

# EMB-BSW1

## Intel Braswell M/D SoC Mini-ITX Embedded Motherboard

### Board Level Product Compatibility Test Report

Summary	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <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

<b>Issue date</b>	<b>QE Manager</b>	<b>Test Engineer</b>
2016-08-31	KJ Wang	Aslen Hsieh

**Version Released Records**

Date	Version	Change History	Note
5/26/2015	C0	1. Add UEFI,GPS,CANBUS,POE, Cold boot test item	
3/22/2016	C1	1. Add issue status 2. Update CTOS devices. 3. Add HDMI 5M cable compatibility test. 4. Modified boot up without display test. 5. Add Touch Function test. 6. Add DC adapter compatibility test 7. Add Windows10 compatibility test. 8. Update Benchmark tool. 9. Update DOS / Windows on/off test rule.	

**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 will be updated when re-test completed in product next change version.

## Specification Validation

### Main Specification

Item	Specification	Result			Note
		Pass	Fail	N/A	
Form Factor	Mini ITX Form Factor, 6.7"x 6.7" (170mmx170mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Processor	N3700, Braswell-M/D (4C @ 2.4GHz CPU (Burst Mode), 700MHz GFX (Turbo), ~6W TDP)  N3050, Braswell-M/D (2C @ 2.16GHz CPU (Burst Mode), 600MHz GFX (Turbo), ~6W TDP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Memory	2 x SO-DIMM, max. 8GB , DDR3L 1333 / 1600MTS, non-ECC, un-buffered memory, (Bay Trail-D/M/I Premium) horizontal type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	IntelR Braswell M/D SoC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I/O Chipset	F81866D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network	1x intel 211AT 1x intel 211AT via AsMedia 1184e	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio	Realtek® ALC3236	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM	Infineon SLB9635 TT 1.2 onboard (option)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion Slots	1 x Half-size Mini Card (PCIe +USB)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Full-size Mini Card (mSATA) via AsMedia 1184e atleast 60mm lenth (PCIe + USB optional)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H/W Monitor	Temperature Monitor on CPU/System	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Voltage Monitor on Vcore/5V/3.3V/12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Fan Monitor on Chassis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WatchDog Timer	1~255 step by software program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Smart Fan Control	Chassis Fan (fanless)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wake On LAN / PXE	Yes (WOL / PXE)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power State	S3, S4, S5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics	Intel® HD Graphics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics Multi Display	HDMI + HMDI + LVDS (Default) HDMI + HDMI + eDP (BOM change) DP + DP + LVDS (BOM change) DP + DP + eDP (BOM change)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDMI / DP Combo	Up to 2560 x 1600 @60 Hz, 3840 x 2160 @30Hz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS / eDP	Up to 1920 x 1080 @60Hz, Daul Channel 18/24 bit (via CH7511)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Backlight Control	Voltage / PWM, use HW control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage	2 x SATA 6Gb/s 1 x SATA 6Gb/s via AsMedia ASM1061 via AsMedia ASM1184e 1 x SATA power connector (5V / 12V @1A)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

USB	2 x USB 3.0 ports (at back panel) 2 x USB 3.0 ports (internal box header) 4 x USB 2.0 via USB4604(2 ports at mid-board, 2 ports for minicard) 4 x USB 2.0 ports via ASIX MCS9990 (internal box header) (Default : NO)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Display I/O	1 x LVDS (colay eDP), 2 x HDMI (colay DP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio I/O	Mic-in, Line-out, int.speaker	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN I/O	2 x RJ-45	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Serial Port	5 x RS-232, 1 x RS-232/422/485 supports 5V/12V/RI option (COM1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PS/2 K/M Port	Yes (WOL / PXE)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIO	8-bit Digital I/O interface (4-in /4-out)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
FAN	1 x Chassis Fan connector(s) (4-pin)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Back Panel I/O Ports	1 x DC port (12V~24V) Screw type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x USB 3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x HDMI (colay DP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x LAN (RJ45)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Audio jacks (Line-Out) green connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Audio jacks (Mic-in) pink connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internal I/O Connectors	1 x Mini Card slot (half size H=4mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Mini Card slot (full size H=9.9mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x P/S2 header	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3 x SATA 3.0 connectors	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x SATA power connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x USB 3.0 headers support additional 2 USB ports (2*5PIN, p=2.00mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3 x USB 2.0 headers support additional 6 USB ports (2x5PIN, p=2.00mm), (default :1 header onboard)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Chassis Fan connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5 x boxer header for COM (RS-232)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x boxer header for COM (RS-232 / 422 /485)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x DIO (4in/4out)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x 40-pin LVDS /eDP connector (colay)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x LVDS 3V /5V jumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x LCD DC / PWM mode jumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x LCD backlight connector (inverter)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x LCD backlight 12V/5V jumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1 x battery horizontal socket	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
1 x Speaker (2W)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
1 x 2*2 PIN DCIN 12V AUX Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

