

Report NO: 16I010008

PER-C39L

INTEL 82580EB/i350-AM4 PCI-Express 1G SFP 8 Ports Module

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

2016-05-11

QE Manager

KJ Wang

Test Engineer

Max Chang
Louie 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	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-C39L	<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	2 x INTEL® 82580EB Ethernet Controller(Co-lay i350-AM4)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bypass	NA	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Host Interface	PCI Express [x8]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LAN Port	SFP 1GbE Connector x 8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Indicator	NA	<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	
Linux	Linux Kernel 2.6.X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
DOS	DOS (graphic and texture mode)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Platform Information







Item	Device Information	Note
NIM module	PER-C39L A0.1	
	PER-C39L B0.1	
System Model/Version	FWS-7400 B1.0	
CPU Board	FWB-7811 A1.0	
Carrier Board	PER-T356 A0.2	
BIOS / Version	FWS-7400 R1.5 (K741AM15)(06/12/2015)	
CPU Type	Intel®Core™ i3-4360 @ 3.70GHz	
Memory Type	Transcend DDR3 1600 8G (SEC 234 HYKO K4B4G0846B)*2	
SATA HDD	WD 3.5" SATA HDD 320GB – WD3200AAKX	
SATA DVD-ROM	N/A	
USB DVD-ROM	Pioneer 8X (DVR-XD11T)	
LCD Monitor	View Sonic VT-2430-NT monitor	
Operating System	<input checked="" type="checkbox"/> English Ubuntu 14.04 Kernel 3.13.0-24-generic #46	
Power Supply	ATX Power Supply : FSP250-50LC	

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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								
On Module LAN1	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-70		
On Module LAN2	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-71		
On Module LAN3	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-72		
On Module LAN4	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-73		
On Module LAN5	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-74		
On Module LAN6	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-75		
On Module LAN7	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-76		
On Module LAN8	Intel(R) 82580EB Gigabit LAN Controller						MAC Address	00-07-32-34-01-77		
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
100Mbps			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
10Mbps			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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. LAN Performance Test (PER-C39L-A)

2.1 DUT and Test Equipments

2.1.1. DUT Specification

Hardware:

- Model name: FWS-7400B A1.0
- CPU: Intel® Core™ i5-4570TE Processor (4M Cache, up to 3.30 GHz)
- RAM: Transcend DDR3 1600 8G x2
- HDD: WD WD3200AAKX 320GB
- LAN: Intel I211 Gigabit Ethernet
- NIM module: PER-C39L A0.1 (LAN: Intel 82580 Gigabit Ethernet)

Software:

- BIOS: FWS-7400 R1.5 (K741AM15)(06/12/2015)
- Operating System: Ubuntu 14.04 Kernel 3.13.0-24-generic #46
- LAN driver: Intel Gigabit Internet Network Driver 5.0.5-K
- NIM LAN driver: Intel Gigabit Internet Network Driver 5.0.5-K

2.1.2. Test Equipments Specification

SPIRENT Smartbits

- 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

2.2 RFC-2544 performance test

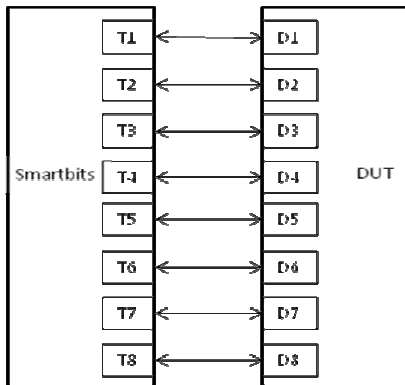
2.2.1. Throughput test

Test Description:

1. In DUT System, setting routing function enabled.

```
<# echo 1 > /proc/sys/net/ipv4/ip_forward>
```

2. Test Configuration as below Figure.

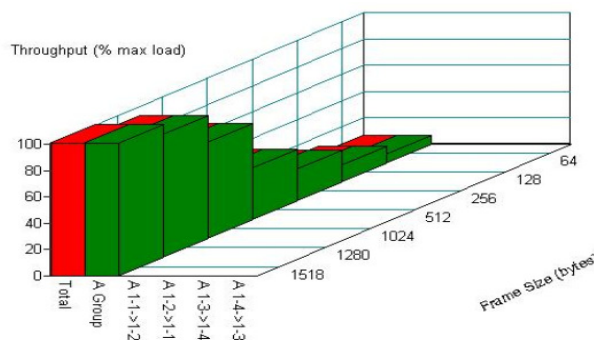


- Smartflow\Test Group to add port1<->port2 with Bi-directional, port3<->port4 with Bi-directional, port5<->port6 with Bi-directional, port7<->port8 with Bi-directional.
- The tester setting loading traffic from 1% to 100% and the traffic step is 50%.
- Interaction Constants Duration Time Set to 60 Sec.

