

Report NO:12E010022

TKS-G50-QM77

Intel Ivy Bridge+PCH QM77/HM76 EmBox

P5 Verification Test Report

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

Issue date

2012/12/06

Approval

Tom Lin

Test Engineer

Mike Lee

Version Released Records

Date	Version	Change History	Note
2010/04/21	P3-1001	1. Re-composing test Items	
2010/06/01	P2P3-1001	1. New Test Report	
2010/06/21	P2P3-1002	1. Add BIOS -> SPI ROM Setting (South Bridge – GPIO)	
2010/12/02	P2P3-1003	1. New Test Report	
2011/02/23	P2P3-1101	1. Re-composing test Items	
2011/03/04	P2P3-1102	1. Add Specification Validation	

Note :

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

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

This test report will be updated when re-test completed in product next change version.

Specification Validation

Main Specification

Item	Specification	Result			Note
		Pass	Fail	N/A	
Product Name	TKS-G50-QM77	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Application	POS/KIOSK/Gaming/Digital Signage/ Transportation/ Vehicle system / Monitoring system	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CPU	Intel® Core™ i7/i5/i3/Celeron® (Socket-G2 based, ≤ 45W) PGA type (BGA type in the future)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chipset	Intel® QM77/HM76 PCH	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Memory	DDR3 1066/1333/1600, SODIMM x 1, Max. 8 GB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Display Interface	VGA - D-SUB 15 x 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage Device	SSD - Cfast x1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	HDD - 2.5" HardDisk Drive Bayx1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network	LAN - Intel 82579LM & Realtek RTL- 8111E, 10/100/1000 Base-TX Ethernet, RJ-45 x 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Wireless - 802.11b/g/n WiFi (Optional)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Front I/O	USB Host - USB2.0 Type A x 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port - COM x 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Audio - Line-out, Mic-in	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rear I/O	USB Host - USB3.0 Type A x2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	LAN - RJ-45 x 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Serial port - COM x 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	DIO - 8-bit (Programmable) x1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	KB/MS - Through USB port	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Expansion	Mini card - Mini Card x 1 (Internal)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Indicator	Front - Power LED x 1, HDD LED x 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Requirement	for DC type: ATX type, +12V Input	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power Consumption	TBD	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System Cooling	Easy Fan function support: 1.Fix Mode: Full Speed. 2.Auto Mode: Full Speed (≥ 55°C) and Low Speed (< 55°C)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mounting	Wallmount (optional)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

O.S. Support

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

Environmental Specifications

Item	Specification
Operating temperature	32°F~122°F(0°C ~ 50°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Anti-Vibration	1g rms/ 5 ~ 500Hz/ random operation
Anti-Shock	20g peak acceleration (11 msec. duration)

Certification	EMC - CE/FCC Class A
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Note: Please refer to Environment Test Report for detail information

