

Report NO:18E010004

GENE-APL7

Intel Apollo Lake

Board / System Level Product Bulletin Compatibility Test Report

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

Issue date

2018-03-15

QE Manager

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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. 10. Add DDR4 SO-DIMM. 11. Update Linux to Ubuntu16.04 12. Add Stability Test \ Memory test.	
10/21/2016	C2	1. Remove Smartbits test item. 2. Update chapter7.2 \ LVDS type support. 3. Add chapter9.6. System stability after S3 / S4 / S5 cycles	
07/18/2017	C3	1. Modified PWB test item. 2. Update Benchmark test tool 3. Modified wide voltage test item. 4. Add Iperf for LAN performance test. 5. Defined USB3.0 power status. 6. Update POE LAN test item. 7. Add PCIe bear card test. 8. Define booting time test criteria.	

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	3.5"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CPU	Intel® Atom™, ApolloLake Series CPU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Memory	DDR3L (1866 MT/s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	Intel Apollo Lake Up to 8G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BIOS	AMI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wake On LAN	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Watchdog Timer	255 Levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Requirement	12V Only	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Supply Type	AT/ ATX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Video Output	LVDS1 + CRT (Option: LVDS2/eDP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ethernet	LAN x 2 (Real IO), REALTEK. RTL8111E-VL-CG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio	REALTEK ALC892 (Option: 2W Amp, I2S)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Port	Real I/O: USB3.0 x 2 Internal: USB2.0 x 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Serial Port	Real I/O: COM x 2 (COM2 is RS-232/422/485) Internal: COM x 4 (Option to COM x 10) COM1-4 support 5V/12V/RI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDD Interface	SATA Gen3 x 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	mSATA x 1 (Full)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion Slot	mini-card x 1 (Full)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIO	8 bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SIM	Micro SIM x 1 (Option)	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Windows8.1 English 32/64bit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Windows10 English 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Linux	Kernel 2.6 above	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Platform Information

Item	Device Information	Note
Product of department	ECD	
PCB Model / Version	GENE-APL7 A0.1	
BIOS / Version	GENE-APL7 R1.3(GAP7AM13) (12/26/2017)	
Driver folder	GENE-APL7\20171206	
CPU Type	Intel® Pentium® Processor N4200 2M Cache, up to 2.5 GHz	
Memory Type	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)	
SATA HDD	ADATA SATAIII SSD SX900 128GB	
SATA DVD-ROM	Pioneer DVR-217	
USB DVD-ROM	ASUS SBW-06D2X	
LCD Monitor	Dell U2713HM 2048x1152	
LVDS	AUO M215HW03 V1 / 21" / 1920*1080 / 48bit	
mSATA	Innodisk 3ME3 128GB	
Daughter Board	N/A	
Expansion Board	AAEON PER-C11L Gigabit LAN card	
Operating System	<input checked="" type="checkbox"/> English Ubuntu16.04.2 Kernel 4.8.0-36-generic x86_64	
	<input type="checkbox"/> Windows 7 Ultimate SP1 32/64Bit	
	<input type="checkbox"/> Windows 8.1 Enterprise English Version 32/64Bit	
	<input checked="" type="checkbox"/> Windows 10 Enterprise English Version 64Bit	
Power Supply	ATX Power Supply : Antec NEO ECO 520W	
	AT Power Supply: N/A	
	DC Adapter : FSP040 DGAA1 12V / 40W	
Battery Model	N/A	
Chipset Information		
SOC Bridge	Intel Apollo Lake	
Super IO Chipset	Fintek F81966	
Audio Chipset	Realtec ALC892	
Ethernet Chipset	Realtec RTL8111E	

