

Report No: 17D010011

# SBI-001

## Siemens Basic IPC

### Box/Panel Motherboard

Board Level Product  
P5 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 <hr style="width: 100%;"/> 2017-09-05	QE Manager <hr style="width: 100%;"/> KJ Wang	Test Engineer <hr style="width: 100%;"/> Mike Lee
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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.	

**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	
Processor	Intel® Celeron® Processor N3160 (2M Cache, up to 2.24 GHz)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Memory	1 x SO-DIMM, 4GB up to 8GB, DDR3L-1333/1600MHz , non-ECC, un-buffered memory	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	S.O.C.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Super I/O	Fintek F81886D/F81966D	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network	I211AT Ethernet LAN with LED indicators 2 ports, 10M/100M/1000M; support Industrial Ethernet Fast Connect plugs. which supports the following features: TCP/IP-offload, Jumbo frames, Teaming functionality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage	1 x SATA 3.0, for HDD / SSD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio	Realtek® ALC887	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WatchDog Timer	1~255 step by software program	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics	Intel® Graphics Media Accelerator	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Graphics Multi Display	VGA(DB-15) &DP(DDI); support at least 2 channels:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VGA	support from 640*480 pixels to 1920*1200 pixels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP	support from 640*480 pixels to 1920*1200 pixels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS	Support dual channel 18/24 bit, up to 1366 x 768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Backlight Control	Yes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internal I/O	1 x SATA 3.0, for HDD / SSD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x DDR3L, 204 pin SO-DIMM slot	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x half-size Mini PCIe slot: PCIe 1 x full-size Mini PCIe slot: mSATA + USB signal totally power consumption is within 3.1W	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x CMOS Battery socket	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x RS-232 headers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x USB 2.0 headers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x backlight pin header	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x LVDS (x4) interface pin header, 30 pins LCD resolution up to 1366 x 768 for testing ,support for 12.1", 15.6", 18.5" LCD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
External I/O	For resistor touch: build on board 5-wire	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x COM Ports with RS-232 2 x COM Ports with RS-232/422/485 selectable via BIOS;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x USB 3.0 + 2 x USB 2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 X VGA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

	1 X DP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1x Audio Jack: Line-out, Mic Use combined port to save space on board	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2 x LAN (RJ45) ports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Power status LED (can be header to save space)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x HDD status LED (can be header to save space)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x Ethernet status LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x 2 pin DC in via phoenix connector on board	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1 x On-off switch Button combined (can be header to save space)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power requirement	DC Input: protect against reverse polarity 24V(-15%, +20%) is min. requirement;	<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 32/64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Windows10 English 32/64bit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows 10 32bit not support (Intel did not release UEFI mode Win10 32bit Graphics Driver)

### Platform Information

Item	Device Information	
Product of department	DMS	
PCB Model / Version	SBI-001 Rev 1.02	
BIOS / Version	SBI-001 V1.4 (08/03/2017)	
Driver folder	SBI-001\20170727	
CPU Type	Intel © Celeron © CPU N3160 @ 1.60GHz	
Memory Type	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)	
SATA SSD	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P	
SATA DVD-ROM	LITEON 24X(IHAS324)	
USB DVD-ROM	Pioneer 8X(DVR-XD11T)	
LCD Monitor	Philips 244E2SB/96 24"	
LVDS	INNOLUX 18.5" G185BGE-L01 CHIMEI G12111-L01 12.1"	
Operating System	<input checked="" type="checkbox"/>	Windows 7 Ultimate SP1 32/64Bit
	<input checked="" type="checkbox"/>	Windows 10 Enterprise English Version 32/64Bit
Power Supply	CINCON TRG70A240 24V/3A	
<b>Chipset Information</b>		
SOC Bridge	Intel Braswell-M/D	
Super IO Chipset	Fintek 81966	
Audio Chipset	Realtek ALC887	
Ethernet Chipset	Intel I211AT	

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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 ® CPU N3160 @ 1.60GHz	<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	
<b>DDR3L SO-DIMM</b>					
Transcend DDR3L-1600 2GB(SEC 501 BYMA K4B2G0846Q)	AP-DR968D3002GK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Transcend DDR3L-1600 4GB(SEC 446 XYKO K4B4G0846D)	AP-DR968D3004G6	<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-DR968D3002GX	<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"/>	

