

Report NO: 12P010024

# AEC-6877

## Fanless Embedded controller with Intel 3<sup>rd</sup> Generation Core I Processor

### P5 Verification Test Report

| Summary         | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> Fail<br><input type="checkbox"/> Pass with Deviation (Comment: _____) |       |       |             |
|-----------------|--|-------|-------|-------------|
|                 | Test Results Category  |       |       |             |
|                 | Critical   | Major | Minor | Enhancement |
| Defect Found    | 0  | 0     | 0     | 0           |
| Defect Unsolved | 0  | 0     | 0     | 0           |

Issue date

2012/10/03

Approval

Tom Lin

Test Engineer

Danny Chen

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**Version Released Records**

| Date       | Version   | Change History                                       | Note |
|------------|-----------|--|------|
| 2010/04/21 | P3-1001   | 1. Re-composing test Items                           |      |
| 2010/06/01 | P2P3-1001 | 1. New Test Report                                   |      |
| 2010/06/21 | P2P3-1002 | 1. Add BIOS -> SPI ROM Setting (South Bridge – GPIO) |      |
| 2010/12/02 | P2P3-1003 | 1. New Test Report                                   |      |
| 2011/02/23 | P2P3-1101 | 1. Re-composing test Items                           |      |
| 2011/03/04 | P2P3-1102 | 1. Add Specification Validation                      |      |
| 2012/05/29 | P2P3-1201 | 1. Add Summary Table of DTS                          |      |

**Note :**

For all test items in this report, 3 results have been defined and described as following:

- Pass:**            Functionality work perfectly
- Fail:**             Functionality failed and must be resolved in the next version
- N/A:**             Functionality Not Applicable or Not Available

This test report would be updated when re-test completed in product next change version

**Specification Verification****Main Specification**

| Item          | Specification  | Result                              |                          |                          | Note |
|---------------|--|-------------------------------------|--------------------------|--------------------------|------|
|               |  | Pass                                | Fail                     | N/A                      |      |
| Processor     | AEC-6877   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Construction  | Rugged Aluminum Alloy Chassis  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| CPU Board     | EMB-QM77 : Intel® Core™ i7/i5 + QM77   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Processor     | 1 Socket G2 Intel® Core™ i7-2710/i5/processor socket PGA988<br>Intel i7-2710QE, 2.1GHz<br>Intel Celeron B810, 1.6GHz<br>(Total 4 sku for Ivy bridge I7/I5, Sandy bridge for I7, Celeron CPU)                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| System Memory | 204-pin Dual-channel DDR3 1066/1333/1600 MHz<br>SODIMM x 2, Up to 16GB   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Storage       | SATA 6.0Gb/s x 2, SATA 3.0Gb/s x 2, Support RAID 0,1,5,10  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Front I/O     | DB-9 x 1 for RS-232 ( pin box header)<br>Push Power button x1<br>Power LED x 1,<br>Hard Disk Drive active LED x 1<br>Standard Antenna hole x 2 (位置與AEC-66xx一致)   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Rear I/O      | DB-9 x 1 for RS-232/422/485<br>Type A USB3.0 x 4<br>DB15 VGA/ DVI-D/DP<br>Mic-in, Line-in, Line-out<br>Standard PS/2 KBx1+MS x 1<br>3-pin terminal block x1<br>8-bit programmable Digital I/O (4-in / 4-out) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Expansion     | PCI x 2, PCI-E Mini Card x 1, CFast™ x 1   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Mounting      | Wall-mount   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Power Supply  | Option AC/DC power adapter w/lock (9~30V)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| Dimensions    | 214 mm(W) x 94.8 mm(H) x 237.8 mm(D)<br>8.4" x 3.7" 9.4"   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

### O.S. Support

| Item              | Specification                     | Result | Note |
|-------------------|-----------------------------------|--------|------|
| Microsoft Windows | Windows 32-Bit XP Pro             | ☒      |      |
|                   | Windows 7 English 32-Bit / 64-Bit | ☒      |      |
|                   | Windows XP Embedded               | ☒      |      |
| Linux             | Fedora Core 2.6 x or higher       | ☒      |      |

### Environmental Specifications

| Item                  | Specification  |
|-----------------------|--|
| Operating temperature | 32°F ~ 122°F (0°C ~ 50°C) – without air-flow   |
| Storage temperature   | -4° ~ 158° F (-20 ~ 70° C)   |
| Storage humidity      | 5 ~ 95% @ 40C, non-condensing  |
| Vibration             | 5g RMS / 5 ~ 500Hz / operation – CFAST<br>1g RMS / 5 ~ 500Hz / operation – HDD                       |
| Shock                 | 50G peak acceleration (11 msec. duration) – CFAST<br>20G peak acceleration (11 msec. duration) – HDD |
| Drop                  | 76cm   |
| EMC                   | CE /FCC class A  |

**Note:** Please refer Environment Test Report for detail information

### Platform Information

| Item  | Device Information   | Test Item               |
|---|--|-------------------------|
| System Model  | AEC-6877   | 1,2,3,4,5,6,7,8,9,10,11 |
| CPU Board   | EMB-QM77   | 1,2,3,4,5,6,7,8,9,10,11 |
| BIOS / Version  | AEC-6877 BIOS R1.0 (8/23/2012)   | 1,2,3,4,5,6,7,8,9,10,11 |
| CPU Type  | Intel® Core™ i7-3610QE CPU @2.30GHz  | 1,2,3,4,5,6,7,8,9,10,11 |
| Memory Type   | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B)                       | 1,2,3,4,5,6,7,8,9,10,11 |
| SATA HDD  | TOSHIBA 2.5" SATA2 160GB(MK1060GSC)  | 1,2,3,4,5,6,7,8,9,10,11 |
| USB DVD-ROM   | Pioneer DVR-212BK  | 1,2,3,4,5,6,7,8,9,10,11 |
| LCD Monitor   | Asus VE228H 22"  | 1,2,3,4,5,6,7,8,9,10,11 |
|   | PHILIPS 244E2SB/96 24"   | 1,2,3,4,5,6,7,8,9,10,11 |
|   | BENQ XL2420-B 24"  | 1,2,3,4,5,6,7,8,9,10,11 |
| Operating System  | <input checked="" type="checkbox"/> Ubuntu 12 Kernel 3.2.0-23. fc10.i686       | 7-1                     |
|   | <input checked="" type="checkbox"/> Windows 7 Ultimate 32/64Bit                | 7-2                     |
|   | <input checked="" type="checkbox"/> Windows XP Professional English SP3 32 Bit | 7-3                     |
| Power Supply  | DC Adapter : w/lock (9~30V)  | 1,2,3,4,5,6,7,8,9,10,11 |
| <b>Chipset Information with Win7 Ultimate English SP1 32 Bit Driver Version</b> |  |                         |
| Chipset Software  | Intel® Chipset Device Software.9.3.0.1019 (12/06/2011)                         |                         |
| South Bridge  | Intel QM77 Express Chipset   |                         |
| Super IO Chipset  | ITE IT8728F  |                         |
| VGA Chipset   | Intel® HD Graphics 4000 8.15.10.2653 (2/14/2012)                               |                         |
| Audio Chipset   | Realtek High Definition Audio 6.0.1.6526 (12/13/2011)                          |                         |
| Ethernet Chipset  | Intel® 82579LM Gigabit Network Connection 11.15.12.0 (11/30/2011)              |                         |
|   | Realtek PCIe GBE Family Controller 7.48.823.2011 (8/23/2011)                   |                         |

