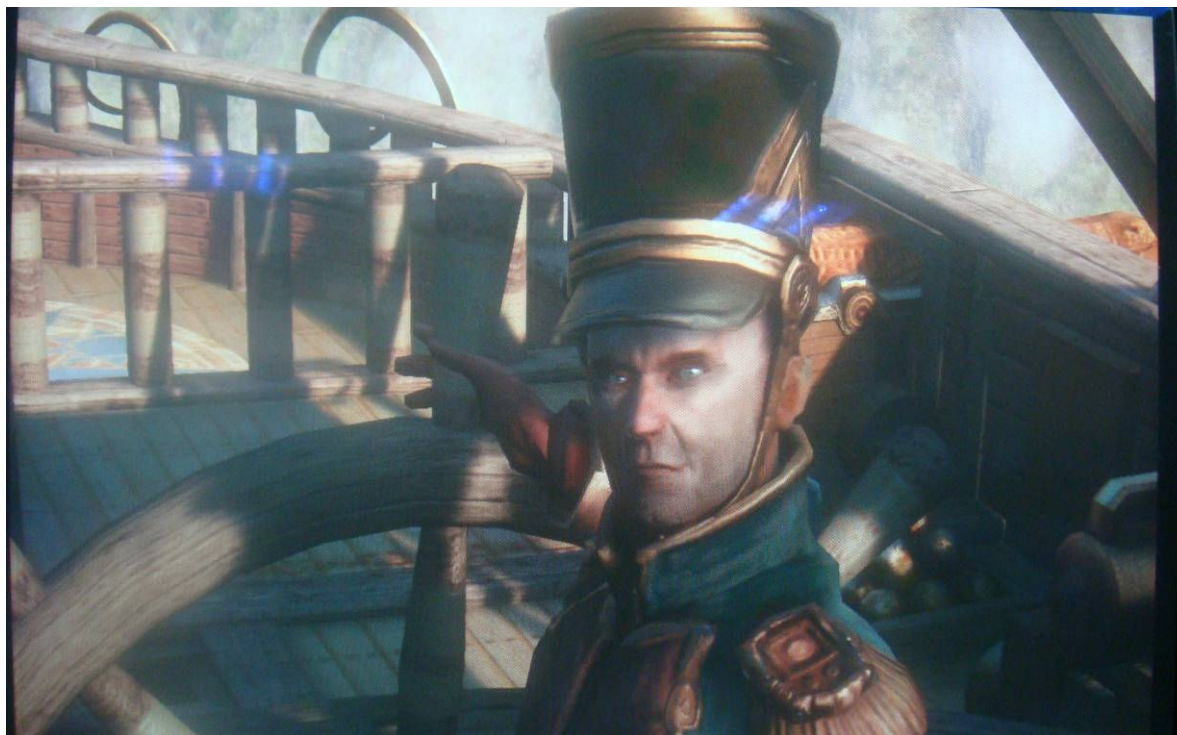
6.3.2.6 Press “Demo” to enter Demo menu. You can choose “Sounds” for default setting(for HDMI function).



6.3.2.7 Please pay attention to check if there is flickering, discolor, crash and so on.

If there's no problem, it can be judged OK!

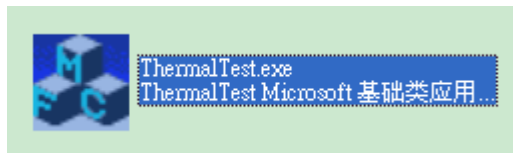
6.3.2.8 Please listen to voice carefully to check whether it outputs sounds. If not, HDMI test fail(for HDMI function).



