

Report NO:13IP010011

IMBM-Q87A

Intel® Q87 Express Chipset

P5 Verification 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

2014/05/16

Approval

Tom Lin

Test Engineer

Mike Lee

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	

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	uATX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Processor	IntelR Haswell 22nm LGA 1150 socket Processor, Max. 84W TDPs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Memory	Dual channel pure DIMM configuration DIMM_A1, DIMM_A2, DIMM_B1, DIMM_B2 DDR3 Speed and Type DDR3-1333, DDR3-1600 Type-240pin Non-ECC Unbuffered Max:32GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	Intel Q87 Express Chipset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Super I/O	FINTEK F81216HD + NUVOTON NCT6791D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x CPU Fan connector(s) (4-pin); 2 x Chassis Fan connector(s) (4-pin)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network	Intel PHY I217LM Giga LAN (support AMT 9.0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Intel I210AT Giga LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage	South Bridge: Q87 built-in SATA Gen3 (6G/s) x: 5 (if minicard with SATA function,SATA ports will be 4 ports.) port	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RAID 0/1/5/10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM	1 x TPM pin header for TPM/FW3.19 (90-C1B0AU-00XBN0VZ)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB	USB 2.0 Ports: 8 mid-board: (1 headers) 2ports Back panel : 6 ports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	USB3.0 Ports:4 back panel: 4 ports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio	RealtekR ALC887 (Colay with ALC886)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion Slots	Slots: PCI: 2 PCIEX16 slot: 2 Minicard Size Half size PCIe USB mSATA PCI 5V PCI2.3(with SMB2.0)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PC Health Monitoring	Voltage Vcore 5V / 12V Fan Speed : CPU fan / Chassis fan Temperature : CPU / Motherboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics	Integrated Gfx in North bridge Max. resolution DVI : up to 1920 x 1200 @ 60 Hz VGA : up to 1920 x 1200 @ 60 Hz 2x Display Port : Up to 3840 x 2160	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	@60Hz				
Back I/O connectors	KB/MS_USBxx AUDIO 3 Jack LAN1_USB3_XX VGA DVI-D Display Port	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
On-board connectors	CPU_FAN (4 pin CPU fan with PWM control) EATXPWR(24 pin, EPS12V power connector) BATTERY F_Panel (2x5 pin (K10), (IDE LED, Power LED, Power Switch, Reset) DIO connector x: 1 COM port (Box header) connector x: 6 (COM1:RS-232/422/485 supports 5/12V on RI pin,RS232 x5) USB2.0(2x5 pin , k9) x: 1 header (2 ports) SATA Gen3(6G/s) x: 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Jumpers, LED & BUZZER	Jumper CLRRTC*(3pin,Normal/Clear RTC, with tab)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LED SB_PWR*(Green, stand-by power LED)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	BUZZER / Speaker Header Buzzer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wake-up Functions	WOR by Ring* (Wake On Ring by external Modem from S3, S4, S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	WOL/WOR by PME* (Wake On LAN/Ring by PME from S3, S4, S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
POWER MANAGEMENT	S3* (Suspend-To-RAM) S4* (Suspend-To-DISK) S5* (Soft-off) ERP(default)/DSW	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

O.S. Support

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

Environmental Specifications

Item	Specification
Operating temperature	0~60 °C
Operating humidity	0%~90%RH, non-condensing
Certification	CE - Class A FCC - Class A