## 1.3. SATA Compatibility Test

### 1.3.1 Onboard SATA(IDE / AHCI) Test

SATA Device Information (Information and size should show correct value with IDE and AHCI mode)	AAEON P/N	Result			Note
		Pass	Fail	N/A	
<b>(Test with 80~100cm SATA cable , typical #1709070800)</b>					
SATAII TOSHIBA MK1676GSX 2.5" 160GB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAII HITACHI HTS543225A7A384 2.5" 250GB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WD WD10SPCX 2.5" 1TB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII HGST HTS541010A9E680 2.5" 1TB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WD WD5000BPKX 2.5" 500GB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII Seagate ST500DM002 3.5" 500GB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII WD WD20EZR 3.5" 2TB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SATAIII Seagate ST3000DM001 3.5" 3TB		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DVD BUFFALO BRXL-PC6U2		<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-SS968C016G3K	<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.DGS25-32GD81BC3DC-26	AP-SS968C032G1P	<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.DGS25-64GD81BC3QC-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-A28D81BC3QC-26	AP-SS968C128G1P	<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-B56D81BC3QC-26	AP-SS968C256G16	<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	
<b>Full Size</b>					
Transcend.TS16GMSA370 Full-size mSATA.16GB.MLC.	AP-SS968C016G2Z	<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"/>	

### 1.5. 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>				
View Sonic VT-2430-NT monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Philips 244E2SB/96 24"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BenQ BL2710PT 27"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Philips 288P6L 4K Ultra HD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL U2713HM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Display port</b>				
BenQ BL2710PT 27"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Samsung LU28D 28"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Asus PA238Q 23"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL U2713HM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DELL P2415Q	<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 ® Celeron ® CPU N3160 @1.60GHz									
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)									
SATA SSD	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P									
VGA	Philips 244E2SB/96 24"									
DP	BenQ BL2710PT 27"									
LVDS	INNOLUX 18.5" G185BGE-L01 1366x768									
Operating system	English Windows10 Enterprise 64bit									
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit									
Resolution	VGA			DP			LVDS			Note
	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"/>	
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"/>	
1152X864	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X600	<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"/>	
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"/>	
1280X768	<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"/>	
1280X800	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X960	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1280X1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1360X768	<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"/>	
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"/>	
1400X1050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1440X900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1600X900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1600X1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1680X1050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1920X1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1920X1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2048X1152	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2560X1440	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3840X2160	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
EDID check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hot plug	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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"/>	
DOS Display	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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 + DP	<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 + LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dual Display Clone	DP + LVDS	<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 + DP + LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Extended Desktop		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 2.1.3. Boot up Without Display Test

Process step:

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







### 2.1.4. LCD Panel Test

LVDS Panel Model (LVDS display should full screen and no flicker)			Result			Note
			Pass	Fail	N/A	
18bit	1280x800	CHIMEI G12111-L01 12.1"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	customer
24bit	1366x768	INNOLUX 18.5" G185BGE-L01	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	customer

### 2.2. Audio Function Test

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"/>	
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		Intel @ I211 Gigabit Network Connection				MAC Address		00-07-32-36-00-8D	
OnBoard LAN2		Intel @ I211 Gigabit Network Connection				MAC Address		00-07-32-36-00-8E	
LAN Speed	Link / Speed LED	Active LED	LAN 1			LAN 2			Note
			Pass	Fail	N/A	Pass	Fail	N/A	
1000MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
100MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wake On LAN			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S3/S4/S5
LAN Boot (PXE)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Internet Browser (DHCP Server)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Access 1GB file. Download from ftp http://xxx.xxx.14.125	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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### 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
	+5V	<input checked="" 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 COM1/2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use loopback and WINSSD.exe to test RS-422 in Windows
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. The communication between the RS-422 port of two boards is linked by one 1.2km cable on Windows Terminal. 2. Confirm RS422 can work properly from G3 status
RS-485 for COM1/2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. The communication between the RS-485 port of two boards is linked by one 1.2km cable on Windows Terminal 2. Confirm RS485 can work properly from G3 status

### 2.6. USB Port Integration Test

Item	USB Port	USB2.0 ports (under OS)			USB3.0 ports (under OS)			Note
		Pass	Fail	N/A	Pass	Fail	N/A	
USB HDD:	Transcend TS500GSJ25D3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Flash:	Transcend JetFlash 790	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Transcend JetFlash 810	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB DVD ROM:	Pioneer DVR-XD11T	<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 MSK-1113(B)	<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:	cliptec USB 2.0 4 port HUB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB3.0 HUB:	axpro USB 3.0 4 port HUB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 2.7. Touch Function Test