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1. Hardware Compatibility

1.1. CPU Compatibility Test

CPU Information (Information and frequency should show correct value)	Result			Note
	Pass	Fail	N/A	
Intel® Celeron® Processor N3350 2M Cache, up to 2.4 GHz	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Pentium® Processor N4200 2M Cache, up to 2.5 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. System should boot up and into OS normally.)	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"/>	
DSL DDR3L 2GB (Hynix H5TC2G83EFR PBA 247EA)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
KingSton DDR3L 1600 4GB D5128ED1FPGGBU	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ADATA DDR3L-1600 4GB(Micro 3YE17 D9QBJ)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk DDR3L 1333 2GB Hynix H5TC2G83EFR	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DSL DDR3L 1333 4GB Hynix H5TC4G83AFR	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk DDR3L 1333 8GB H5TC4G83AFR	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.3. SATA Compatibility Test

1.3.1 Onboard SATA(AHCI) Test

SATA Device Information (Information and size should show correct value with AHCI mode)	AAEON P/N	Result			Note
		Pass	Fail	N/A	
Main Board project test with 80~100cm SATA cable , typical #1709070800					
SATAII Fujitsu MHZ2080BH 80GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAII ToshibaMK1676GSX 160GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII TOSHIBA MQ01ABF050 2.5" 500GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WD WD10SPCX 2.5" 1TB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII Toshiba HDS721010DLE630 1TB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WD WD20EZR 3.5" 2TB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SATAIII	Seagate ST3000DM01 3.5" 3TB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVD	Pioneer DVR-217	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Intel SSD 540s Series 120GB	AP-SS968C120 G08	<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	2.5" .16GB 3MG2-P 15nm.SATA III MLC SSD.Innodisk MLC .0°C ~ +70°C.DGS25-16GD81BC3SC-26	AP-SS968C016 G3K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	(TF)2.5".32GB 3MG2-P 15nm.SATA SSD MLC.0~70°C.HIGH IOPS.innodisk.DGS25-32GD81B C3DC-26	AP-SS968C032 G1P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	(TF)2.5".64GB.SATA MLC SSD .3MG2-P 15nm.0~70°C.HIGH IOPS.innodisk.DGS25-64GD81B C3QC-26	968C064G39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	2.5' MLC SSD 128GB 3MG2-P 15nm.SATA 0°C~+70°C .InnoDisk.DGS25-A28 D81BC3QC-26	AP-SS968C128 G1P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	2.5".256GB.SATA MLC SSD 3MG2-P 15nm.0~70°C.HIGH IOPS.innodisk.DGS25-B56D81BC 3QC-26	AP-SS968C256 G16	<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	
Full Size					
Transcend.TS16GMSA370 Full-size mSATA.16GB.MLC.	AP-SS968C016 G2Z	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend.TS32GMSA370 Full-size mSATA.32GB.MLC.	968C032G32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend.TS64GMSA370 (TF)Full-size.64GB.mSATA.MLC	968C064G2K	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk full size mSATA.8GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk full size mSATA.16GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk full size mSATA.32GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk full size mSATA.64GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk full size mSATA.128GB 3ME3	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend TS64GMSA740 64GB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.5. 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				
Dell U2713HM 2048x1152	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(at least 3 monitors)
Philips 288P6 1920x1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Viewsonic VA703b 1280x1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BenQ T705 1280x1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ASUS VE288 1920x1080	<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

Configuration													
CPU	Intel® Pentium® Processor N4200 2M Cache, up to 2.5 GHz												
Memory	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)												
SATA HDD	ADATA SATAIII SSD SX900 128GB												
VGA	Dell U2713HM 2048x1152												
LVDS1	AUO M215HW03 V1 / 21"/ 1920*1080 / 48bit												
LVDS2	AUO M215HW03 V1 / 21"/ 1920*1080 / 48bit												
eDP(Co-lay LVDS1)	InnoLux N116HSE-EBC Rev.C1 1920x1080												
Operating system	Windows 10 Enterprise 64bit												
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit												
Resolution	VGA			LVDS1			LVDS2			eDP			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"/>	
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"/>	
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"/>	
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"/>	
1600X1200	<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"/>	
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"/>	
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 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"/>	
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not support			Not support			Bult-in display			
Hot plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Not support			Not support			Not support			
Rotation(0/90/180/270)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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