Platform Information

Item	Device Information	Test Item
System Model/Version	TKS-G50-QM77	1,2,3,4,5,6,7,8
PCB Board	GENE-QM77 Rev A1.0	1,2,3,4,5,6,7,8
BIOS / Version	TKS-G50-QM77 R1.0(TG77AM10)(07/03/2012)	1,2,3,4,5,6,7,8
CPU Type	Intel ® Core™ i7-3610QE CPU @ 2.30GHz	1,2,3,4,5,6,7,8
Memory Type	Transcend DDR3 1333 8GB CL9-SEC 207 HYKO K4B4G0846B	1,2,3,4,5,6,7,8
SATA HDD	TOSHIBA SATA2 2.5" 100GB-MK1060GSC	1,2,3,4,5,6,7,8
USB DVD-ROM	Aopen EDR8865U	1,2,3,4,5,6,7,8
LCD Monitor	BENQ Q7T4 BENQ XL2420-B	1,2,3,4,5,6,7,8
CFast	INNODisk CFast 16GB-D150Q	1,2,3,4,5,6,7,8
Operating System	<input checked="" type="checkbox"/> English Ubuntu 10.10 – Kernel 2.6.35-22	6-1
	<input checked="" type="checkbox"/> Windows 7 Ultimate 32/64Bit	6-2
	<input checked="" type="checkbox"/> Windows XP Professional English SP3 32 Bit	6-3
Power Supply	AC/DC Adapter FSP120-AHAN1 AC Input:100-240V 2.0A 50-60Hz DC Output:12V 10A	1,2,3,4,5,6,7,8
Chipset Information with 7 Ultimate SP1 English Version 32 Bit Driver Version		
Chipset Software	Intel ® Core™ i7-3610QE CPU @ 2.30GHz 6.1.7600.16385(6/21/2006)	
South Bridge	Intel ® HM76 PCH	
Super IO Chipset	COM 1 / COM 2→ITE 8728 COM 3 / COM 4→Fintek F81216DG	
VGA Chipset	Intel ® HD Graphics 4000 8.15.10.2653(2/14/2012)	
Audio Chipset	Realtek ALC-892 High Definition Audio 6.0.1.6363(5/3/2011)	
Ethernet Chipset	Realtek RTL-8111E PCIe GBE Family Controller 7.50.1123.2011(11/23/2011)	
	Intel ® 82579LM Gigabit Network Connection 11.13.51.0(7/20/2011)	
	Atheros AR9002WB-1NG Wireless Network Adapter 9.2.0.458(10/3/2011)	

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1. OSD Control Function Test

1.1. OSD Light Test

OSD Control Function	Function			Note
	Pass	Fail	N/A	
Power off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stand by	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.2. Modular System Industrial Workstation Function Test

Test Item	Result			Note
	Pass	Fail	N/A	
AC power outlet / inlet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power On / Off	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Power LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H.D.D LED	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1.3. Mechanism construction check

Test Item	Result			Note
	Pass	Fail	N/A	
Case construction check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C-Fast construction check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Component check	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2. Basic Function Test

2.1. Video Function Test

2.1.1. Single Output Function Test

Hardware Information with 7 Ultimate SP1 English Version 32 Bit Driver Version				
CPU	Intel® Core™ i7-3610QE CPU @ 2.30GHz			
Memory	Transcend DDR3 1333 8GB CL9-SEC 207 HYKO K4B4G0846B			
SATA HDD	TOSHIBA SATA2 2.5" 100GB-MK1060GSC			
VGA	BENQ XL2420-B			
Color Quality	<input checked="" type="checkbox"/> 16bit <input type="checkbox"/> 24bit <input checked="" type="checkbox"/> 32bit			
Resolution	VGA			Note
	Pass	Fail	N/A	
640X480	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
800X600	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1024X768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1152X864	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1280X768	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1280X1024	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1400X1050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1600X900	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1600X1200	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1680X1050	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1920X1080	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Rotation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rotation (0 / 90 /180 /270)

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

2.1.2. Video Resolution Test

Test points:

1. Power on without inserting any VGA connector until system reaches Windows desktop
2. Plug VGA connector into test machine while system reaches Windows then check VGA driver and display
3. Check VGA output Brightness to if it is normal, no "Ghost Image" / "Flicker"

	Result			Note
	Pass	Fail	N/A	
In Windows Desktop	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	







2.2. Audio Function Test

[] No Support

Function Test	Result			Note
	Pass	Fail	N/A	
L (Left) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
R (Right) Channel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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)										
1000MBps LAN HUB		D-Link DGS-1008D								
100MBps LAN HUB		HP J4095A 24 Ports								
10MBps LAN HUB		SVEC FD916H								
On Board LAN1		Realtek PCIe GBE Family Controller					MAC Address		00-07-32-1C-E4-03	
On Board LAN2		Intel ® 82579LM Gigabit Network Connection					MAC Address		00-07-32-78-04-09	
LAN Speed	Link / Speed LED	Active LED	LAN 1			LAN 2			Note	
			Pass	Fail	N/A	Pass	Fail	N/A		
1000MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
100MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10MBps			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Wake On LAN			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
LAN Boot (PXE)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Internet Browser (DHCP Server)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

