

Report NO: 16I010014

# NIM-S26A

## INTEL Fortville XL710 PCI-Express 10G SFP+ 4 Ports Module

System Level Product

### Compatibility Test Report

Summary	<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input checked="" type="checkbox"/> Pass with Deviation (Comment: Port3-4 throughput performance is lower than Port1-2, other functions are work properly.)			
	Test Results Category			
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	0
Defect Unsolved	0	0	0	0

Issue date

QE Manager

Test Engineer

2016-07-27

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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	

**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	NIM-S26A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Form Factor	10G Fiber Module	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Main Chipset	1 x INTEL® XL710 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	SFP+ 10GbE Connector x 4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Indicator	4 x LED for Active/Link	<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 32/64 bit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Windows 8.1 32/64 bit	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Linux	Linux Kernel 2.6.X	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## Platform Information

Item	Device Information	Note
Product of department	NSD	
System Model	FWS-7520	
PCB Model / Version	FWB-7520 A0.3	
BIOS / Version	R1.0 (K752AM10)	
Driver folder	SAP-beta\NIM-S26A	
CPU Type	Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W	
Memory Type	Transcend DDR4 2133 REG 8GB SEC K4A4G085WD x2	
SATA HDD	Toshiba MQ01ABD032 320GB	
USB DVD-ROM	ASUS SBW-06D2X-U	
LCD Monitor	Dell U2713HM	
Daughter Board	PER-T376 A0.2 PER-T362 A0.3	
NIM Card	NIM-S26A A0.2	
Operating System	<input checked="" type="checkbox"/> CentOS7 kernel:3.10.0-229.11.1e17.x86_64 <input checked="" type="checkbox"/> Ubuntu14.04.4 x86_64 kernel 4.2.0-27-generic	
Power Supply	ATX Power Supply : FSP FSP180-50LG ATX Power Supply: N/A DC Adapter : N/A	
Battery Model	N/A	
	Chipset Information	
LAN chipset	INTEL® XL710 Ethernet Controller	

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# 1. Basic Function Test

## 1.1. LED / LCM / Button Function Test

Procedure:

Step1. To check Ethernet LED status can follow below methods.

A. Use LAN cable to connect Server PC and DUT, transmit some packets between Server PC and DUT.

	Speed LED
10GB/s	Color Blue

	Link/Act LED
Un-Linked	Blank
Linked	Yellow
Transmit	LED Blink

Result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
7	10G connection LAN LED action as below: Speed LED: Blue Link LED: Yellow / Blinking	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 1.2. LAN Function Test

Configuration:

HOST: FWS-7520 + NIM-S26A

Procedure:

Step1. Connect Host PC and to do ping test.

Host: #ping 192.168.100.client IP -s 65500 -c 1000.

Client: #ping 192.168.100.host IP -s 65500 -c 1000

Step2. Install iperf and execute.

HOST: #iperf -s (Linux Ubuntu14.04)

Client: # iperf -c 192.168.100.xx -w 200M -t 120 -i 1

Step3. UDP test.

HOST: # iperf -s -u -i 1 -l 1024 -p 5001 (Linux Ubuntu14.04)

Client: # iperf -c 192.168.4.88 -u -i 1 -l 1024 -p 5001 -t 200 -b 1m

Test result:

Test item	LAN 1/2 10G Fiber			LAN 3/4 10G Fiber			Note
	Pass	Fail	N/A	Pass	Fail	N/A	
Ping test. Ping loss should < 2 times.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10Gbps connection. Iperf test result should not loss and max bandwidth must be in 9Gbps or more.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Max:9.31Gbps
UDP test. Data transmission should work properly with UDP mode..	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### 1.3. Transceiver Compatibility Test

Procedure:

Step1. Connect LR transceiver and check it works properly.

Step2. Connect SR transceiver and check it works properly.

Test result:

Transceiver Test		Result			Note
		Pass	Fail	N/A	
LR	Axcen AXXE-3386-0531 SFP+ LR 10G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SR	Axcen AXXE-5886-05B1 SFP+-10G-SR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Volktek GBM-162 10Gbps	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 2. O.S Compatibility Test

### 2.1. Linux OS Compatibility Test

Procedure:

Step1. Install Linux x86 or x64 OS from USB DVD ROM.

Step2. Enter command "lspci" to check if devices were detected.

Step3. Install LAN driver to system.

Step4. Execute the following command to test driver and verify

Step 4.1 Driver install

(1) Checked whether the command "Insmod drivername" can function normally, or not.

(2) Checked whether the command "rmmod drivername" can successful uninstall the driver, or not

Step 4.3 ifconfig Ethernet

(1) Execute command "ifconfig ethx down" close Ethernet.

(2) Execute command "ifconfig ethx up" start Ethernet.

Step 4.6 Jumbo Frame

Setting #ifconfig LAN mtu 9000

Check #ifconfig LAN (mtu will change from 1500 to 9000)

Step 5 Ping Host test.

#ping 192.168.xx.xx -s 65500 -c 100.