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# 1. OSD Control Function Test

## 1.1. OSD Control Test

| OSD Control Function | Function                 |                          |                                     | Note |
|----------------------|--------------------------|--------------------------|-------------------------------------|------|
|                      | Pass                     | Fail                     | N/A                                 |      |
| Auto                 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| MENU                 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| UP                   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| DOWN                 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| POWER                | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| EXIT                 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

## 1.2. OSD - On Screen Display Test

| OSD - On Screen Display | Function                 |                          |                                     | Note                  |
|-------------------------|--------------------------|--------------------------|-------------------------------------|-----------------------|
|                         | Pass                     | Fail                     | N/A                                 |                       |
| Input Source            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | OSD Control by system |
| PIP Enable              | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Auto Tune               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Backlight               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Brightness              | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Contrast                | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Color                   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Quality                 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Position                | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Language                | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Recall                  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Save Exit               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
| Cancel Exit             | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |

## 1.3. OSD Light Test

| OSD Control Function | Function                 |                          |                                     | Note                                |
|----------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
|                      | Pass                     | Fail                     | N/A                                 |                                     |
| Power off            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Power on             | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Stand by             | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Into S1 / S3 and see light function |

## 1.4. Modular System Industrial Workstation Function Test

| Test Item                         | Result                              |                          |                                     | Note |
|-----------------------------------|-------------------------------------|--------------------------|-------------------------------------|------|
|                                   | Pass                                | Fail                     | N/A                                 |      |
| AC power outlet / inlet           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Power On / Off                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Power LED                         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| H.D.D LED                         | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| CD-ROM drive included             | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Floppy drive included             | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Lockable front-panel door         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Finger mouse                      | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| 59 Data-entry&20/24 Function keys | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

### 1.5. Mechanism construction check

| Test Item                  | Result                   |                          |                                     | Note                                     |
|----------------------------|--------------------------|--------------------------|-------------------------------------|--|
|                            | Pass                     | Fail                     | N/A                                 |  |
| Case construction check    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| PCMCIA construction check  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| CF Card construction check | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Please check both ( Type I and Type II ) |
| Component check            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  |



## 2. Basic Function Test

### 2.1. Video Function Test

#### 2.1.1. Single Output Function Test

| Hardware Information with XP Professional English SP3 32 Bit Driver Version |  |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
|---|--|--------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|------------------------------|
| CPU   | Intel © Core™ i7-3610QE CPU @2.30GHz   |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| Memory  | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B)   |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| HDD   | TOSHIBA 2.5" SATA2 160GB(MK1060GSC)  |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| VGA   | ASUS VE228 LCD Monitor   |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| DVI   | PHILIPS 244E LCD Monitor   |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| Display Port 1  | BENQ XL2420-B 24" Monitor  |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| Display Port 2  | EIZO EV2335W 23.5" Monitor   |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| Color Quality   | <input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit |                          |                                     |                                     |                          |                                     |                                     |                          |                                     |                              |
| Resolution  | VGA  |                          |                                     | DVI                                 |                          |                                     | Display Port 1 & 2                  |                          |                                     | Note                         |
|   | Pass   | Fail                     | N/A                                 | Pass                                | Fail                     | N/A                                 | Pass                                | Fail                     | N/A                                 |                              |
| 640X480   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 800X600   | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1024X768  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1152X864  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1280X600  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1280X720  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1280X768  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1280X800  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1280X960  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1280X1024   | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1360X768  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1366X768  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1400X1050   | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1440X900  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1600X900  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1600X1200   | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1600X1050   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1680X1050   | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1792X1344   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1856X1392   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1920X1080   | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                              |
| 1920X1200   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 1920X1440   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| 2048X1536   | <input type="checkbox"/>   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                              |
| Rotation  | <input checked="" type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Rotation ( 0 / 90 /180 /270) |

Note: Pay attention with Full Screen under POST screen and Text Mode.

### 2.1.2. Dual Output Function Test

| Selection          | Output                 | Result                              |                          |                                     | Note |
|--------------------|------------------------|-------------------------------------|--------------------------|-------------------------------------|------|
|                    |                        | Pass                                | Fail                     | N/A                                 |      |
| Dual Display Clone | VGA + DVI              | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Dual Display Twin  |                        | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Extended Desktop   |                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Dual Display Clone | VGA + Display Port 1&2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Dual Display Twin  |                        | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Extended Desktop   |                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Dual Display Clone | DVI + Display Port 1&2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Dual Display Twin  |                        | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Extended Desktop   |                        | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |

### 2.1.3. Video Resolution Test

Test points:

1. Power on without inserting any VGA connector until system reaches Windows desktop
2. Plug VGA connector into test machine while system reaches Windows then check VGA driver and display
3. Check VGA output Brightness is normal and it shows "Ghost Image" / "Flicker" or not

|                    | Result                              |                          |                          | Note |
|--------------------|-------------------------------------|--------------------------|--------------------------|------|
|                    | Pass                                | Fail                     | N/A                      |      |
| In Windows Desktop | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