2.3.2. Throughput Test

DUT Platform Information:

<input type="checkbox"/>	Fedora Core 13
<input type="checkbox"/>	Cent 5.5
<input checked="" type="checkbox"/>	Ubuntu 10.10 – Kernel 2.6.35-22
<input type="checkbox"/>	Red Hat

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

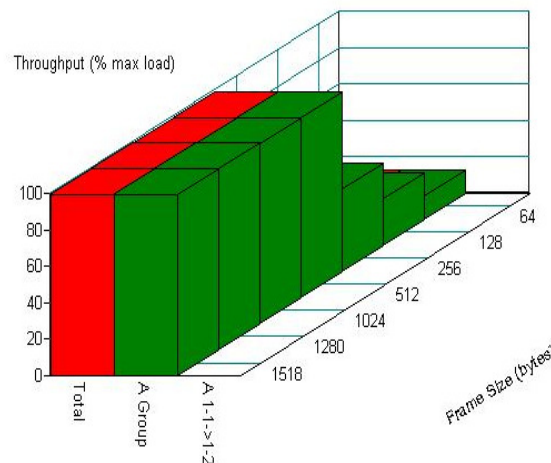
Graphics Media	Ubuntu Default setting
LAN	LAN1 → Realtek PCIe GBE Family Controller Ethernet: r8168-8.023.00.tar.bz2
	LAN2 → Intel ® 82579LM Gigabit Network Connection Ethernet: e1000e-1.3.10a.tar.gz
Audio Driver	Ubuntu Default setting

SMB Platform Information:

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

Test Result:

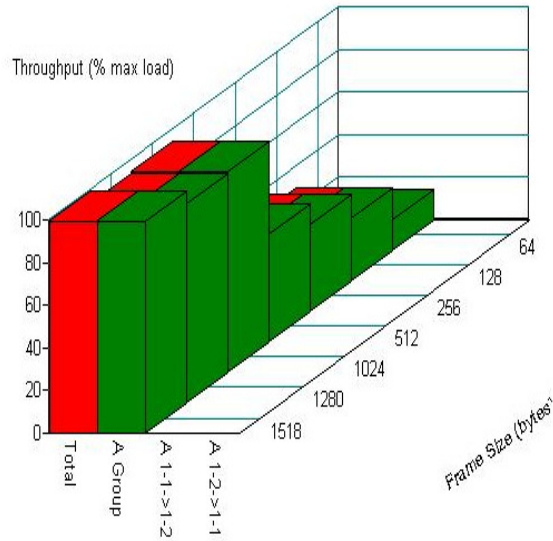
1.Half Direction (LAN1: Realtek PCIe GBE Family Controller 10/100/1G Ethernet → LAN2: Intel ® 82579LM Gigabit Network Connection 10/100/1G Ethernet)



Throughput vs Frame Size

Name/Frame size	64	128	256	512	1024	1280	1518
Total	12.6015625	24.9765625	45.0859375	98.453125	98.453125	99.2265625	99.2265625
A Group	12.6015625	24.9765625	45.0859375	98.453125	98.453125	99.2265625	99.2265625
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2.Binary Direction (LAN1: Realtek PCIe GBE Family Controller 10/100/1G Ethernet → LAN2: Intel ® 82579LM Gigabit Network Connection 10/100/1G Ethernet)



Throughput vs Frame Size

<u>Name/Frame size</u>	<u>64</u>	<u>128</u>	<u>256</u>	<u>512</u>	<u>1024</u>	<u>1280</u>	<u>1518</u>
Total	14.1484375	28.84375	40.4453125	49.7265625	93.8125	93.0390625	99.2265625
A Group	14.1484375	28.84375	40.4453125	49.7265625	93.8125	93.0390625	99.2265625
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2.4. Optional Function Test

[] No Support

Function Test	Result			Note
	Pass	Fail	N/A	
Wireless LAN (AzureWave IEEE802.11/b/g/n+IEEE802.15 (BlueTooth)-AW-NB037)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bluetooth (AzureWave IEEE802.11/b/g/n+IEEE802.15 (BlueTooth)-AW-NB037)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. Integration Test