Note: Please refer to Environment Test Report for detail information

Platform Information

Item	Device Information	Test Item
PCB Model / Version	IMBM-Q87A Rev 1.00	1,2,3,4,5,6,7,8,9
BIOS / Version	R1.0(MQ87AM10)(11/13/2013)	1,2,3,4,5,6,7,8,9
CPU Type	Intel ® Core™ i7-4770K CPU @ 3.50GHz (ES)	1,2,3,4,5,6,7,8,9
Memory Type	Transcend DDR3-1600 CL11 8GB - micron 2FEII-D9QBJ x2	1,2,3,4,5,6,7,8,9
SATA HDD	Hitachi 2.5" SATA HDD 250 GB - HTS543225A7A384	1,2,3,4,5,6,7,8,9
SATA DVD-ROM	LG GH22 Super Multi DVD Rewriter	1,2,3,4,5,6,7,8,9
USB DVD-ROM	Aopen EDR8865U	1,2,3,4,5,6,7,8,9
LCD Monitor	EIZO EV2335W 23.5"	1,2,3,4,5,6,7,8,9
	PHILIPS 244E	
	ASUA PA238Q 23"	
Operating System	<input checked="" type="checkbox"/> Linux English Fedora17 Kernel 3.3.4-5.fc17.i686.PAE	7-1
	<input checked="" type="checkbox"/> Windows 7 Ultimate SP1 English Version 32/64 Bit	7-2
	<input checked="" type="checkbox"/> Windows 8 Pro English Version 32/64Bit	7-3
Power Supply	Seasonic G-Series 450W(SSR-450RM) SEVENTEAM ST-450PCG 450W	1,2,3,4,5,6,7,8,9
Chipset Information with 7 Ultimate SP1 English Version 32 Bit Driver Version		
Chipset Software	Intel ® Chipset Device Software 9.4.0.1016 (January/11/2013)	
PCH Bridge	Intel Q87	
Super IO Chipset	FINTEK F81216HD-I + NUVOTON NCT6791D	
VGA Chipset	Intel ® HD Graphics 4600 9.18.10.3107 (4/11/2013)	
Audio Chipset	Realtek High Definition Audio 6.0.1.6899 (5/7/2013)	
	Intel ® Display Audio 6.16.0.3106 (1/11/2013)	
Ethernet Chipset	Intel ® Ethernet Connection I217-LM 12.6.47.0 (2/26/2013)	
	Intel ® I210 Gigabit Network Connection 12.7.28.0 (4/5/2013)	

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1. Hardware Test

1.1. CPU Compatibility Test

CPU Information	Result			Note
	Pass	Fail	N/A	
Genuine Intel (R) CPU 0000 @ 2.60GHz (ES)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Fedora 17 & Win 7 64bit (Install Linux Fedora 17 & Win 7 64bit)
Genuine Intel (R) CPU 0000 @ 2.00GHz (ES)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by RTC
Intel ® Core™ i7-4770S CPU @ 3.10GHz (ES)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Windows 8 32 / 64bit (Install Win 8 32 / 64bit)
Intel ® Core™ i7-4770K CPU @ 3.50GHz (ES)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Windows 7 32bit(Install Win 7 32bit)

1.2. Memory Compatibility Test

Memory Information	MEM V4.20			Note
	Pass	Fail	N/A	
Transcend DDR3 1333U 2Rx8 8GB - SEC207HYK0 K4B4G0846B x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ADATA DDR3 1600(11) 8GBX16 AD3U1600W8G11-B ADATA3WCD-I211A x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend 4GB DDR3 1333 DIMM CL9 - hynix H5TQ2G83BFR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend 4GB DDR3 1333 DIMM CL9 - SEC 113 HCH9 K4B2G0846C x3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Kingston DDR3-1333 4GB - ELPIDA J2108BCSE-DJ-F x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Kingston DDR3 1600 8GB KVR16N11/8 - ELPIDA J4208BBBG-GN-F x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Panram DDR3 1333 4GB CL9 - Hynix H5TQ2G83CFR x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.3. SATA Compatibility Test

1.3.1 SATA-IDE Mode Test

SATA IDE Mode	Result			Note
	Pass	Fail	N/A	
Hitachi 2.5" SATA HDD 250 GB - HTS543225A7A384	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TOSHIBA 2.5" SATA HDD 320GB - MK3276GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
innodisk mSATA mini 3SE 32GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.3.2 Onboard SATA-AHCI Mode Test

SATA AHCI Test	Result			Note
	Pass	Fail	N/A	
TOSHIBA 2.5" SATA HDD 500GB - MK5076GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Install Linux
TOSHIBA 2.5" SATA HDD 160GB - MK1665GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Install Win 7 64bit
WD 3.5" SATA 3 HDD 2TB - WD20EZR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Install Win 7 32bit (Run Performance)
TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Install Win 8 32bit