### 2.1.4. Video Resolution Test

| LVDS Model |  | Result                   |                          |                                     | Note |
|------------|--|--------------------------|--------------------------|-------------------------------------|------|
|            |  | Pass                     | Fail                     | N/A                                 |      |
| LVDS       | 1_AUO G065VN01 V.0 / 6.5" / 640x480 / 18bit (4:3)  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 2_AUO G065VN01 V.0 / 6.5" / 640x480 / 24bit (4:3)  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 3_Data Image 7" / 800*480 / 18bit (16:9)           | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 4_AU G084SN05 V.3 / 8.4" / 800*600 / 18bit (4:3)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 5_AU B104SN02 V.0 / 10.4" / 800*600 / 18bit (4:3)  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 6_AUO G084SN05 v7 / 8.4" / 800*600 / 24bit (4:3)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 7_AU G150XG01 V.0 / 15" / 1024*768 / 18bit (4:3)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 8_AU M150XN07 V.2 / 15" / 1024x768 / 24bit (4:3)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 9_Toshiba /12.1"/1280 x 768 x 18bit (16:9)         | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 10_AU M170EG01 V.D/ 17" / 1280*1024 / 48bit (4:3)  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 11_AU M170XW01 V.1 / 17" / 1280x768 / 24bit (16:9) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 12_AUO T260XW02 / 26" / 1366x768 / 24bit           | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 13_AU M201UN02 V.5 / 20.1" / 1600x1200x48bit       | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 14_AUO T370HW01 / 37" / 1920x1080 / 48bit          | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|            | 15_AUO M190PW01 V0 / 19"/1440X900/48 bit           | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |







## 2.2. Audio Function Test

[ ] No Support

| Function Test                         | Result                              |                          |                                     | Note                                |
|---------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
|                                       | Pass                                | Fail                     | N/A                                 |                                     |
| L (Left) Channel                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |
| R (Right) Channel                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |
| CD_In                                 | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Line In                               | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |
| MICROPHONE                            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 6-channel mode for 5.1 speaker output | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| 8-channel mode for 7.1 speaker output | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| S/P DIF function Test                 | Input                               | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
|                                       | Output                              | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

## 2.3. LAN Function Test

[ ] No Support

| Connect two computers via different speed LAN HUB by using "Ping" instruction (1000 times) |   |   |                                     |                          |                                     |                                     |                          |                                     |                   |  |
|--|---|---|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------|--|
| 1000Mbps LAN HUB   |   |   | D-Link DGS-1008D                    |                          |                                     |                                     |                          |                                     |                   |  |
| 100Mbps LAN HUB  |   |   | HP J4095A 24 Ports                  |                          |                                     |                                     |                          |                                     |                   |  |
| 10Mbps LAN HUB   |   |   | SVEC FD916H                         |                          |                                     |                                     |                          |                                     |                   |  |
| On Board LAN1  |   | Intel 82579LM Gigabit Network Connection  |                                     |                          |                                     |                                     | MAC Address              |                                     | 00-07-32-1F-5D-18 |  |
| On Board LAN2  |   | Realtek ALC 8111E PCIe GBE Family Controller  |                                     |                          |                                     |                                     | MAC Address              |                                     | 00-07-32-1F-5D-32 |  |
| LAN Speed  | Link / Speed LED  | Active LED  | LAN 1                               |                          |                                     | LAN 2                               |                          |                                     | Note              |  |
|  |   |   | Pass                                | Fail                     | N/A                                 | Pass                                | Fail                     | N/A                                 |                   |  |
| 1000Mbps   |  |  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |  |
| 100Mbps  |  |  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |  |
| 10Mbps   |  |  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |  |
| Wake On LAN  |   |   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |  |
| Boot ROM to Novell 4.11 [RPL]  |   |   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                   |  |
| LAN Boot (PXE)   |   |   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |  |
| Internet Browser (DHCP Server)   |   |   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                   |  |

### 2.3.2. Throughput Test

DUT Platform Information:

|                                     |  |
|-------------------------------------|--|
| <input type="checkbox"/>            | Fedora Core 13                           |
| <input type="checkbox"/>            | Cent 5.5                                 |
| <input checked="" type="checkbox"/> | Ubuntu 12 .04– Kernal 3.2.0-23 fc10.i686 |
| <input type="checkbox"/>            | Red Hat                                  |

Note : Connection-Level Performance (Interaction Constants Duration Time Set to 60 Sec.)

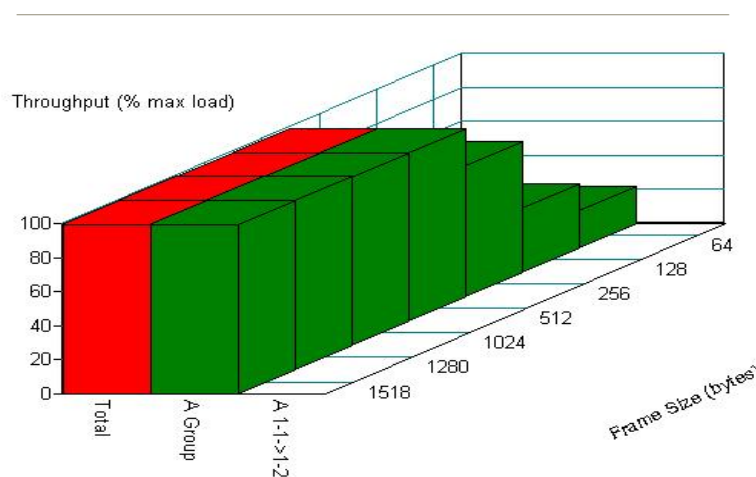
|                |  |
|----------------|--|
| Graphics Media | Ubuntu 12 .04 Default setting                              |
| LAN            | LAN1→Intel 82579LM Ethernet: Ubuntu 12 .04 Default setting |
|                | LAN2→ Realtek ALC 8111E Ethernet: r8168-8.031.00           |
| Audio Driver   | Ubuntu 12 .04 Default setting                              |

SMB Platform Information:

|                  |   |
|------------------|---|
| Chassis          | SPIRENT Smartbits 600B  |
| Chassis Version  | 2.80.003 (Cur) 2.50.000   |
| Chassis Serial # | 06014047  |
| Library          | 6.00-29   |
| API              | 5.50.42.01  |
| File             | 0550042   |
| Module           | 2 * LAN-3324A SmartMetrics XD 4-Port 10/100/1000Base-T Gigabit Ethernet |
| Test Software    | SmartFlow5.50.42.1  |

Test Result:

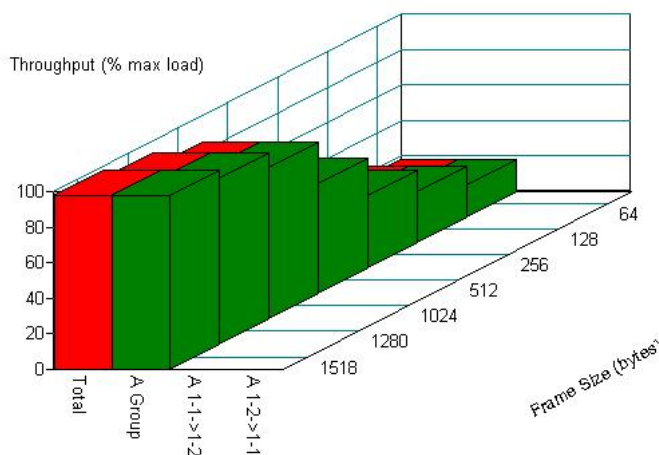
- Half Direction (LAN1: Intel 82579LM 10/100/1G Ethernet → LAN2: Realtek ALC 8111E 10/100/1G Ethernet)



Throughput vs Frame Size

| <u>Name/Frame size</u> | <u>64</u> | <u>128</u> | <u>256</u> | <u>512</u> | <u>1024</u> | <u>1280</u> | <u>1518</u> |
|------------------------|-----------|------------|------------|------------|-------------|-------------|-------------|
| <b>Total</b>           | 21.109375 | 37.3515625 | 76.0234375 | 98.453125  | 98.453125   | 99.2265625  | 99.2265625  |
| <b>A Group</b>         | 21.109375 | 37.3515625 | 76.0234375 | 98.453125  | 98.453125   | 99.2265625  | 99.2265625  |
| <b>A 1-1-&gt;1-2</b>   | N/A       | N/A        | N/A        | N/A        | N/A         | N/A         | N/A         |

2. Binary Direction (LAN1: Intel 82579LM 10/100/1G Ethernet → LAN2: Realtek ALC 8111E 10/100/1G Ethernet)



Throughput vs Frame Size

| <u>Name/Frame size</u> | <u>64</u> | <u>128</u> | <u>256</u> | <u>512</u> | <u>1024</u> | <u>1280</u> | <u>1518</u> |
|------------------------|-----------|------------|------------|------------|-------------|-------------|-------------|
| Total                  | 18.015625 | 28.0703125 | 40.4453125 | 61.328125  | 84.53125    | 93.0390625  | 97.6796875  |
| A Group                | 18.015625 | 28.0703125 | 40.4453125 | 61.328125  | 84.53125    | 93.0390625  | 97.6796875  |
| A 1-1->1-2             | N/A       | N/A        | N/A        | N/A        | N/A         | N/A         | N/A         |
| A 1-2->1-1             | N/A       | N/A        | N/A        | N/A        | N/A         | N/A         | N/A         |

2.4. Optional Function Test

[ ] No Support

| Function Test | Result                   |                          |                                     | Note |
|---------------|--------------------------|--------------------------|-------------------------------------|------|
|               | Pass                     | Fail                     | N/A                                 |      |
| 3G Module     | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| GPS           | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Wireless LAN  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Bluetooth     | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

### 3. Integration Test

| Hardware Information with XP Professional English SP3 32 Bit Driver Version |  |
|---|--|
| CPU   | Intel ® Core ™ i7-3610QE CPU @2.30GHz                              |
| Memory  | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B)           |
| HDD   | TOSHIBA 2.5" SATA2 160GB(MK1060GSC)                                |
| Chipset Information with XP Professional English SP3 32 Bit Driver Version  |  |
| Chipset Software  | Intel ® Chipset Device Software.9.3.0.1019 (12/06/2011)            |
| South Bridge  | Intel QM77 Express Chipset   |
| Super IO Chipset  | ITE IT8728F  |
| VGA Chipset   | Intel ® HD Graphics 4000 8.15.10.2653 (2/14/2012)                  |
| Audio Chipset   | Realtek High Definition Audio 6.0.1.6526 (12/13/2011)              |
| Ethernet Chipset  | Intel ® 82579LM Gigabit Network Connection 11.15.12.0 (11/30/2011) |
|   | Realtek PCIe GBE Family Controller 7.48.823.2011 (8/23/2011)       |

#### 3.1. USB Port Integration Test

| Item  | USB Port | Boot                                |                          |                          | Function Win7                       |                          |                          | Note |
|---|----------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|------|
|   |          | Pass                                | Fail                     | N/A                      | Pass                                | Fail                     | N/A                      |      |
| USB HDD   |          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| USB FDD Mitsumi D353GUE   |          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| SONY USB2.0 DVD-R/W DRX-830UL   |          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| USB Hub Test (Connect USB Device) HUB Port1: USB Keyboard / HUB Port2: USB Mouse / HUB Port3: USB HDD |          |                                     |                          |                          |                                     |                          |                          |      |
| USB 2.0 HUB PowerSync / USB 2.0 4 Port HU-155   |          |                                     |                          |                          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

#### 3.2. Digital I/O Port Test

| DIO Address ( ___ ) | Result                   |                          |                                     | Note |
|---------------------|--------------------------|--------------------------|-------------------------------------|------|
|                     | Pass                     | Fail                     | N/A                                 |      |
| DIO VCC +5V         | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 3.3. COM Port Integration Test

| Test Item             | Result                              |                                     |                          | Note               |
|-----------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------|
|                       | Pass                                | Fail                                | N/A                      |                    |
| Serial Modem Dial Out | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                    |
| Serial Modem          | Ring In                             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Test by Modem      |
|                       | +12V                                | <input type="checkbox"/>            | <input type="checkbox"/> | Test by Multimeter |
|                       | +5V                                 | <input type="checkbox"/>            | <input type="checkbox"/> | Test by Multimeter |

#### 3.4. RS-422 / RS-485 Test

| Test Item       | Result                              |                          |                          | Note  |
|-----------------|-------------------------------------|--------------------------|--------------------------|---|
|                 | Pass                                | Fail                     | N/A                      |   |
| RS-422 for COM2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Use loopback and WINSSD.exe to test RS-422 in Windows   |
| RS-485 for COM2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Use ICP CON I-7044D D/IO Module in Windows(Support Auto flow control)                                   |
|                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | The communication between the RS-485 port of two boards is linked by one 100m cable on Windows Terminal |

### 3.5. LPT Port Test

| Test Item                       | Result                   |                          |                                     | Note |
|---------------------------------|--------------------------|--------------------------|-------------------------------------|------|
|                                 | Pass                     | Fail                     | N/A                                 |      |
| XEROX Phaser 3124 Laser Printer | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

### 3.6. Burn In Test

Under Room Temperature: 26 °C

| Test Item            | Result                              |                          |                          | Note |
|----------------------|-------------------------------------|--------------------------|--------------------------|------|
|                      | Pass                                | Fail                     | N/A                      |      |
| BurnIn Test V7.0 Pro | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

Note: COM PORT Speed Set to 115200.