Hardware Information with 7 Ultimate SP1 English Version 32 Bit Driver Version	
CPU	Intel® Core™ i7-3610QE CPU @ 2.30GHz
Memory	Transcend DDR3 1333 8GB CL9-SEC 207 HYKO K4B4G0846B
SATA HDD	TOSHIBA SATA2 2.5" 100GB-MK1060GSC
Chipset Information with 7 Ultimate SP1 English Version 32 Bit Driver Version	
Chipset Software	Intel® Core™ i7-3610QE CPU @ 2.30GHz 6.1.7600.16385(6/21/2006)
South Bridge	Intel® HM76 PCH
Super IO Chipset	COM 1 / COM 2→ITE 8728 COM 3 / COM 4→Fintek F81216DG
VGA Chipset	Intel® HD Graphics 4000 8.15.10.2653(2/14/2012)
Audio Chipset	Realtek ALC-892 High Definition Audio 6.0.1.6363(5/3/2011)
Ethernet Chipset	Realtek RTL-8111E PCIe GBE Family Controller 7.50.1123.2011(11/23/2011)
	Intel® 82579LM Gigabit Network Connection 11.13.51.0(7/20/2011)
	Atheros AR9002WB-1NG Wireless Network Adapter 9.2.0.458(10/3/2011)

3.1. USB Port Integration Test

Item	USB Port	Boot			Function(Win 7)			Note
		Pass	Fail	N/A	Pass	Fail	N/A	
USB HDD		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB FDD Mitsumi D353GUE		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SONY USB2.0 DVD-R/W DRX-830UL		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB Hub Test (Connect USB Device) HUB Port1: USB Keyboard / HUB Port2: USB Mouse / HUB Port3: USB HDD								
USB 2.0 HUB PowerSync / USB 2.0 4 Port HU-155					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.2. Digital I/O Port Test

DIO Address (0X0A06 / 0X0A07)	Result			Note
	Pass	Fail	N/A	
DIO VCC +5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.3. COM Port Integration Test

Test Item	Result			Note
	Pass	Fail	N/A	
Serial Modem Dial Out	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Serial Modem Ring In	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Test by Modem

3.4. RS-422 / RS-485 Test

Test Item	Result			Note
	Pass	Fail	N/A	
RS-422 for COM2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use loopback and WINSSD.exe to test RS-422 in Windows
RS-485 for COM2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Use ICP CON I-7044D D/IO Module in Windows(Support Auto flow control)
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The communication between the RS-485 port of two boards is linked by one 1.2km cable on Windows Terminal

3.5. Burn In Test

Under Room Temperature: 26 °C

Test Item	Result			Note
	Pass	Fail	N/A	
BurnIn Test V7.0 Pro	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Windows 7 Ultimate SP1 English Version 32 Bit

Note: COM PORT Speed is set to 9600 bauds.

4. Power Consumption Test

Hardware Information with 7 Ultimate SP1 English Version 32 Bit Driver Version	
CPU	Intel ® Core™ i7-3610QE CPU @ 2.30GHz
Memory	Transcend DDR3 1333 8GB CL9-SEC 207 HYKO K4B4G0846B
SATA HDD	TOSHIBA SATA2 2.5" 100GB-MK1060GSC

4.1. PC Health Status

Test Point: The value between Actual Voltage and Voltage Monitor must be +/- 5%

Voltage Monitoring Test	Result			BIOS (V)	Note
	Pass	Fail	N/A		
CPU Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+44°C	
PCH Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+33°C	
System Temperature	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+31°C	
CPU FAN Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4821RPM	
CPU_VCORE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+1.056V	
VCC_DIMM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+1.524V	
12V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+12.106V	
5V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+5.110V	
3.3V	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+3.276V	
5VSB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+5.020V	
VBAT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	+3.264V	

5. Time Accuracy Test

5.1. System Clock & RTC Clock Test

Under Room Temperature: 26 °C

Function	Item	Time Interval	Margin for error	Actual	Result			Note
					Pass	Fail	N/A	
RTC Clock in Power On Mode		24 hrs	+/-2 sec	-2 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	3.90 Sec	Press the Power Button till "Beep" Sound appears

5.3. Watchdog Timer Test

Use Function as below: TG77AWDT.EXE

[] No Support.