	Connector				
	1 x Front Panel connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x AT/ATX mode select jumper (optional)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x CMOS jumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Battery	Lithium battery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Requirement	12-24V DC (wide rage:12V-5%~24V+10%)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Compliance	Compliant with EuP / ErP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**O.S. Support**

Item	Specification	Result			Note
		Pass	Fail	N/A	
OS Supported	Windows 7 _32 / 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows 8.1 _32 / 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows 10 _32 / 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Linux	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Environmental Specifications**

Item	Specification
Operating temperature	32~122°F (0~50°C)
Storage temperature	N/A
Operating humidity	0%~90%RH, non-condensing
EMC	CE & FCC

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

### Platform Information

Item	Device Information	Test Item
PCB Model / Version	EMB-BSW1 R1.03	
BIOS / Version	EMB-BSW1 R1.7 (EBW1AM17)(08/08/2016)	
CPU Type	Intel® Pentium® Processor N3710 1.60 GHz (2M Cache, up to 2.56 GHz)	
	Intel® Celeron® Processor N3060 / 1.6 GHz (2M Cache, up to 2.48 GHz)	
Memory Type	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB	
	Transcend / SEC K4B4G0846D / DDR3L-1600 / 4GB	
SATA HDD	OCZ / TRN100-25SAT3-240G 2.5" SATA 3 6Gb/s	
USB DVD-ROM	BUFFALO BRXL-PC6U2	
SATA DVD-ROM	ASUS-BW-16D1HT	
LCD Monitor	LG Flatron E2260 / 1920*1080 / 22" monitor	
	Asus PA238Q / 1920*1080 / 23" monitor	
	BENQ BL2710 / WQHD 2560 x 1440 / 27" monitor	
Operating System	<input checked="" type="checkbox"/> English Ubuntu15.04 Kernel 3.19.0 -15 – generic #15	
	<input checked="" type="checkbox"/> Windows 7 Ultimate SP 1 English Version 32/ 64 Bit	
	<input checked="" type="checkbox"/> Windows 8.1 Enterprise English Version 32 / 64Bit	
	<input checked="" type="checkbox"/> Windows 10 Enterprise English Version 32/64Bit	
ATX Power Supply (+12V DC)	Delta / GPS-550GB / 550W / ATX	
	be quiet Straight Power E7 Golden 550W	
<b>Chipset Information with Windows 8.1 Enterprise English Version 64Bit Driver Version</b>		
Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)	
SOC Bridge	Intel® Braswell M/D SoC	
Super IO Chipset	Fintek F81866D	
VGA Chipset	Intel HD Graphics 20.19.15.4352 (12/15/2015)	
Audio Chipset	Realtek High Definition Audio 6.0.1.7541 (06/18/2015)	
	Intel Display Audio 6.16.0.3190 (11/16/2015)	
Ethernet Chipset	Intel I211 Gigabit Network Connection 12.14.7.0 (06/18/2015)	

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# 1. Hardware Test

## 1.1. CPU Compatibility Test

CPU Information	Result			Note
	Pass	Fail	N/A	
Intel® Pentium® Processor N3710 1.60 GHz (2M Cache, up to 2.56 GHz)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Celeron® Processor N3060 / 1.6 GHz (2M Cache, up to 2.48 GHz)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 1.2. Memory Compatibility Test

Memory Information	AAEON P/N	MEM V5.01 For 3 loops			Note
		Pass	Fail	N/A	
Innidisk / SEC K4B2G0846Q / DDR3L-1600 / 2GB	968D3002GX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memtest86+ V5.01
Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB	968D3004GZ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memtest86+ V5.01
Innidisk / SEC K4B4G0846D / DDR3L-1600 / 8GB	968D3008GW	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memtest86+ V5.01
Transcend / SEC K4B2G0846Q / DDR3L-1600 / 2GB	968D3002GK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memtest86+ V5.01
Transcend / SEC K4B4G0846D / DDR3L-1600 / 4GB	968D3004G6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memtest86+ V5.01
Transcend / SEC K4B4G0846D / DDR3L-1600 / 8GB	968D3008G7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Memtest86+ V5.01

## 1.3. SATA Compatibility Test

### 1.3.1 Onboard SATA-AHCI Mode Test

SATA Device Information (Information and size should show correct value with IDE and AHCI mode)		AAEON P/N	Result			Note
			Pass	Fail	N/A	
SSD	Transcend TS32GSSD370 2.5".32GB.SATA III SSD MLC.	968C032G2D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R/W
SSD	Transcend.TS64GSSD370 2.5".64GB. SATA III.SSD.MLC	968C64G003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R/W
SSD	Transcend.TS128GSSD370 2.5" SATA3 SSD.128GB.MLC.	968C128G0W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows7_32bit
SSD	Intel® SSD 530 Series (120GB, 2.5in SATA 6Gb/s, 20nm, MLC)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows8.1_64bit
SSD	OCZ / TRN100-25SAT3-240G 2.5" SATA 3 6Gb/s	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows8.1_64bit
HDD	WD WD3200LPKX / 320GB 7200 RPM / 8MB Cache / SATA 6.0Gb/s / 2.5" SATA HDD		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows7_64bit
HDD	WDC WD5000LPVX / SATAIII 2.5" SATA HDD / 500GB / 5400rpm		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows8.1_64bit
HDD	Seagate ST9160412AS / 7200 RPM / 16MB Cache / SATA 3.0Gb/s 2.5" SATA HDD		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows10_64bit
HDD	Hitachi / HTS721010A9E630 / 1TB / SATA III 7200 RPM / 2.5" SATA HDD		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows10_32bit
HDD	TOSHIBA MK1665GSX / 160GB / 5400 RPM / 2.5" SATA HDD / SATA 1.5Gb/s		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows8.1_64bit
HDD	TOSHIBA MK1676GSX / 160GB / 5400 RPM / 2.5" SATA HDD / SATA 1.5Gb/s		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ubuntu15.04_64bit



