

Report NO: 16IP010018

# EMB-Q170B

## Board Level Product P5 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

Issue date	Approval	Test Engineer
2016/11/24	KJ Wang	Danny Chen

**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	P2P2-1003	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	
2013/12/6	P2P3-1301	1. Rename document : [Board Level Product P2-P3 Verification Test Plan & Report Template] 2. Chapter1:Memory compatibility add AAeon P/N 3. Chapter1:Add CFast and m-SATA test item. 4. Chapter3:Add RS422 1.2KM/115200bps transmission test 5. Chapter3:BurninTest test add USB2.0/3.0. 6. Chapter5: Modify power consumption test item. 7. Chapter7: add Windows XP Professional English Version 32/64Bit and Windows 8 Pro English Version 32/64Bit test. 8. Chapter8: Change BIOS format from Award to AMI and add Hi-Safe, Hi-Manager test item. 9. Chapter9: Add SATA performance test and USB3.0 performance. 10. Remove Chapter10: Other Tests..	
2014/10/03	P2P3-1401	1. Page 1 rename: Board Level Product P2-P3 Test Report. 2. Remove platform information\test item and add driver folder item. 3. Chapter2.1: add EDID check, DOS display, 3840*2160, hot plug. 4. Chapter2.2: modify from "dual display test" to "Multi display test." 5. Remove chapter 2.3 "Boot ROM to Novell 4.11 [RPL]" item 6. Chapter2.3.2: add "CPU information" 7. Chapter2.4: change from optional function to "Jumper and connector function test" 8. Chapter3.4: RS422/485 add test from G3 status. 9. Add chapter 4.10 Display port converter compatibility test. 10. Chapter7.1: remove "halt" test item. 11. Chapter7.2/7.3/7.4: add touch and TPM function test 12. Chapter9: update performance test program. 13. Add chapter 10. Negative Test.	

**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 Validation Main Specification

Item	Specification	Result			Note
		Pass	Fail	N/A	
<b>System</b>					
CPU	Intel® 6th Generation (Skylake-S) Core™ i7/ i5 /i3, Pentium LGA 1151 socket Processor, Max. 65W TDPs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	Intel® Q170 Express Chipset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Memory	2 x SO-DIMM, Max. 32GB, 260-pin, DDR4 2133/1867 MHz, Non-ECC, Un-buffered Memory	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Super I/O	NCT6791D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage	Intel® Q170 Express Chipset support 4 x SATA 6.0Gb/s	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ethernet	1 x Intel PCIe Gb LAN 219LM for vPro 1 x Intel PCIe Gb LAN 211AT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio	Realtek® ALC887	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM	Infineon SLB96XX TT 1.2 coay 2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion Slots	1 x PCIe 2.0[x4]  1 x M.2 M key (22 x 80mm) for PCIe[x4]/SATA at Bottom side  1 x M.2 E key (22 x 30mm) for PCIe/USB/I2CME/SDIO/UART/P CM at Top side	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BIOS	128Mbit Flash ROM, AMI BIOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H/W Monitor	Temperature Monitor on CPU/Chassis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Voltage Monitor on Vcore/5V/12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Fan Monitor on CPU/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	CPU Fan / Chassis Fan	<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 Multi Display	2 x DP, 1 x eDP, 1 x LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP	Up to 4096 x 2160 @ 24 Hz / 3840 x 2160 @ 60 Hz, with Digital Audio	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS / eDP	LVDS Up to 1920 x 1200 @60 Hz, Dual Channel 18/24 bit eDP UP to 4096 x 2340 @ 60Hz (could only use 1 function at a time since only support 1 x inverter)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Backlight Control	Voltage / PWM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage	4 x SATA 6.0Gb/s, supports RAID 0/1/5/10 M.2 (M-key) x 1, (22 x 80mm) (PCIex4/SATA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	4 pin SATA power (5V, 12V @1A)				
USB	4 x USB 3.0 ports (4 ports in Rear IO) 6 x USB 2.0 ports (6 port for internal pin header)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Display I/O	2 x DP, 1 x eDP, 1 x LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio I/O	Mic-in, Line-out, AAFP, internal 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	1 x RS-232/422/485 supports 5V/12V/RI option (mid board)	<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 CPU Fan connector(s) (4-pin) 1 x Chassis Fan connector(s) (4-pin)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Requirement	12VDC	<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"/>	
Back Panel I/O Ports	1 x DC Jack 2 x DP 2 x LAN (RJ45) 4 x USB 3.0 1 x Audio jacks (Mic-In) pink connector 1 x Audio jacks (Line-Out) green connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internal I/O Connectors	1 x PCIe4 Slot 1 x M.2 M key (22 x 80mm) at Bottom side 1 x M.2 E key (22 x 30mm) at Top side 2 x SATA 6Gb/s 2 x SATA 6Gb/s 1 x 4 PIN SATA power 3 x USB 2.0 connectors support additional 6 USB ports 1 x boxer header for COM (COM1: RS-232/422/485 supports 5V/12V/RI) 1 x 40 PIN LVDS connector 1 x 40 PIN eDP connector 1 x LVDS 3.3V /5V jumper 1 x LCD DC / PWM mode jumper 1 x LCD backlight connector (inverter) 1 x LCD backlight 12V /5V jumper 1 x Digital I/O box header 1 x 2 PIN (1x2) internal power connector 1 x 4 PIN CPU Fan connector 1 x 4 PIN Chassis Fan connector 1 x Front Panel connector 1 x AAFP follow ASUS pin out 1 x Speaker for 2W/4Ω 1 x Chassis Intrusion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	1 x AT/ATX mode select jumper (預留不上件)				
	1 x clear CMOS jumper				