2.1.2. Multi-Display Output Test

Selection	Output	Result			Note
		Pass	Fail	N/A	
Dual Display Clone	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"/>	
Dual Display Clone	VGA + eDP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Dual Display Clone	LVDS2+eDP	<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+LVDS2+eDP	<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

ECD standard connector

LVDS Panel Model (LVDS display should full screen and no flicker)			Result			Note
			Pass	Fail	N/A	
18bit	800x600	AUO G084SN05 V.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1024x768	AUO LED backlight G121XN01-V0 1024*768 18bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1280x800	HannStar HSD101PWW1 R0-A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
24bit	1366x768	AUO G185XW01 V0 / 18" / 1366x768 / 24bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
48bit	1920x1080	AUO M215HW03 V1 / 21" / 1920*1080 / 48bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.2. Audio Function Test

[] No Support

Function Test	Result			Note
	Pass	Fail	N/A	
L (Left) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
R (Right) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AMP (Left and Right)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	並存
Line In	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MICROPHONE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.3. LAN Function Test

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 RTL8111E Gigabit Ethernet				MAC Address		00-07-32-41-63-10	
OnBoard LAN2		Realtek RTL8111E Gigabit Ethernet				MAC Address		00-07-32-41-63-11	
LAN Speed	Link / Speed LED	Active LED	LAN 1			LAN 2			Note
			Pass	Fail	N/A	Pass	Fail	N/A	
1000Mbps Ping loss ≤ 1			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
100Mbps Ping loss ≤ 1			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10Mbps Ping loss ≤ 1			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wake On LAN (WOL should work properly when resume from S3/S4/S5)	S3		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	S4		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	S5		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN Boot (PXE) (Boot from LAN should work properly)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internet Browser (DHCP Server) (Visit the website should work properly)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Access 1GB file from ftp. (Access file should not stop or error.)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Iperf \$sudo iperf3 -c xx.xx.xx.xx -i 1 -t 60 (Gigabit LAN bandwidth should > 900Mbps)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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"/>	Test by Modem
	+12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter COM1/2/3/4
	+5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter COM1/2/3/4
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 COM2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use loopback and WINSSD.exe to test RS-422 in Windows
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. The communication between the RS-422 port of two boards is linked by one 1.2km cable on Windows Terminal. 2. Confirm RS422 can work properly from G3 status 3. Test baud rate is 115200bps
RS-485 for COM2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use ICP CON I-7044D D/IO Module in Windows(Support Auto flow control)

	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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 3. Test baud rate is 115200bps.
--	-------------------------------------	--------------------------	--------------------------	---

2.6. 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"/>	Port 0~7

2.7. 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 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB2.0 Flash:	Sandisk cruzer 8GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB3.0 Flash	Kingston Ultimate 16GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Transcend 32GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	PNY 128GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB DVD ROM:	ASUS SBW-06D2X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB keyboard:	Logitech K200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB mouse:	Logitech M-U0003	<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"/>	
USB2.0 HUB:	Sense 01-ELS 190 4 port Hub	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test item	Result			Note
	Pass	Fail	N/A	
USB3.0 ports with power in S3 mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB3.0 ports with power in S5 mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.8. Jumper and Connector Function Test

