

Report NO:16E010009

GENE-BSW5

Intel Braswell M/D SoC SubCompact

Board Level Product Bulletin

Compatibility Test Report

Summary	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input checked="" type="checkbox"/> Pass with Deviation (Comment: To achieve SATA Gen3 transfer speeds, please use aSATA Gen3 SSD with a SATA GEN3 cable not longer than 60cm in length.)			
	Test Results Category			
	Critical	Major	Minor	Enhancement
Defect Found	0	0	6	0
Defect Unsolved	0	0	6	0

Issue date

QE Manager

Test Engineer

2016-06-23

KJ Wang

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Summary Table of DTS:

Defect No.	Severity	Description	Issue status
BUL1604QEE01	Minor	OS issue	Fixed
BUL1604QEE02	Minor	BIOS issue	Fixed
BUL1604QEE03	Minor	LVDS issue	Fixed
BUL1604QEE04	Minor	SPEC issue	Fixed
BUL1604QEE05	Minor	COM port issue	Fixed
BUL1604QEE06	Minor	SATA issue	Fixed

Version Released Records

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

Note :

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

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

This test report would 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	SubCompact Board - 146mm x 101.6mm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Processor	IntelR Braswell M/D SoC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
System Memory	204-pin DDR3L 1600SODIMM Memory Max. up to 8GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chipset	IntelR Braswell M/D SoC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
VGA/LCD Controller	Chip	_ IntelR Braswell M/D SoC processors integrated _ Combination in 3 independent display: LVDS x 2 + VGA _ Combination in dual display: CRT+LVDS, CRT+HDMI (Audio), LVDS+HDMI (Audio), LVDS+LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	VGA	D-Sub 15 x1, Resolution: up to 1920 x 1200 @ 60 Hz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS	18/24-bit dual channel LVDS LCDs , up to 1920 x 1200@ 60 Hz (Pixel clock: 25-112 MHz)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	HDMI	Up to 2560 x 1600 @ 60 Hz, 3840 x 2160 @ 30 Hz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Super I/O	Fintek F81866D-I	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Network	Realtek RTL-8111E, 10/100/1000Base x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Storage	Supports mSATA (share with half-size miniCard) (default is mSATA) SATA III x 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Audio	Realtek ALC892 CODEC, MIC-In/ Line-In/ Line-out	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
BIOS	SPI BIOS - 8MB flash	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Serial Port	Six COM ports: one onboard: D-sub and five internal pin-header COM 1, 4, 5,6: RS-232 COM 2,3: RS-232/ RS-422/ RS-485 (Ring / +5V / +12V), RS-485 with auto flow	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Digital I/O	8-bit Digital I/O (Programmable)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Parallel Port	SPP/ECP/EPP mode x1 (Option, share with DIO)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
K/B and Mouse	One Keyboard and Mouse internal connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Universal Serial Bus	USB 2.0 Ports - 3 on Internal Connectors, USB 3.0 Ports - 2 on Rear Ports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Touch Screen Controller	PenMount 14S4600004 via USB port, supports 4/5/8-wire resistive touch screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion Interface	Mini Card slots x 2 / SM bus / LPC interface/Sim Card Socket 1. Full Size Mini Card x 1 2. Half size Min Card x 1 (share with mSATA, default is mSATA)	<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"/>	
Hardware Monitor	Fintek F81866D-I	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RTC	IntelR Braswell M/D SoC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Supply Request	+12V DC, AT or ATX	<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 English 32/64 bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows8.1 English 32/64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows10 English 32/64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Linux	Linux- Ubuntu15.04	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Environmental Specifications

Item	Specification
Operating temperature	0oC ~ 60oC No witas plan
Storage temperature	N/A
Operating humidity	0~90%, non-condensing
EMC	CE & FCC Class A

