Report NO: 16I010013

FWS-7520

Intel® Broadwell DE
1U Rackmount with 3 of NIM appliance

System Level Product

Compatibility Test Report

Summary	☐ Pass ☐ Fail ☒ Pass with Deviation Comment: 1. PER-T393 LAN I210 performance is lower than other ports, 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
2016-06-30	KJ Wang	Louie Lee

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	
Form Factor	1U Rackmount Network Platform	☒	☐	☐	
Processor	Intel® Boardwell DE Xeon Processors	☒	☐	☐	
Chipset	Integrated	☒	☐	☐	
System Memory	4 x 288-pin DDR4 1600/1867/2133MHz RDIMM up to 128GB	☒	☐	☐	
VGA controller	Integrated w/ IPMI	☒	☐	☐	
Ethernet	1. Up to 24 x 10/100/1000Base-TX Ethernet port (Optional w/ NIM), 2. Up to 2 x 10GbE SFP+ or RJ45 ports (Optional by module)	☒	☐	☐	
IPMI	1 x RJ45 port, AST2500 VGA/BMC/KVMoIP supported	☒	☐	☐	
BIOS	AMI BIOS ROM	☒	☐	☐	
Serial ATA	SATA III ports on board x 2 (optional up to 6 SATA3.0 ports)	☒	☐	☐	
Serial Port	RJ45 Type x 1 (on front panel)	☒	☐	☐	
Keyboard and Mouse	Reserve pin-header	☒	☐	☐	
Universal Serial Bus	2 x USB 3.0 Type A on I/O side 2 x USB 3.0 for internal pin-header (optional USB Cable with Rear Bracket)	☒	☐	☐	
Expansion Interface	1 x PCIe [x4] slot (Use x8 connector) 1 x Mini-PCIe slot	☒	☐	☐	
RTC	Internal RTC	☒	☐	☐	
Watchdog Timer	1~255 step by software programmable	☒	☐	☐	
Storage	3.5” SATA3 HDD x 1 or 2.5” SATA3 HDD x 2 (optional extra 4 HDD bay) 1 x CFast card slot (optional CF card)	☒	☐	☐	
Software Button	1 x GPIO Programmable push button	☒	☐	☐	
Power Requirement	1 x 24-pins ATX power connector compatible with 20 pin type PSU 2 x 4-pin DC power out connector for H.D.D	☒	☐	☐	
Front I/O panel	1 x Power LED 1 x Status LED 1 x HDD Active LED 2 x USB Ports 3 x NIM slots 1 x RJ45 IPMI 2 x 10GbE SFP+ or 2 x RJ45 (Optional by module) 1 x RJ45 Console 1 x LCM display and 4 keypad 1 x Software Programmable Switch	☒	☐	☐	
Rear I/O panel	1 x AC Power Input 1 x Power	☒	☐	☐	

	Switch 1 x Expansion Slot (optional 1 x PCIe [x4], use PCIe x8 connector)				

O.S. Support

Item	Specification	Result			Note
		Pass	Fail	N/A	
Microsoft Windows	Windows v.Next Server (server2016)	☐	☐	☒	
Linux	CentOS 7.1 64 bit	☒	☐	☐	
	Ubuntu14.10 64bit	☒	☐	☐	

Platform Information

Item	Device Information	Note
Product of department	NSD	
System Model	FWS-7520	
PCB Model / Version	FWB-7520 A0.3	
BIOS / Version	FWS-7520 R1.0 (K752AM10) (05/04/2016)	
Driver folder	SAP-beta\FWS-7520	
CPU Type	Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W	
	Intel® Xeon® Processor D-1537(12M Cache, 1.70 GHz),Max 2.3GHz / 35W	
Memory Type	Transcend DDR4 2133 REG 8GB SEC K4A4G085WD x4	
SATA HDD	WD WD3200AAKX 3.5” 320GB	
USB DVD-ROM	ASUS SBW-06D2X-U	
LCD Monitor	Dell U2713HM	
Compact Flash	Innodisk iCF9000 32GB	
CFast	Innodisk 3ME 128GB	
Daughter Board	PER-T376 A0.2	
	PER-T362 A0.3	
NIM Card	NIM-C13A (82580 and I350)	
	NIM-S13A	
Operating System	☒ CentOS7 kernel:3.10.0-229.11.1e17.x86_64	
	☒ Ubuntu14.10 x86_64 kernel 3.16.0-23-generic	
Power Supply	ATX Power Supply : FSP FSP180-50LG	
	ATX Power Supply: ETASIS EFAP-S250	
	DC Adapter : N/A	
Battery Model	N/A	
	Chipset Information	
SOC	Intel® Boardwell DE Xeon Processors	
Super IO Chipset	ITE IT8728F	
Ethernet Chipset	CORTINA SC4227 10GB (Fiber)	
	Intel I210 Gigabit Ethernet	