## 4. Application Test

### 4.1. PCI Slot Function (PCI Adapter Card) Test

| Adapter VGA Card                                | Set Simultaneous Display and Reboot |                          |                                     | Note |
|---|-------------------------------------|--------------------------|-------------------------------------|------|
|   | Pass                                | Fail                     | N/A                                 |      |
| CHAINTECH NVIDIA GeForce4 MX440-8X              | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Adapter Sound Card                              | Play Sound                          |                          |                                     | Note |
|   | Pass                                | Fail                     | N/A                                 |      |
| Creative Sound BLASTER Live5.1                  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Adapter SCSI Card                               | Copy files to SCSI HDD              |                          |                                     | Note |
|   | Pass                                | Fail                     | N/A                                 |      |
| ADAPTEC Ultra160 SCSI ASC-29160                 | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Adapter Image Capture Card                      | Connect to CCD                      |                          |                                     | Note |
|   | Pass                                | Fail                     | N/A                                 |      |
| I-VIEW CP-1400AS (with Age STD-477FAI CCD)      | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Adapter LAN Card                                | Connect to Internet                 |                          |                                     | Note |
|   | Pass                                | Fail                     | N/A                                 |      |
| Intel GD82559 10/100 Mbps Fast Ethernet Adapter | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| INTEL PWLA8391GTBLK Pro/1000 Giga LAN Card      | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Adapter RAID Card                               | RAID 0 , 1 , 10 Function Test       |                          |                                     | Note |
|   | Pass                                | Fail                     | N/A                                 |      |
| ADAPTEC 1420SA RoHS 4-Port SATA II RAID         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

### 4.2. PCI-Express Function Test

| PCI-Express x1   | Function Test            |                          |                                     | Note |
|--|--------------------------|--------------------------|-------------------------------------|------|
|  | Pass                     | Fail                     | N/A                                 |      |
| SUNIX SATA1414 eSATA & SATAII x1Express card                               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Sysconnect SK-9E21D 10 /100/1000 Base-T Adapter<br>PCI-Express x1 LAN Card | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| PCI-Express x4   | Function Test            |                          |                                     | Note |
|  | Pass                     | Fail                     | N/A                                 |      |
| Adaptec AAR-1430SA SATAII HostRAID Controllers<br>PCI-Express x4 RAID Card | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| PCI-Express x16  | Function Test            |                          |                                     | Note |
|  | Pass                     | Fail                     | N/A                                 |      |
| ASUS EAX1600PRO/TD/256M/A<br>(ATI Chipset) PCI-Express x16 VGA Card        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| WINFAST PX6200 TC TDH<br>PCI-Express x16 VGA Card                          | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Express card   | Function Test            |                          |                                     | Note |
|  | Pass                     | Fail                     | N/A                                 |      |
| SUNIX SATA II Express card   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| SunBox 34mm Giga LAN Express Card  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Mini PCI Express Card  | Function Test            |                          |                                     | Note |
|  | Pass                     | Fail                     | N/A                                 |      |
| Ralink RT2571WF WLAN Mini Card (USB Interface)                             | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Sil3132 Mini PCI-E Function Test Card (USB Interface)                      | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |



### 4.3. Mini PCI Card Compatibility Test

| Device Item   | Function Test            |                          |                                     | Note |
|---|--------------------------|--------------------------|-------------------------------------|------|
|   | Pass                     | Fail                     | N/A                                 |      |
| Mini PCI.10/100 Base-Tx LAN (W/Intel.82551QM .A1.0)<br>(Model:PER-C10L) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| GM-101 WLAN 11b/g 54Mbps Mini PCI Card<br>(Model: VNT6655AM)            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| ADLINK mPCI-8750 ATI Rage XL Mini PCI VGA Card                          | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

### 4.4. CardBus (PCMCIA) Compatibility Function Test

| Device Item  | Bit           | Function Test            |                          |                                     | Note        |
|--|---------------|--------------------------|--------------------------|-------------------------------------|-------------|
|  |               | Pass                     | Fail                     | N/A                                 |             |
| Intel PRO/Wireless 2011B LAN PC Card (WPC2011BWW)    | Slot 1 (Up)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | [PC-200200] |
|  | Slot 2 (Down) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |             |
| Kingston datapack DP-PCM2 / 2GB (PC Card TypeII HDD) | Slot 1 (Up)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | [PC-200201] |
|  | Slot 2 (Down) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |             |
| PCi GW-NS54SG Cardbus Adapter Wireless LAN Type-II   | Slot 1 (Up)   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | [PC-200502] |
|  | Slot 2 (Down) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |             |
| PCi GW-NS54SG Cardbus Adapter Wireless LAN Type-II   | Slot 2 (Down) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | [PC-200502] |

### 4.5. ISA Slot Function Test

| Test Item                                       | Result  | Note     |
|---|---|----------|
|   |   |          |
| SCSI Card Adaptec AHA-1520B SCSI Card           | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | [SS-002] |
| LAN Card NE2000 Compatible LAN Card (RTL8019AS) | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | [NW-014] |
| VGA Card CIRRUS LOGIC 5429 FCC ID:ICUVGA-GWV27A | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | [VC-008] |

### 4.6. Adapter Compatibility- Industry Control Card PC/104, PC/104+, PCI-104

#### 4.6.1. Device List: PC/104 Module

| Test Item      | Result                   |                          |                                     | Note |
|----------------|--------------------------|--------------------------|-------------------------------------|------|
|                | Pass                     | Fail                     | N/A                                 |      |
| AAEON PCM-3660 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 4.6.2. Device List: PC/104+ Module

| Test Item      | Result                   |                          |                                     | Note |
|----------------|--------------------------|--------------------------|-------------------------------------|------|
|                | Pass                     | Fail                     | N/A                                 |      |
| AAEON PCM-3430 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 4.6.3. Device List: PCI-104 Module

| Test Item      | Result                   |                          |                                     | Note |
|----------------|--------------------------|--------------------------|-------------------------------------|------|
|                | Pass                     | Fail                     | N/A                                 |      |
| AAEON PCM-3730 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 4.6.4. Device List: PCI/104 Express Module

| Test Item     | Result                   |                          |                                     | Note |
|---------------|--------------------------|--------------------------|-------------------------------------|------|
|               | Pass                     | Fail                     | N/A                                 |      |
| AAEON PER-123 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 4.7. SSD Modules Compatibility Test