1.3.3 Onboard SATA-RAID Mode Test

SATA RAID Test		Result			Note
		Pass	Fail	N/A	
RAID-0 (HDDx2) Striping/Span Test	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RAID-1 (HDDx2) Mirror Test	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RAID-5 (HDDx3) Striping/Span Test Rotation Parity	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RAID-10 (HDDx4) Striping/Span Test Mirroring	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	TOSHIBA 2.5" SATA HDD 160GB - MK1676GSX	<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 7 Ultimate English Version 32 Bit Driver Version													
CPU	Intel® Core™ i7-4770K CPU @ 3.50GHz (ES)												
Memory	Transcend DDR3-1600 CL11 8GB - micron 2FEII-D9QBJ x2												
SATA HDD	Hitachi 2.5" SATA HDD 250 GB - HTS543225A7A384												
VGA	EIZO EV2335W 23.5" / PHILIPS 244E												
DVI	EIZO EV2335W 23.5" / PHILIPS 244E												
Display port	EIZO EV2335W 23.5" / ASUA PA238Q 23"												
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit												
Resolution	VGA			DVI			DP1			DP2			Note
	Pass	Fail	N/A	Pass	Fail	N/A	Pass	Fail	N/A	Pass	Fail	N/A	
800X600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1024X768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1152X864	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1280X600	<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"/>	
1280X720	<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"/>	
1280X768	<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"/>	
1280X800	<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"/>	
1280X960	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1280X1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1360X768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1366X768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1400X1050	<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"/>	
1440X900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1600X900	<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"/>	
1680X1050	<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"/>	
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"/>	
Rotation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rotation (0 / 90 / 180 / 270)

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	VGA + DVI	<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	VGA+DP1	<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	VGA+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	DVI+DP1	<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	DVI+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	DP1+DP2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Triple Display Clone	VGA+DVI+DP1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Triple Display Clone	VGA+DVI+DP2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Triple Display Clone	VGA+DP1+DP2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Triple Display Clone	DVI+DP1+DP2	<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"/>	







2.2. Audio Function Test

[] No Support

Function Test	Result			Note
	Pass	Fail	N/A	
L (Left) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
R (Right) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line In	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP1 Audio	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP2 Audio	<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)										
1000MBps LAN HUB		D-Link DGS-1008D								
100MBps LAN HUB		HP J4095A 24 Ports								
10MBps LAN HUB		SVEC FD916H								
OnBoard LAN1		Intel® Ethernet Connection I217-LM					MAC Address		00-00-00-B9-A0-00	
OnBoard LAN2		Intel® I210 Gigabit Network Connection					MAC Address		00-00-00-C9-A0-00	
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"/>		
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 5.5
<input checked="" type="checkbox"/>	Ubuntu 12.04 Kernel 3.2.0-23-generic-pae #36
<input type="checkbox"/>	Red Hat

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

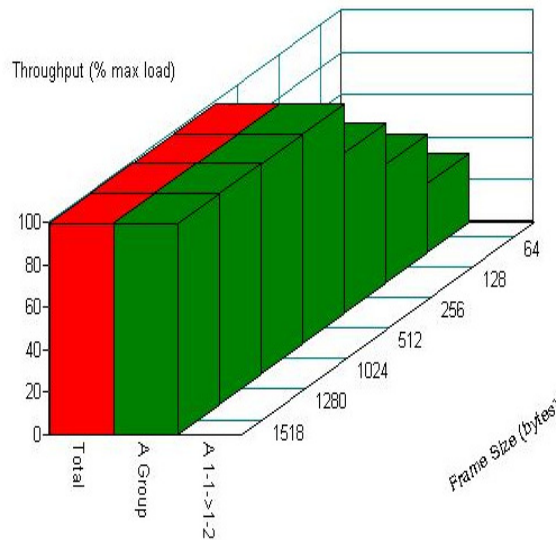
Graphics Media	Ubuntu 12.04 Default setting
LAN	LAN1→Intel® I210 Gigabit Network Connection Driver : igb-4.3.0.tar.gz
	LAN2→Intel® Ethernet Connection I217-LM Driver : e1000e-2.3.2.tar.gz
Audio Driver	Ubuntu 12.04 Default setting