Note: Please refer to Environment Test Report for detail information

Platform Information

Item	Device Information	Note
Product of department	ECD	
PCB Model / Version	GENE-BSW5 Rev A1.1	
CPU Board	GENE-BSW5 Rev A1.1	
BIOS / Version	GENE-BSW5 R1.6 (GBW5AM16)(06/17/2016)	
Driver folder	20160301	
CPU Type	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)	
Memory Type	Transcend / SEC K4B4G0846D / DDR3L-1600 / 8GB	
SATA HDD	TOSHIBA HDS721010DLE630 3.5" 1TB/7200rpm	
SATA DVD-ROM	ASUS-BW-16D1HT	
USB DVD-ROM	BUFFALO BDXL-PC6U2	
LCD Monitor	ASUS VG23AH 1920*1080	
LVDS	ASUS VG23AH 1920*1080	
Expansion Board	N/A	
	N/A	
Operating System	<input checked="" type="checkbox"/> English Ubuntu15.04 Kernel 3.19.0 -15 –generic #15	
	<input checked="" type="checkbox"/> Windows 7 Ultimate SP1 English Version 32/64Bit	
	<input checked="" type="checkbox"/> Windows 8.1 Enterprise English Version 32/64Bit	
	<input checked="" type="checkbox"/> Windows 10 Enterprise English Version 32/64Bit	
Power Supply	be quiet Straight Power E7 Golden 550W	(+12V DC)
Chipset Information		
SOC Bridge	Intel® Braswell M/D SoC	
Super IO Chipset	Fintek F81866D-I	
Audio Chipset	Realtek ALC892	
Ethernet Chipset	Realtek RTL-8111E, 10/100/1000Base	

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1. Hardware Compatibility

1.1. CPU Compatibility Test

CPU Information	Result	Note
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(Information and frequency should show correct value)	Pass	Fail	N/A	
Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.2. Memory Compatibility Test

Memory Information (a. Information and frequency should show correct value. b. Memtest result should not error or halt)	AAEON P/N	Result			Note
		Pass	Fail	N/A	
DDR3L SO-DIMM					
Transcend DDR3L-1600 2GB(SEC 501 BYMA K4B2G0846Q)	AP-DR968D3002 GK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	*
Transcend DDR3L-1600 4GB(SEC 446 XYKO K4B4G0846D)	AP-DR968D3004 G6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)	968D3008G7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
InnoDisk DDR3L-1600 2GB(SEC 434 BYKO K4B2G0846Q)	AP-DR968D3002 GX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
InnoDisk DDR3L-1600 4GB(SEC K4B4G0846E)	968D3004GZ	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
InnoDisk DDR3L-1600 8GB (SEC K4B4G0846E)	968D3008GW	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ADATA DDR3L-1600 8GB (Micron 3KE77D9QBJ)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.3. SATA Compatibility Test

1.3.1 Onboard SATA(IDE / AHCI) Test

SATA Device Information (Information and size should show correct value with IDE and AHCI mode)	AAEON P/N	Result			Note
		Pass	Fail	N/A	
SATAII TOSHIBA MK3276GSX / 320GB / 5400 RPM / 2.5" SATA HDD / SATA 1.5Gb/s	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAII TOSHIBA MK1676GSX / 160GB / 5400 RPM / 2.5" SATA HDD / SATA 1.5Gb/s	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAII TOSHIBA MK1060GSC / 100GB / 5400 RPM / 2.5" SATA HDD / SATA 1.5Gb/s	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII Hitachi / HTS721010A9E630 / 1TB / SATA III 7200 RPM / 2.5" SATA HDD n	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WD WD5000BPKX / 500GB 7200 RPM / 16MB Cache / SATA 6.0Gb/s / 2.5" SATA HDD	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WDC WD3200LPVX / SATAIII 2.5" SATA HDD / 320GB / 5400rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD Transcend TS32GSSD370 2.5".32GB.SATA III SSD MLC.	968C032G2D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD Transcend.TS64GSSD370 2.5".64GB. SATA III.SSD.MLC	968C64G003	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SSD	Transcend.TS128GSSD370 2.5" SATA3 SSD.128GB.MLC.	968C128G0W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Innodisk 3MG2-P 16GB	AP-SS968C016 G3K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Innodisk 3MG2-P 32GB	AP-SS968C032 G1P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Innodisk 3MG2-P 64GB	968C064G39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Innodisk 3MG2-P 128GB	AP-SS968C128 G1P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Innodisk 3MG2-P 256GB	AP-SS968C256 G16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	ADATA SX900 128GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limitation (SATA3 Cable 60M pass)
SSD	Intel 520 120GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limitation (SATA3 Cable 60M pass)
SSD	Intel 530 120GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVD	ASUS BW-14D1XT	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.4. Flash Card Compatibility Test

m-SATA Information (a. Information and size should show correct value (b. R/W and HDD LED should work properly)	AAEON P/N	Result			Note
		Pass	Fail	N/A	
Half Size					
Transcend.TS32GMSM360 half size 32GB	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	主版為半卡，只測半卡
Transcend.TS64GMSM360I half size 64GB	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend.TS128GMSM360I half size 128GB	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.8GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.16GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.32GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.64GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.128GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.5. Power Supply Compatibility Test

