

Report NO:18E010008

# EPIC-KBS8

## Intel® 6th & 7 th S erieseries EPIC

### Board 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

2018-04-10

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 lperf 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	EPIC Board (4")	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Processor	6th/7th Generation Intel® Core™ i-S Series Processor (Socket Type) 35W (Max)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Memory	DDR4 (Non-ECC), 2133MHz Up to 16GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	H110/Q170 (6W)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network	LAN x 2 (Real IO) (RTL8111E-VL-CG*2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage	SATAIII x 1, SATA Power (5V) mSATA x 1 (Half size, option for mini-card)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio	REALTEK ALC892, with Audio detect (Option: 2W Amp, I2S)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WatchDog Timer	255 Levels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Smart Fan Control	4 pin x 1 (Including FAN_TAC/ FAN_CTL)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wake On LAN / PXE	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics	Intel® 6th/7th Generation Intel® Core™ i3/i5/i7/Celeron	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics Multi Display	LVDS1+ CRT (Option: LVDS2/eDP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DIO	8bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion Slot	Mini-card x 1 (Full size)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Serial Port	COM x 6 (All internal, COM2: RS-232/422/485)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB	Real I/O: USB3.0 x 2 Internal: USB2.0 x 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Battery	CR-2032	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Compliance	9-24V (Optional: +12V)	<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 64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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	EPIC-KBS8 A1.0.0.2	
CPU Board	EPIC-KBS8 A1.0.0.2	
BIOS / Version	EPIC-KBS8 R1.1 (EKS8AM11)(04/03/2018)	
Driver folder	20180116	
CPU Type	Intel® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)	
Memory Type	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)	
SATA HDD	Intel 520 120GB SSD	
SATA DVD-ROM	ASUS BW-14D1XT	
USB DVD-ROM	Transcend TS8XDVDS-K	
LCD Monitor	ASUS VG23AH	
LVDS	AUO LED backlight G121XN01-V0 1024*768 18bit	
Operating System	<input checked="" type="checkbox"/> English Ubuntu16.04.2 Kernel 4.10.0-28-generic x86_64	
	<input checked="" type="checkbox"/> Windows 7 Ultimate SP1 32/64Bit	
	<input checked="" type="checkbox"/> Windows 8.1 Enterprise English Version 64Bit	
	<input checked="" type="checkbox"/> Windows 10 Enterprise English Version 64Bit	
Power Supply	ATX Power Supply : Bequiet E7-550W	
	AT Power Supply: N/A	
	DC Adapter : FSP084-DIBAN2	
<b>Chipset Information</b>		
SOC Chipset	Q170 / H110	
Super IO Chipset	Fintek F81866D	
Audio Chipset	REALTEK ALC892	
Ethernet Chipset	RTL8111E-VL-CG	

**Summary Table of contents:**

- 1. Hardware Compatibility..... 6
  - 1.1. CPU Compatibility Test .....6
  - 1.2. Memory Compatibility Test.....6
  - 1.3. SATA Compatibility Test .....6
  - 1.4. Flash Card Compatibility Test .....7
  - 1.5. Power Supply Compatibility Test.....8
  - 1.6. Monitor Compatibility Test .....8
- 2. Basic Function Test..... 9
  - 2.1. Video Function Test .....9
  - 2.2. Audio Function Test .....10
  - 2.3. LAN Function Test .....10
  - 2.4. COM Ports Test.....11
  - 2.5. RS-422 / RS-485 Test.....11
  - 2.6. LPT Port Test.....11
  - 2.7. Digital I/O Test.....12
  - 2.8. USB Port Integration Test .....12
  - 2.9. Jumper and Connector Function Test.....12
- 3. Expansion card and Application Test ..... 14
  - 3.1. PCI Express Bear Card Test .....14
  - 3.2. Expansion Slot Compatibility Test .....14
  - 3.3. Expansion Card Integration Test .....14
- 4. Power Consumption Test ..... 15
  - 4.1. Power Consumption.....15
  - 4.2. PC Health Status .....15
  - 4.3. Wide Voltage Test .....16
  - 4.4. CMOS Battery Test .....16
- 5. Time Accuracy Test..... 18
  - 5.1. System Clock & RTC Clock Test.....18
  - 5.2. Booting Time Test.....18
  - 5.3. Watchdog Timer Test .....18
- 6. O.S. Compatibility Test ..... 19
  - 6.1. English Ubuntu16.04.2 Kernel 4.10.0-28-generic x86\_64.....19
  - 6.2. Windows 7 Ultimate English Version 32/64Bit .....20
  - 6.3. Windows 8.1 Enterprise English Version 32/64Bit .....21
  - 6.4. Windows 10 Enterprise English Version 64Bit .....22
- 7. BIOS Function Test ..... 23
  - 7.1. Advanced Test .....23
  - 7.2. Chipset Test.....24
  - 7.3. Boot Test .....24
  - 7.4. Clear CMOS and Load Default Test .....25
  - 7.5. AAEON Tag Check Utility.....25
  - 7.6. Supervisor / User Password Test .....25
  - 7.7. Hi-safe Test (Test in P3 phase).....25
  - 7.8. Negative Test.....26
- 8. Performance Test ..... 27
  - 8.1. System Performance Test.....27
  - 8.2. Storage Performance Test .....28
- 9. Stability test..... 29
  - 9.1. Run In Test.....29
  - 9.2. Reboot Test .....29
  - 9.3. ACPI G3 Cold Boot Test .....29
  - 9.4. ACPI S5 Cold Boot Test.....30
  - 9.5. Memory Test.....30
  - 9.6. System stability after S3 / S4 / S5 cycles .....30