SMB Platform Information:

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

Test Result:

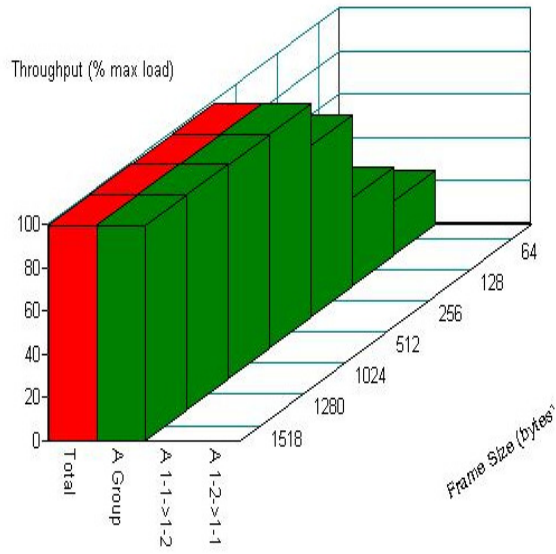
1.Half Direction (LAN1: Intel® I210 Gigabit Network Connection → LAN2: Intel® Ethernet Connection I217-LM)



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	31.9375	55.140625	74.4765625	98.453125	98.453125	99.2265625	99.2265625
A Group	31.9375	55.140625	74.4765625	98.453125	98.453125	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 ® I210 Gigabit Network Connection → LAN2: Intel ® Ethernet Connection I217-LM)



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	24.203125	40.4453125	78.34375	98.453125	98.453125	99.2265625	99.2265625
A Group	24.203125	40.4453125	78.34375	98.453125	98.453125	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

3. Integration Test

	Hardware Information with 7 Ultimate English Version 32 Bit Driver Version
CPU	Intel® Core™ i7-4770K CPU @ 3.50GHz (ES)
Memory	Kingston DDR3 1600 8GB KVR16N11/8 - ELPIDA J4208BBBG-GN-F x2
SATA HDD	Hitachi 2.5" SATA HDD 250 GB - HTS543225A7A384
	Chipset Information with 7 Ultimate English SP1 32 Bit Driver Version
Chipset Software	Intel® Chipset Device Software 9.4.0.1016 (January/11/2013)
PCH Bridge	Intel Q87
Super IO Chipset	FINTEK F81216HD-I + NUVOTON NCT6791D
VGA Chipset	Intel® HD Graphics 4600 9.18.10.3107 (4/11/2013)
Audio Chipset	Realtek High Definition Audio 6.0.1.6899 (5/7/2013) Intel® Display Audio 6.16.0.3106 (1/11/2013)
Ethernet Chipset	Intel® Ethernet Connection I217-LM 12.6.47.0 (2/26/2013) Intel® I210 Gigabit Network Connection 12.7.28.0 (4/5/2013)

3.1. USB Port Integration Test

Item	USB Port	Boot			Function(Win 7)			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 icon issue · PM set to driver limitation
USB FDD Mitsumi D353GUE		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB DVD-ROM Aopen EDR8865U		<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"/>	<input type="checkbox"/>	Test by Modem
Serial Modem +12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter
Serial Modem +5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter

3.4. RS-422 / RS-485 Test

Test Item	Result			Note
	Pass	Fail	N/A	
RS-422 for 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"/>	The communication between the RS-422 port of two boards is linked by one 1.2km cable on Windows Terminal
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"/>	The communication between the RS-485 port of two boards is linked by one 1.2km cable on Windows Terminal

3.5. Burn In Test

Under Room Temperature: 26 °C

Test Item	Result			Note
	Pass	Fail	N/A	
Burn In Test V7.1 Pro	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows 7 Ultimate SP1 English Version 32 Bit

Note: COM PORT Speed is set to 115200 bauds.