Power Supply Information a. System boot to OS should work properly. b. System OS shutdown function should work properly.	Result			Note
	Pass	Fail	N/A	
SeaSonic SSR-450RM 450W 80plus Gold	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	*Must
FSP AS550 550W 80plus Gold	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler Master RS-750-AMAA-G1 750W 80plus Gold	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
be quiet Straight Power E7 Golden 550W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
FSP / AS-550 / 550W/ATX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.6. Monitor Compatibility Test

Monitor Information	Result			Note
	Pass	Fail	N/A	
a. Monitor should display under DOS and OS environment.				
b. Monitor should not appear ghost or ripples.				
VGA				
BenQ 2410XL 1920*1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	. (at least 3 monitors)
ASUS VG23AH 1920*1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL U2713HM 2048*1152	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PHILIPS 288P 4K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(1920*1080)

2. Basic Function Test

2.1. Video Function Test

2.1.1. Single Output Function Test

Configuration													
CPU	Intel® Celeron® Processor N3150 (2M Cache, up to 2.08 GHz)												
Memory	Transcend / SEC K4B4G0846D / DDR3L-1600 / 8GB												
SATA HDD	Seagate ST9160412AS / 7200 RPM/ 16MB Cache/ SATA 3.0Gb/s 2.5" SATA HDD												
VGA	LG Flatron E2260 / 1920*1080 / 22" monitor												
Operating system	Windows 10 Enterprise English Version 64Bit												
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit												
Resolution	VGA			HDMI			LVDS1			LVDS2			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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X768	<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"/>	
1280X800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X1024	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1360X768	<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"/>	
1366X768	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1600X900	<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"/>	
1600X1200	<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"/>	
1680X1050	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1920X1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1920X1200	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2048X1152	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2560X1440	<input 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"/>	
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 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"/>	
Hot plug	<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"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 Test

Selection	Output	Result			Note
		Pass	Fail	N/A	
Dual Display Clone	VGA+LVDS1	<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+LVDS2	<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	LVDS1+LVDS2	<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+LVDS1+LVDS2	<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. Boot up Without Display Test

Process step:

1. BIOS disable LVDS.
2. Power on without inserting any VGA/DVI/HDMI/DP connector until system reaches Windows desktop
3. Plug VGA connector into test machine while system reaches Windows then check Graphics driver and display.
4. Check VGA output Brightness is normal and it shows "Ghost Image" / "Flicker" or not
5. Repeat step2~4 for DVI / HDMI / DP testing.

Test item		Result			Note
		Pass	Fail	N/A	
Display should working normal in Windows Desktop	VGA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DVI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	HDMI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Display port	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

2.1.4. LCD Panel Test

LVDS Panel Model (LVDS display should full screen and no flicker)			Result			Note
			Pass	Fail	N/A	
18bit	800x600	AUO G104SN02 V.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	For IPC_BU
	800x600	AUO G084SN05 V.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standard
	1024x768	AUO LED backlight G121XN01-V0 1024*768 18bit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	IPC_Bu and standard
	1280x768	Toshiba /12.1"/1280 x 768 x 18bit (16:9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standard
24bit	1024x768	AU M150XN07 V.2 / 15" / 1024x768 /	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Standard
	1366x768	AUO G185XW01 V0 / 18" / 1366x768 /	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Standard
48bit	1920x1080	AUO M215HW03 V1 / 21" / 1920*1080 / 48bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IPC_BU and standard







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"/>	
6-channel mode for 5.1 speaker output	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8-channel mode for 7.1 speaker output	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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		Realtek RTL-8111E, 10/100/1000Base					MAC Address		00-E0-4C-68-00-0B	
OnBoard LAN2		Realtek RTL-8111E, 10/100/1000Base					MAC Address		00-E0-4C-68-00-0C	
LAN Speed	Link / Speed LED	Active LED	LAN 1			LAN 2			Note	
			Pass	Fail	N/A	Pass	Fail	N/A		
1000Mbps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
100MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Wake On LAN			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S3/S4/S5 /DOS S5	
LAN Boot (PXE)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Internet Browser (DHCP Server)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Access 1GB file. Download from ftp http://172.16.14.126/			<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 15 Kernel 2.6.27 kernel
<input type="checkbox"/>	Cent 5.5 kernel
<input checked="" type="checkbox"/>	Ubuntu 15.04 Kernel 3.19.0 -15 -generic #15-ubuntu