### O.S. Support

Item	Specification	Result			Note
		Pass	Fail	N/A	
Microsoft Windows	Windows 7 32 / 64 bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows 8 64 bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows 10 64 bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Linux-Fedora	Liunx Fedora	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Platform Information

Item	Device Information	Note
Product of department	IPC	
Mode Name	EMB-Q170B R1.02	
BIOS / Version	R1.8 (EQH0BM18 )(10/3/2016)	
Driver folder	EMB-Q170B / 20161003	
CPU Type	Intel ® Core ™ i5-6500 CPU @3.20GHz Intel ® Core ™ i7-6700 CPU @3.40GHz	
Memory Type	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26)	
SATA HDD	WD WD10SPCX 2.5" SATA HDD 1TB	
USB BD-ROM	Pioneer Blu-ray Disc BD ROM	
SATA DVD-ROM	LITE-ON SATA DVD-ROM Mode:HAS124	
Display Port Monitor	ViewSonic VP2770-LED / DELL U2713HM-LED SAMSUNG U28D590-LED	
eDP	1920 x 1080 11.6" eDP	
LVDS	1024 x 768 18bit	
M.2	Transcend M.2 TS128GMTS800 / 128G ( SATA interface ) Kingston M.2 SHPM2280P2/240G ( PCIE interface )	
Daughter Board	N/A	
Expansion Board	N/A	
Operating System	<input checked="" type="checkbox"/> Ubuntu 14.10 Kernel 3.16.0-23-generic	
	<input checked="" type="checkbox"/> Windows 7 Ultimate 32/64Bit	
	<input checked="" type="checkbox"/> Windows 8.1 Enterprise English Version 64Bit	
	<input checked="" type="checkbox"/> Windows 10 Enterprise English Version 64Bit	
Power Supply	ATX Power Supply : FSP AURUM S Series AS-550 / 550W	
	AT Power Supply:	
	DC Adapter : FSP084-DMAA1	
Chipset Information		
SOC Bridge	Intel PCH Q170	
Super IO Chipset	NCT6791D	
VGA Chipset	Intel® Graphics Media Accelerator	
Audio Chipset	Realtek® ALC887	
Ethernet Chipset	Intel I211 + Intel I219	

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# 1. Hardware Test

## 1.1. CPU Compatibility Test

CPU Information	Result			Note
	Pass	Fail	N/A	
Intel ® Core™ i5-6500 CPU @3.20GHz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Prime 95 / Ver 279
Intel ® Core™ i7-6700 CPU @3.40GHz	<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	
InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
InnoDisk DDR4 2133 8GB SO-DIMM (M4S0-8GSSOCRG-26)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
InnoDisk DDR4 2133 8GB SO-DIMM (M4S0-8GSSOCRG-26)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
InnoDisk DDR4 2133 4GB SO-DIMM (SEC-449-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
InnoDisk DDR4 2133 4GB SO-DIMM (SEC-449-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
Transcend DDR4 2133 8GB SO-DIMM (SEC-449-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
Transcend DDR4 2133 8GB SO-DIMM (SEC-449-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
Transcend DDR4 2133 4GB SO-DIMM (SEC-446-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
Transcend DDR4 2133 4GB SO-DIMM (SEC-449-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
Transcend DDR4 2133 16GB SO-DIMM (SEC-534-K4A8G08-5WBBCPB)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
Transcend DDR4 2133 16GB SO-DIMM (SEC-534-K4A8G08-5WBBCPB)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
DSL DDR4 2133 4GB SO-DIMM (SEC-446-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
DSL DDR4 2133 4GB SO-DIMM (SEC-446-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB
ADATA DDR4 2133 4GB SO-DIMM (SEC-452-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMA
ADATA DDR4 2133 4GB SO-DIMM (SEC-452-BCPB-K4A4G085WD)	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMMB

### 1.3. SATA Compatibility Test

#### 1.3.1 Onboard SATA (IDE) Test

[ x ] Not Support

SATA Device Information	Result			Note
	Pass	Fail	N/A	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### 1.3.2 Onboard SATA (RAID) Test

SATA RAID Test		Result			Note
		Pass	Fail	N/A	
RAID-0 (HDDx2) Striping/Span Test	(1) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RAID 0
	(2) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RAID-1 (HDDx2) Mirror Test	(1) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RAID 1
	(2) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RAID-5 (HDDx3) Striping/Span Test Rotation Parity	(1) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RAID 5
	(2) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	(3) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RAID-10 (HDDx3) Striping/Span Test Mirroring	(1) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RAID 10
	(2) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	(3) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	(4) WD WD5000LPVX 2.5" SATA HDD 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### 1.3.3 Onboard SATA (AHCI) Test