4. Application Test

4.1. PCI Slot Function (PCI Adapter Card) Test

Adapter Sound Card	Play Sound			Note
	Pass	Fail	N/A	
SC3000 Audio card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Win7 no driver, detect test only
Adapter LAN Card	Connect to Internet			Note
	Pass	Fail	N/A	
D-Link DFE-530TX DL10030 9941CD 10/100 LAN Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IBM 10/100 Ether Jet PCI Management Adapter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Adapter USB 2.0 Card	USB Function Test			Note
	Pass	Fail	N/A	
D-LINK DU-520 USB 2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4.2. PCI-Express Function Test

PCI-Express x1	Function Test			Note
	Pass	Fail	N/A	
Uptech UTB230 / USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x16 slot
Intel @ GIGABIT CT DESKTOP ADAPTER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x16 slot
DigiFusion SATAIII 6G card PES311A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	x4 slot
PCI-Express x4	Function Test			Note
	Pass	Fail	N/A	
Intel @ Gigabit ET2 Quad Port Svr Adptr(4 port)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Adaptec AAR-1430SA SATA HostRAID Controllers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PCI-Express x16	Function Test			Note
	Pass	Fail	N/A	
Gigabyte GV-R567OC-1GI (ATI Chipset) PCI-Express X16 VGA Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ASUS GT620-1GD3-L-V2 PCI-Express x16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ASUS GTX680-2GD5 (Nvidia Chipset) PCI-Express x16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mini PCI Express Card	Function Test			Note
	Pass	Fail	N/A	
mSATA (innodisk mSATA mini 3SE 32GB)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ralink RT3092 802.11b/g/n wireless LAN card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5. Power Consumption Test

Hardware Information with 7 Ultimate English Version 32 Bit Driver Version	
CPU	Intel ® Core™ i7-4770K CPU @ 3.50GHz (ES)
Memory	Kingston DDR3 1600 8GB KVR16N11/8 - ELPIDA J4208BBBG-GN-F x2 ADATA DDR3 1600 8GB AD3U1600W8G11-B ADATA3WCD-I211A x2
SATA HDD	Hitachi 2.5" SATA HDD 250 GB - HTS543225A7A384

5.1. AT/ATX Power Consumption

Test Equipment						
Equipment	AC/DC Digital Clamp meter					
Manufacturer	KYORITSU					
Model name	2010					
Test Environment						
ATX Power Model	Seasonic G-Series 450W(SSR-450RM)					
Power Supply	ATX Power				Note	
(Full Loading Mode) Windows 7 with Prime 95 Full Loading Test	(+12V)	7.62	A	91.44	W	Prime95 Version 279
	(+5V)	0.40		2.00		
	(+3.3V)	0.70		2.31		
	(-12V)	0.02		0.24		
	(5VSB)	0.20		1.00		
Full Loading Total Watt	96.99 (W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(5VSB)	0.22	A	1.1	W	
Suspend Total Watt	1.1 (W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+12V)	1.60	A	19.2	W	
	(+5V)	0.22		1.1		
	(+3.3V)	0.58		1.914		
	(-12V)	0.02		0.24		
	(5VSB)	0.21		1.05		
Idle Total Watt	23.504 (W)					
Power on - Boot sequence: Measure the maximum current value of between system power on and boot-up to O.S.	(+12V)	4.67	A	56.04	W	
	(+5V)	0.35		1.75		
	(+3.3V)	0.59		1.947		
	(-12V)	0.03		0.36		
	(5VSB)	0.23		1.15		
Power On Total Watt	61.247 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(5VSB)	0.10	A	0.50	W	Erp disable
Suspend Total Watt	0.50(W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(5VSB)	0.01	A	0.05	W	Erp Enable
Suspend Total Watt	0.05 (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"/>	46°C	36.5°C		
System Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31°C	30.9°C		
CPU Fan Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4411 RPM	4441	RPM	
CHA Fan1 Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4411 RPM	4441	RPM	
CHA Fan2 Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4411 RPM	4441	RPM	
+12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.712V	11.68V		
+5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.140V	5.11V		
CPU Vcore	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.792V	1.77V		

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	3.96	Sec	Press the Power Button till "Beep" Sound appears

6.3. Watchdog Timer Test

Use Function as below: Test with Hi-Safe20131022

[] No Support.