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

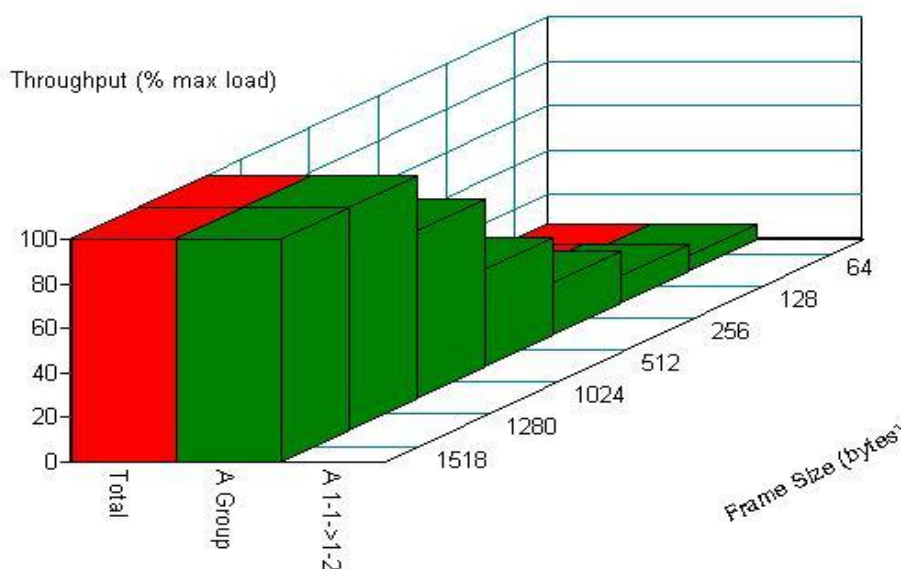
Graphics Media	Ubuntu15.04 Default setting
LAN	Realtek RTL-8111E / r8168-8.040.00
	Ubuntu15.04 Default setting
Audio Driver	Ubuntu15.04 Default setting
CPU information	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)

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:

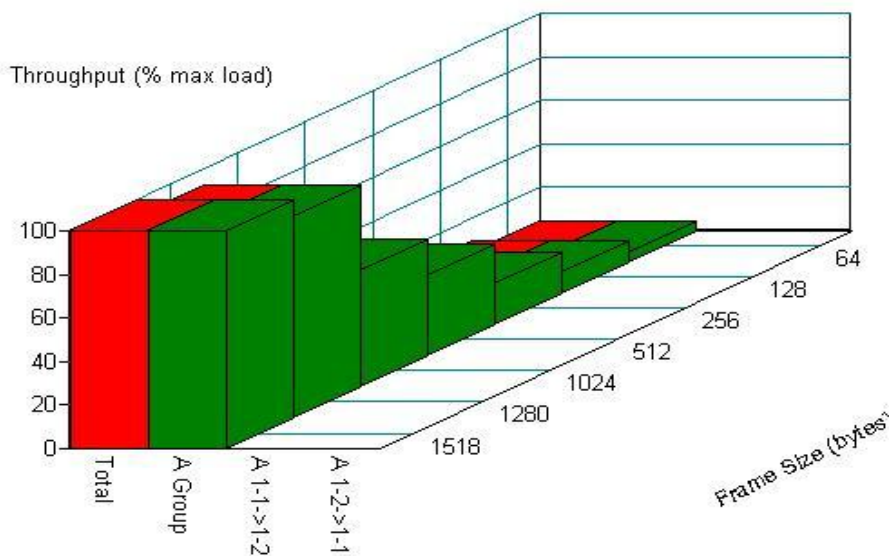
- Half Direction (LAN1: Realtek RTL-8111E Gigabit LAN → LAN2: Realtek RTL-8111E Gigabit LAN)



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	6.4140625	11.828125	22.65625	43.5390625	74.4765625	100	100
A Group	6.4140625	11.828125	22.65625	43.5390625	74.4765625	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2. Binary Direction (LAN1: Realtek RTL-8111E Gigabit LAN ↔ LAN2: Realtek RTL-8111E Gigabit LAN)



Throughput vs Frame Size

Name/Frame size	64	128	256	512	1024	1280	1518
Total	4.09375	9.5078125	18.7890625	36.578125	52.8203125	92.265625	100
A Group	4.09375	9.5078125	18.7890625	36.578125	52.8203125	92.265625	100
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. COM Ports 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
Transmission Test <115200bps / 15M>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.5. RS-422 / RS-485 Test

Test Item	Result			Note
	Pass	Fail	N/A	
RS-422 for COMx	<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 COMx	<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