Test Result:

Test Group: <LAN1-LAN2 bi-directional> ; <LAN3-LAN4 bi-directional>
 <LAN5-LAN6 bi-directional> ; <LAN7-LAN8 bi-directional>

Frame Size(bytes)	64	128	256	512	1024	1280	1518
Through put (%)	6.4140625	12.6015625	23.429687	38.898437	72.929687	93.039062	100



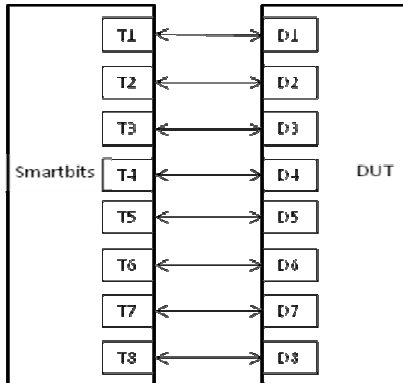
Throughput vs Frame Size

Name/Frame size	64	128	256	512	1024	1280	1518
Total	6.4140625	12.6015625	23.4296875	38.8984375	72.9296875	93.0390625	100
A Group	6.4140625	12.6015625	23.4296875	38.8984375	72.9296875	93.0390625	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
A 1-3->1-4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A 1-4->1-3	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2.2.2. Frame Loss Test

Test Description:

- In DUT System, setting routing function enabled.
<# echo 1 > /proc/sys/net/ipv4/ip_forward>
- Test Configuration as below Figure.



- Smartflow\Test Group to add port1<->port2 with Bi-directional, port3<->port4 with Bi-directional, port5<->port6 with Bi-directional, port7<->port8 with Bi-directional.
- The tester setting loading traffic from 10% to 100% and the traffic step is 10%.
- Interaction Constants Duration Time Set to 60 Sec.

Test Result:

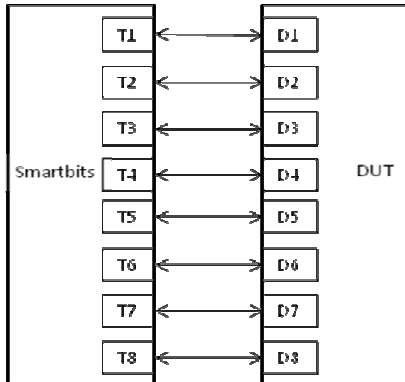
Test Group: <LAN1-LAN2 bi-directional> ; <LAN3-LAN4 bi-directional>
<LAN5-LAN6 bi-directional> ; <LAN7-LAN8 bi-directional>

	Load (%)	Frame Size(bytes)						
		64	128	256	512	1024	1280	1518
Frame Loss (%)	10%	0.018592	0.001386	0	0	0	0	0
	20%	0.054757	0.018352	0	0	0	0	0
	30%	29.69386	0.092921	0.01526	0	0	0	0
	40%	44.08905	0.166684	0.016457	0	0	0	0
	50%	52.65899	5.547542	0.035175	0.00028	0	0	0
	60%	60.57901	14.45015	0.085951	0.018954	0	0	0
	70%	66.18989	1.129713	0.12022	0.016056	0.000194	0	0
	80%	70.66033	29.1487	0.668743	0.032374	0	0	0
	90%	74.0915	34.16206	8.330978	0.031449	0.005823	0	0
	100%	76.32671	38.4029	9.156407	0.062705	0.020616	0.000308	0

2.2.3. Latency Test

Test Description:

- In DUT System, setting routing function enabled.
`<# echo 1 > /proc/sys/net/ipv4/ip_forward>`
- Test Configuration as below Figure.



- Smartflow\Test Group to add port1<->port2 with Bi-directional, port3<->port4 with Bi-directional, port5<->port6 with Bi-directional, port7<->port8 with Bi-directional.
- The tester setting loading traffic from 10% to 100% and the traffic step is 10%.
- Interaction Constants Duration Time Set to 120 Sec.

