

Report NO: 14I010013

PER-C38L

INTEL i350-AM4 PCI-Express 1G Ethernet Module

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

2014/09/16

Approval

Tom Lin

Test Engineer

Leo Liu

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	P2P2-1003	1. New Test Report	
2011/02/23	P2P3-1101	1. Re-composing test Items	
2011/03/04	P2P3-1102	1. Add Specification Validation	
2012/05/29	P2P3-1201	1. Add Summary Table of DTS	
2012/11/30	P2P3-1202	1. Rename P2/P3 Test Plan & Report Template 2. Add 7.3. Windows XP Professional English Version 32/64Bit	

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	
Product Name	PER-C38L	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Form Factor	1G LAN Module	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Main Chipset	1 x INTEL® i350-AM4 Ethernet Controller	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Host Interface	PCI Express [x8]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN Port	8 x RJ-45 GbE Connector	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Indicator	8 x LED for Active/Link	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Qualification	CE/FCC Class A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Operation Temp.	0°C ~40°C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Dimension	137.8(L) x 88(W) mm	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

O.S. Support

Item	Specification	Result			Note
		Pass	Fail	N/A	
Microsoft Windows	Windows Server 2008 64 bit	<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 Kernel 2.6.X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Platform Information







Item	Device Information	Test Item
NIM module	PER-C38L A0.1	1,2,3
System Model/Version	FWS-7350 A1.0	1,2,3
CPU Board	FWB-7350 A0.3	1,2,3
Carrier Board	N/A	N/A
BIOS / Version	FWS-7350 R0.D(K735AM0D) (05/14/2014)	1,2,3
CPU Type	Intel Atom 2.40GHz	1,2,3
Memory Type	Transcend DDR3-1600 8GB (Hynix H5TC4G83AFR)	1,2,3
SATA HDD	WD 2.5" 160GB(WD1600BEVT)	1,2,3
SATA DVD-ROM	N/A	N/A
USB DVD-ROM	Pioneer 8X (DVR-XD11T)	1,2,3
LCD Monitor	View Sonic VT-2430-NT monitor	1,2,3
LVDS	N/A	N/A
CF-IDE interface	N/A	N/A
CF-SATA interface	N/A	N/A
Daughter Board	N/A	N/A
Expansion Board	N/A	N/A
Operating System	<input checked="" type="checkbox"/> English Ubuntu 12.04 Kernel 3.8.0-29	3-1
	<input checked="" type="checkbox"/> Windows Server 2008 R2 64bit	3-2
	<input checked="" type="checkbox"/> Windows 7 Ultimate 32bit/64bit	3-3
	<input type="checkbox"/> Windows XP Professional English SP3 32bit/64bit	N/A
Power Supply	ATX Power Supply : FSP250-50LC	1,2,3
	AT Power Supply: N/A	N/A
	DC Adapter :N/A	N/A
Battery Model	N/A	N/A
Chipset Information with Windows 7 Ultimate English Version 32Bit Driver Version		
Chipset Software	Intel(R) Chipset Device Software 9.4.0.1016(1/11/2013)	
South Bridge	Intel® C226	
Super IO Chipset	IT8728F	
VGA Chipset	Intel® HD Graphics P4600/P4700 9.18.10.3107(04/11/2013)	
Audio Chipset	N/A	
Ethernet Chipset	Intel(R) Gigabit CT Desktop Adapter 12.4.38.0(11/29/2012)	
I350 Ethernet	Intel(R) I350 Gigabit Network Connection 12.4.36.0(11/15/2012)	

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1. LAN Function Test

1.1 Basic Function test

Connect two computers via different speed LAN HUB by using "Ping" instruction (1000 times)										
1000MBps LAN HUB		ZxXEL GS-105S								
100MBps LAN HUB		Accton CheetahSwitch Desktop-3005								
10MBps LAN HUB		SVEC FD916H								
OnBoard LAN1	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-8B		
OnBoard LAN2	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-8C		
OnBoard LAN3	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-8D		
OnBoard LAN4	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-8E		
OnBoard LAN5	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-87		
OnBoard LAN6	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-88		
OnBoard LAN7	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-89		
OnBoard LAN8	Intel(R) i350-AM4 Gigabit LAN Controller						MAC Address	00-A0-C9-00-00-8A		
LAN Speed	Link / Speed LED	Active LED	LAN 1,2,3,4			LAN 5,6,7,8			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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	S1/S3/S4/S5/DOS off	
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"/>		
LAN1-LAN2(BIOS) bypass1 function	Power on		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Power off		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
LAN3-LAN4(BIOS) bypass2 function	Power on		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Power off		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
LAN5-LAN6(BIOS) bypass3 function	Power on		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Power off		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
LAN7-LAN8(BIOS) bypass4 function	Power on		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
	Power off		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