Time-Out Interval	Margin for error	Actual	Result			Note
			Pass	Fail	N/A	
10 sec	+ / - 10 %	9.83 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
60 sec	+ / - 10 %	59.96 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
255 sec	+ / - 10 %	255 Sec	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note : Under Room Temperature: 26°C / DOS Mode

6. O.S. Compatibility Test

6.1. English Ubuntu 10.10 – Kernel 2.6.35-22

[] No Support

Driver Information:

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

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu 10.10 – Kernel 2.6.35-22	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Type uname -a

Test Result:

Test Item	Result			Note
	Pass	Fail	N/A	
Display Function Test				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Network Function Test				
Connect to Internet – LAN 1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connect to Internet – LAN 2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wireless LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Function Test				
Play Audio Function Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Play Audio Test For Line out / Mic (OS: Ubuntu 11.10)
Base Function Test				
Mouse Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Keyboard Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
USB 2.0 Removable Devices	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X Windows Application				
Start Button Office	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Office function
X-Window	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Startx – Desktop in Linux
Command Test On Text Mode: Attention Delay Phenomenon				
uname -a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Show information
Shutdown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Init 0 or shutdown -h now
Restart the Computer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Init 6 or shutdown -r now
Halt	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Power Off Mode
ls / clear; cd /dev /ls -l	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Command instruction

6.2. Windows 7 Ultimate English Version 32/64Bit

[] No Support

[X] x32 Driver Information:

Chipset Software	Intel ® Core™ i7-3610QE CPU @ 2.30GHz 6.1.7600.16385(6/21/2006)
Graphics Media	Intel ® HD Graphics 4000 8.15.10.2653(2/14/2012)
Audio Driver	Realtek ALC-892 High Definition Audio 6.0.1.6363(5/3/2011)
LAN Driver	Realtek RTL-8111E PCIe GBE Family Controller 7.50.1123.2011(11/23/2011)
	Intel ® 82579LM Gigabit Network Connection 11.13.51.0(7/20/2011)
	Atheros AR9002WB-1NG Wireless Network Adapter 9.2.0.458(10/3/2011)

[X] x64 Driver Information:

Chipset Software	Intel ® Core™ i7-3610QE CPU @ 2.30GHz 6.1.7600.16385(6/21/2006)
Graphics Media	Intel ® HD Graphics 4000 8.15.10.2653(2/14/2012)
Audio Driver	Realtek ALC-892 High Definition Audio 6.0.1.6363(5/3/2011)
LAN Driver	Realtek RTL -8111E PCIe GBE Family Controller 7.50.1123.2011(11/23/2011)
	Intel ® 82579LM Gigabit Network Connection 11.13.51.0(7/20/2011)
	Atheros AR9002WB-1NG Wireless Network Adapter 9.2.0.458(10/3/2011)

Install OS to SATA HDD/ C-Fast:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows 7 Ultimate ACPI Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
Single Display				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot - Windows 7 Ultimate Advanced Options Menu				
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Basic Function Test				
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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN Function Test				
LAN1 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wireless LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Function Test				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Start Menu				
Log off User	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shut down (S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Standby	<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 XP SP3 English Version 32Bit

[] No Support

[X] x32 Driver Information:

Chipset Software	Intel ® Core™ i7-3610QE CPU @ 2.30GHz 5.1.2600.0(4/1/2004)
Graphics Media	Intel ® HD Graphics 4000 6.14.10.5398(1/16/2012)
Audio Driver	Realtek ALC-892 High Definition Audio 5.10.0.6363(5/3/2011)
LAN Driver	Realtek RTL-8111E PCIe GBE Family Controller 5.792.1208.2011(12/8/2011)
	Intel ® 82579LM Gigabit Network Connection 11.13.51.0(7/20/2011)
	Atheros AR9002WB-1NG Wireless Network Adapter 9.2.0.458(10/4/2011)