SATA AHCI Test		Result			Note
		Pass	Fail	N/A	
SATA HDD	WD WD5000BPKX 2.5" SATAIII 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	WD WD3200BEVT SATAIII 3.5 320GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	Seagate ST9160412AS 2.5" SATA 160GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	Seagate ST500DM002 3.5" SATA 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	HGST CCHD5KZS SATAIII 2.5" 1TB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	WD WD10SPCX SATAIII 2.5" 1TB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	TOSHIBA MK1676GSX SATAII 2.5" 160GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	TOSHIBA DT01ACA050 SATA 3.5 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA HDD	Seagate ST500DM002 SATA 3.5" 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	PLEXTOR 2.5" SSD HDD 128GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Crucial M550 2.5 SSD HDD 256GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCIe x 4	PLEXTOR M6e SSD 128GB PCI-Express x 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2	Kingston M.2 SHPM2280P2/240G ( PCIe )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2	Transcend M.2 TS128GMTS800 / 128G ( SATA )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



### 1.4. Power Supply Compatibility Test

Power Supply Information	AAEON P/N	Result			Note
		Pass	Fail	N/A	
FSP AURUM S Series AS-550 / 550W		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Seasonic SSR-450RM / 450W		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AcBel PCA014 iPower650 / 650W		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler Master RS-750-AMAA-G /750W		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 1.5. Monitor Compatibility Test

Monitor Information	Result			Note
	Pass	Fail	N/A	
<b>a. Monitor should display under DOS and OS environment.</b>				
<b>b. Monitor should not appear ghost or ripples.</b>				
<b>Display port 1</b>				
SAMSUNG U28D590-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL U2713HM-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
View Sonic VP2770-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enzo EV2335-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Display port 2</b>				
SAMSUNG U28D590-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL U2713HM-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
View Sonic VP2770-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Asus PA238-LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enzo EV2335-LED	<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 8.1Enterprise English Version 64 Bit													
CPU	Intel ® Core™ i5-6500 CPU @3.20GHz												
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS10CRG-26) x 2												
SATA HDD	WD WD10SPCX 2.5" SATA HDD 1TB												
eDP	1920 x 1080 11.6" eDP												
LVDS	1024 x 768 18bit 1920 x 1080 48bit												
Display Port 1	ViewSonic VP2770-LED												
Display Port 2	DELL U2713HM-LED												
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit												
Resolution	Display Port 1			Display Port 2			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"/>	
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"/>	<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 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"/>	
1856X1392	<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"/>	
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"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1920X1200	<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"/>	
1920X1440	<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"/>	
2048X1152	<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"/>	
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"/>	
3840 X 2160	<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"/>	
EDID check	<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"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DOS Display	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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

### 2.1.2. Multi-Display Output Test

Selection	Output	Result			Note
		Pass	Fail	N/A	
Dual Display Clone	DP1 + DP2	<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	eDP + LVDS	<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	DP1 + DP2 + 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	DP1 + DP2 + 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 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"/>	Display Port connector

### 2.1.4. Video Resolution Test

LVDS Model		Result			Note
		Pass	Fail	N/A	
LVDS	1024*768 / 18bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1920*1080 / 48bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	







## 2.2. Audio Function Test

[ ] No Support

Function Test	Result			Note
	Pass	Fail	N/A	
<b>Back Panel I/O Ports</b>				
L (Left) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Back IO Audio support Line out & Mic only
R (Right) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line Out	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MICROPHONE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MICROPHONE Record	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>ASUS AAFP</b>				
Line Out	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AAFP Audio support Line out & Mic only
MICROPHONE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Display Port 1</b>				
Audio Output	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Display Port 2</b>				
Audio Output	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>AMP Speaker</b>				
AMP Speaker ( L )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AMP Speaker ( R )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 2.3. LAN Function Test

[ ] No Support

Connect two computers via different speed LAN HUB by using "Ping" instruction (1000 times)										
Command: ping xxx.xxx.xx.xx -l 65500 -n 1000										
1000Mbps LAN HUB		D-Link DGS-1008D								
100Mbps LAN HUB		Accton Desktop-3005								
10Mbps LAN HUB		SVEC FD916H								
OnBoard LAN1		Intel ® I211 Gigabit Network Connection					MAC Address		AC-22-0B-85-69-67	
OnBoard LAN2		Intel ® Ethernet Connection I219 LM					MAC Address		88-88-88-88-87-88	
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"/>	<b>S3 / S4 / S5</b>	
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"/>	Ubuntu 14.10 Kernel 3.16.0-23-generic
<input type="checkbox"/>	Red Hat