DVD	ASUS BW-14D1XT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Install OS
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### 1.4. Keyboard/Mouse Compatibility Test

Keyboard/mouse Information		Result			Note
		Pass	Fail	N/A	
PS/2 Keyboard	Asus PK-1100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PS/2 Mouse	Logitech M-S43	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Keyboard	Asus PK-1100U	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Logitech K240	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Mouse	Logitech M-U0028	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Logitech M212	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 1.5. Power Supply Compatibility Test

Power Supply Information		Result			Note
		Pass	Fail	N/A	
ATX	Delta / GPS-550GB / 550W / ATX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test +12 Input
ATX	be quiet Straight Power E7 Golden 550W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test +12 Input

### 1.6. USB Compatibility Test

USB Information		Result			Note
		Pass	Fail	N/A	
DVD ROM	Iomega DVDRW8X-U	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Blu-Ray	BUFFALO BDXL-PC6U2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Flash	Apacer / AH450 32GB USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Flash	SanDisk CZ80 Extreme / 64GB USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Flash	TDK Media 32GB USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 1.7. m-SATA Compatibility Test

m-SATA Information (a. Information and size should show correct value (b. R/W and HDD LED should work properly)	AAEON P/N	Result			Note
		Pass	Fail	N/A	
<b>Full Size</b>					
Transcend.TS16GMSA370 Full-size mSATA.16GB.MLC.	AP-SS968C016 G2Z	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 2
Transcend.TS32GMSA370 Full-size mSATA.32GB.MLC.	968C032G32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 2
Transcend.TS64GMSA371 Full-size.64GB.mSATA.MLC	968C064G2K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 2
InnoDisk D150Q mSATA 32GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 2
Transcend.TS64GMSA740 Full-size.64GB.mSATA.MLC	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 2

### 1.8. Monitor Compatibility Test

Monitor Information	Result			Note
	Pass	Fail	N/A	
a. Monitor should display under DOS and OS environment.				
b. Monitor should not appear ghost or ripples.				
<b>HDMI</b>				
LG Flatron E2260 / 1920*1080 / 22" monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Asus PA238Q / 1920*1080 / 23" monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BENQ BL2710 / WQHD 2560 x 1440 / 27" monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Philips Brilliance 288P / 3840 x 2160 @ 60Hz / 28" monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samsung LU28D 3840x2160 / 28" monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 2. Basic Function Test

### 2.1. Video Function Test

#### 2.1.1. Single Output Function Test

Hardware Information with Windows 8.1 Enterprise English Version 64bit													
CPU	Intel® Pentium® Processor N3710 1.60 GHz (2M Cache, up to 2.56 GHz)												
Memory	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB *2												
SATA HDD	Intel® SSD 530 Series (120GB, 2.5in SATA 6Gb/s, 20nm, MLC)												
HDMI	LG Flatron E2260 / 1920*1080 / 22" monitor												
	Asus PA238Q / 1920*1080 / 23" monitor												
	Philips Brilliance 288P / 3840 x 2160 @ 60Hz / 28" monitor												
	BENQ BL2710 / WQHD 2560 x 1440 / 27" monitor												
LVDS	Samsung LU28D 3840x2160 / 28" monitor												
LVDS	AUO / G150XG03 v3 12" 1024/768 18bit												
eDP	CHIMEI / INNOLUX N116HSE-EA1 / 1920 x 1080 / 11.6" inch												
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit												
Resolution	HDMI_1 [LG E2260]			HDMI_2 [Asus PA238Q]			LVDS			eDP			Note
	Pass	Fail	N/A	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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
800X600	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1152X864	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X600	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X720	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X768	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X800	<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"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X1024	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1360X768	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1366X768	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1400X1050	<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"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1600X900	<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"/>	<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"/>	<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"/>	<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"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2048X1152	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2560X1440	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	BENQ BL2710
3840X2160	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Philips Brilliance 288P Samsung LU28D 3840x2160
EDID check	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Hot plug	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rotation ( 0 / 90 /180 /270)	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

### 2.1.2. Multi-Display Test

Selection	Output	Result			Note
		Pass	Fail	N/A	
Dual Display Clone	HDMI_1 + HDMI_2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dual Display Clone	HDMI_1 + HDMI_2 + eDP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dual Display Clone	HDMI_1 + HDMI_2 + LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 to if it is normal, no "Ghost Image" / "Flicker"