Test item	Result			Note
	Pass	Fail	N/A	

The calibrating result is correct.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
After touch panel is calibrated, drawing test result is precise enough.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Windows icon should work properly when used touch to execute.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Right-Click function should work properly.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Touch and right-click should work properly during Burnintest running	Windows7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BurninTest test item must include CPU/RAM/2D/3D/Video
	Windows10	<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		
Clear CMOS will clear CMOS date , time , setting , password.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CLRTC1	
COM_VSET jumper support 12V / 5V / RI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COM1_V1 / COM2_V1	
Power button	Press on power button for power on or power off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	>4sec for power off when system halt.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Reset button, system reset under DOS or Windows.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Power LED, active when system boot.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
HDD LED, active when SATA/mSATA access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

### 3. Expansion card and Application Test

#### 3.1. Expansion Slot Compatibility Test

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

Mini PCI Express Card		Result			Note
		Pass	Fail	N/A	
Full size	AzureWave RT2571WF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	USB signal
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"/>	

#### 3.2. Display port Converter Compatibility Test

Test Item			Result			Note
			Pass	Fail	N/A	
DP to HDMI converter: LPC-1504	DOS display	Full screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	OS display	Full screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max resolution
DP to DVI converter: LPC-1503	DOS display	Full screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	OS display	Full screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max resolution

## 4. Power Consumption Test

Configuration	
CPU	Intel ® Celeron ® CPU N3160 @ 1.60GHz
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P
O.S	English Windows10 Enterprise 64bit

### 4.1. Power Consumption

Test Equipment						
Equipment	DC POWER SUPPLY					
Manufacturer	Chroma					
Model name	62012P-600-8					
Power Supply		Current		P		Note
(Full Loading Mode) Windows 10 with Prime 95 Full Loading Test	(+24V)	0.45	A	10.8	W	Prime95 Version 259
Full Loading Total Watt	10.8 (W)					
S3 mode: Measure the current value when system in S3 mode of windows and without running any	(+24V)	0.04	A	0.96	W	
Suspend Total Watt	0.96 (W)					
Win. Idle mode: Measure the current value when system in windows mode and without running any program	(+24V)	0.31	A	7.44	W	
Idle Total Watt	7.44 (W)					
S5 mode: Measure the current value when system in S5 mode of windows and without running any	(+24V)	0.03	A	0.72	W	
Suspend Total Watt	0.72 (W)					

### 4.2. PC Health Status

Test Point:

Voltage deviation: ±5%.

Fan speed deviation: ±10%

CPU DTS Temp deviation: ±15°C

System Temp deviation: ±5°C

Voltage Monitoring Test	Result			BIOS (V)	Actual (V)	Note
	Pass	Fail	N/A			
System temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41°C	39.8°C	
CPU temperature(DTS)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40°C	39.7°C	
VCORE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+0.856	0.86	
(+) 3.3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+3.384	3.38	
(+) 5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+5.087	5.04	
(+) 12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+12.232	12.22	
VCC3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+3.392	3.37	

VSB3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+3.376	3.38	
VSB5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+5.064	5.05	
VBAT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+3.104	3.2	

### 4.3. Wide Voltage Test

#### 4.3.1. Wide Voltage Test

Test Point:

Test voltage range is follow specification (-15%, +20%)

Test Environment (a. System should boot properly (b. System wasn't halt in following status. )	DC Power (24V)	Current		Note
Windows 10 with Prime 95 Full Loading Test	(+20.4V)	0.61	A	
	(+28.8V)	0.41	A	
Windows 10 Without running any Software	(+20.4V)	0.36	A	
	(+28.8V)	0.30	A	

### 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.	3.17	V	2.8	uA	9.17	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: 26°C

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	+1 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 5.2. Booting Timer Test

Installation	Actual	Note
System Booting Time	21.63 Sec	Press the Power Button till "Customer Logo" appears

### 5.3. Watchdog Timer Test

Use Function as below: Hi-Safe 20170301

[ ] No Support.