Install OS to SATA HDD / C-Fast:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows XP SP3 ACPI Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
Single Display				
VGA -- Full Screen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Boot - Windows XP Ultimate Advanced Options Menu				
Safe Mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Basic Function Test				
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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN Function Test				
LAN1 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN2 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wireless LAN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audio Function Test				
Line Out Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Microphone Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Start Menu				
Log off User	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Shut down (S5)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Standby	<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

Hardware Information with 7 Ultimate SP1 English Version 32 Bit Driver Version	
CPU	Intel® Core™ i7-3610QE CPU @ 2.30GHz
Memory	Transcend DDR3 1333 8GB CL9-SEC 207 HYKO K4B4G0846B
SATA HDD	TOSHIBA SATA2 2.5" 100GB-MK1060GSC

7.1. Boot Sequence Test

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

7.2. Power Management Test

7.2.1. ACPI Power Management Test

Test Item	Result			Note
	Pass	Fail	N/A	
Enable ACPI Auto Configuration	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enable Hibernation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	From Windows 7
ACPI - S1 (POS)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Resume from USB keyboard or mouse / Power button
ACPI - S3 (STR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Suspend Disable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.3. Power On after Power Failure Test

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

7.4. AAEON Tag Check Utility

Test Item	Result			Note
	Pass	Fail	N/A	
Check AAEON BIOS OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AONCHECK.EXE

7.5. IAMT Function Test

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

7.6. Supervisor / User Password Test

Test Item	Result			Note
	Pass	Fail	N/A	
Supervisor Password	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
User Password	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8. Performance Test

Hardware Information with 7 Ultimate SP1 English Version 32 Bit Driver Version	
CPU	Intel ® Core™ i7-3610QE CPU @ 2.30GHz
Memory	Transcend DDR3 1333 8GB CL9-SEC 207 HYKO K4B4G0846B
SATA HDD	TOSHIBA SATA2 2.5" 100GB-MK1060GSC

8.1. Performance Test

Test Result: (Display set 1920*1080 test)

Testing Software	Scope		Note
	AAEON	Ref.	
PCMark2002			Only for Windows 7
CPU	N/A	-	
Memory	54548	-	
HDD	1467	-	
Benchmark (A)	-	-	
PCMark2005			Windows 7
PCMark	9291	-	PCMarks
CPU	11904	-	
Memory	7645	-	
Graphics	5043	-	
HDD	4262	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
3Dmark2003 v360			Only for Windows 7
3Dmark Score	4476	-	
CPU Score	1968	-	
Benchmark (A)	-	-	
3Dmark2006 v120			Windows 7
3Dmark Score	3351	-	
CPU Score	6156	-	
SM2.0 Score	1072	-	
HDR/SM3.0 Score	1284	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
Final Reality V1.01—BenchMark Test			Windows 7
2D image	61.29	-	Reality marks
3D	6.48	-	
Bus transfer	54.98	-	
Overall	30.20	-	
Benchmark (A)	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
PCMark7			
PCMark	2352	-	
CPU	-	-	
Memory	-	-	
HDD	-	-	
Benchmark (A)	-	-	
PCMark Vantage			
PCMarks	7485	-	PCMarks
TV and Movies	5305	-	
Memories	3986	-	
Gaming	4645	-	
Music	6232	-	
Communications	9004	-	
Productivity	5412	-	
HDD	2530	-	
Benchmark (B)	-	-	
Average Efficiency	-	-	

Testing Software	Scope		Note
	AAEON	Ref.	
Performance Test 7.0			
PassMark Rating	1199.1	-	
CPU Mark	6778.8	-	
2D Graphics Mark	353.1	-	
3D Graphics Mark	355.8	-	
Memory Mark	1163.6	-	
Disk Mark	349.1	-	
Benchmark (A)	-	-	