# 1. Hardware Compatibility

## 1.1. CPU Compatibility Test

CPU Information (Information and frequency should show correct value)	Result			Note
	Pass	Fail	N/A	
Intel® Core™ i7-6700TE Processor 8M Cache, up to 3.40 GHz / 35W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Core™ i5-6500TE Processor 6M Cache, up to 3.30 GHz / 35W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Core™ i3-6100TE Processor 4M Cache, 2.70 GHz 35W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Core™ i7-7700T Processor 8M Cache, up to 3.80 GHz / 35W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Core™ i5-7500T Processor 6M Cache, up to 3.30 GHz / 35W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intel® Core™ i3-7101TE Processor 3M Cache, 3.40 GHz / 35W	<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	
DDR4 SO-DIMM(保留 SPEC 規格 RAM 即可)					
Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend DDR4-2400 8GB(SEC 616 K4A4G085WE BCRC)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend DDR4-2400 4GB(SEC 616 K4A4G085WE BCRC)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend DDR4 2133 8GB TS9AAESD00AA SEC K4A4G085WD	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend DDR4 2133 4GB TS8AAESD00AA SEC K4A4G085WD	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ADATA DDR4 2133 16GB (SEC K4A8G085WD)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DSL DDR4-2133 8GB (SEC K4A4G085WD / E)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DSL DDR4-2133 4GB (SEC K4A4G085WD)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Micro MTA16ATF2G64HZ-2G1A1 DDR4 2133 16GB Micro 6BA77 D9SRJ	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk DDR4 2133 16GB SEC K4A8G085WB	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
InnoDisk DDR4-2133 8GB(SEC 446 BCPB K4A4G085WD)	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
InnoDisk DDR4-2133 4GB(SEC 446 BCPB K4A4G085WD)	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	Seagate ST9160412AS 2.5' 160GB/5400rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAII	HITACHI Z5K320-160 2.5' 160GB/5400rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII	WD WD3200LPVX 2.5' 320G/7200rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII	WD WD6402AAEX SATAIII 3.5" 640GB/7200rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII	WD WD20EZR X SATAIII 3.5" 2TB/7200rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII	Seagate ST500DM002 SATAIII 3.5" 500GB/7200rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII	Seagate ST3000DM001-2Y/P SATAIII 3.5" 3TB/7200rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII	TOSHIBA DT01ACA050 500GB/7200rpm	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVD	ASUS BW-16D1HT	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SSD	Intel SSD 520 Series 120GB	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	Transcend.SSD420K 512GB 2.5" SATA3 SSD.TLC.		<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	AAEON P/N	Result	Note
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(a. Information and size should show correct value b. R/W and HDD LED should work properly)		Pass	Fail	N/A	
<b>Half Size</b>					
Transcend.TS32GMSM360 half size 32GB	CTOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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	AP-SS968C008 G1L	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.16GB 3ME3	AP-SS968C016 G3M	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.32GB 3ME3	AP-SS968C032 G3P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.64GB 3ME3	AP-SS968C064 G3D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Innodisk half size mSATA.128GB 3ME3	AP-SS968C128 G1T	<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"/>	