Test Result:

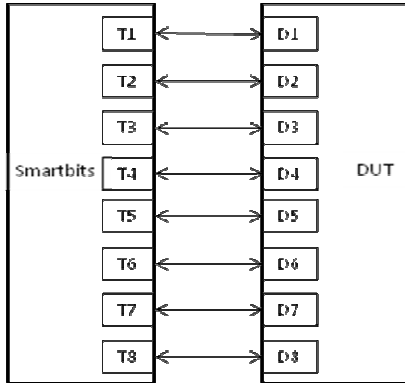
Test Group: <LAN1-LAN2 bi-directional> ; <LAN3-LAN4 bi-directional>
 <LAN5-LAN6 bi-directional> ; <LAN7-LAN8 bi-directional>

	Load (%)	Frame Size(bytes)						
		64	128	256	512	1024	1280	1518
Latency Avg(uSec)	10%	37.016	37.752	39.349	41.127	67.432	110.856	130.859
	20%	34.474	39.584	40.683	43.825	70.293	118.651	141.482
	30%	307.696	39.582	41.001	44.31	75.155	122.687	145.968
	40%	280.38	101.137	42.322	46.433	76.358	128.592	151.47
	50%	877.101	506.346	41.19	47.417	78.08	137.023	160.666
	60%	819.396	490.488	44.9	49.873	82.866	144.186	170.081
	70%	892.086	328.964	43.322	50.68	87.409	151.281	179.826
	80%	893.913	341.691	449.592	53.262	91.138	157.922	187.596
	90%	890.396	451.452	550.963	57.686	98.203	161.624	196.466
	100%	946.461	421.603	561.424	893.868	981.017	703.696	542.225

2.2.4. Back To Back Test

Test Description:

- In DUT System, setting routing function enabled.
<# echo 1 > /proc/sys/net/ipv4/ip_forward>
- Test Configuration as below Figure.



- Smartflow\Test Group to add port1<->port2 with Bi-directional, port3<->port4 with Bi-directional, port5<->port6 with Bi-directional, port7<->port8 with Bi-directional.
- The tester setting loading traffic from 1% to 100% and the traffic step is 50%.
- Interaction Constants Duration Time Set to 2 Sec.

Test Result:

Test Group: <LAN1-LAN2 bi-directional> ; <LAN3-LAN4 bi-directional>
<LAN5-LAN6 bi-directional> ; <LAN7-LAN8 bi-directional>

Frame Size(bytes)	64	128	256	512	1024	1280	1518
Throughput (%)	8.734375	17.242187	31.9375	37.351562	85.304687	97.679687	100
Back-to Back Burst(frames)	1039804	1165012	1157152	702096	817092	751380	650192

3. LAN Performance Test (PER-C39L-B)

3.1 DUT and Test Equipments

3.1.1. DUT Specification

Hardware:

- Model name: FWS-7400B A1.0
- CPU: Intel® Core™ i5-4570TE Processor (4M Cache, up to 3.30 GHz)
- RAM: Transcend DDR3 1600 8G x2
- HDD: WD WD3200AAKX 320GB
- LAN: Intel I211 Gigabit Ethernet
- NIM module: PER-C39L B0.1 (LAN: Intel 82580 Gigabit Ethernet)

Software:

- BIOS: FWS-7400 R1.5 (K741AM15)(06/12/2015)
- Operating System: Ubuntu 14.04 Kernel 3.13.0-24-generic #46
- LAN driver: Intel Gigabit Internet Network Driver 5.0.5-K
- NIM LAN driver: Intel Gigabit Internet Network Driver 5.0.5-K

3.1.2. Test Equipments Specification

SPIRENT Smartbits

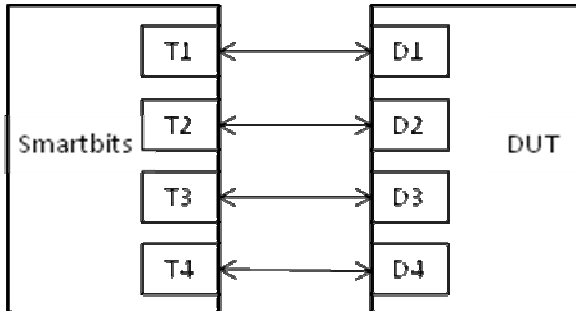
- Chassis: SPIRENT Smartbits 600B
- Chassis Version: 2.80.003 (Cur) 2.50.000
- Chassis Serial #: 06014047
- Library: 6.00-29
- API: 5.50.42.01
- File: 0550042
- Module: 2 * LAN-3324A SmartMetrics XD 4-Port 10/100/1000Base-T Gigabit Ethernet
- Test Software: SmartFlow5.50.42.1

3.2 RFC-2544 performance test

3.2.1. DUT Specification

Test Description:

- In DUT System, setting routing function enabled.
<# echo 1 > /proc/sys/net/ipv4/ip_forward>
- Test Configuration as below Figure.