Test result:

#### 2.1.1 Ubuntu14.04.4 x86\_64 kernel 4.2.0-27-generic

Test Item	Result			Note	
	Pass	Fail	N/A		
System should not any error during install process.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D1548	
lspci to check LAN devices.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
System should not error during LAN driver installation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I40e-1.5.16	
"Insmod drivername" should install driver normally.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
"rmmod drivername" should uninstall driver normally.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Uninstall driver should working normal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Ifconfig	Ethernet interface should be closed when execute command ""ifconfig ethx down"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Ethernet interface should be started when execute command ""ifconfig ethx up"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Jumbo	Jumbo function should work properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ping test	Ping should work normal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### 2.1.2 CentOS7 kernel: 3.10.0-229.11.1e17.x86\_64

Test Item	Result			Note
	Pass	Fail	N/A	
System should not any error during install process.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D1548
lspci to check LAN devices.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System should not error during LAN driver installation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I40e-1.5.16
"Insmod drivername" should install driver normally.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
"rmmod drivername" should uninstall driver normally.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Ifconfig	Ethernet interface should be closed when execute command “ifconfig ethx down”	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CentOS support ifup/ifdown
	Ethernet interface should be started when execute command “ifconfig ethx up”	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Jumbo	Jumbo function should work properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ping test	Ping should work normal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 3. Stability Test

### 3.1. LAN Stress Test

#### Configuration:

System: FWS-7520

CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W

RAM: Transcend DDR4 2133 REG 8GB SEC K4A4G085WD x2

Storage: Toshiba MQ01ABD032 320GB

OS: Ubuntu14.04.4 x86\_64 kernel 4.2.0-27-generic

NIM card: PER-S26A 4 ports 10Gbps LAN

#### Procedure:

Step1. Install iperf <sudo apt-get install iperf>

Step2. Connect all LAN ports which DUT supported and run iperf over 12 hours for test system LAN stability at room temp.

Host: #stress -s

Client: LAN1 #sudo iperf -c 192.168.100.100 -w 100M -t 43200 -i1

LAN2 #sudo iperf -c 192.168.101.100 -w 100M -t 43200 -i1

LAN3 #sudo iperf -c 192.168.102.100 -w 100M -t 43200 -i1

LAN4 #sudo iperf -c 192.168.103.100 -w 100M -t 43200 -i1

Test item	Result			Note
	Pass	Fail	N/A	
Iperf stability test. Iperf test should not hang or error during testing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## 4. LAN Performance Test

### 4.1 DUT and Test Equipments

#### 4.1.1. DUT Specification

##### Hardware:

- Model name: FWS-7520
- M/B: FWB-7520 A0.3
- CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W
- RAM: Transcend DDR4 2133 REG 8GB SEC K4A4G085WD x2
- HDD: Innodisk SSD 3MG2-P 64GB
- NIM module: NIM-S26A A0.2

##### Software:

- BIOS: FWS-7520 R1.0 (K752AM10)
- Operating System: CentOS7 kernel:3.10.0-229.11.1e17.x86\_64
- NIM LAN driver: i40e-1.5.16.tar.gz

#### 4.1.2. Test Equipments Specification

##### SPIRENT Smartbits

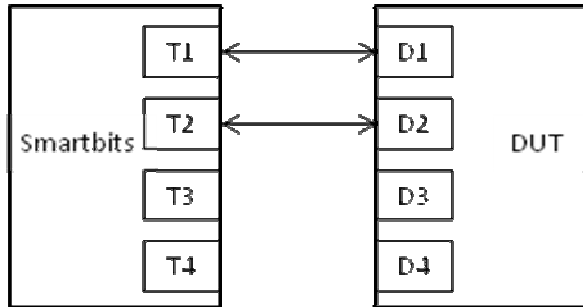
- Chassis: SPIRENT Smartbits 600B
- Chassis Version: 2.80.003 (Cur) 2.50.000
- Chassis Serial #: 06014047
- Library: 6.00-29
- API: 5.50.42.01
- File: 0550042
- Module: 2 \* LAN-3324A SmartMetrics XD 4-Port 10/100/1000Base-T Gigabit Ethernet
- Test Software: SmartFlow5.50.42.1

## 4.2 RFC-2544 performance test (2 port)

### 4.2.1. Throughput test (2 port)

#### Test Description:

1. In DUT System, set 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,
4. The tester set loading traffic from 1% to 100% and the traffic step is 50%.
5. Interaction Constants Duration Time Set to 60 Sec.
6. Test all LAN ports performance.

#### Test Result:

Test Group: <LAN1-LAN2 bi-directional>

Test Group: < LAN3-LAN4 bi-directional >

Speed: 1000_Full		Frame Size(bytes)						
		64	128	256	512	1024	1280	1518
NIM-S26A	1-2	4.93	9.434	15.611	32.445	63.35	78.125	74.66
	3-4	3.811	6.056	12.105	21.947	42.998	53.542	65.503