Test item	Result			Note	
	Pass	Fail	N/A		
LVDS voltage jumper support 3.3V / 5V selection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LVDS1/2	
Inverter voltage jumper support 5V / 12V selection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LVDS1/2	
Brightness control jumper	PWM mode support 0~100% modulation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LVDS1/2
	DC mode support 0~100% modulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LVDS1/2
COM_VSET jumper support 12V / 5V / RI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COM1~4	
Clear CMOS will clear CMOS date , time , setting , password.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Buzzer and 4 pin Speaker test	System boot: one short beep.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	No memory found: One long beep, two short beep, pause a period of time, and loop.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power button	One touch for power on.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	One touch for power off in BIOS manual.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	One touch for system shutdown in Windows environment. (power manager need to set "press PWB for shutdown.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	> 4sec for H/W shutdown in Windows environment. (power manager need to set "press PWB do nothing.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Reset button, system reset under Windows environment.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power LED behavior	S1(boot up): Power LED on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	S3: Power LED off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	S4: Power LED off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	S5: Power LED off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HDD LED, active when SATA/CF/CFast/mSATA/M.2 access	SATA: Active	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	CF: Active	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	CFast: Active	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	mSATA: Active	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	M.2(SATA): Active	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	M.2(PCI-e): Inactive	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
CPU FAN	full speed can meet FAN specification	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AMP_CON, AMP left / right channel work properly		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	共存 line out
Auto Power Button	Enable: system auto power on while AC power cord inserted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Disable: boot status by BIOS\restore loss control.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. Expansion card and Application Test

3.1. PCI Express Bear Card Test

Test point: Make sure PCIe power, wake# and MLW are correct.

Test item		Result			Note
		Pass	Fail	N/A	
Mini PCIe bear card	3.3V,1.5, Reset Power LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Wake #	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Max Link Width test result GEN2 / x1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.2. Expansion Slot Compatibility Test

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

CN45 slot

Full Size Mini PCI Express Card (Test on full size slot)		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 MC734 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	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 Mini PCI Express Card (Test on full size & half size slot)		Result			Note
		Pass	Fail	N/A	
Half size	AzureWave AW-NB159H 802.11b/g/n RTL8723BE combo module	<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"/>	
Half size	Bointec DPE909-AA WIFI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.3. 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 3. All of expansion cards should work normal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. Power Consumption Test

Configuration	
CPU	Intel® Pentium® Processor N4200 2M Cache, up to 2.5 GHz
Memory	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)
Storage	ADATA SATAIII SSD SX900 128GB
O.S	Windows10 Enterprise 64bit

4.1. Power Consumption

Test Equipment						
Equipment	Digital Multimeter					
Manufacturer	HOLA					
Model name	DM-1240					
Test Environment						
Adapter / power supply	Antec NEO ECO 520W					
AC / DC source	N/A					
Other	USB keyboard: Logitech K200 USB mouse: Logitech M-U0003 Power consumption without HDD.					
Power Supply	Current			P		Note
(Full Loading Mode) Windows with Prime 95 Full Loading Test	(+ 12 V)	1.61	A	19.32	W	Prime95 Version 259
Full Loading Total Watt	19.32 (W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(+ 12 V)	0.05	A	0.6	W	
Suspend Total Watt	0.6 (W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+ 12 V)	0.38	A	4.56	W	CPU utilization must< 2% while idle mode
Idle Total Watt	4.56 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(+ 12 V)	0.04	A	0.48	W	Erp disable
Suspend Total Watt	0.48 (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

H/W monitor	Result			BIOS	Actual	Note
	Pass	Fail	N/A			
(+) VCORE Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0.752 V	0.74 V	

(+) VMEM Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.36	V	1.35	V	
(+) 12V Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12.14	V	12.04	V	
(+) 5V Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.17	V	5.16	V	
(+) 5VSB Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.184	V	5.18	V	
(+) 3.3V Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.456	V	3.45	V	
(+) VBAT Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.05	V	3.2	V	
System Fan1 Speed Actual and monitor must be ±10%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6072	rpm	6000	rpm	
CPU DTS Temp Actual and monitor must be ±15°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50	°C	42.6	°C	
CPU External Temp Actual and monitor must be ±5°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41	°C	42.6	°C	
System Temp Actual and monitor must be ±5°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37	°C	37.1	°C	

4.3. CMOS Battery Test

Test Point: Calculated result should be > 5 years.