SSD HDD Compatibility Test:

Cable Type:  IDE  SATA2  MLC  SLC

| Test Item                       | Result                   |                          |                                     | Note |
|---------------------------------|--------------------------|--------------------------|-------------------------------------|------|
|                                 | Pass                     | Fail                     | N/A                                 |      |
| Transcend SSD 16G - TS16GSSD25S | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 4.8. Peripheral Compatibility- Storage Device Test

##### 4.8.1. Disk on Chip (DOC) Test

| Test Item                |         | Result                   |                          |                                     | Note                  |
|--------------------------|---------|--------------------------|--------------------------|-------------------------------------|-----------------------|
|                          |         | Pass                     | Fail                     | N/A                                 |                       |
| DOC 2000 Model           | 16MB    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | M-System / MD2200-D16 |
| DOC 2000 Onboard Address | CC00    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
|                          | D000    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
|                          | D400    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
|                          | D800    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
|                          | DC00    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |
|                          | Disable | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                       |

##### 4.8.2. Disk on module (DOM) Test

| Test Item                                     | Result                   |                          |                                     | Note |
|---|--------------------------|--------------------------|-------------------------------------|------|
|   | Pass                     | Fail                     | N/A                                 |      |
| Transcend / TS512MDOM40V / 512MB / IDE 40 Pin | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Transcend / TS512MDOM44V / 512MB / IDE 44 Pin | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

#### 4.9. Riser Card Function Test

| Test Item  | Result                              |                          |                                     | Note |
|------------|-------------------------------------|--------------------------|-------------------------------------|------|
|            | Pass                                | Fail                     | N/A                                 |      |
| LAN        | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| PCI Slot   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| PCI-e Slot | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

## 5. Power Consumption Test

| Hardware Information with Win7 Ultimate English SP1 32 Bit Driver Version |  |
|---|--|
| <b>CPU</b>  | Intel® Core™ i7-3610QE CPU @2.30GHz                      |
| <b>Memory</b>   | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B) |
| <b>HDD</b>  | TOSHIBA 2.5" SATA2 160GB(MK1060GSC)                      |

### 5.1. PC Health Status

Test Point: The value between Actual Voltage and Voltage Monitor must be +/- 5%

| Voltage Monitoring Test | Result                              |                          |                                     | BIOS (V) | Note |
|-------------------------|-------------------------------------|--------------------------|-------------------------------------|----------|------|
|                         | Pass                                | Fail                     | N/A                                 |          |      |
| VCC Core                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 0.840V   |      |
| (+) 1.5V                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 1.500V   |      |
| (+) 3.3V                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 3.360V   |      |
| (+) 12V                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 11.808V  |      |
| (+) 5V                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 5.080V   |      |
| (+) 5V AUX              | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |          |      |
| VBAT                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 3.192V   |      |
| System Fan1 Speed       | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |          | RPM  |
| System Fan2 Speed       | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |          | RPM  |
| CPU Fan1 Speed          | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |          |      |
| System Temp 1           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 36°C     |      |
| System Temp 2           | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |          |      |
| CPU Temp                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 41°C     |      |
| PCH Temp                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 36°C     |      |

## 6. Time Accuracy Test

### 6.1. System Clock & RTC Clock Test

Under Room Temperature: 26 °C

| Function                    | Item | Time Interval | Margin for error | Actual |     | Result                              |                          |                          | Note |
|-----------------------------|------|---------------|------------------|--------|-----|-------------------------------------|--------------------------|--------------------------|------|
|                             |      |               |                  |        |     | Pass                                | Fail                     | N/A                      |      |
| RTC Clock in Power On Mode  |      | 24 hrs        | +/-2 sec         | 0      | Sec | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| RTC Clock in Power Off Mode |      | 24 hrs        | +/-2 sec         | +1     | Sec | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

### 6.2. Booting Timer Test

| Installation        | Actual |     | Note   |
|---------------------|--------|-----|--|
| System Booting Time | 8.3    | Sec | Press the Power Button till "Beep" Sound appears |

### 6.3. Watchdog Timer Test

Use Function as below: 8728.exe

[ ] No Support.

| Time-Out Interval | Margin for error | Actual |     | Result                              |                          |                          | Note |
|-------------------|------------------|--------|-----|-------------------------------------|--------------------------|--------------------------|------|
|                   |                  |        |     | Pass                                | Fail                     | N/A                      |      |
| 10 sec            | +/-10%           | 10.2   | Sec | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| 60 sec            | +/-10%           | 61.8   | Sec | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| 255 sec           | +/-10%           | 261    | Sec | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

Note : Under Room Temperature: 26°C / DOS Mode

## 7. O.S. Compatibility Test

### 7.1. English Ubuntu 12 – Kernal 3.2.0-23 fc10.i686

[ ] No Support

Driver Information:

|                  |                |
|------------------|----------------|
| Chipset Software | System default |
| Graphics Media   | System default |
| LAN Driver       | System default |
|                  | System default |
| Audio Driver     | System default |

Install OS to SATA HDD:

| Installation                           | Result                              |                          |                          | Note          |
|--|-------------------------------------|--------------------------|--------------------------|---------------|
|  | Pass                                | Fail                     | N/A                      |               |
| English Ubuntu 12/ 3.2.0-23. fc10.i686 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Type uname -a |

Test Result:

| Test Item  | Result                              |                          |                          | Note                      |
|--|-------------------------------------|--------------------------|--------------------------|---------------------------|
|  | Pass                                | Fail                     | N/A                      |                           |
| <b>Display Function Test</b>                                 |                                     |                          |                          |                           |
| VGA -- Full Screen   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                           |
| <b>Network Function Test</b>                                 |                                     |                          |                          |                           |
| Connect to Internet – LAN 1                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                           |
| Connect to Internet – LAN 2                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                           |
| <b>Audio Function Test</b>                                   |                                     |                          |                          |                           |
| Play Audio Function Test                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Play Audio Test           |
| <b>Base Function Test</b>                                    |                                     |                          |                          |                           |
| Mouse Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                           |
| Keyboard Test  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                           |
| CD-ROM Test  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | USB                       |
| USB 3.0 Removable Devices                                    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                           |
| <b>X Windows Application</b>                                 |                                     |                          |                          |                           |
| Start Button Office  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Office function           |
| X-Window   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Startx – Desktop in Linux |
| <b>Command Test On Text Mode: Attention Delay Phenomenon</b> |                                     |                          |                          |                           |
| uname -a   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Show information          |
| Shutdown   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Init 0 or shutdown -h now |
| Restart the Computer   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Init 6 or shutdown -r now |
| Halt   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Power Off Mode            |
| ls / clear .....; cd /dev /ls -l                             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Command instruction       |