### 1.6. Monitor Compatibility Test

Monitor Information a. Monitor should display under DOS and OS environment. b. Monitor should not appear ghost or ripples.	Result			Note
	Pass	Fail	N/A	
<b>VGA</b>				
ASUS VG23AH 1920*1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	. (at least 3 monitors)
Dell 2710HM 2048*1152	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL U2410 1920*1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PHILIPS 288P 28' 3840* 2160	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VGA test by1920*1080



## 2. Basic Function Test

### 2.1. Video Function Test

#### 2.1.1. Single Output Function Test

Configuration													
CPU	Intel® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)												
Memory	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)												
SATA HDD	Intel 520 120GB SSD												
VGA	ASUS VG23AH 1920*1080												
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			DVI			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 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"/>	
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 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"/>	
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 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"/>	
1366X768	<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"/>	
1600X900	<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"/>	
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"/>	Dell P2416D
1680X1050	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1920X1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 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"/>	Dell P2416D
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"/>	<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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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

#### 2.1.2. Multi-Display 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"/>	

#### 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	
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

[ ] 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 RTL8111E-VL-CG					MAC Address		00-07-32-40-FF-C4	
OnBoard LAN2		Realtek RTL8111E-VL-CG					MAC Address		00-07-32-40-FF-C5	
LAN Speed	Link / Speed LED	Active LED	LAN 1			LAN 2			Note	
			Pass	Fail	N/A	Pass	Fail	N/A		

1000Mbps Ping loss $\leq$ 1			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
100Mbps Ping loss $\leq$ 1			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10Mbps Ping loss $\leq$ 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 type="checkbox"/>	<input type="checkbox"/>	Test by Multimeter
	+5V	<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 3. Test baud rate is 115200bps
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 3. Test baud rate is 115200bps.

### 2.6. LPT Port Test

Test Item	Result	Note
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	Pass	Fail	N/A	
XEROX Phaser 3124 Laser Printer	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 500GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Flash:	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"/>	
	Transcend JetFlash700 8GB USB3.0	<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:	Microsoft 1366	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB mouse:	Microsoft 1113	<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:	Transcend TS-HUB3K	<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"/>	

### 2.9. Jumper and Connector Function Test

[ ] No Support

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"/>		
Inverter voltage jumper support 5V / 12V selection.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Brightness control jumper	PWM mode support 0~100% modulation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DC mode support 0~100% modulation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COM_VSET jumper support 12V / 5V / RI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Clear CMOS will clear CMOS date , time , setting , password.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Buzzer and 4 pin	System boot: one short beep.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Speaker test	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"/>	
PS/2 KBMS, keyboard / mouse work properly under DOS and OS .		<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 GENx / 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.

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	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"/>	Full Slot
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"/>	Full Slot
Half size	Bointec DPE909-AA WIFI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Full Slot

#### 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® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)
Memory	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)
Storage	Intel 520 120GB SSD
O.S	Windows 10 Enterprise English Version 64Bit

### 4.1. Power Consumption

Test Equipment					
Equipment	Digital Multimeter				
Manufacturer	HOLA				
Model name	DM-1240				
Test Environment					
Adapter / power supply	be quiet Straight Power E7 Golden 550W/ATX				
AC / DC source	N/A				
Power Supply	Current	P		Note	
(Full Loading Mode) Windows with Prime 95 Full Loading Test	(+ 12 V)	3.30	A	39.6	W Prime95 Version 259
Full Loading Total Watt	39.6 (W)				
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(+ 12 V)	0.12	A	1.44	W
Suspend Total Watt	1.44 (W)				
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+ 12 V)	1.42	A	17.04	W CPU utilization must< 2% while idle mode
Idle Total Watt	17.04 (W)				
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(+ 12 V)	0.10	A	1.2	W Erp disable
Suspend Total Watt	1.2 (W)				
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(+ 12 V)	0.10	A	1.2	W Erp Enable
Suspend Total Watt	1.2 (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"/>	0.976 V	0.965 V	
(+) 12V Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.968 V	11.95 V	
(+) 5V Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.171 V	5.11 V	
VMEM Actual and monitor must be ±5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.22 V	1.224 V	
System Fan1 Speed Actual and monitor must be ±10%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7042 rpm	6869 rpm	
CPU DTS Temp Actual and monitor must be ±15°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27 °C	32 °C	
System Temp Actual and monitor must be ±5°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23 °C	24 °C	

### 4.3. Wide Voltage Test

#### 4.3.1. Wide Voltage Test

Test Point:

Confirm DUT can work on maximum and minimum voltage.