	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_AUO G150XG03 V.3 / 15" / 1024*768 / 18bit (4:3)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	8_AU M150XN07 V.2 / 15" / 1024x768 / 24bit (4:3)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	9_AUO G121XN01 V.0 / 12" 1024*768 / 18bit (4:3)	<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 G185XW01 / 18" / 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"/>	
	16_AUO M215HW03 V1 21" 1920/1080/48bit	<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	
Line out	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"/>	
AMP (Left and Right)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AMP should mute when Audio jack plug in
Microphone		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDMI Audio		<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								
OnBoard LAN1		Intel 211AT, 10/100/1000Base					MAC Address		00-07-32-2E-D5-4A	
OnBoard LAN2		Intel 211AT, 10/100/1000Base					MAC Address		00-07-32-2E-D5-49	
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"/>	S3/S4/S5/	
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 14 – Kernel
<input type="checkbox"/>	Cent OS5.6
<input checked="" type="checkbox"/>	<b>Centos 7 Kernel 3.10.0 -229</b>
<input type="checkbox"/>	Red Hat

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

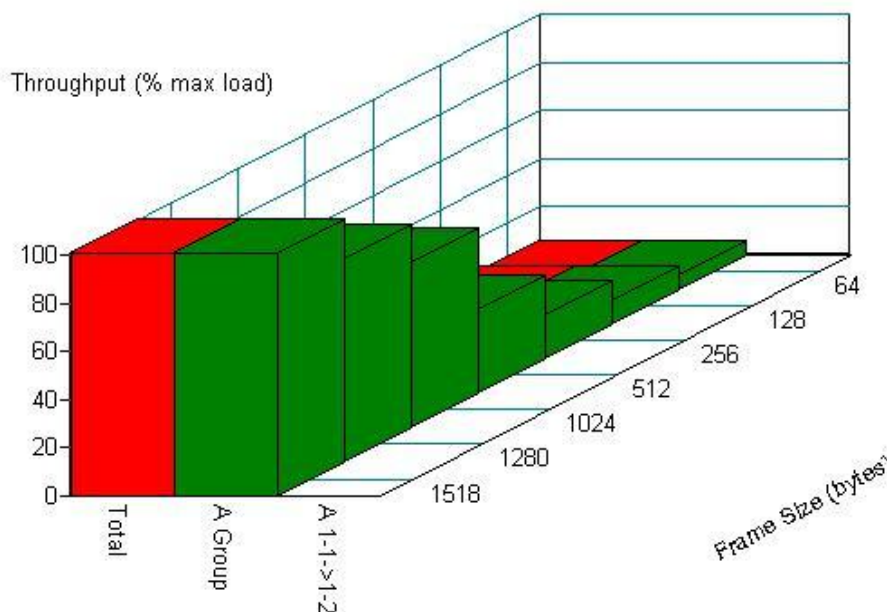
Graphics Media	Centos 7 Default setting
LAN	Centos 7 Default setting
Audio Driver	Centos 7 Default setting

#### 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:

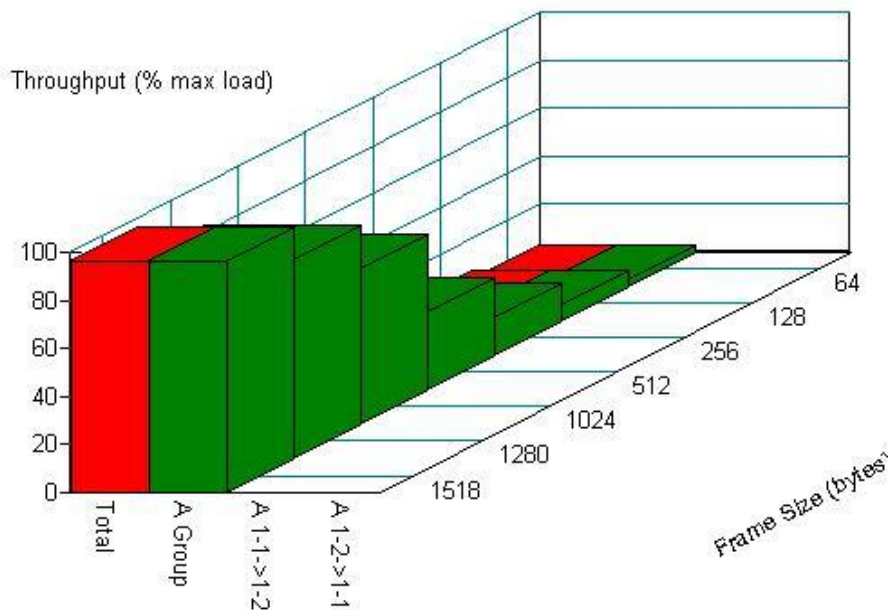
##### 1. Half Direction (LAN1: Intel 211AT Gigabit LAN → LAN2: Intel 211AT Gigabit LAN)