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

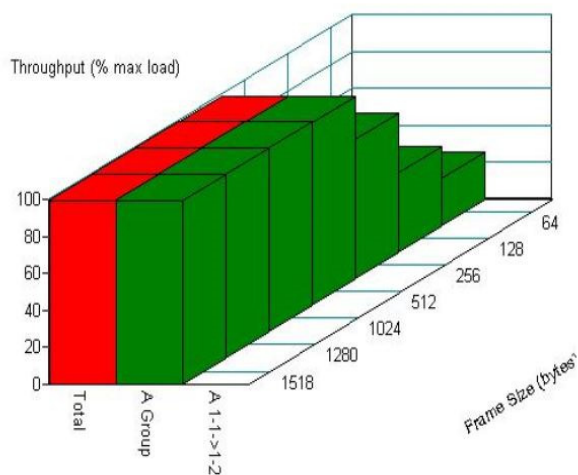
CPU	Intel ® Core ™ i5-6500 CPU @3.20GHz
Graphics Media	Ubuntu14.10 Default setting
LAN	Intel I211 Igb-5.2.13-K / Intel I219 e1000e 3.2.4.2
Audio Driver	Ubuntu14.10 Default setting

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:

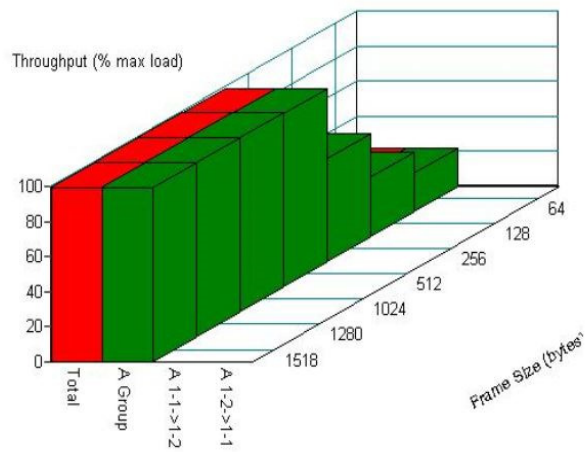
- Half Direction (LAN1: Intel ® I211 Gigabit Network Connection → LAN2: Intel ® Ethernet Connection I219LM)



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	24.9765625	42.765625	74.4765625	98.453125	99.2265625	99.2265625	99.2265625
A Group	24.9765625	42.765625	74.4765625	98.453125	99.2265625	99.2265625	99.2265625
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2. Binary Direction (LAN1: Intel ® I211 Gigabit Network Connection → LAN2: Intel ® Ethernet Connection I219LM)



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	21.109375	33.484375	58.234375	98.453125	99.2265625	99.2265625	99.2265625
A Group	21.109375	33.484375	58.234375	98.453125	99.2265625	99.2265625	99.2265625
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. Jumper and Connector Function Test

[ ] No Support

Function Test	Result			Note
	Pass	Fail	N/A	
Clear CMOS Switch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CLRTC1
RTC Battery Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Battery1
CPU FAN Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CHA FAN1 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII -1 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII -2 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII -3 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII -4 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA PWR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DDR4 SO-DIMM Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMM A
DDR4 SO-DIMM Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DIMM B
EATX Power1 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
EATX Power2 Connector (ATX 4 pin)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COM1 RI & Voltage Jumper ( 5V /12V /Ring )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COM1 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F_Panel
Reset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F_Panel
HDD LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F_Panel
Power LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F_Panel
USB2.0 x 3 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pin header
DIO Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AMP Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCI-Express x 4 Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2 M Key ( 22 x 80mm) at Bottom side	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2 E Key ( 22 x 30mm) at Top side	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 3. Integration Test

Hardware Information with Windows 8.1 Enterprise English SP1 64 Bit	
<b>CPU</b>	Intel ® Core ™ i5-6500 CPU @3.20GHz
<b>Memory</b>	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26) x 2
<b>HDD</b>	WD WD10SPCX 2.5" SATA HDD 1TB

#### 3.1. USB Port Integration Test

Item	USB Port	Boot			Function			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"/>	USB2.0 x 6 USB3.0 x 4
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input:5V / Output H:5V / Output L:0V DOS Mode

#### 3.3. COM Port Integration Test

Test Item	Result			Note	
	Pass	Fail	N/A		
Serial Modem	Ring In	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Modem / Power On By Ring S3.S4.S5.DOS / COM1
	+12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter
	+5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter

#### 3.4. RS-232 / RS-422 / RS-485 Test

Test Item	Result			Note
	Pass	Fail	N/A	
RS-422 for COM1	<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 COM1	<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"/>	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
RS-232 for COM1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. COM Port Mouse 2. BurnIN Test COM Port set 300/9600/115200 (Kbits/Sec)