Battery: CR2032

Capacity 225mAh

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.	3.07	V	4.2	uA	6.1	years	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Calculate result=225mAh/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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5.2. Booting Time Test

Installation	Criteria	Actual		Note
System Booting Time < Press the Power Button till "Beep" Sound or display appears >	Booting time ≤ 12sec, Pass Booting time 13~20 sec, Enhancement Booting time > 20sec, Fail	9.71	Sec	

5.3. Watchdog Timer Test

Use Function as below: Hi-SafeV2.2017.9.

[] No Support.

Time-Out Interval	Criteria	Actual		Result			Note
				Pass	Fail	N/A	
10 sec	+/- 10%	9.5	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%	243	Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

6. O.S. Compatibility Test

6.1. English Ubuntu16.04.2 Kernel 4.8.0-36-generic x86_64

Driver Information:

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

Install OS to mSATA Card:

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu16.04.2 Kernel 4.8.0-36-generic x86_64	<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"/>	2048*1152
LVDS1 – Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920x1080
LVDS2 -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1920x1080
eDP – option (co-lay LVDS2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VGA + LVDS1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VGA + LVDS2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS1 + LVDS2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VGA+LVDS1+LVDS2	<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"/>	
Connect to Internet – LAN 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Function Test				
Play Audio Function Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Play Audio Test
HDMI / DP audio function Test	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Base Function Test				
Mouse Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB
Keyboard Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB
Console Redirection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COM~COM12
DVD-ROM Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB
USB 2.0/3.0 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
Suspend	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Suspend icon
ls / clear; cd /dev /ls -l	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Command instruction

6.2. Windows 10 Enterprise English Version 32/64Bit

64bit Driver Information	
Chipset Software	Intel Chipset Device Software 10.1.1 (06/03/2015)
Graphics Media	Intel HD Graphics 22.20.16.4735 (7/7/2017)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (6/18/2015)
LAN Driver	Realtek PCIe GBE Family Controller 10.19.627.2017 (06/27/2014)

Install OS to SATA HDD/ mSATA Card:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows10 Enterprise 64bit UEFI	<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"/>	2048*1152
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"/>	
eDP --Full Screen (co-lay LVDS2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Multi display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Basic Function Test				
Usable memory	32bit: MB	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	64bit: 7.85GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PS/2 Mouse and Keyboard	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	X12
USB 2.0	USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Removable Devices	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TPM2.0 BitLocker Feature	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	
AMP	<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 N4200 2M Cache, up to 2.5 GHz
Memory	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)
Storage	ADATA SATAIII SSD SX900 128GB
O.S	Windows10 Enterprise 64bit

Test Point:
Confirm BIOS control items are working correctly.

7.1. Advanced Test

Test Item (Following item should work properly)	Result			Note		
	Pass	Fail	N/A			
Dynamic Digital IO	DIO0~7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
S5 RTC Wake up	Wake system with fixed time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Restore AC Power Loss	Power on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Power Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Last State	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Power Mode	ATX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	AT	Auto power on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		PWB no function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Disable S3/S4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		PWR LED and FAN still running when S5 shutdown.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Support UEFI and legacy mode.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
* CPU configuration	Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Hyper-threading	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Enable/Disable	
	Virtualization Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
	EIST	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
	Turbo boost	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
* SATA configuration	SATA information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	SATA controller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
	AHCI mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Hot plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
PCI-e configuration	Slot2	Enable/Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CN45
		Hot plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Auto/GEN2/GEN1
Super IO configuration	Serial port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
	Serial port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	RS232	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	RS422	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	RS485	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Serial port 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

	Serial port 9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port 12	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Smart FAN	CPU_FAN1	Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6072rpm
		Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Level100: 11.79V 75: 8.15V 50: 6.65V 25: 4.19V 1: 0.12V
		Auto Duty cycle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Temp source	CPU	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
		CPU ext	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		System	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.2. Chipset Test