Throughput vs Frame Size

<u>Name/Framesize</u>	<u>64</u>	<u>128</u>	<u>256</u>	<u>512</u>	<u>1024</u>	<u>1280</u>	<u>1518</u>
Total	5.640625	9.5078125	18.015625	34.2578125	68.2890625	83.7578125	100
A Group	5.640625	9.5078125	18.015625	34.2578125	68.2890625	83.7578125	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2. Binary Direction (LAN1: Intel 211AT Gigabit LAN ↔ LAN2: Intel 211AT Gigabit LAN)



Throughput vs Frame Size

Name/Frame size	64	128	256	512	1024	1280	1518
Total	2.546875	6.4140625	15.6953125	31.9375	64.421875	82.2109375	96.1328125
A Group	2.546875	6.4140625	15.6953125	31.9375	64.421875	82.2109375	96.1328125
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. Connector and Jumper Test

[ ] No Support

Function Test		Result			Note
		Pass	Fail	N/A	
CLRTC1	Clear CMOS Jumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ATMODE	AT/ATX mode Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
J1	LVDS1 Panel Voltage selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
J2	Inverter1 Voltage selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
J3	Mode Selection for Back Light Control of Inverter1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
J4	COM1 Ring/+5V/+12V Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ring/+5V/+12V
CHASSIS	Chassis Intruder (Reserve)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 3. Integration Test

Hardware Information with Windows 8.1 Enterprise English Version 64bit	
<b>CPU</b>	Intel® Pentium® Processor N3710 / 1.60 GHz (2M Cache, up to 2.56 GHz)
<b>Memory</b>	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB *2
<b>SATA HDD</b>	Intel® SSD 530 Series (120GB, 2.5in SATA 6Gb/s, 20nm, MLC)

#### 3.1. USB Port Integration Test

Item	USB Port	Boot			Function(Win 8.1)			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"/>	
BUFFALO BDXL-PC6U2		<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 +5.0V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 S3/S4/S5/DOS off
	+12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter
	+5V	<input checked="" 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
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. The communication between the RS-422 port of two boards is linked by one 1.2km cable on Windows Terminal. 2. Confirm RS422 can work properly from G3 status
RS-485 for COM2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use ADAM-4011 D/IO Module in Windows(Support Auto flow control)
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. The communication between the RS-485 port of two boards is linked by one 1.2km cable on Windows Terminal 2. Confirm RS485 can work properly from G3 status



## 4. Application Test

### 4.1. PCI-Express Function Test

Mini PCI Express Card	Function Test			Note
	Pass	Fail	N/A	
AzureWave AW-NB100H(PCI-e Wireless+ USB Bluetooth)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 1
AzureWave AW-NB041H Wireless / Bluetooth	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 1
AzureWave AW-NE768 Wireless 802.11/b/g/n	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 1
Ralink RT3092 Wireless 802.11 B/G/N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MINI_CARD 1

## 5. Power Consumption Test

Hardware Information with Windows 8.1 Enterprise English Version 64bit	
CPU	Intel® Pentium® Processor N3710 / 1.6GHz (2M Cache, up to 2.56 GHz)
Memory	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB *2
SATA HDD	OCZ / TRN100-25SAT3-240G 2.5" SATAIII 6Gb/s SSD

### 5.1. AT/ATX Power Consumption

Test Equipment						
Equipment	Digital Multimeter					
Manufacturer	HOLA					
Model name	DM-1240					
Test Environment						
ATX Power Model	be quiet Straight Power E7 Golden 550W/ATX					
Keyboard/Mouse	PS/2 Keyboard: Atake KJ118; PS/2 mouse: Genius NetScroll 120					
Note	Power consumption does not include HDD consumption.					
Power Supply	ATX Power					Note
(Full Loading Mode) Windows 8.1 with Prime 95 Full Loading Test	(+12V)	1.40	A	16.8	W	Prime95 Version 279
Full Loading Total Watt	(W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(+12V)	0.09	A	1.08	W	
Suspend Total Watt	(W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+12V)	0.83	A	9.96	W	
Idle Total Watt	(W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(+12V)	0.06	A	0.72	W	
Suspend Total Watt	(W)					

### 5.2. PC Health Status

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

Voltage Monitoring Test	Result			BIOS (V)	Actual (V)	Note
	Pass	Fail	N/A			
CPU Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	45 °C	46 °C	
System Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39 °C	N/A °C	
CPU DTS Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51 °C	N/A °C	
Fan1 Speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1726 RPM	1730 RPM	
VCORE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.832V	0.83V	
+3VS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.384V	3.37V	
+5VS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.045V	5.02V	
+12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.968V	11.97V	
VCC3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.392V	3.37V	
VS3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.376V	3.37V	
VS5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.064V	5.06V	
VBAT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.136V	3.20V	

### 5.3. Wide Voltage Test

Test Environment (a. System should boot properly (b. System wasn't halt in following status. )	DC Power (12V~24V)	Current		Note
Windows 8.1 with Prime 95 Full Loading Test	(+11.4V)	1.20	A	12-24V DC (wide rage:12V-5%~ 24V+10%)
	(+12V)	1.10	A	
	(+19V)	0.72	A	
	(+24V)	0.58	A	
	(+26.4V)	0.54	A	
Windows 8.1 Without running any Software	(+11.4V)	0.96	A	
	(+12V)	0.89	A	
	(+19V)	0.61	A	
	(+24V)	0.48	A	
	(+26.4V)	0.46	A	

### 5.4. CMOS Battery Test

Test Point: Calculated result should be > 5 years.