2.6. LPT Port Test

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

2.7. Digital I/O Test

Test item	Result			Note
	Pass	Fail	N/A	
DIO VCC +5V or +3.3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.8. USB Port Integration Test

Item	USB Port	USB2.0 ports (under OS)			USB3.0 ports (under OS)			Note
		Pass	Fail	N/A	Pass	Fail	N/A	
USB HDD:	Transcend TS500GSJ25D3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Flash:	Transcend JF700 8GB USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	SanDisk Extreme USB3.0 64GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB DVD ROM:	Buffalo DVSM-PC58U2V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB keyboard:	Logitech M212	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB mouse:	Logitech K240	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB FDD:	Mitsumi D353GUE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB3.0 HUB:	Transcend TS-HUB3K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.9. Touch Function Test

Test item	Result			Note
	Pass	Fail	N/A	
The calibrating result is correct.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
After touch panel is calibrated, drawing test result is precise enough.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Windows icon should work properly when used touch to execute.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Right-Click function should work properly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Multi touch should work properly	Multi draw	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	For multi touch panel
	Rotation / zoom	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Touch and right-click should work properly during Burnintest running.	Windows7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BurninTest test item must include CPU/RAM/2D/3D/Video
	Windows8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.10. Jumper and Connector Function Test

[] No Support

Function Test		Result			Note
		Pass	Fail	N/A	
JP1	Front Panel Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
JP2	COM3 Pin8 Function Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RI/5V/12V
JP3	LVDS Port Backlight Inverter VCC Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
JP4	LVDS Port Operating VDD Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
JP5	COM2 Pin8 Function Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RI/5V/12V
JP6	LVDS Port Backlight Lightness Control Mode Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
JP12	Auto Power Button Enable/Disable Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
JP14	Touch Screen 4/5/8-wire Mode Selection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
JP15	Clear CMOS Jumper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. Expansion card and Application Test

3.1. Expansion Slot Compatibility Test

Test point: Make sure expansion slots are compatible with expansion cards.

Mini PCI Express Card		Result			Note
		Pass	Fail	N/A	
Full size	Quectel UC20 3G Card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If M/B support SIM slot
Full size	Sierra Wireless AirPrime MC7304 Qualcomm 4G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If M/B support SIM slot 1. Ping 168.95.1.1 for 1000 clcyes, loss<2 times. 2. Download 1GB file from website.
Full size	SATA Sil3132ME	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Full size	AAEON PER-C11L Gigabit LAN card	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Full size	AAEON PER-C41C-A10 4 port RS-232	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Half size	AzureWave AW-NB100H 802.11b/g/n(PCI-e Wireless+ USB Bluetooth)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Half size	AzureWave AW-NB159H 802.11b/g/n(PCI-e Wireless+ USB Bluetooth)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Half size	AzureWave AW-CB161H 802.11a/b/g/n/ac(PCI-e Wireless+ USB Bluetooth) Realtek RTL8821AE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.2. Expansion Card Integration Test

Test Item	Result			Note
	Pass	Fail	N/A	
1. Connect devices to all of expansion slots. 2. No error during OS and driver installation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. Power Consumption Test

Configuration	
CPU	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz) Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Transcend.TS128GSSD370 2.5" SATA3 SSD.128GB.MLC.
O.S	Windows 8.1 Enterprise English Version 64Bit

4.1. Power Consumption

Test Equipment						
Equipment	Digital Multimeter					
Manufacturer	HOLA					
Model name	DM-1240					
CPU	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)					
Test Environment						
AT Power Model	be quiet Straight Power E7 Golden 550W/ATX					
ATX Power Model	be quiet Straight Power E7 Golden 550W/ATX					
Power Supply		Current		P		Note
(Full Loading Mode) Windows 7 with Prime 95 Full Loading Test	(+12V)	0.91	A	10.92	W	Prime95 Version 259
Full Loading Total Watt	(W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(+12V)	0.01	A	0.12	W	
Suspend Total Watt	(W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+12V)	0.53	A	6.36	W	
Idle Total Watt	(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	(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	(W)					

Test Equipment						
Equipment	Digital Multimeter					
Manufacturer	HOLA					
Model name	DM-1240					
CPU	Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)					
Test Environment						
AT Power Model	be quiet Straight Power E7 Golden 550W/ATX					
ATX Power Model	be quiet Straight Power E7 Golden 550W/ATX					
Power Supply	Current	P		Note		
(Full Loading Mode) Windows 7 with Prime 95 Full Loading Test	(+12V)	0.90	A	10.8	W	Prime95 Version 259
Full Loading Total Watt	(W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(+12V)	0.01	A	0.12	W	
Suspend Total Watt	(W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+12V)	0.42	A	5.04	W	
Idle Total Watt	(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	(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	(W)					

4.2. PC Health Status

Test Point:

Voltage deviation: ±5%.