Test item (a. System should not hang or shutdown.) (b. System should boot up properly.)	DC Power (9V~30V)	Result			Note
		Pass	Fail	N/A	
Minimum voltage test: CPU full Loading for 3 minute. <Tool: Prime 95>	Min(+9V)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Maximum voltage test: G3(AC loss) cold boot over 10 cycles	Max(+24V)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### 4.3.2. DC Adapter Compatibility Test

Test Point:

Confirm each adapter can be compatible with wide voltage design.

Adapter Information (a. System boot to OS should work properly.)		AAEON P/N	Result			Note
			Pass	Fail	N/A	
9V	MEANWELL SE-100-9 9V/11.2A	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12V	FSP084-DIBAN2 84W	1255900841	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12V	FSP084-DMAA1 84W	1757908403	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
19V	FSP120-ABAN2 120W	1255901202	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
19V	FSP120-AAB 120W	1757912005	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
24V	SINPRO MPU100-108 100W	XXXXXXXXXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
30V	MEANWELL HRP-600-36 30V /17.5A	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

### 4.4. 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.	3.05	V	1.9	uA	13.5	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	0	Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RTC Clock in Power Off Mode		24 hrs	+/-2 sec	0	Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 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	5	Sec	

### 5.3. Watchdog Timer Test

Use Function as below: Hi-Safe(V2.2017.12.20)

[ ] No Support.

Time-Out Interval	Criteria	Actual		Result			Note
				Pass	Fail	N/A	
10 sec	+/- 10%	11	Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+/- 10%	63.1	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 4.10.0-28-generic x86\_64

Driver Information:

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

Install OS to SATA HDD/ mSATA Card:

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu16.04.2 Kernel 4.10.0-28-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	
<b>Display Function Test</b>				
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"/>	
VGA + LVDS1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VGA + LVDS2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	如 Linux default 可 support
LVDS1 + LVDS2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Network Function Test</b>				
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"/>	
<b>Audio Function Test</b>				
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"/>	
<b>Base Function Test</b>				
Mouse Test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Keyboard Test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Console Redirection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVD-ROM Test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<IDE / SATA / USB >
USB 2.0/3.0 Removable Devices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>X Windows Application</b>				
Start Button Office	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Office function
X-Window	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Startx – Desktop in Linux
<b>Command Test On Text Mode: Attention Delay Phenomenon</b>				
uname -a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Show information
Shutdown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Init 0 or shutdown -h now
Restart the Computer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Init 6 or shutdown -r now
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 7 Ultimate English Version 32/64Bit

32bit Driver Information	
Chipset Software	Intel Chipset Device Software 10.1.1(06/03/2015)
Graphics Media	Intel HD Graphics 530 20.19.15.4454 (05/04/2016)
Audio Driver	Realtek High Definition Audio 6.0.1.7541 (6/18/2015) Intel Display Audio 6.16.0.3196 (3/24/2016)
LAN Driver	Realtek PCIe GBIE Family Controller 7.101.714.2016 (07/14/2016)
64bit Driver Information	
Chipset Software	Intel Chipset Device Software 10.1.1(06/03/2015)
Graphics Media	Intel HD Graphics 530 20.19.15.4454 (05/04/2016)
Audio Driver	Realtek High Definition Audio 6.0.1.8036 (1/5/2017) Intel Display Audio 6.16.0.3196 (3/24/2016)
LAN Driver	Realtek PCIe GBIE Family Controller 7.101.714.2016 (07/14/2016)

### 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		
<b>Single Display</b>					
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"/>		
Multi display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<b>Basic Function Test</b>					
Usable memory	32bit: 16 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(2.19GB usable)
	64bit: 16 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
USB 2.0	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>LAN Function Test</b>					
LAN1 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<b>Audio Function Test</b>					
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"/>		
<b>Start Menu</b>					
Log off User	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shut down (S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 64Bit