Battery: CR2032

Capacity 225mA v

Check item	Measured Voltage		Measured Current		Calculate Result		Result			Note
	Value	Unit	Value	Unit	Value	Unit	Pass	Fail	N/A	
Battery leakage	3.07	V	3.4	uA	7.55	years	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Calculate result=225mA/measured current / 365days/24hour

## 6. Time Accuracy Test

### 6.1. System Clock & RTC Clock Test

Under Room Temperature: 26 °C

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

### 6.2. Booting Timer Test

Installation	Actual		Note
System Booting Time	7.5	Sec	Press the Power Button till "Beep" Sound appears

### 6.3. Watchdog Timer Test

Use Function as below:

[ ] No Support. Hi-safe

Time-Out Interval	Margin for error	Actual	Result			Note
			Pass	Fail	N/A	
10 sec	+ / - 10 %	10.5 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+ / - 10 %	60.3 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
255 sec	+ / - 10 %	254.2 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 Ubuntu15.04 Kernel 3.19.0 -15 –generic #15-ubuntu

[ ] No Support

Driver Information:

Chipset Software	System default
Graphics Media	System default
Audio Driver	System default
LAN Driver <I211>	System default

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu15.04 Kernel 3.19.0 -15 – generic #15-ubuntu	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Type uname –a AHCI

Test Result:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Display Function Test</b>				
DP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920*1080
HDMI-- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920*1080
<b>Network Function Test</b>				
Connect to Internet – LAN 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel 211AT, 10/100/1000Base
Connect to Internet – LAN 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel 211AT, 10/100/1000Base
<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>				
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"/>	
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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

[ X ] x32 Driver Information:

Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Intel I211 Gigabit Network Connection 12.13.27.0 (06/05/2015)

[ ] x64 Driver Information:

Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Intel I211 Gigabit Network Connection 12.13.27.0 (06/05/2015)

### Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows 7 Ultimate ACPI Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	64bit AHCI mode

### Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
HDMI --Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920 x 1080
eDP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS -- 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"/>	
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM Function	<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"/>	Intel 211AT, 10/100/1000Base
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel 211AT, 10/100/1000Base
<b>Audio Function Test</b>				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDMI / DP Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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(S3)	<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 8.1 Enterprise English Version 32/64Bit

[ X ] x32 Driver Information:

Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Intel I211 Gigabit Network Connection 12.14.7.0 (06/18/2015)

[ X ] x64 Driver Information:

Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Intel I211 Gigabit Network Connection 12.14.7.0 (06/18/2015)

#### Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows8.1 Enterprise 32bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
English Windows8.1 Enterprise 64bit UEFI mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
HDMI --Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920 x 1080
eDP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Boot - Windows 8.1 Enterprise 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"/>	
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM Function	<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"/>	Intel 211AT, 10/100/1000Base
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel 211AT, 10/100/1000Base
<b>Audio Function Test</b>				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDMI / DP Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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(S3)	<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"/>	

### 7.4. Windows 10 Enterprise English Version 32/64Bit

[ X ] x32 Driver Information:

Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Intel I211 Gigabit Network Connection 12.12.226.0 (05/04/2015)

[ X ] x64 Driver Information:

Chipset Software	Intel Chipset Device Utility 10.1.1.9 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Intel I211 Gigabit Network Connection 12.12.226.0 (05/04/2015)

### Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
Windows 10 Enterprise 32Bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Windows 10 Enterprise 64Bit (UEFI mode)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
HDMI --Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920 x 1080
eDP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Boot - Windows 8.1 Enterprise 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"/>	
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM Function	<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"/>	Intel 211AT, 10/100/1000Base
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel 211AT, 10/100/1000Base
<b>Audio Function Test</b>				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDMI / DP Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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(S3)	<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 Windows 8.1 Enterprise English Version 64bit	
CPU	Intel® Pentium® Processor N3710 / 1.6GHz (2M Cache, up to 2.56 GHz)
Memory	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB *2
SATA HDD	Intel® SSD 530 Series (120GB, 2.5in SATA 6Gb/s, 20nm, MLC)

### 8.1. Advanced Test

Test Item		Result			Note
		Pass	Fail	N/A	
CPU configuration	CPU information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA configuration	SATA Port 0/1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB configuration	Legacy USB Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled / Disabled
Hardware Monitor	Hardware Monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Smart Fan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled / Disabled
Trusted Computing	TPM SUPPORT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled / Disabled
	TPM State	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled / Disabled
	Pending operation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TPM Clear / None
	Device Select	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto / TPM 1.2 / TPM 2.0
Super IO Configuration	Serial port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RS232/422/485	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Management	Power Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AT/ ATX
	AC Power Loss	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Last state / Always on / Always off
	RI wake Event	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled / Disabled
	RTC Wake System from S5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disable/ Fixed Time / Dynamic Time
Dynamic Digital IO	DIO Port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low