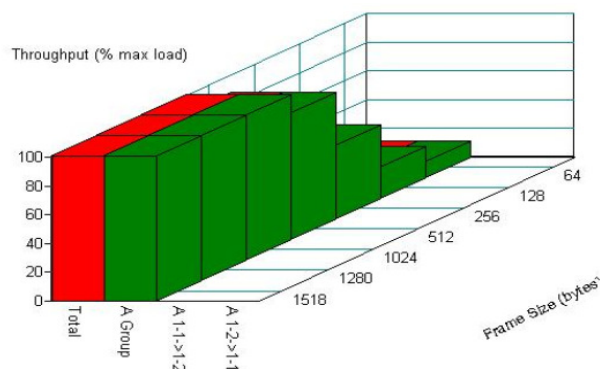


- Smartflow\Test Group to add port1<->port2 with Bi-directional and port3<->port4 with Bi-directional.
- The tester setting loading traffic from 1% to 100% and the traffic step is 50%.
- Interaction Constants Duration Time Set to 60 Sec.
- Repeat above step for DUT LAN port5~port8 testing.

Test Result:

Test Group: LAN1-LAN2 bi-directional
LAN3-LAN4 bi-directional

Frame Size(bytes)	64	128	256	512	1024	1280	1518
Through put (%)	11.0546875	21.109375	50.5	87.625	100	100	100



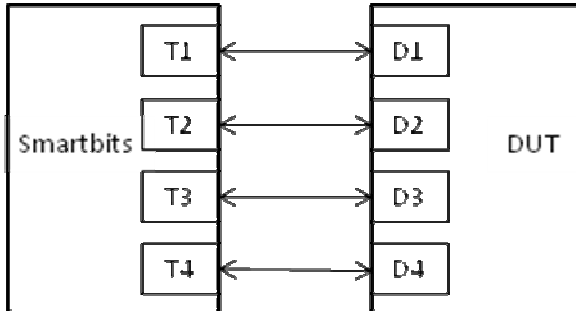
Throughput vs Frame Size

Name/Frame size	64	128	256	512	1024	1280	1518
Total	11.0546875	21.109375	50.5	87.625	100	100	100
A Group	11.0546875	21.109375	50.5	87.625	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

3.2.2. Frame Lost Test

Test Description:

- In DUT System, setting routing function enabled.
<# echo 1 > /proc/sys/net/ipv4/ip_forward>
- Test Configuration as below Figure.



- Smartflow\Test Group to add port1<->port2 with Bi-directional and port3<->port4 with Bi-directional.
- The tester setting loading traffic from 10% to 100% and the traffic step is 10%.
- Interaction Constants Duration Time Set to 60 Sec.
- Repeat above step for DUT LAN port5~port8 testing.

Test Result:

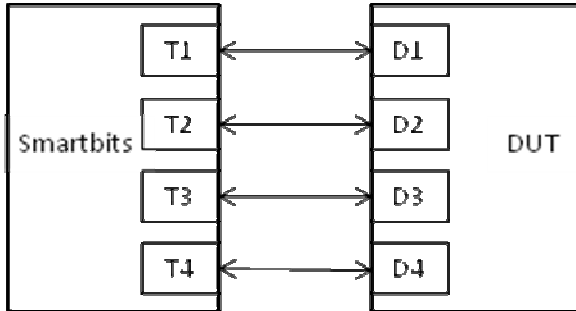
Test Group: LAN1-LAN2 bi-directional
LAN3-LAN4 bi-directional

	Load (%)	Frame Size(bytes)						
		64	128	256	512	1024	1280	1518
Frame Loss (%)	10%	0	0	0	0	0	0	0
	20%	0.028834	0.000429	0	0	0	0	0
	30%	0.161426	0.00835	0	0	0	0	0
	40%	0.076373	0.042572	0.010911	0	0	0	0
	50%	5.060675	0.179202	0.011905	0	0	0	0
	60%	21.00088	0.098813	0.006308	0	0	0	0
	70%	5.398786	0.077972	0.056514	0	0	0	0
	80%	18.08966	0.074352	0.036151	0.006694	0	0	0
	90%	27.57813	8.34642	0.160953	0.004528	0	0	0
	100%	33.8427	0.131369	0.155728	0.029618	0	0	0

3.2.3. Latency Test

Test Description:

- In DUT System, setting routing function enabled.
<# echo 1 > /proc/sys/net/ipv4/ip_forward>
- Test Configuration as below Figure.