1.2 Throughput Test

DUT Platform Information:

<input type="checkbox"/>	Fedora Core 13
<input type="checkbox"/>	Cent OS5.6
<input checked="" type="checkbox"/>	Ubuntu 12.04
<input type="checkbox"/>	Red Hat

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

Graphics Media	Ubuntu 12.04 Default setting
LAN1	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN2	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN3	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN4	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN5	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN6	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN7	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
LAN8	Intel(R) i350-AM4 Gigabit LAN Controller : Ubuntu Default setting
Audio Driver	N/A

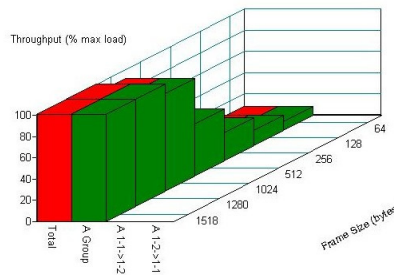
SMB Platform Information:

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:

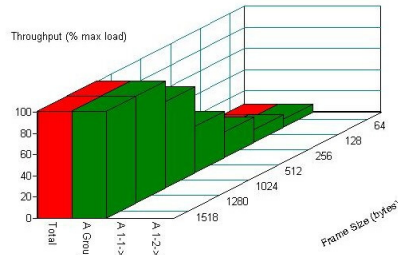
MB: FWS-7350

- Binary Direction(LAN1 Intel(R) i350-AM4 Gigabit LAN ⇔ LAN2 Intel(R) i350-AM4 Gigabit LAN)



Name/FrameSize	64	128	256	512	1024	1280	1518
Total	7.9609375	14.1484375	25.75	48.1796875	91.4921875	100	100
A Group	7.9609375	14.1484375	25.75	48.1796875	91.4921875	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

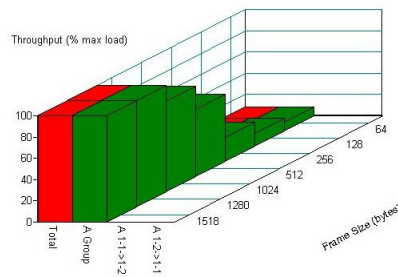
2. Binary Direction(LAN3 Intel(R) i350-AM4 Gigabit LAN ↔ LAN4 Intel(R) i350-AM4 Gigabit LAN)



Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	7.1875	11.828125	23.4296875	43.5390625	80.6640625	100	100
A Group	7.1875	11.828125	23.4296875	43.5390625	80.6640625	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

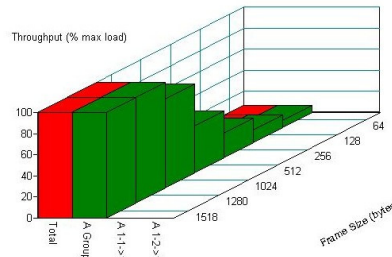
3. Binary Direction(LAN5 Intel(R) i350-AM4 Gigabit LAN ↔ LAN6 Intel(R) i350-AM4 Gigabit LAN)



Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	7.9609375	11.828125	21.8828125	62.875	84.53125	100	100
A Group	7.9609375	11.828125	21.8828125	62.875	84.53125	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

4. Binary Direction(LAN7 Intel(R) i350-AM4 Gigabit LAN ↔ LAN8 Intel(R) i350-AM4 Gigabit LAN)



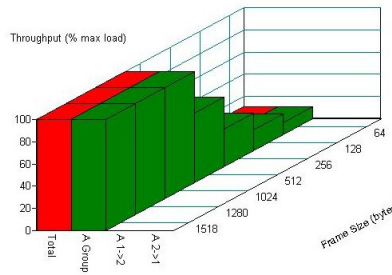
Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	6.4140625	11.828125	22.65625	44.3125	83.7578125	100	100
A Group	6.4140625	11.828125	22.65625	44.3125	83.7578125	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Test Result:

MB: FWS-7810

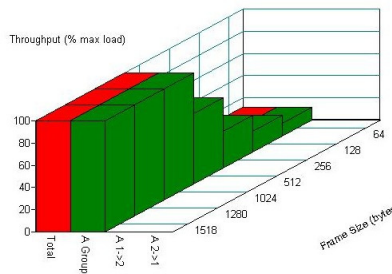
1. Binary Direction(LAN7 Intel(R) i350-AM4 Gigabit LAN ↔ LAN8 Intel(R) i350-AM4 Gigabit LAN)



Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	10.28125	18.015625	33.484375	62.1015625	100	100	100
A Group	10.28125	18.015625	33.484375	62.1015625	100	100	100
A 1->2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 2->1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