## 7.2. Windows 7 Ultimate English Version 32/64Bit

[ ] No Support

[ X ] x32 Driver Information:

|                  |  |
|------------------|--|
| Chipset Software | Intel ® Chipset Device Software.9.3.0.1019 (12/06/2011)            |
| Graphics Media   | Intel ® HD Graphics 4000 8.15.10.2653 (2/14/2012)                  |
| Audio Driver     | Realtek High Definition Audio 6.0.1.6526 (12/13/2011)              |
| LAN Driver       | Intel ® 82579LM Gigabit Network Connection 11.15.12.0 (11/30/2011) |
|                  | Realtek PCIe GBE Family Controller 7.48.823.2011 (8/23/2011)       |

[ X ] x64 Driver Information:

|                  |  |
|------------------|--|
| Chipset Software | Intel ® Chipset Device Software.9.3.0.1019 (12/06/2011)            |
| Graphics Media   | Intel ® HD Graphics 4000 8.15.10.2653 (2/14/2012)                  |
| Audio Driver     | Realtek High Definition Audio 6.0.1.6526 (12/13/2011)              |
| LAN Driver       | Intel ® 82579LM Gigabit Network Connection 11.15.12.0 (11/30/2011) |
|                  | Realtek PCIe GBE Family Controller 7.48.823.2011 (8/23/2011)       |

### Install OS to IDE HDD/SATA HDD/ CF Card:

| Installation                         | Result                              |                          |                          | Note     |
|--------------------------------------|-------------------------------------|--------------------------|--------------------------|----------|
|                                      | Pass                                | Fail                     | N/A                      |          |
| English Windows 7 Ultimate ACPI Mode | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | SATA HDD |

### Test Results:

| Test Item  | Result                              |                          |                                     | Note |
|--|-------------------------------------|--------------------------|-------------------------------------|------|
|  | Pass                                | Fail                     | N/A                                 |      |
| <b>Single Display</b>                                  |                                     |                          |                                     |      |
| VGA -- Full Screen                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| DVI -- Full Screen                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Display Port-- Full Screen                             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>Boot - Windows 7 Ultimate Advanced Options Menu</b> |                                     |                          |                                     |      |
| Safe Mode  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>Basic Function Test</b>                             |                                     |                          |                                     |      |
| PS/2 Mouse and Keyboard                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| USB Mouse and Keyboard                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| COM Port Mouse detect                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| LPT1   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| USB 3.0 Removable Devices                              | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>LAN Function Test</b>                               |                                     |                          |                                     |      |
| LAN1 --- Auto  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| LAN2 --- Auto  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>Audio Function Test</b>                             |                                     |                          |                                     |      |
| Line Out Test  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Line In Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Microphone Test  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| S/P DIF Test   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| <b>Start Menu</b>                                      |                                     |                          |                                     |      |
| Log off User   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Shut down (S5)   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Standby  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Restart  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Hibernate (S4)   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |

### 7.3. Windows XP Professional English Version 32/64Bit

[ ] No Support

[X] x32 Driver Information:

|                  |   |
|------------------|---|
| Chipset Software | Intel ® Chipset Device Software 9.3.0.1019 (12/06/2011)   |
| Graphics Media   | Intel ® HD Graphics 4000 6.14.10.5400 (2/22/2012)   |
| LAN Driver       | Intel ® 82579LM Gigabit Network Connection 11.15.12.0 (11/30/2011)<br>Realtek PCIe GBE Family Controller 5.790.824.2011 (8/24/2011) |
| Audio Driver     | Realtek High Definition Audio 5.10.0.6526 (12/13/2011)  |

[X] No Support

[ ] x64 Driver Information:

|                  |  |
|------------------|--|
| Chipset Software |  |
| Graphics Media   |  |
| LAN Driver       |  |
| Audio Driver     |  |

#### Install OS to SATA HDD/ CF Card:

| Installation                              | Result                              |                          |                          | Note     |
|---|-------------------------------------|--------------------------|--------------------------|----------|
|   | Pass                                | Fail                     | N/A                      |          |
| English Windows XP Professional ACPI Mode | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | SATA HDD |

#### Test Results:

| Test Item   | Result                              |                          |                                     | Note |
|---|-------------------------------------|--------------------------|-------------------------------------|------|
|   | Pass                                | Fail                     | N/A                                 |      |
| <b>Single Display</b>                                       |                                     |                          |                                     |      |
| VGA -- Full Screen  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| DVI -- Full Screen  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Display Port -- Full Screen                                 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>Boot - Windows XP Professional Advanced Options Menu</b> |                                     |                          |                                     |      |
| Safe Mode   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>Basic Function Test</b>                                  |                                     |                          |                                     |      |
| PS/2 Mouse and Keyboard                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| USB Mouse and Keyboard                                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| COM Port Mouse detect                                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| LPT1  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| USB 3.0 Removable Devices                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>LAN Function Test</b>                                    |                                     |                          |                                     |      |
| LAN1 --- Auto   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| LAN2 --- Auto   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| <b>Audio Function Test</b>                                  |                                     |                          |                                     |      |
| Line Out Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Line In Test  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Microphone Test   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| S/P DIF Test  | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| <b>Start Menu</b>   |                                     |                          |                                     |      |
| Log off User  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Shut down (S5)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Standby   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Restart   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Hibernate (S4)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |

## 8. BIOS Function Test

| Hardware Information with XP Professional English SP3 32 Bit Driver Version |  |
|---|--|
| <b>CPU</b>  | Intel® Core™ i7-3610QE CPU @2.30GHz                      |
| <b>Memory</b>   | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B) |
| <b>HDD/CFD</b>  | TOSHIBA 2.5" SATA2 160GB(MK1060GSC)                      |

### 8.1. Boot Sequence Test

| Test Item                                | Result                              |                          |                                     | Note |
|--|-------------------------------------|--------------------------|-------------------------------------|------|
|  | Pass                                | Fail                     | N/A                                 |      |
| Floppy                                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| Hard Disk                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Removable (All Device Priority)          | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| CDROM                                    | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| USB HDD                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| USB Floppy                               | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| USB CD-ROM                               | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| LAN [ Boot From LAN First ]              | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Disable                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |      |
| Check "Halt on" item – All error but K/B | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