Fan speed deviation: ±10%

CPU DTS Temp deviation: ±15°C

System Temp deviation: ±5°C

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"/>	47°C	42.6°C	
System Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	46°C	42.6°C	
Fan1 Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2635 RPM	3535 RPM	
VCORE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.832V	0.83V	
VMEM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.368V	1.36V	
12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.965V	11.86V	
5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.045V	5.04V	
5VSB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.040V	5.04V	
+3.3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.360V	3.33V	
VBAT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.040V	3.18V	

4.3. Wide Voltage Test

4.3.1. Wide Voltage Test

Test Point:

Test voltage range is follow specification ±5%.

Test Environment (a. System should boot properly (b. System wasn't halt in following status.)	DC Power (12V)	Current		Note
Windows 8.1 with Prime 95 Full Loading Test	(+11.4V)	1.0	A	
	(+12.6V)	0.87	A	
Windows 8.1 Without running any Software	(+11.4V)	0.83	A	
	(+12.6V)	0.48	A	

4.4. 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 1. Voltage should be >3V. 2. Calculated result should be > 5 years.	3.15	V	3.7	uA	6.9	years	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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

5. Time Accuracy Test

5.1. System Clock & RTC Clock Test

Under Room Temperature:

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	+0.5 Sec	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5.2. Booting Timer Test

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

5.3. Watchdog Timer Test

Use Function as below: Hi-Safe0426

[] No Support.

Time-Out Interval	Criteria	Actual	Result			Note
			Pass	Fail	N/A	
10 sec	+/- 10%	10.2 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+/- 10%	58 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
255 sec	+/- 10%	244 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note : Under Room Temperature.

6. O.S. Compatibility Test

6.1. English Ubuntu 15.04 Kernel 3.19.0 -15 –generic #15-ubuntu

Driver Information:

Chipset Software	System default
Graphics Media	System default
Audio Driver	System default
LAN Driver	Realtek RTL-8111E / r8168-8.040.00

Install OS to SATA HDD/ mSATA Card:

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

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"/>	1920*1080
LVDS-- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1024*768
Network Function Test				
Connect to Internet – LAN 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Realtek RTL 8111E
Connect to Internet – LAN 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Realtek RTL 8111E
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"/>	USB / PS2
Keyboard Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB / PS2
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 3.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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
Halt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Power Off Mode
ls / clear; cd /dev /ls -l	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Command instruction

6.2. Windows 7 Ultimate English Version 32/64Bit

32bit Driver Information	
Chipset Software	Intel Chipset Device Utility 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Realtek PCIe GBE Family Controller 7.91.1119.2014 (11/19/2014)
64bit Driver Information	
Chipset Software	Intel Chipset Device Utility 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Realtek PCIe GBE Family Controller 7.91.1119.2014 (11/19/2014)

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"/>	

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"/>			
LVDS1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
LVDS2 -- 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						
Usable memory	32bit:	2.66 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 GB
	64bit:	8 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 GB
PS/2 Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
USB Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
LPT1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
USB Removable Devices	USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Safe to remove icon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Touch Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
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"/>			
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"/>			
Sleep (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"/>			

6.3. Windows 8.1 Enterprise English Version 32/64Bit

32bit Driver Information	
Chipset Software	Intel Chipset Device Utility 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Realtek PCIe GBE Family Controller 8.37.1119.2014 (11/19/2014)
64bit Driver Information	
Chipset Software	Intel Chipset Device Utility 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Realtek PCIe GBE Family Controller 8.37.1119.2014 (11/19/2014)

Install OS to SATA HDD/ mSATA Card:

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

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"/>		
LVDS1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920*1080	
LVDS2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920*1080	
Boot – Windows8.1 Enterprise Advanced Options Menu					
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. msconfig 2. safe boot.	
Basic Function Test					
Usable memory	32bit: 2.66 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 GB
	64bit: 8 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 GB
PS/2 Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
USB Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
LPT1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
USB Removable Devices	USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Safe to remove icon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB2.0*3; USB3.0*2
Touch Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
LAN Function Test					
LAN1 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Realtek RTL 8111E	
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Realtek RTL 8111E	
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"/>		
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"/>		
Sleep (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"/>		