64bit Driver Information (Kabylake platform)	
Chipset Software	Intel Chipset Device Software 10.1.1(06/03/2015)
Graphics Media	Intel HD Graphics 530 20.19.15.4454 (05/04/2016)
Audio Driver	Realtek High Definition Audio 6.0.1.8036 (1/5/2017)
	Intel Display Audio 8.20.0.922 (4/16/2016)
LAN Driver	Realtek PCIe GBIE Family Controller 7.101.714.2016 (07/14/2016)
64bit Driver Information (Skylake platform)	
Chipset Software	Intel Chipset Device Software 10.1.1(06/03/2015)
Graphics Media	Intel HD Graphics 530 20.19.15.4454 (05/04/2016)
Audio Driver	Realtek High Definition Audio 6.0.1.8036 (1/5/2017)
	Intel Display Audio 8.20.0.922 (4/16/2016)
LAN Driver	Realtek PCIe GBIE Family Controller 8.47.714.2016 (07/14/2016)

#### Install OS to SATA HDD/ mSATA Card:

Installation	Result			Note
	Pass	Fail	N/A	
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	
<b>Single Display</b>				
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"/>	
Multi display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Basic Function Test</b>				
Usable memory	32bit: MB	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	64bit: 16 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USB Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 2.0	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"/>	
<b>LAN Function Test</b>				
LAN1 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Audio Function Test</b>				
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"/>	
<b>Start Menu</b>				
Log off User	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shut down (S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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 64Bit

64bit Driver Information (KabyLake platform)	
Chipset Software	Intel Chipset Device Software 10.1.1(06/03/2015)
Graphics Media	Intel HD Graphics 630 23.20.16.4901 (12/18/2017)
Audio Driver	Realtek High Definition Audio 6.0.1.8036 (1/5/2017)
	Intel Display Audio 10.24.0.1 (10/26/2017)
LAN Driver	Realtek PCIe GBIE Family Controller 10.23.1003.2017 (10/03/2017)
64bit Driver Information (Skylake platform)	
Chipset Software	Intel Chipset Device Software 10.1.1(06/03/2015)
Graphics Media	Intel HD Graphics 530 20.19.15.4454 (05/04/2016)
Audio Driver	Realtek High Definition Audio 6.0.1.8036 (1/5/2017)
	Intel Display Audio 8.20.0.922 (04/16/2016)
LAN Driver	Realtek PCIe GBIE Family Controller 10.10.714.2016 (07/14/2016)

#### 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	
<b>Single Display</b>				
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"/>	
Multi display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Basic Function Test</b>				
Usable memory	32bit: 16 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	64bit: 16 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USB Mouse and Keyboard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
COM Port Mouse detect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 2.0 Removable Devices	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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>LAN Function Test</b>				
LAN1 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Audio Function Test</b>				
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"/>	
<b>Start Menu</b>				
Log off User	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shut down (S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)
Memory	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)
Storage	Intel 520 120GB SSD
O.S	Windows 10 Enterprise English Version 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		
*CPU configuration	Information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Hyper-threading	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
	Virtualization Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
	Speed Step	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable/Disable	
*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	
	IDE mode	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	AHCI mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	RAID mode	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Hot plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
USB configuration	Legacy USB Support	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
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 port3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Serial port6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
S5 RTC Wake up	Wake system with Dynamic time	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	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"/>	
	RI Wake Event	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
ERP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Digital IO Port	DIO0~7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Smart FAN	CPU_F Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4500rpm	

	AN1	Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0~255 Test with level 255/127/10/0
		Auto RPM Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Auto Duty-Cycle Mode	<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		
System Agent (SA) Configuration	Primary Display	Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		IGFX	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		PCI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Boot display	VBIOS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		CRT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		eDP/LVDS 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		LVDS2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Second display	Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		CRT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		eDP/LVDS 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		LVDS2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS	Enable/disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LVDS 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"/>	PWM: 100%=3.34V; 50%=1.71V; 0%=0V
	LVDS	Normal / inverted	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Color Depth		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18,24,36,48-Bit
	*Memory Configuration		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Max TOLUD		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dynamic 1G~3.25G
South Bridge	HD Audio	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enable /disable	
	Mini-Card Gen Speed(Full)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test with bear card	
	Mini-Card Gen Speed(Half)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test with bear card	

### 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"/>	
Launch PXE OpROM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UEFI Boot	<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 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 in P3 phase)