### 8.2. Power Management Test

#### 8.2.1. APM Power Management Test

| Test Item    | Setting Test  | Result                   |                          |                                     | Note               |
|--------------|---------------|--------------------------|--------------------------|-------------------------------------|--------------------|
|              |               | Pass                     | Fail                     | N/A                                 |                    |
| Suspend Mode | Function Test | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                    |
| Power Button | Delay 4 Sec   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Soft-Off By PWRBTN |
| Power Button | Instant-Off   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Soft-Off By PWRBTN |

#### 8.2.2. ACPI Power Management Test

| Test Item                      | Result                              |                          |                                     | Note                                |
|--------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|
|                                | Pass                                | Fail                     | N/A                                 |                                     |
| Enable ACPI Auto Configuration | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |
| Enable Hibernation             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | From Windows 7                      |
| ACPI - S1 (POS)                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Resume from PS/2 keyboard or mouse. |
|                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Resume from USB keyboard or mouse.  |
| ACPI - S3 (STR)                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Resume from USB KB & MS under Win7  |
| Suspend Disable                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                     |

### 8.3. Power On after Power Failure Test

| Test Item         | Result                              |                                     |                          | Note                     |
|-------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
|                   | Pass                                | Fail                                | N/A                      |                          |
| Off               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                          |
| On                | Under Dos                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | Under Windows(Normal Shutdown)      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | Under Windows(Abnormal Shutdown)    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Former-Sts (Auto) | Under Dos                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | Under Windows(Normal Shutdown)      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|                   | Under Windows(Normal Shutdown)      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



### 8.4. AAEON Tag Check Utility

| Test Item           | Result                              |                          |                          | Note         |
|---------------------|-------------------------------------|--------------------------|--------------------------|--------------|
|                     | Pass                                | Fail                     | N/A                      |              |
| Check AAEON BIOS OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | AONCHECK.EXE |

### 8.5. TPM Function Test

| Test Item           | Result                   |                          |                                     | Note                             |
|---------------------|--------------------------|--------------------------|-------------------------------------|----------------------------------|
|                     | Pass                     | Fail                     | N/A                                 |                                  |
| No Change           | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                  |
| Clear               | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                  |
| Enable & Active     | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                  |
| Disable & Disactive | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Detect TPM device under Windows. |

### 8.6. IAMT Function Test

| Test Item     | Result                              |                          |                          | Note |
|---------------|-------------------------------------|--------------------------|--------------------------|------|
|               | Pass                                | Fail                     | N/A                      |      |
| IAMT Function | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

### 8.7. Supervisor / User Password Test

| Test Item           | Result                              |                          |                          | Note |
|---------------------|-------------------------------------|--------------------------|--------------------------|------|
|                     | Pass                                | Fail                     | N/A                      |      |
| Supervisor Password | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |
| User Password       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |      |

### 8.8. CAN port Function Test

| Basic Function Test |                              |                          |                          |                                     |      |
|---------------------|------------------------------|--------------------------|--------------------------|-------------------------------------|------|
| Test Item           | Interrupt:<br>Polling or IRQ | Result                   |                          |                                     | Note |
|                     |                              | Pass                     | Fail                     | NA                                  |      |
| CAN1 transmits CAN2 | CAN1:                        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|                     | CAN2:                        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
| CAN2 transmits CAN1 | CAN2:                        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |
|                     | CAN1:                        | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |      |

Note: Sets the interrupt for each port. Be sure that this setting matches the IRQ

## 9. Performance Test

| Hardware Information with XP Professional English SP3 32 Bit Driver Version |  |
|---|--|
| CPU   | Intel ® Core ™ i7-3610QE CPU @2.30GHz                    |
| Memory  | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B) |
| HDD/CFD   | TOSHIBA 2.5" SATA2 160GB(MK1060GSC)                      |

### 9.1. Performance Test

Test Result: (Display set 1920\*1080 test)

| Testing Software  | Scope |      | Note             |
|-------------------|-------|------|------------------|
|                   | AAEON | Ref. |                  |
| <b>PCMark7</b>    |       |      |                  |
| Scores            | 2465  | -    |                  |
| CPU               |       |      |                  |
| Memory            |       | -    |                  |
| HDD               |       | -    |                  |
| Benchmark (A)     |       | -    |                  |
| <b>PCMark2005</b> |       |      | <b>Windows 7</b> |
| PCMark            | 7062  | -    | PCMarks          |
| CPU               | 8474  | -    |                  |
| Memory            | 6782  | -    |                  |
| Graphics          | 5040  | -    |                  |
| HDD               | 3671  | -    |                  |
| Benchmark (B)     |       | -    |                  |

| Testing Software       | Scope |      | Note               |
|------------------------|-------|------|--------------------|
|                        | AAEON | Ref. |                    |
| <b>3Dmark2003 v360</b> |       |      | <b>Only for XP</b> |
| 3Dmark Score           | 6529  | -    |                    |
| CPU Score              | 980   | -    |                    |
| Benchmark (A)          |       | -    |                    |
| <b>3Dmark2006 v120</b> |       |      | <b>Windows 7</b>   |
| 3Dmark Score           | 4630  | -    |                    |
| CPU Score              | 4474  | -    |                    |
| SM 2.0                 | 1545  |      |                    |
| HDR/SM 3.0             | 1812  |      |                    |
| Benchmark (B)          |       | -    |                    |

| Testing Software            | Scope  |      | Note             |
|-----------------------------|--------|------|------------------|
|                             | AAEON  | Ref. |                  |
| <b>Performance Test 7.0</b> |        |      | <b>Windows 7</b> |
| PassMark Rating             | 1428   | -    |                  |
| CPU Mark                    | 6622.7 | -    |                  |
| 2D Graphics Mark            | 583.9  | -    |                  |
| 3D Graphics Mark            | 454.6  | -    |                  |
| Memory Mark                 | 2703.1 |      |                  |
| Disk Mark                   | 306.4  |      |                  |

## 9.2. Memory Test

| Test Item                | Result                              |      |     | Note   |
|--------------------------|-------------------------------------|------|-----|--|
|                          | Pass                                | Fail | N/A |  |
| MEM v4.20 Overnight Test | <input checked="" type="checkbox"/> |      |     | Transcend SO-DIMM DDR3-1600 8GB(SEC 207 HYKO K4B4G0846B) |