6.4. Windows 10 Enterprise English Version 32/64Bit

32bit Driver Information	
Chipset Software	Intel Chipset Device Utility 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Realtek PCIe GBE Family Controller 10.3.723.2015 (07/23/2015)
64bit Driver Information	
Chipset Software	Intel Chipset Device Utility 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 20.19.15.4352 (12/15/2015)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (06/18/2015) Intel Display Audio 6.16.0.3190 (11/16/2015)
LAN Driver	Realtek PCIe GBE Family Controller 10.3.723.2015 (07/23/2015)

Install OS to SATA HDD/ mSATA Card:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows10 Enterprise 32bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
English Windows10 Enterprise 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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"/>			
LVDS1 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
LVDS2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Boot – Windows8.1 Enterprise Advanced Options Menu						
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. msconfig 4. safe boot.		
Basic Function Test						
Usable memory	32bit:	2.66 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 GB
	64bit:	8 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 GB
PS/2 Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
USB Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
LPT1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
USB 2.0	USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Removable	USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Devices	Safe to remove icon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Touch Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
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"/>			
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"/>			
Sleep (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. BIOS Function Test

Configuration	
CPU	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Transcend.TS128GSSD370 2.5" SATA3 SSD.128GB.MLC.
O.S	Windows 8.1 Enterprise English Version 64Bit

Test Point:
Confirm BIOS control items are working correctly.

7.1. Advanced Test

Test Item		Result			Note
		Pass	Fail	N/A	
CPU configuration	CPU information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATA configuration	SATA Interface Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gen3 / Gen2 / Gen1
	Hot Plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB configuration	XHCI Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
	Legacy USB Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
Hardware Monitor	Hardware Monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Smart Fan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Super IO Configuration	Serial port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RS-232/422 Driver / RS485 Driver
	Serial port 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RS-232/422 Driver / RS485 Driver
	Serial port 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CSM Configuration	Parallel Port	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
	CSM Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Management	Power Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AT/ ATX
	Power Saving(ERP) control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
	AC Power Loss	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Last state / Always on / Always off
	RI wake Event	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
	RTC Wake System from S5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disable/ Fixed Time / Dynamic Time
Dynamic Digital IO	DIO Port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low
	DIO Port 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Input / Output
	Output Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	High / Low

7.2. Chipset Test

Test Item	Result			Note	
	Pass	Fail	N/A		
North Bridge/ Display Control Configuration	Primary IGFX Boot Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Secondary IGFX Boot Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS 1/ 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable
	Panel Type (LVDS 1/ 2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	800*600,1024*768,1280*768,1280*1024,1366*768.1920*1080,1920*1200
	Backlight Level (LVDS 1/ 2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0~100% DC: 100%=5.01V; 50%=2.38V; 0%=0.02V PWM: 100%=3.33V; 50%=1.70V; 0%=0V
	Backlight Type (LVDS 1/ 2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Normal/inverted
	Color Depth (LVDS 1/ 2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18/24bit/36bit/48bit
	Backlight PWM Freq (LVDS 1/ 2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
South Bridge	Audio Controller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.3. Boot Test

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

7.4. CMOS Backup / Clear CMOS Test

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
CMOS Backup	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear Date and time
Clear CMOS Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear Date

7.5. AAEON Tag Check Utility

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Check AAEON BIOS OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AONCHECK.EXE

7.6. Supervisor / User Password Test

Test Item (Following item should work properly)	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"/>	

7.7. Hi-safe Test

Test Item	Result	Note

(Following item should work properly)		Pass	Fail	N/A	
Version(20160426)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Information	CPU Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Model Name	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Display Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RAM Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Support single DIMM
H/W Monitor	Info	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Fan Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Voltage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIO	DIO1~4 High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO1~4 Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO5~8 High	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO5~8 Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WatchDog	10sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 10.2 sec
	1min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 58sec
	255sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 244.6sec
	Auto Reload	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SMBus	SMBus IO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SMBus Address 0xF040
	Read Byte	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slave Address A0h,
	Read Word	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Result / Read	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Smart FAN	Chipset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Fan Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CPU,
	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"/>	

7.8. Negative Test

7.8.1 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"/>	

7.8.2 Suspend S3 Negative Test

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

7.8.3 UEFI Mode Negative Test

Methods	Result	Note

	Pass	Fail	N/A	
1. Install Windows with UEFI mode.				
2. Clear CMOS.				
3. Confirm BIOS\Boot device was not loss "Windows boot manager" and should boot into Windows properly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8. Performance Test

Configuration	
CPU	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Transcend.TS128GSSD370 2.5" SATA3 SSD.128GB.MLC.
O.S	Windows 8.1 Enterprise English Version 64Bit