Test Item (Following item should work properly)			Result			Note
			Pass	Fail	N/A	
North Bridge	LVDS1	Enable/disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS2 Panel type	640x480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		800x480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		800x600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1024x600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1024x768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1280x768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1280x800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1280x1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1366x768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1440x900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1600x1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1920x1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1920x1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Brightness	0~100%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS1	Normal / inverted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS2	Enable/disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS2 Panel type	640x480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		800x480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		800x600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1024x600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1024x768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1280x768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1280x800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1280x1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1366x768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1440x900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1600x1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1920x1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1920x1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Brightness	0~100%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
LVDS	Normal / inverted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

	*Memory Configuration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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7.3. Boot Test

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Quiet Boot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Monitor Mwait	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disable for Linux installation.
Launch PXE OpROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From Hard Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From CDROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB HDD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB Floppy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB CD-ROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot from LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.4. Clear CMOS and Load Default Test

Test Item (Following item should work properly)	Result			Note	
	Pass	Fail	N/A		
Clear CMOS by jumper (under G3 status)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear date, time, setting, password	
Clear CMOS by remove battery(under G3 status)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear date, time, setting, password	
Load default	Date, time, password should be kept	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	BIOS setting should be restored to default.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Boot option priorities should restore from disable to default.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.5. AAEON Tag Check Utility

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Check AAEON BIOS OK	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 (Following item should work properly)	Result			Note	
	Pass	Fail	N/A		
Version(v2.2017.9.7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	GAP7A	
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"/>	
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 9.4 sec	
	1min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 58 sec	
	255sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 246sec	
	Auto Reload	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
SMBus	Device Address	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SMBus Address 0xA0	
	Read Byte	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Read Word	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Result / Read	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Backlight controller	LVDS1 Brightness s 0~100	DC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		PWM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS1 Brightness s 0~100	DC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		PWM	<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"/>	LVDS1 / LVDS2
	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"/>	

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 N4200 2M Cache, up to 2.5 GHz
Memory	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)
Storage	ADATA SATAIII SSD SX900 128GB
O.S	Windows10 Enterprise 64bit

8.1. System Performance Test

Test Result: (Display set 1920*1080 test)

Testing Software	Scope		Note
	AAEON	Ref.	
PCMark 8 (Creative)			Windows 10.1 (64bit)
PCMarks	1564		PCMarks
Test duration	92 min 19 s		
Web Browsing-Jungle Pin	0.470s		
Web Browsing-Amazonia	0.161s		
Video To Go part 1	12.276s		
Video To Go part 2	15.574s		
Music To Go	26.242s		
Video Editing 4k part 1 conventional	33.106s		
Video Editing 4k part 2 conventional	642.776s		
Mainstream Gaming part 1	4.2FPS		
Mainstream Gaming part 2	2.33FPS		
Video Group Chat v2- Video Group Chat playback1 v2	30.02fps		
Video Group Chat v2- Video Group Chat playback2 v2	29.99fps		
Video Group Chat v2- Video Group Chat playback3 v2	29.99fps		
Video Group Chat encoding v2	196.66ms		
Advanced Photo Editing1	1.169s		
Advanced Photo Editing2	82.415s		

Testing Software	Scope		Note
	AAEON	Ref.	
3DMark-v2-3-3693			
Sky Diver			
Score	1658	-	
Graphics score	1623	-	
Graphics test 1	7.05FPS		
Graphics test 2	7.82FPS		
Physics score	2006	-	
8 threads	33.14FPS	-	
24 threads	24.03FPS		
48 threads	0FPS		
96 threads	0FPS		

Combined score	1516		
Combined test	6.24FPS		
Fire Strike			
Score	397	-	
Graphics score	429	-	
Graphics test 1	2.17FPS		
Graphics test 2	1.64FPS		
Physics score	2985	-	
Physics test	9.48FPS	-	
Combined score	139		
Combined test	0.65FPS		