### 8.2. Chipset Test

Test Item		Result			Note
		Pass	Fail	N/A	
North Bridge	Memory Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Primary IGFX Boot Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
South Bridge	Audio Controller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	PCI-E Configuration Mini_Card Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto / Gen2 / Gen 1

### 8.3. Boot Test

Test Item	Result			Note
	Pass	Fail	N/A	
Quiet Boot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Launch PXE OpROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From Hard Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From CDROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB HDD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB Floppy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB CD-ROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot from LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 8.4. CMOS Backup / Clear CMOS Test

Test Item	Result			Note
	Pass	Fail	N/A	
CMOS Backup	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear time & Data
Clear CMOS Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear time & Data

### 8.5. 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

### 8.6. Supervisor / User Password Test

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

### 8.7. Hi-safe Test

Test Item		Result			Note
		Pass	Fail	N/A	
Version(2016.01.29)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Information	CPU Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Model Name	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Display Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RAM Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Support single DIMM
H/W Monitor	Info	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Fan Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Voltage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIO	DIO1~4 High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO1~4 Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO5~8 High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO5~8 Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO9~12 High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO9~12 Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO13~16 High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO13~16 Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WatchDog	10sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 10.5 sec
	1min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 60.3 sec
	255sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 254 sec
	Auto Reload	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SMBus	SMBus IO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SMBus Address 0xF040
	Read Byte	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slave Address A0h
	Read Word	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Result / Read	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Smart FAN	Chipset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Fan Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Speed control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Off Speed TMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Full Speed TMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 9. Performance Test

Hardware Information with Windows 8.1 Enterprise English Version 64bit		
CPU	Intel® Pentium® Processor N3710 / 1.6 GHz (2M Cache, up to 2.56 GHz) Intel® Celeron® Processor N3060 / 1.6 GHz (2M Cache, up to 2.48 GHz)	
Memory	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB *2	
SATA HDD	<b>N3710</b>	Intel® SSD 530 Series (120GB, 2.5in SATA 6Gb/s, 20nm, MLC)
	<b>N3060</b>	OCZ Trion 100 SATAIII 2.5" SATA SSD 240G

### 9-1. System Performance Test

Test Result : Display set 1920\*1080 test

Testing Software	Scope		Note
	N3060	N3710	
<b>PCMark 8 _v2.3.293 (Creative) (Run Conventional)</b>			Windows 8.1 (64bit)
PCMarks	1123	1338	
Web Browsing-Jungle Pin	0.506 s	0.506 s	
Web Browsing-Amazonia	0.168 s	0.157 s	
Video Group Chat v2- Video Group Chat playback1 v2	30.0 fps	30.0 fps	
Video Group Chat v2- Video Group Chat playback2 v2	30.0 fps	30.0 fps	
Video Group Chat v2- Video Group Chat playback3 v2	30.0 fps	30.0 fps	
Video Group Chat v2- Video Group Chat encoding v2	402.3 ms	205.0 ms	
Photo Editing v2	2.554 s	1.590 s	
Batch Photo Editing v2	141.6 s	108.7 s	
Video Editing 1 v2	50.4 s	38.7 s	
Video Editing 2 v2	554.3 s	531.4 s	
Mainstream Gaming part 1	3.0 FPS	3.6 FPS	
Mainstream Gaming part 2	1.3 FPS	1.6 FPS	
Video To Go part 1	11.6 s	17.4 s	
Video To Go part 2	16.0 s	21.0 s	
Music To Go	56.93 s	41.14 s	
Benchmark duration	1h 52min 21s	2h 3min 55s	

Testing Software	Scope		Note
	N3060	N3710	
<b>3Dmark Vantage _v113 Performance 1280*1024</b>			Windows 8.1 (64bit)
3Dmark Score	P1845	P2325	
GPUScore	1674	1943	
CPU Score	2663	5647	
<b>3Dmark11 Professional Edition _ v1.05 Performance 1280*720</b>			Windows 8.1 (64bit)
3Dmark 11Score	P478	P628	
Graphics Score	423	555	
Physics Score	1141	1980	
Combined Score	537	613	

Testing Software	Scope		Note
	N3060	N3710	
<b>Performance Test 8.0</b>			<b>Windows 8.1 (64bit)</b>
PassMark Rating	903	871.9	
CPU Mark	1212.0	2478.9	
2D Graphics Mark	229.4	174.4	
3D Graphics Mark	318.1	308	
Memory Mark	821	1026.9	
Disk Mark	4119	572.6	
CD Mark	-	-	