8.1. System Performance Test

Test Result: (Display set 1920*1080 test)

Testing Software	Scope		Note
	AAEON	Ref.	
PCMark 8 (Creative)			Windows 8.1 (64bit)
PCMarks	1241		PCMarks
Web Browsing-Jungle Pin	0.542 s		
Web Browsing-Azononia	0.178 s		
Video Group Chat v2- Video Group Chat playback1 v2	30.0 fps		
Video Group Chat v2- Video Group Chat playback2 v2	30.0 fps		
Video Group Chat v2- Video Group Chat playback3 v2	30.0 fps		
Video Group Chat v2- Video Group Chat encoding v2	254.7 ms		
Photo Editing v2	1.732 s		
Batch Photo Editing v2	127.3 s		
Video Editing 1 v2	41.9 s		
Video Editing 2 v2	625.3 s		
Mainstream Gaming part 1	3.1 FPS		
Mainstream Gaming part 2	1.5 FPS		
Video To Go part 1	13.4 s		
Video To Go part 2	18.1 s		
Music To Go	32.25 s		
Benchmark duration	1 h 42 min 59 s		

Testing Software	Scope		Note
	AAEON	Ref.	
3Dmark2006 v120			
3Dmark Score	2481	-	
SM2.0 Score	863	-	
HDR/SM3.0 Score	929	-	
CPU Score	2551	-	
Benchmark (B)		-	
Average Efficiency		-	

3Dmark11 Professional Edition			
Performance 1280*720 (Default)			
3Dmark 11Score	P559	-	
Graphics Score	502	-	
Physics Score	1821	-	
Combined Score	474	-	

Testing Software	Scope		Note
	AAEON	Ref.	
Performance Test 8.0			
PassMark Rating	1060.7	-	
CPU Mark	2197	-	
2D Graphics Mark	239.5	-	
3D Graphics Mark	300.2	-	
Memory Mark	790	-	
Disk Mark	2815	-	
CD Mark	N/A	-	

8.2. Storage Performance Test

SATA Performance				
SATA SSD	Transcend.TS128GSSD370 2.5" SATA3 SSD.128GB.MLC.			
CPU	Intel® Pentium® Processor N3710 (2M Cache, up to 2.56 GHz)			
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)			
OS	Windows 8.1 Enterprise English Version 64Bit			
Item	Comment / (unit)	Software	Score	Note
SATAIII	Maximum Read	ATTO Disk Benchmark	547.83 MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	157.22 MB/s	

USB3.0/2.0 Performance				
USB Flash	SanDisk USB3.0 64GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB3.0	Maximum Read	ATTO Disk Benchmark	208.08 MB/s	
	Maximum Write	ATTO Disk Benchmark	29.19 MB/s	
USB3.0	Maximum Read	ATTO Disk Benchmark	216.48 MB/s	
	Maximum Write	ATTO Disk Benchmark	30.53 MB/s	
USB2.0 (CN19)	Maximum Read	ATTO Disk Benchmark	37.66 MB/s	
	Maximum Write	ATTO Disk Benchmark	20.26 MB/s	
USB2.0 (CN20)	Maximum Read	ATTO Disk Benchmark	36.52 MB/s	
	Maximum Write	ATTO Disk Benchmark	17.80 MB/s	
USB2.0 (CN21)	Maximum Read	ATTO Disk Benchmark	37.58 MB/s	
	Maximum Write	ATTO Disk Benchmark	15.46 MB/s	

mSATA performance				
mSATA	Transcend.TS128GMSM360I half size 128GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
mSATA	Maximum Read	ATTO Disk Benchmark	511.31 MB/s	
	Maximum Write	ATTO Disk Benchmark	15.95 MB/s	

9. Stability test

9.1. Run In Test

Under Room Temperature:

OS: Windows 8.1 Enterprise English 64bit

Test Item	Result			Note	
	Pass	Fail	N/A		
Burn In Test V8.1(1012) Duty: 100 Time: over 12 hours <System should not error or hang during testing.>	CPU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	RAM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	COM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Video	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Sound	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Network <Advanced>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Parallel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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.

9.2. Reboot Test

Under Room Temperature:

OS: Windows 8.1 Enterprise English 64bit

Test Tool: Passmark rebooter.exe

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

9.3. ACPI G3 Cold Boot Test

Under Room Temperature:

OS: DOS

Test Point:

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

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

9.4. ACPI S5 Cold Boot Test

Under room temperature:

OS: Windows 8.1 Enterprise English 64bit

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