Time-Out Interval	Criteria	Actual	Result			Note
			Pass	Fail	N/A	
10 sec	+/- 10%	10.65 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+/- 10%	60.67 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
255 sec	+/- 10%	255.66 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note : Under Room Temperature:26°C

## 6. O.S. Compatibility Test

### 6.1. Windows 7 Ultimate English Version 32/64Bit

32bit Driver Information	
Chipset Software	Intel ® Chipset Device Software 10.1.1 (6/3/2015)
Graphics Media	Intel ® HD Graphics 20.19.15.4501 (8/11/2016)
Audio Driver	Intel ® Display Audio 6.16.0.3197 (5/10/2016)
	Realtek High Definition Audio 6.0.1.7931 (9/7/2016)
LAN Driver	Intel ® I211 Gigabit Network Connection 12.13.27.0 (6/5/2015)
	Intel ® I211 Gigabit Network Connection #2 12.13.27.0 (6/5/2015)
64bit Driver Information	
Chipset Software	Intel ® Chipset Device Software 10.1.1 (6/3/2015)
Graphics Media	Intel ® HD Graphics 20.19.15.4501 (8/11/2016)
Audio Driver	Intel ® Display Audio 6.16.0.3197 (5/10/2016)
	Realtek High Definition Audio 6.0.1.7931 (9/7/2016)
LAN Driver	Intel ® I211 Gigabit Network Connection 12.13.27.0 (6/5/2015)
	Intel ® I211 Gigabit Network Connection #2 12.13.27.0 (6/5/2015)

#### 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"/>	
DP -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Basic Function Test</b>				
Usable memory	32bit: 1.91 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	64bit: 8 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 Removable Devices	USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Safe to remove icon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Touch Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<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 Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DP
<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"/>	

## 6.2. Windows 10 Enterprise English Version 32/64Bit

Windows 10 32bit not support (Intel did not release UEFI mode Win10 32bit Graphics Driver)

32bit Driver Information	
Chipset Software	N/A
Graphics Media	N/A
Audio Driver	N/A
LAN Driver	N/A
64bit Driver Information	
Chipset Software	Intel® Chipset Device Software 10.1.1 (6/3/2015)
Graphics Media	Intel® HD Graphics 20.19.15.4501 (8/11/2016)
Audio Driver	Intel® Display Audio 6.16.0.3197 (5/10/2016)
	Realtek High Definition Audio 6.0.1.7931 (9/7/2016)
LAN Driver	Intel® I211 Gigabit Network Connection 12.12.226.0 (5/4/2015)
	Intel® I211 Gigabit Network Connection #2 12.12.226.0 (5/4/2015)

Install OS to SATA HDD/ mSATA:

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

Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
<b>Single Display</b>				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DP-- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LVDS -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Basic Function Test</b>				
Usable memory	32bit: -	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	64bit: 8 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 Removable Devices	USB2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	USB3.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Safe to remove icon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Touch Function	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<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 Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DP
<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 ® Celeron ® CPU N3160 @1.60GHz
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P
O.S	English 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			
CPU configuration	Intel Virtualization Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled	
	EIST	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled	
	Turbo Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled	
SATA configuration	SATA Port 0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	SATA Port 1	<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"/>	Enabled/Disabled/Auto	
	USB3.0 Port 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled	
	USB3.0 Port 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled	
	USB2.0 Ports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled	
Hardware Monitor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
SIO configuration	Serial port 1~2	<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 3~6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Power Management	Restore AC Power Loss	Always on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Always Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		Last State	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Resume from network	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled		

### 7.2. Chipset Test

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
LVDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled/Detect By Jump
LVDS Panel Type	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
BackLight Level	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Controller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Enabled/Disabled

### 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"/>	
Boot mode select	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From Hard Disk	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB HDD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB Floppy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot From USB CD/DVD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot from LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LEGACY/UEFI
USB Key	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 7.4. CMOS Backup / Clear CMOS Test

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

### 7.5. AAEON Tag Check Utility

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

### 7.6. Administrator / 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(v2.2017.7.17)	<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"/>	
H/W Monitor	Info	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Voltage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
WatchDog	10sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 10.65sec
	1min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 60.67sec
	255sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Actual 255.66sec
	Auto Reload	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SMBus	SMBus IO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Device Address 0xA0h
	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	Brightness	<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), LVDS backlight control, USB ports, DP audio can work properly.	RS232/422/485	<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 audio	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.8.3 UEFI Mode Negative Test

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

## 8. Performance Test

Configuration	
CPU	Intel ® Celeron ® CPU N3160 @1.60GHz
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P
O.S	English Windows10 Enterprise 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 (64bit)
PCMarks	1197	-	PCMarks
Web Browsing-Jungle Pin	0.548 s	-	
Web Browsing-Amaonia	0.182 s	-	
Video Group Chat v2- Video Group Chat playback1 v2	30.0 fps	-	
Video Group Chat v2- Video Group Chat playback2 v2	30.0 fps	-	
Video Group Chat v2- Video Group Chat playback3 v2	30.0 fps	-	
Video Group Chat v2- Video Group Chat encoding v2	253.7 ms	-	
Photo Editing v2	1.867 s	-	
Batch Photo Editing v2	124.6 s	-	
Video Editing 1 v2	42.3 s	-	
Video Editing 2 v2	607.4 s	-	
Mainstream Gaming part 1	2.6 FPS	-	
Mainstream Gaming part 2	1.3 FPS	-	
Video To Go part 1	15.4 s	-	
Video To Go part 2	19.5 s	-	
Music To Go	31.90 s	-	
Benchmark duration	1 h 42 min 46 s	-	