Testing Software	Scope		Note
	AAEON	Ref.	
Performance Test 8.0			
PassMark Rating	1209	-	
CPU Mark	2395	-	
2D Graphics Mark	245.4	-	
3D Graphics Mark	357.4	-	
Memory Mark	1087	-	
Disk Mark	3532	-	
CD Mark	-	-	

8.2. Storage Performance Test

SATA Performance				
CPU	Intel® Pentium® Processor N4200 2M Cache, up to 2.5 GHz			
Memory	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)			
SATA SSD	ADATA SATAIII SSD SX900 128GB			
OS	Windows10 Enterprise 64bit			
Item	Comment / (unit)	Software	Score	Note
SATAIII ports	Maximum Read	ATTO Disk Benchmark	557MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	519MB/s	

USB3.0/2.0 Performance				
USB Flash	KingSton Ultimate USB3.0 16GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB3.0 ports	Maximum Read	ATTO Disk Benchmark	130MB/s	
	Maximum Write	ATTO Disk Benchmark	60MB/s	
USB2.0 ports	Maximum Read	ATTO Disk Benchmark	40MB/s	
	Maximum Write	ATTO Disk Benchmark	32MB/s	

mSATA performance				
mSATA	Transcend TS64GMSA740 64GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
mSATA	Maximum Read	ATTO Disk Benchmark	492MB/s	
	Maximum Write	ATTO Disk Benchmark	173MB/s	

9. Stability test

Configuration	
CPU	Intel® Pentium® Processor N4200 2M Cache, up to 2.5 GHz
Memory	InnoDisk DDR3L-1600 8GB(SEC K4B4G0846E)
Storage	ADATA SX900 128GB SATAIII SSD
OS	Windows10 Enterprise 64bit
Environment	Under room temperature.

9.1. Run In Test

OS: Windows 10 Enterprise English 64bit

Test Item	Result			Note	
	Pass	Fail	N/A		
Burn In Test V8.1(1025 above) 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"/>	Speed Set "Cycle to 115200."
	GPU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Video	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SATA / mSATA
	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	USB	2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X2

9.2. Reboot Test

OS: Windows 10 Enterprise English 64bit

Test Tool: Passmark rebooter.exe

Test item	Result			Note
	Pass	Fail	N/A	
Reboot test for 500 cycles <a. System should not error or hang during testing.> <b. Device manager should not loss any devices or yellow bang >	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N4200

9.3. ACPI G3 Cold Boot Test

OS: DOS or UEFI shell

Test Point:

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

Test item	Result			Note
	Pass	Fail	N/A	

G3(AC loss) cold boot over 1000 cycles Setting: Power on- 40sec ; Power off-- 20sec. <loss rate: 0 /1000 times>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> BIOS select " power on" or <input type="checkbox"/> Jumper setting auto power button N3350
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. N3350

9.4. ACPI S5 Cold Boot Test

OS: Windows 10 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.

9.5. Memory Test

OS: UEFI

Tool: Passmark Memtest version7.0 UEFI

Memory information: Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)

Test item	Result			Note
	Pass	Fail	N/A	
Memory Test for 4 loops. < Memtest result should not error or hang..>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N3550

Remark:

9.6. System stability after S3 / S4 / S5 cycles

OS: Windows 10 Enterprise English 64bit

Test item	Criteria	Result			Note
		Pass	Fail	N/A	
System stability after S3 cycles <Perform S3 cycles 3 times>	1.SUT boots to OS successfully. 2. No yellow bang observed if all the drivers are installed 3.SUT does S3-resume cycles successfully without any issues	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System stability after S4 cycles <Perform S4 cycles 3 times>	1.SUT boots to OS successfully. 2. No yellow bang observed if all the drivers are installed 3.SUT does S4-resume cycles successfully without any issues	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System stability after S5 cycles <Perform S5 cycles 3 times>	1.SUT boots to OS successfully. 2. No yellow bang observed if all the drivers are installed 3.SUT does S5-resume cycles successfully without any issues	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	