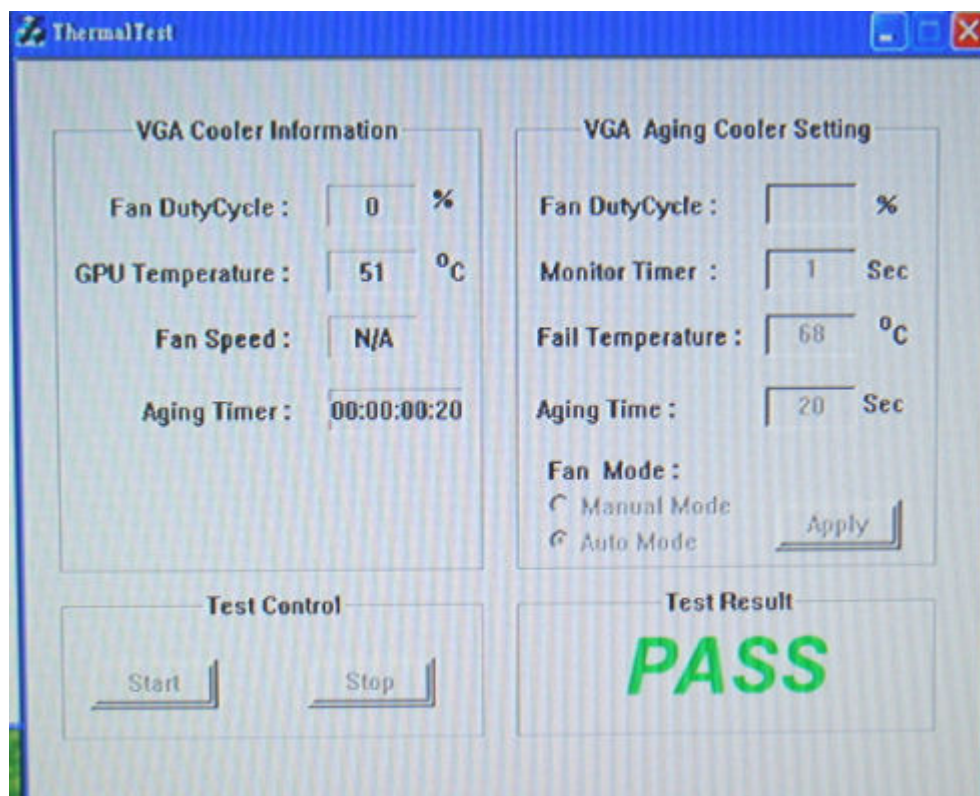
6.4 Temperature test

6.4.1 Please copy Thermaltool(1.0.05) to Windows by yourself.

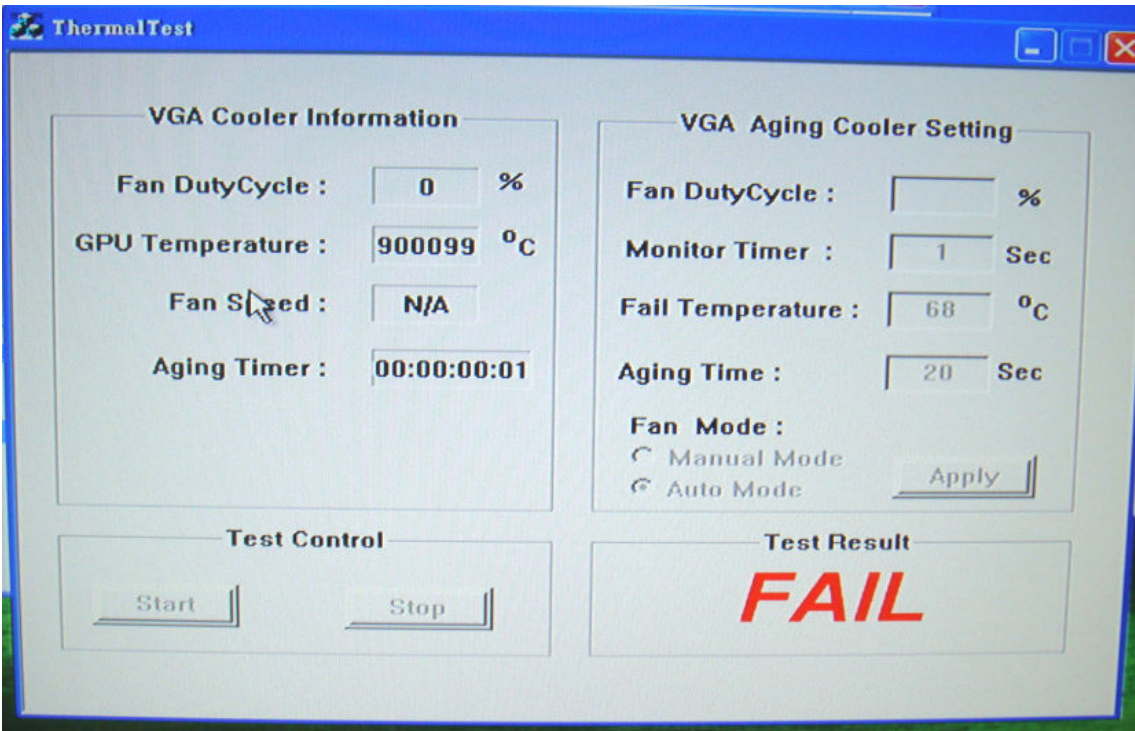
6.4.2 Please run ThermalTest.exe.



6.4.3 If test ok, show pass.




6.4.4 If test fail, show fail.


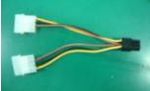



6.4.5 If test OK, NTF test.

7 Appendix

| NO# | Equipment Description | ASUS Part# | Supplier | Quantity | Remarks |
|-----|--|--------------|----------|----------------|---|
| 1 | SAMSUNG 2232MW | | | 1 |  |
| 2 | PS/2 MOUSE | | | 1 |  |
| 3 | PS/2 KEYBOARD | | | 1 |  |
| 4 | ATX POWER SUPPLY(600W) | | | 1 |  |
| 5 | INTEL Celeron E1200 | | | 1 |  |
| 6 | Heat sink + FAN | 22-240000160 | | 1 |  |
| 7 | APACER 800MHz 512M or 800MHz 1G | | | 512M 2 or 1G 1 |  |
| 8 | TEST HDD | | | 1 |  |
| 9 | 40Pins IDE Cable ATA66 | | ASUS | 1 |  |
| 10 | PCIEX16 VGA CARD | | | 1 | |
| 11 | D-SUB extend cable (Buying a local D-SUB cable by yourself) | | | 1 |  |
| 12 | S CABLE(ATI) | 14G001801801 | | 1 |  |
| 13 | Dual link DVI cable (Buying a local DVI cable by yourself) | | | 1 |  |
| 14 | HDMI extend cable (Buying a local HDMI cable by yourself) | | | 1 |  |
| 15 | TV extend cable (Buying a local TV cable by yourself) | | | 1 |  |

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| 16 | DVI-HDMI | 04G460002400 /04G460002450 | | 1 |  | |
| 17 | Power Cable | 14G000602510 /14G000602502 | | 2 |  | |
| 18 | LCD “Y” Cable | 14-010230000 | | 1 |  | |
| 19 | P5E | 80-MBB7X0-G0A01 | | 1 | | |