Testing Software	Scope		Note
	AAEON	Ref.	
<b>3Dmark2006 v120</b>			
3Dmark Score	2128	-	
SM2.0 Score	746	-	
HDR/SM3.0 Score	786	-	
CPU Score	2305	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

<b>3Dmark11 Professional Edition</b>		
<b>Performance 1280*720 (Default)</b>		
3Dmark 11Score	P478	-
Graphics Score	422	-
Physics Score	1699	-
Combined Score	450	-

Testing Software	Scope		Note
	AAEON	Ref.	
<b>Performance Test 8.0</b>			
PassMark Rating	878.1	-	
CPU Mark	1741	-	
2D Graphics Mark	179.1	-	
3D Graphics Mark	258.4	-	
Memory Mark	715	-	
Disk Mark	3726	-	
CD Mark	-	-	

## 8.2. Storage Performance Test

SATA Performance				
SATA SSD	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P			
CPU	Intel ® Celeron ® CPU N3160 @1.60GHz			
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)			
OS	English Windows10 Enterprise 64bit			
Item	Comment / (unit)	Software	Score	Note
SATAIII	Maximum Read	ATTO Disk Benchmark	557.948 MB/s	SATAII 150~300MB SATAIII up 300M/B
	Maximum Write	ATTO Disk Benchmark	363.791 MB/s	

USB3.0/2.0 Performance				
USB Flash	Sony USB3.0 32GB			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
USB3.0	Maximum Read	ATTO Disk Benchmark	86.731 MB/s	
	Maximum Write	ATTO Disk Benchmark	21.487 MB/s	
USB2.0	Maximum Read	ATTO Disk Benchmark	41.682 MB/s	
	Maximum Write	ATTO Disk Benchmark	18.653 MB/s	

mSATA Performance				
mSATA	Transcend.TS32GMSA370 32GB.MLC			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
mSATA	Maximum Read	ATTO Disk Benchmark	224.252 MB/s	
	Maximum Write	ATTO Disk Benchmark	40.982 MB/s	
mSATA	Innodisk full size mSATA.128GB 3ME3			
Item	Comment / (unit)	Software	Transfer Rate (MB/s)	Note
mSATA	Maximum Read	ATTO Disk Benchmark	229.923 MB/s	
	Maximum Write	ATTO Disk Benchmark	137.190 MB/s	



## 9. Stability test

Configuration	
CPU	Intel © Celeron © CPU N3160 @1.60GHz
Memory	Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846D)
Storage	Innodisk 2.5".256GB.SATA MLC SSD 3MG2-P
O.S	English Windows10 Enterprise 64bit

### 9.1. Run In Test

Under Room Temperature:26°C

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"/>	X6
	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"/>	
	GPGPU	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	USB	2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X2

Note: COM PORT Speed Set to 115200.

### 9.2. Reboot Test

Under Room Temperature:26°C

OS: Windows 10 Enterprise English 64bit

Test Tool: Passmark rebooter.exe

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

### 9.3. ACPI G3 Cold Boot Test

Under Room Temperature:26°C

OS: DOS

Test Point:

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

Test item	Result			Note
	Pass	Fail	N/A	
G3(AC loss) cold boot over 1000 cycles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BIOS select "power on"

Setting: Power on- 50sec ; Power off- 20sec. <loss rate: 0 /1000 times>				or <input checked="" type="checkbox"/> Jumper setting auto power button
G3(AC loss) cold boot over 20 cycles Setting: Power on- 50sec ; 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. Memory Test

Under room temperature:26°C

OS: DOS

Tool: Memtest86+ V5.01 above

Memory information: DDR3L 1600 8GB x 1 (SPEC max support size).

Test item	Result			Note
	Pass	Fail	N/A	
Memory Test for 3 loops. <Memtest result should not error or hang.>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Remark: If system support UEFI mode only, the test tool is [Memtest86 Version 5.0 Experimental UEFI Beta]