Test Item (Following item should work properly)		Result			Note
		Pass	Fail	N/A	
Version(2.2017.12.20)		<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 11 sec
	1min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 63.1 sec
	255sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 246 sec

	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"/>	0xA0
	Register offset	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x00
	Read Byte	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0x24
	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	Device 1 Brightness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Device 2 Brightness	<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"/>	

#### 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® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)
Memory	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)
Storage	Intel 520 120GB SSD
O.S	Windows 10 Enterprise English Version 64Bit

### 8.1. System Performance Test

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

Testing Software	Scope		Note
	AAEON	Ref.	
<b>PCMark 8 (Creative)</b>			Windows 10.1 (64bit)
PCMarks	3401		PCMarks
Test duration	50 min 01 s		
Web Browsing-Jungle Pin	0.31020 s		
Web Browsing-Amazonia	0.13318 s		
Video To Go part 1	6.10633 s		
Video To Go part 2	8037600 s		
Music To Go	9.43067 s		
Video Editing 4k part 1 conventional	13.78652 s		
Video Editing 4k part 2 conventional	161.81342 s		
Mainstream Gaming part 1	11.00 FPS		
Mainstream Gaming part 2	5.82 FPS		
Video Group Chat v2- Video Group Chat playback1 v2	30.01 fps		
Video Group Chat v2- Video Group Chat playback2 v2	30.02 fps		
Video Group Chat v2- Video Group Chat playback3 v2	30.01 fps		
Video Group Chat encoding v2	64 ms		
Advanced Photo Editing1	0.35415 s		
Advanced Photo Editing2	30.22785 s		

Testing Software	Scope		Note
	AAEON	Ref.	
<b>3DMark-v2-3-3693</b>			
<b>Sky Diver</b>			
Score	4471	-	
Graphics score	4127	-	
Graphics test 1	18.63 FPS		
Graphics test 2	19.07 FPS		
Physics score	8066	-	
8 threads	105.99 FPS	-	
24 threads	71.44 FPS		
48 threads	46.11 FPS		
96 threads	27.11 FPS		
Combined score	4292		
Combined test	17.67 FPS		

Fire Strike		
Score	1033	-
Graphics score	1133	-
Graphics test 1	5.06 FPS	
Graphics test 2	4.64 FPS	
Physics score	8950	-
Physics test	28.41 FPS	-
Combined score	361	
Combined test	1.68 FPS	

Testing Software	Scope		Note
	AAEON	Ref.	
<b>Performance Test 8.0</b>			
PassMark Rating	3215.5	-	
CPU Mark	7791	-	
2D Graphics Mark	666	-	
3D Graphics Mark	1151	-	
Memory Mark	2157	-	
Disk Mark	3959	-	
CD Mark	-	-	

## 8.2. Storage Performance Test

SATA Performance				
SATA SSD	Intel 520 SSD 120GB			
CPU	Intel® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)			
Memory	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)			
OS	Windows 10 Enterprise English Version 64Bit			
Item	Comment / (unit)	Software	Score	Note
SATAIII ports	Maximum Read	ATTO Disk Benchmark	544.12 MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	491.47 MB/s	

USB3.0/2.0 Performance				
USB Flash	Sundisk USB3.0 Extreme 64GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB3.0 ports	Maximum Read	ATTO Disk Benchmark	258.73 MB/s	
	Maximum Write	ATTO Disk Benchmark	24.24 MB/s	
USB2.0 ports	Maximum Read	ATTO Disk Benchmark	42.83 MB/s	
	Maximum Write	ATTO Disk Benchmark	18.85 MB/s	

mSATA performance				
mSATA	Transcend TS128GMSM360I 128GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
mSATA	Maximum Read	ATTO Disk Benchmark	506.48 MB/s	
	Maximum Write	ATTO Disk Benchmark	158.83 MB/s	

## 9. Stability test

Configuration	
CPU	Intel® Core™ i7-7700T Processor (8M Cache, up to 3.80 GHz)
Memory	Transcend DDR4-2400 16GB(SEC 622 K4A8G085WB BCRC)
Storage	Intel 520 120GB 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( 1020 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"/>	
	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"/>	

Remark:

### 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"/>	

### 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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> BIOS select " power on"

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

### 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 DDR4 2400 16GB x 1 (SPEC max support size).

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"/>	

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"/>	