## 4. Application Test

### 4.1. PCI-Express Function Test

PCI-Express x1	Function Test			Note
	Pass	Fail	N/A	
PX84HH PCI-Express x 1 VGA Card ( HDMI Model )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PCI-E x1 Card insert PCI-E x4 connect Test
Broadcom Netxtreme Gigabit PCI-Express LAN Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PCI-E x1 Card insert PCI-E x4 connect Test
DigiFusion PCI-Express x1 USB 3.0 Port x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QE No.USB30-201401 PCI-E x1 Card insert PCI-E x4 connect Test
Uptech PCI-Express x 1 USB 3.0 Port x4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QE No.USB30-201402 PCI-E x1 Card insert PCI-E x4 connect Test
Realtek Gigabit PCI-Express LAN Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QE No.NW-201502 PCI-E x1 Card insert PCI-E x4 connect Test
Intel ® Gigabit CT Desktop Adapter PCI-Express LAN Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QE No.NW-201001 PCI-E x1 Card insert PCI-E x4 connect Test
PCI-Express x4	Function Test			Note
	Pass	Fail	N/A	
PLEXTOR M6e SSD 128GB PCI-Express x 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QE No.PCISSD-201401
Intel ® Gigabit ET2Quad 4 Ports PCI-Express x4 LAN Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	QE No. NW-201301
M.2 Card	Function Test			Note
	Pass	Fail	N/A	
Intel® Dual Band Wireless-AC 8260	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E key (22 x 30mm)
Intel® Dual Band Wireless-AC 7265	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E key (22 x 30mm)
Kingston M.2 SHPM2280P2/240G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M key (22 x 80mm) PCIe
Transcend M.2 TS128GMTS800/128G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	M key (22 x 80mm) SATA

### 4.2. SSD Modules Compatibility Test

SSD HDD Compatibility Test:

Cable Type:  IDE  SATA2  MLC  SLC

Test Item	Result			Note
	Pass	Fail	N/A	
PLEXTOR 2.5" SSD HDD 128GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Crucial M550 2.5 SSD HDD 256GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PLEXTOR M6e SSD 128GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PCI-Express x 4 / Install Win8.1 OS

## 5. Power Consumption Test

Hardware Information with Windows 8.1 Enterprise English SP1 64 Bit	
CPU Board	EMB-Q170B R1.01
CPU	Intel® Core™ i5-6500 CPU @3.20GHz
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26) X 2
SATA HDD	WD WD5000BPKX 2.5" SATAIII 500GB

### 5.1. ATX Power Consumption

Test Equipment						
Equipment	AC/DC DIGITAL CLAMP METER “ DC “					
Manufacturer	KYORITSU					
Model name	2010					
Test Environment						
ATX Power Model	FSP AURUM S Series AS-550 / 550W					
Keyboard/Mouse	USB Keyboard: Microsoft 1366; USB mouse: Microsoft MSK-1113					
Power Supply		ATX Power				Note
(Full Loading Mode) Windows 8.1 with Prime 95 Full Loading Test	+12V	5.1	A	61.2	W	Prime95 Version 279
Full Loading Total Watt	61.2 (W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	+12V	0	A	0	W	
Suspend Total Watt	0 (W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	+12V	0.57	A	6.84	W	
Idle Total Watt	6.84 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	+12V	0	A	0	W	Erp disable
Suspend Total Watt	0 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	+12V	0	A	0	W	Erp Enable
Suspend Total Watt	0 (W)					

**Remark : The EMB-Q170B Power Consumption not including SATA HDD Voltage value**

Hardware Information with Windows 8.1 Enterprise English SP1 64 Bit	
CPU Board	EMB-Q170B R1.01
CPU	Intel® Core™ i7-6700 CPU @3.40GHz
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26) X 2
SATA HDD	WD WD5000BPKX 2.5" SATAIII 500GB

### 5.1. ATX Power Consumption

Test Equipment						
Equipment	AC/DC DIGITAL CLAMP METER “ DC “					
Manufacturer	KYORITSU					
Model name	2010					
Test Environment						
ATX Power Model	FSP AURUM S Series AS-550 / 550W					
Keyboard/Mouse	USB Keyboard: Microsoft 1366; USB mouse: Microsoft MSK-1113					
Power Supply	ATX Power					Note
(Full Loading Mode) Windows 8.1 with Prime 95 Full Loading Test	+12V	5.8	A	69.6	W	Prime95 Version 279
Full Loading Total Watt	69.6 (W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	+12V	0	A	0	W	
Suspend Total Watt	0 (W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	+12V	0.55	A	6.6	W	
Idle Total Watt	6.6 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	+12V	0	A	0	W	Erp disable
Suspend Total Watt	0 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	+12V	0	A	0	W	Erp Enable
Suspend Total Watt	0 (W)					

**Remark : The EMB-Q170B Power Consumption not including SATA HDD Voltage value**

### 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			
VCORE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.168V	1.121V	
+12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.616V	+12.19V	
+5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.020V	+5.07V	
+3VSB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.392V	+3.41V	
+3.3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.392V	+3.41V	
VBAT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.088V	+3.09V	
CPU Fan Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4368 RPM	4293 RPM	Full
Chassis Fan 1 Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4340 RPM	4284 RPM	Full
System Temp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31°C	40°C	
CPU Temp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43°C	48°C	

### 5.3. CMOS Battery Test

Test Point: Calculated result should be > 5 years.