Time-Out Interval	Margin for error	Actual		Result			Note
				Pass	Fail	N/A	
10 sec	+ / - 10 %	12.70	Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+ / - 10 %	65	Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
255 sec	+ / - 10 %	270.32	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 Fedora 17 Kernel 3.3.4-5.fc17.i686.PAE

[] No Support

Driver Information:

Chipset Software	System default
Graphics Media	System default
Audio Driver	System default
LAN Driver <l210>	igb-4.3.0.tar.gz
LAN Driver <l217>	e1000e-2.3.2.tar.gz

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Fedora17 Kernel 3.3.4-5.fc17.i686.PAE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Type uname -a

Test Result:

Test Item	Result			Note
	Pass	Fail	N/A	
Display Function Test				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVI -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network Function Test				
Connect to Internet - LAN 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ubuntu 12.04
Connect to Internet - LAN 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ubuntu 12.04
Audio Function Test				
Play Audio Function Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Play Audio Test
Base Function Test				
Mouse Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PS2 / USB
Keyboard Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PS2 / USB
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X Windows Application				
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
Command Test On Text Mode: Attention Delay Phenomenon				
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

[X] x32 Driver Information:

Chipset Software	Intel ® Chipset Device Software 9.4.0.1016 (January/11/2013)
Graphics Media	Intel ® HD Graphics 4600 9.18.10.3107 (4/11/2013)
Audio Driver	Realtek High Definition Audio 6.0.1.6899 (5/7/2013) Intel ® Display Audio 6.16.0.3106 (1/11/2013)
LAN Driver	Intel ® Ethernet Connection I217-LM 12.6.47.0 (2/26/2013) Intel ® I210 Gigabit Network Connection 12.7.28.0 (4/5/2013)

[X] x64 Driver Information:

Chipset Software	Intel ® Chipset Device Software 9.4.0.1016 (January/11/2013)
Graphics Media	Intel ® HD Graphics 4600 9.18.10.3107 (4/11/2013)
Audio Driver	Realtek High Definition Audio 6.0.1.6899 (5/7/2013) Intel ® Display Audio 6.16.0.3106 (1/11/2013)
LAN Driver	Intel ® Ethernet Connection I217-LM 12.6.47.0 (2/26/2013) Intel ® I210 Gigabit Network Connection 12.7.28.0 (4/5/2013)

Install OS to SATA HDD / mSATA:

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

Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
Single Display				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVI -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot - Windows 7 Ultimate Advanced Options Menu				
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Basic Function Test				
PS/2 Keyboard / Mouse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Keyboard / Mouse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TPM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
mSATA (innodisk mSATA mini 3SE 32GB)	<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 icon issue , PM set to driver limitation
LAN Function Test				
LAN1 -- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN2 -- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Function Test				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line In Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP1 Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP2 Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Start Menu				
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)



7.3. Windows 8 Pro English Version 32/64Bit

[X] x32 Driver Information:

Chipset Software	Intel ® Chipset Device Software 9.4.0.1016 (January/11/2013)
Graphics Media	Intel ® HD Graphics 4600 9.18.10.3107 (4/11/2013)
Audio Driver	Realtek High Definition Audio 6.0.1.6899 (5/7/2013) Intel ® Display Audio 6.16.0.3106 (1/11/2013)
LAN Driver	Intel ® Ethernet Connection I217-LM 12.6.47.0 (2/26/2013) Intel ® I210 Gigabit Network Connection 12.7.28.0 (4/5/2013)

[X] x64 Driver Information:

Chipset Software	Intel ® Chipset Device Software 9.4.0.1016 (January/11/2013)
Graphics Media	Intel ® HD Graphics 4600 9.18.10.3107 (4/11/2013)
Audio Driver	Realtek High Definition Audio 6.0.1.6899 (5/7/2013) Intel ® Display Audio 6.16.0.3106 (1/11/2013)
LAN Driver	Intel ® Ethernet Connection I217-LM 12.6.47.0 (2/26/2013) Intel ® I210 Gigabit Network Connection 12.7.28.0 (4/5/2013)