- Smartflow\Test Group to add port1<->port2 with Bi-directional and port3<->port4 with Bi-directional.
- The tester setting loading traffic from 10% to 100% and the traffic step is 10%.
- Interaction Constants Duration Time Set to 120 Sec.
- Repeat above step for DUT LAN port5~port8 testing.

Test Result:

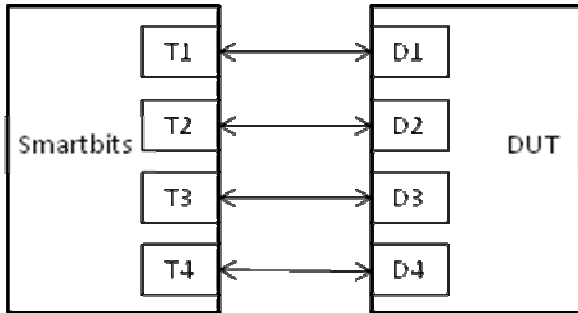
Test Group: LAN1-LAN2 bi-directional
LAN3-LAN4 bi-directional

	Load (%)	Frame Size(bytes)						
		64	128	256	512	1024	1280	1518
Latency Avg(uSec)	10%	38.119	38.983	40.752	41.47	65.323	109.326	127.601
	20%	31.593	38.127	40.914	43.285	70.117	115.768	141.926
	30%	30.914	33.207	41.516	44.565	73.884	121.425	142.536
	40%	27.271	31.184	39.18	45.781	75.843	126.318	147.959
	50%	320.035	32.728	37.345	47.254	78.867	134.996	158.127
	60%	337.284	30.752	37.346	49.386	83.819	144.123	168.827
	70%	338.391	410.844	38.13	49.214	87.354	151.722	178.19
	80%	339.475	435.168	45.01	49.994	91.389	153.897	186.308
	90%	340.147	440.6	47.457	52.487	95.045	159.386	188.449
	100%	340.596	309.181	252.605	241.942	281.168	246.088	363.599

3.2.4. Back To Back Test

Test Description:

- 1 In DUT System, setting routing function enabled.
`<# echo 1 > /proc/sys/net/ipv4/ip_forward>`
- 2 Test Configuration as below Figure.



- 3 Smartflow\Test Group to add port1<->port2 with Bi-directional and port3<->port4 with Bi-directional.
- 4 The tester setting loading traffic from 1% to 100% and the traffic step is 50%.
- 5 Interaction Constants Duration Time Set to 2 Sec.
- 6 Repeat above step for DUT LAN port5~port8 testing.

Test Result:

Test Group: LAN1-LAN2 bi-directional
 LAN3-LAN4 bi-directional

Frame Size(bytes)	64	128	256	512	1024	1280	1518
Through put (%)	36.578125	28.84375	55.140625	71.382812	100	100	100
Back-to Back Burst(frames)	2085192	974450	970900	670890	478926	384614	325096

4. O.S. Compatibility Test

4.1. English Ubuntu 14.04 Kernel 3.13.0-24-generic #46

Driver Information:

Chipset Software	Ubuntu 14.04 default driver
Graphics Media	Ubuntu 14.04 default driver
LAN Driver	7.3.21-K8-NAPI

Install OS to SATA HDD:

Installation	Result			Note
	Pass	Fail	N/A	
English Ubuntu 14.04 Kernel 3.13.0-24-generic #46	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Type uname -a

Test Result:

Test Item PER-C39L	Result			Note
	Pass	Fail	N/A	
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"/>	

5. Stress Test

Hardware Information	
CPU	Intel®Core™ i3-4360 @ 3.70GHz
Memory	Transcend DDR3 1600 8G (SEC 234 HYKO K4B4G0846B)*2
HDD	WD 3.5" SATA HDD 320GB – WD3200AAKX

5.1 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