Battery: CR2032

Capacity 225mA

Check item	Measured Voltage		Measured Current		Calculate Result		Result			Note
							Pass	Fail	N/A	
Battery leakage	3.04	V	5.1	uA	5	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	-1 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RTC Clock in Power Off Mode		24 hrs	+/-2 sec	+0 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 6.2. Booting Timer Test

Installation	Actual	Note
System Booting Time	5 Sec	Press the Power Button till "Beep" Sound appears

### 6.3. Watchdog Timer Test

Use Function as below: Hi-Safe V2016-03-10

[ ] No Support.

Time-Out Interval	Criteria	Actual	Result			Note
			Pass	Fail	N/A	
10 sec	+/- 10%	10 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+/- 10%	62 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
255 sec	+/- 10%	270 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note : Under Room Temperature: 26°C

## 7. O.S. Compatibility Test

### 7.1. English Ubuntu 14.10 Kernel 3.16.0-23-generic #31

[ ] No Support

Driver Information:

Chipset Software	System default
Graphics Media	System default
Audio Driver	System default
LAN Driver	Intel I211 lgb-5.2.13-K / Intel I219 e1000e 3.2.4.2

Install OS to SATA HDD :

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu14.10 kernel 3.16.0-23-generic #31	<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>				
HDMI -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVI -- Full Screen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
LVDS -- Full Screen	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Network Function Test</b>				
Connect to Internet – LAN 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel I211
Connect to Internet – LAN 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intel I219
<b>Audio Function Test</b>				
Play Audio Function Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Back Panel I/O Ports / 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"/>	
Console Redirection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DVD-ROM Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB DVD-ROM
USB 2.0 / 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
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 10.1.1 (2015/06/03)
Graphics Media	Intel ® HD Graphics 530 10.18.15.4279 (8/24/2015)
Audio Driver	Intel ® Display Audio 8.20.0.541 (8/5/2015) Realtek High Definition Audio 6.0.1.7541 (06/18/2015)
LAN Driver	Intel ® Ethernet Connection I219-LM 12.13.17.7 (8/13/2015) Intel ® I211 Gigabit Network Connection 12.13.27.0 (6/5/2015)

[X] x64 Driver Information:

Chipset Software	Intel ® Chipset Device Software 10.1.1 (2015/06/03)
Graphics Media	Intel ® HD Graphics 530 10.18.15.4279 (8/24/2015)
Audio Driver	Intel ® Display Audio 8.20.0.541 (8/5/2015) Realtek High Definition Audio 6.0.1.7541 (06/18/2015)
LAN Driver	Intel ® Ethernet Connection I219-LM 12.13.17.7 (8/13/2015) Intel ® I211 Gigabit Network Connection 12.13.27.0 (6/5/2015)

### Install OS to SATA HDD :

Installation	Result			Note
	Pass	Fail	N/A	
English Windows 7 Ultimate 32bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AHCI Mode
English Windows 7 Ultimate 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AHCI Mode

### Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
Display Port 1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3840 x 2160
Display Port 2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3840 x 2160
eDP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920 x 1080
<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>				
COM Port Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 2.0 / 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCIE x4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2	<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"/>	I211
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I219
<b>Audio Function Test</b>				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line In Test	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mic Record	<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 ] No Support

[ ] x32 Driver Information:

Chipset Software	
Graphics Media	
Audio Driver	
LAN Driver	

[ X ] x64 Driver Information:

Chipset Software	Intel @ Chipset Device Software 10.1.1 (2015/06/03)
Graphics Media	Intel @ HD Graphics 530 10.18.15.4279 (8/24/2015)
Audio Driver	Intel @ Display Audio 8.20.0.541 (8/5/2015) Realtek High Definition Audio 6.0.1.7541 (06/18/2015)
LAN Driver	Intel @ Ethernet Connection I219-LM 12.13.17.7 (8/13/2015) Intel @ I211 Gigabit Network Connection 12.14.7.0 (6/18/2015)

#### Install OS to SATA HDD :

Installation	Result			Note
	Pass	Fail	N/A	
English Windows8.1 Enterprise 32bit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Skylake platform didn't support 32bit
English Windows8.1 Enterprise 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AHCI Mode

#### Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
Display Port 1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3840 x 2160
Display Port 2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3840 x 2160
eDP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920 x 1080
<b>Boot – Windows8.1 Enterprise Advanced Options Menu</b>				
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. msconfig 2. safe boot.
<b>Basic Function Test</b>				
COM Port Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 2.0 / 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCIE x4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2	<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"/>	I211
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I219
<b>Audio Function Test</b>				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line In Test	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mic Record	<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 } No Support

{ } x32 Driver Information:

Chipset Software	
Graphics Media	
Audio Driver	
LAN Driver	

{ X } x64 Driver Information:

Chipset Software	Intel ® Chipset Device Software 10.1.1 (2015/06/03)
Graphics Media	Intel ® HD Graphics 530 10.18.15.4279 (8/24/2015)
Audio Driver	Intel ® Display Audio 8.20.0.541 (8/5/2015) Realtek High Definition Audio 6.0.1.7541 (06/18/2015)
LAN Driver	Intel ® Ethernet Connection I219-LM 12.13.17.7 (8/13/2015) Intel ® I211 Gigabit Network Connection 12.12.226.0 (5/4/2015)