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows 8 Pro ACPI Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32bit AHCI mode 64bit IDE Mode

Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
Single Display				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVI -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot - Windows 8 Ultimate Advanced Options Menu				
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Basic Function Test				
PS/2 Keyboard / Mouse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Keyboard / Mouse	<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 icon issue · PM set to driver limitation
LAN Function Test				
LAN1 -- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN2 -- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Function Test				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Line In Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP1 Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP2 Audio Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Start Menu				
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 7 Ultimate SP1 English Version 32 Bit Driver Version	
CPU	Intel ® Core™ i7-4770K CPU @ 3.50GHz (ES)
Memory	Kingston DDR3 1600 8GB KVR16N11/8 - ELPIDA J4208BBBG-GN-F x2
SATA HDD	Hitachi 2.5" SATA HDD 250 GB - HTS543225A7A384

8.1. Boot Sequence Test

Test Item	Result			Note
	Pass	Fail	N/A	
Hard Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA DVD-ROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB HDD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Floppy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB DVD-ROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN [Boot From LAN First]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8.2. Power Management Test

8.2.1. ACPI Power Management Test

Test Item	Result			Note
	Pass	Fail	N/A	
ACPI - S3 (STR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Suspend Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8.3. Power On after Power Failure Test

Test Item	Result			Note
	Pass	Fail	N/A	
Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
On	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Former-Sts (Auto)	<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 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. TPM Function Test

Test Item	Result			Note
	Pass	Fail	N/A	
No Change	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Clear	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8.7. IAMT Function Test

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

8.8. Administrator / 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"/>	

8.9. Hi-manager / Hi-safe Test

Test Item	Result			Note
	Pass	Fail	N/A	
Hi-manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Version(v20130925)
Hi-safe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hi-Safe20131022

9. Performance Test

Hardware Information with 7 Ultimate English Version 32 Bit Driver Version	
CPU	Intel ® Core™ i7-4770K CPU @ 3.50GHz (ES)
Memory	Kingston DDR3 1600 8GB KVR16N11/8 ELPIIDA J4208BBBG-GN-F x2 ADATA DDR3 1600 8GB AD3U1600W8G11-B ADATA3WCD-I211A x2
SATA HDD	WD 3.5" SATA 3 HDD 2TB - WD20EZR

9.1. Performance Test

Test Result: (Display set 1920x1080 test)

Testing Software	Scope		Note
	AAEON	Ref.	
PCMark2002			Only for Windows 7
CPU	N/A	-	
Memory	71649	-	
HDD	3316	-	
Benchmark (A)	-	-	
PCMark2005			Windows 7
PCMark	14058	-	PCMarks
CPU	14810	-	
Memory	11795	-	
Graphics	10115	-	
HDD	8698	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
3Dmark2003 v360			Only for Windows 7
3Dmark Score	11645	-	
CPU Score	4542	-	
Benchmark (A)	-	-	
3Dmark2006 v120			Windows 7
3Dmark Score	6918	-	
CPU Score	7624	-	
SM2.0 Score	2372	-	
HDR/SM3.0 Score	2603	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
Final Reality V1.01—BenchMark Test			Windows 7
2D image	65.12	-	Reality marks
3D	7.71	-	
Bus transfer	68.89	-	
Overall	34.11	-	
Benchmark (A)	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
PCMark7			
PCMark	3860	-	
CPU	-	-	
Memory	-	-	
HDD	-	-	
Benchmark (A)	-	-	
PCMark Vantage			
PCMarks	10761	-	PCMarks
TV and Movies	6383	-	
Memories	6101	-	
Gaming	8326	-	
Music	8345	-	
Communications	14644	-	
Productivity	8569	-	
HDD	4752	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
Performance Test 7.0			
PassMark Rating	2048.9	-	
CPU Mark	8804.8	-	
2D Graphics Mark	467.0	-	
3D Graphics Mark	756.1	-	
Memory Mark	1447.1	-	
Disk Mark	964.2	-	
Benchmark (A)	-	-	