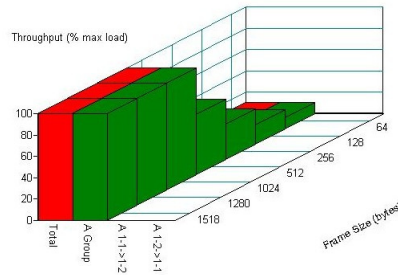
2. Binary Direction(LAN7 Intel(R) i350-AM4 Gigabit LAN ↔ LAN8 Intel(R) i350-AM4 Gigabit LAN)



Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	11.0546875	18.015625	32.7109375	62.875	100	100	100
A Group	11.0546875	18.015625	32.7109375	62.875	100	100	100
A 1->2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 2->1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

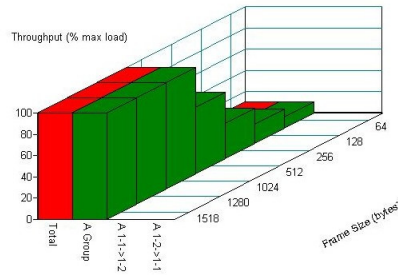
3. Binary Direction(LAN7 Intel(R) i350-AM4 Gigabit LAN ↔ LAN8 Intel(R) i350-AM4 Gigabit LAN)



Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	10.28125	18.015625	32.7109375	55.9140625	100	100	100
A Group	10.28125	18.015625	32.7109375	55.9140625	100	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

4. Binary Direction(LAN7 Intel(R) i350-AM4 Gigabit LAN ↔ LAN8 Intel(R) i350-AM4 Gigabit LAN)



Throughput vs Frame Size

Name/FrameSize	64	128	256	512	1024	1280	1518
Total	10.28125	18.015625	32.7109375	62.1015625	100	100	100
A Group	10.28125	18.015625	32.7109375	62.1015625	100	100	100
A 1-1->1-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-2->1-1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2. O.S. Compatibility Test

2.1. English Ubuntu 12.04– Kernel 3.8.0-29-generic

[] No Support

Driver Information:

Chipset Software	Ubuntu 12.04 default driver
Graphics Media	Ubuntu 12.04 default driver
LAN Driver	Intel(R) i350-AM4 Gigabit LAN: Ubuntu 12.04 default driver

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu 12.04 Kernel 3.8.0-29-generic	<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				
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"/>	
Connect to Internet – LAN 3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connect to Internet – LAN 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connect to Internet – LAN 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connect to Internet – LAN 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connect to Internet – LAN 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connect to Internet – LAN 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.2. Windows Server 2008 R2 Enterprise-English Version 64Bit

[X] x64 Driver Information:

Chipset Software	Intel(R) Chipset Device Software 9.4.0.1016(1/11/2013)
Graphics Media	Intel® HD Graphics 4600 9.18.10.3107(04/11/2013)
LAN Driver	Intel(R) I350 Gigabit Network Connection 12.4.36.0(11/15/2012)

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows Server 2008 R2 mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Test Results:

Test Item	Result			Note
	Pass	Fail	N/A	
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"/>	
LAN3 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN4 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN5 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN6 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN7 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN8 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.3. Windows 7 Ultimate English Version 32/64Bit

[X] x32 Driver Information:

Chipset Software	Intel(R) Chipset Device Software 9.4.0.1016(1/11/2013)
Graphics Media	Intel® HD Graphics 4600 9.18.10.3107(04/11/2013)
LAN Driver	Intel(R) I350 Gigabit Network Connection 12.4.36.0(11/15/2012)

[X] x64 Driver Information:

Chipset Software	Intel(R) Chipset Device Software 9.4.0.1016(1/11/2013)
Graphics Media	Intel® HD Graphics 4600 9.18.10.3107(04/11/2013)
LAN Driver	Intel(R) I350 Gigabit Network Connection 12.4.36.0(11/15/2012)

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Windows 7 Ultimate mode	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32bit IDE mode 64bit AHCI mode

Test Results:

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"/>	
LAN3 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN4 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN5 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN6 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN7 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN8 --- Auto	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. Stress Test

	Hardware Information with Windows 7 Ultimate English Version 32Bit Driver Version
CPU	Intel Atom 2.40GHz
Memory	Transcend DDR3L 1600 8GB SEC K4B4B0846B-HYK0
HDD	TOSHIBA MK3276GSX 2.5" 320GB

3.1 LAN Test

Test Item	Result			Note
	Pass	Fail	N/A	
Copy files from Server over 24 hours.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAN1,LAN2, LAN3,LAN4, LAN5,LAN6, LAN7,LAN8