### Install OS to SATA HDD :

Installation	Result			Note
	Pass	Fail	N/A	
English Windows10 Enterprise 32bit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Skylake platform didn't support 32bit
English Windows10 Enterprise 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AHCI Mode

### Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
Display Port 1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3840 x 2160
Display Port 2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3840 x 2160
eDP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920 x 1080
<b>Boot – Windows10 Enterprise Advanced Options Menu</b>				
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. msconfig 4. safe boot.
<b>Basic Function Test</b>				
COM Port Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 2.0 / 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCIE x4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2	<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"/>	I211
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I219
<b>Audio Function Test</b>				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line In Test	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mic Record	<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 SP1 64 Bit	
CPU	Intel ® Core ™ i7-6700 CPU @3.40GHz
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS10CRG-26) X 2
HDD	WD WD5000BPKX 2.5" SATAIII 500GB

### 8.1. Advanced Test

Test Item	Result			Note	
	Pass	Fail	N/A		
<b>CPU Configuration</b>					
CPU	Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Intel Vir Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
<b>SATA Configuration</b>					
SATA Mode	Controller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled / Disabled
	AHCI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RAID	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA Port 0	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Hot Plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA Port 1	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Hot Plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA Port 2	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Hot Plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA Port 3	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Hot Plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
M.2 Port	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Hot Plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>USB Configuration</b>					
Legacy USB Support	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XHCI Hand-off	Enable / Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Hardware Configuration</b>					
PC Health Status		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CPU Smart Fan Control		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manual Mode / Thermal Cruise Mode / Speed Cruise Mode / Smart Fan Mode
System Smart Fan Control		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Manual Mode / Thermal Cruise Mode / Speed Cruise Mode / Smart Fan Mode
<b>Super IO Configuration</b>					
Serial Port 1 configuration	RS-232	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RS-422	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RS-485	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Intel AMT</b>					
Intel AMT		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable / Disable
<b>Power Management</b>					
Power Mode	ATX Type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	AT Type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Saving (ERP) Control		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable / Disable
Restore AC Power Loss	Always On	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Always Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Last State	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RTC Wake system from S5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fixed Time / Dynamic Time
<b>Dynamic Digital IO</b>					
DIO	DIO1 ~ DIO8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output H / Output L

### 8.2. Chipset Test

Memory Configuration		Result			Note
		Pass	Fail	N/A	
Memory Frequency		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Total Memory		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIMM0 Size		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIMM1 Size		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics Configuration					
Primary Display	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	IGFX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	PEG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	PCIE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Primary IGFX Boot Display	VBIOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DP1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	eDP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Secondary IGFX Boot Display	DP2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Disabled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DP1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	eDP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS	LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Enabled / Disabled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS Panel Type		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCH-IO Configuration					
HD Audio	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Enable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCIEX4 Gen Speed	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	GEN1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	GEN2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	GEN3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 8.3. Boot Test

Test Item	Result			Note
	Pass	Fail	N/A	
Boot up Numlock State	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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 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 Date / time and Password
Clear CMOS Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 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(20160310)	<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"/>	
WatchDog	10sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 10sec
	60sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 62 sec
	255sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 270 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 / A4h
	Read Word	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Result / Read	<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"/>	
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"/>	

### 8.8. Hi-Manager Test

Test Item	Result			Note	
	Pass	Fail	N/A		
Version(20150205)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Power control	Power on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Power off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Reset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Power on from G3 state	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Group Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Event log	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Alarm Clock	Set Alarm Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Recurring Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Remote Recovery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remote Reboot/ Reboot from CD ROM/Reboot from ISO (Reboot to BIOS no support)	
KVM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test with i7-6700	
Schedule	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Remark : Intel I217 LAN Support only

## 9. Performance Test

	Hardware Information with Windows 7 Ultimate English SP1 64 Bit
	Hardware Information with Windows 8.1 Enterprise English SP1 64 Bit
CPU	Intel ® Core™ i5-6500 CPU @3.20GHz
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26) X 2
HDD	WD WD5000BPKX 2.5" SATAIII 500GB

### 9.1. Performance Test

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

Testing Software	Scope		Note
	AAEON	Ref.	
<b>PCMark2005 V120</b>			<b>Windows 8.1 64bit</b>
PCMark		-	PCMarks
CPU	14543	-	
Memory	10945	-	
Graphics	3637	-	
HDD	5293	-	
Benchmark (B)		-	
Average Efficiency		-	
<b>PCMark Vantage V101</b>			<b>Windows 7 64bit</b>
PCMarks	10173	-	PCMarks
Memories	5958	-	
TV and Movies	5629	-	
Gaming	8057	-	
Music	7089	-	
Communications	15141	-	
Productivity	8781	-	
HDD	3333	-	
Benchmark (B)		-	
Average Efficiency		-	

Testing Software	Scope		Note
	AAEON	Ref.	
<b>3Dmark2006 V120</b>			<b>Windows 8.1 64bit</b>
3Dmark Score	8712	-	
SM2.0 Score	2857	-	
HDR/SM3.0 Score	3580	-	
CPU Score	6564	-	
Benchmark (B)		-	
Average Efficiency		-	