## 8.2. Storage Performance Test

SATA Performance				
<b>SATA SSD</b>	OCZ / Trion 100 / 240GB SSD			
<b>CPU</b>	Intel® Pentium® Processor N3710 / 1.6GHz (2M Cache, up to 2.56 GHz)			
<b>Memory</b>	Innidisk / SEC K4B4G0846D / DDR3L-1600 / 4GB *2			
<b>OS</b>	Windows 8.1 (64bit)			
Item	Comment / (unit)	Software	Score	Note
SATA6G_1	Maximum Read	ATTO Disk Benchmark	557MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	504MB/s	
SATA6G_2	Maximum Read	ATTO Disk Benchmark	561MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	501MB/s	
SATA6G_3	Maximum Read	ATTO Disk Benchmark	378MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	292MB/s	

USB3.0/2.0 Performance				
<b>USB Flash</b>	Apacer AH450 USB3.0 / 32GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
<b>USB3.0 (USB3_1)</b>	Maximum Read	ATTO Disk Benchmark	133MB/s	
	Maximum Write	ATTO Disk Benchmark	19MB/s	
<b>USB3.0 (USB3_2)</b>	Maximum Read	ATTO Disk Benchmark	133MB/s	
	Maximum Write	ATTO Disk Benchmark	21MB/s	
<b>USB3.0 (USB3_3)</b>	Maximum Read	ATTO Disk Benchmark	130MB/s	
	Maximum Write	ATTO Disk Benchmark	19MB/s	
<b>USB3.0 (USB3_4)</b>	Maximum Read	ATTO Disk Benchmark	132MB/s	
	Maximum Write	ATTO Disk Benchmark	21MB/s	
<b>USB2.0 (USBHUB_1)</b>	Maximum Read	ATTO Disk Benchmark	34MB/s	
	Maximum Write	ATTO Disk Benchmark	13MB/s	
<b>USB2.0 (USBHUB_2)</b>	Maximum Read	ATTO Disk Benchmark	35MB/s	
	Maximum Write	ATTO Disk Benchmark	12MB/s	

mSATA performance				
mSATA	Transcend.TS16GMSA370 / Full-size mSATA.16GB.MLC		AP-SS968C016G2Z	
	Transcend.TS32GMSA370 / Full-size mSATA.32GB.MLC		968C032G32	
	Transcend.TS64GMSA370 / Full-size.64GB.mSATA.MLC		968C064G2K	
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
mSATA(16GB)	Maximum Read	ATTO Disk Benchmark	111MB/s	
	Maximum Write	ATTO Disk Benchmark	20MB/s	
mSATA(32GB)	Maximum Read	ATTO Disk Benchmark	221MB/s	
	Maximum Write	ATTO Disk Benchmark	40MB/s	
mSATA(64GB)	Maximum Read	ATTO Disk Benchmark	353MB/s	
	Maximum Write	ATTO Disk Benchmark	78MB/s	

## 10. Negative Test

### 10.1 USB Keyboard Negative Test

Methods	Result			Note
	Pass	Fail	N/A	
1. Boot into BIOS setup manual. 2. Press NumLock or ScrLk and press arrow key. 3. confirm arrow key function are normally	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 10.2 Suspend S3 Negative Test

Methods		Result			Note
		Pass	Fail	N/A	
1. Resume from S3. 2. Confirm com ports(RS232/422/485), DIO, smartfan, LVDS backlight control can work properly.	RS232/422/485	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	SmartFan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS Backlight control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

# 11. Stability test

## 11.1. Burn In Test

Under Room Temperature: 26 °C

OS: Windows 8.1 Enterprise English 64bit

Test Item		Result			Note
		Pass	Fail	N/A	
Burn In Test V8.1(1015) Duty: 100 Time: over 12 hours	CPU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RAM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	COM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Video	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Sound	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Network	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<Advanced>
	USB	2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note: COM PORT Speed Set to 115200.

## 11.2. Reboot Test

Under Room Temperature: 26 °C

OS: Windows 8.1 Enterprise English 64bit

Test Tool: Passmark rebooter.exe [v1.3 Build1004]

Test item	Result			Note
	Pass	Fail	N/A	
Reboot test for 500 cycles <System should not error or hang during testing.>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 11.3. ACPI G3 Cold Boot Test

Under Room Temperature: 26 °C

OS: DOS

Test Point:

1. Make sure system boot up is stable.
2. Make sure boot function support AC power restored in short time.

Test item	Result			Note
	Pass	Fail	N/A	
G3(AC loss) cold boot over 1000 cycles Setting: Power on- 40sec ; Power off-- 20sec. <loss rate: 0 /1000 times>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> BIOS select " power on" or <input type="checkbox"/> Jumper setting auto power button
G3(AC loss) cold boot over 20 cycles Setting: Power on- 40sec ; Power off- 5sec. <loss rate: 0 /20 times>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	H/W [auto power button] need to set enable..



### 11.4. ACPI S5 Cold Boot Test

Under room temperature: 26 °C

OS: Windows 8.1 Enterprise English 64bit

Test item	Result			Note
	Pass	Fail	N/A	
S5(standby power) cold boot over 500 cycles < System should complete 500 cycles without any error or hang.>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. "PassMark Rebooter" set 500 cycles / delay 30sec and enable "auto load Rebooter at startup". 2. On/off fixture cycle time to set 150sec.