<b>3Dmark11 Professional Edition</b>			<b>Windows 8.1 64bit</b>
<b>Performance 1280*720 (Default)</b>			
3Dmark 11Score	1696	-	
Graphics Score	1478	-	
Physics Score	6481	-	
Combined Score	1695	-	

Testing Software	Scope		Note
	AAEON	Ref.	
<b>Performance Test 7.0 Build 1025</b>			<b>Windows 8.1 64bit</b>
PassMark Rating	1956.9	-	
CPU Mark	8305.6	-	
2D Graphics Mark	392.4	-	
3D Graphics Mark	859.3	-	
Memory Mark	6909.2	-	
Disk Mark	560.5	-	
CD Mark		-	

Testing Software	Scope		Note
	AAEON	Ref.	
<b>Windows experience index</b>			<b>Windows 7 64bit</b>
Processor	7.6	-	
Memory	7.9	-	
Graphics	6.9	-	
Gaming graphics	6.9	-	
Primary hard disk	5.9	-	

SATA3 Performance				
CPU	Intel @ Core™ i5-6500 CPU @3.20GHz			
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26) X 2			
OS	Windows 8.1 Enterprise 64bit SP1			
Item	Comment / (unit)	Software	Score	Note
<b>SATA1 HDD : WD WD5000BPKX 2.5" SATAIII HDD 500GB</b>				
Single HDD (SATA port ) SATAIII	Maximum Read	ATTO Disk Benchmark	407.8MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	124.7MB/s	
<b>SATA2 HDD : Crucial CT256M550S 2.5" SATAIII SSD 256GB</b>				
Single HDD (SATA port ) SATAIII	Maximum Read	ATTO Disk Benchmark	560.6MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	507.2MB/s	

SATA3 Performance				
CPU	Intel @ Core™ i5-6500 CPU @3.20GHz			
Memory	InnoDisk DDR4 2133 16GB SO-DIMM (M4S0-AGS1OCRG-26) X 2			
OS	Windows 8.1 Enterprise 64bit SP1			
Item	Comment / (unit)	Software	Score	Note
<b>M.2 (M-key) : Kingston M.2 SHPM2280P2/240G (PCIE)</b>				
M.2 (M-Key)	Maximum Read	ATTO Disk Benchmark	1063 MB/s	
	Maximum Write	ATTO Disk Benchmark	640 MB/s	

**M.2 (M-key) : Transcend M.2 TS128GMTS800 / 128G (SATA)**

M.2 (M-Key)	Maximum Read	ATTO Disk Benchmark	535 MB/s	
	Maximum Write	ATTO Disk Benchmark	155 MB/s	

**USB3.0 Performance**

USB Flash	Kingston USB3.0 32GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB3.0	Maximum Read	ATTO Disk Benchmark	158.9MB/s	
	Maximum Write	ATTO Disk Benchmark	26.6MB/s	
USB Flash	Transcend USB3.0 128GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB3.0	Maximum Read	ATTO Disk Benchmark	95.7MB/s	
	Maximum Write	ATTO Disk Benchmark	69.3MB/s	

**USB2.0 Performance**

USB Flash	Kingston USB2.0 4GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB2.0	Maximum Read	ATTO Disk Benchmark	21.6MB/s	
	Maximum Write	ATTO Disk Benchmark	6.5MB/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 Power Supply Negative Test

Methods	Result			Note
	Pass	Fail	N/A	
1. Test with ATX connector models. 2. Boot with ATX power supply "SeaSonic SSR-450RM" 3. Confirm SATA HDD can work properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 10.3 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, USB ports, HDMI/DP audio can work properly.	RS232	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RS422	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RS485	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS Backlight control	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	USB ports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DP audio	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

# 11. Stability test

## 11.1. Run In Test

Under Room Temperature: 26 °C

OS: Windows 8.1 Enterprise 64bit English SP1

Test Item	Result			Note	
	Pass	Fail	N/A		
Burn In Test V8.0 (1025) 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"/>	
	GPU	<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"/>	
	Parallel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	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 SP1 64bit

Reboot Test	Result			Note
	Pass	Fail	N/A	
Reboot test for 1000 cycles (AP: Passmark rebooter.exe)	<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 item	Result			Note
	Pass	Fail	N/A	
G3 (Power button ) cold boot over 1000 cycles <loss rate: 0 /1000 times>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Jumper setting set to ATX Mode

### 11.4. ACPI G3 Cold Boot Test

Under Room Temperature: 26 °C

OS: DOS

Test item	Result			Note
	Pass	Fail	N/A	
G3 (AC loss) cold boot over 1000 cycles <loss rate: 0 /1000 times>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Jumper setting auto power button for AT mode or BIOS select " power on"

### 11.5. ACPI S5 Cold Boot Test

Under Room Temperature: 26 °C

OS: Windows10 Enterprise 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. Timer: on time set 1sec ; off time set 120~150sec. 2. "PassMark Rebooter" <Set 500 cycles, delay 30sec and enable "auto load Rebooter at startup">