Summary Table of contents:

1. Mechanism Construction Test

1.1. Mechanism construction check

Procedure:
Step1. Insert NIM, CF and expansion card.
Step2. Check the symbol of front and rear I/O

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	System case shouldn't interfere with assembly	☒	☐	☐	
2	NIM slot shouldn't interfere with assembly	☒	☐	☐	
3	CF slot shouldn't interfere with assembly	☒	☐	☐	
4	Expansion slot shouldn't interfere with assembly	☒	☐	☐	
5	I/O symbol should correct.	☒	☐	☐	

2. Basic Function Test

2.1. CPU Function Test

Configuration:

CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W
Intel® Xeon® Processor D-1537(12M Cache, 1.70 GHz),Max 2.3GHz / 35W
Memory: ADATA DDR4 2133 R-DIMM 16GB AD4R2133Y16G15-BSSD SEC K4A4G045WD x4

Procedure:

Step1. Connected CPU with product specification max supported.
Step2. Connected AC power code and press power button for power on.
Step3. Boot into BIOS manual and check CPU information is correct.
Step4. Confirm CPU max speed can meet CPU specification in OS environment.
<#watch –n 1 “cat /proc/cpuinfo | grep MHz”>
Step5. Install and execute benchmark AP “sysbench”, recode the benchmark.
<Reference: http://wiki.mikejung.biz/Benchmarking#Install_Sysbench_on_CentOS_7>
<# wget ftp://ftp.gnome.org/mirror/fedora/epel/6/x86_64/sysbench-0.4.12-5.el6.x86_64.rpm>
<#wget http://downloads.mysql.com/archives/mysql-5.1/MySQL-shared-compat-5.1.49-1.rhel5.x86_64.rpm>
<#rpm -iv MySQL-shared-compat-5.1.49-1.rhel5.x86_64.rpm>
<#yum install postgresql-libs.x86_64>
<#rpm -iv sysbench-0.4.12-5.el6.x86_64.rpm>
<1 thread #sysbench --test=cpu --cpu-max-prime=20000 run>
<16 threads #sysbench --test=cpu --cpu-max-prime=20000 --num-threads=16 run>

Test result:

No.	Test item			Result			Remark
				Pass	Fail	N/A	
1	System can boot properly			☒	☐	☐	
2	BIOS\CPU information is correct.			☒	☐	☐	
3	CPU speed should meet specification			☒	☐	☐	
4	Recode CPU Benchmark	Intel 1.7G	1 thread	33.7203s			
			16 threads	3.1064s			
		Intel 1.9G	1 thread	33.6575s			
			12 threads	3.9035s			

2.2. Memory Function Test

Configuration:

CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W
Memory: ADATA DDR4 2133 R-DIMM 16GB AD4R2133Y16G15-BSSD SEC K4A4G045WD x4

Procedure:

Step1. Connected memory with product specification max supported.
Step2. Connected AC power code and press power button for power on
Step3. Boot into BIOS manual and check memory information is correct.
Step4. Boot into DOS and run Memtest V5.01 above over 12 hours.
Step5. Execute benchmark AP” sysbench”, recode the benchmark.
<Reference: http: http://ssorc.tw/4882>
<read # sysbench --test=memory --memory-block-size=8K --memory-total-size=1G --memory-oper=read run >

<write # sysbench --test=memory --memory-block-size=8K --memory-total-size=1G run >

Test result:

No.	Test item		Result			Remark
			Pass	Fail	N/A	
1	System can boot properly.		☒	☐	☐	
2	BIOS\Memory information is correct.		☒	☐	☐	
3	MemTest can run over 12 hours and no error, no halt.		☒	☐	☐	
4.	Recode Memory Benchmark	read	Transferred:15694.15MB/s Total time:0.0652s			
		write	Transferred:4721.85MB/s Total time:0.2169s			

2.3. SATA / CF Function Test

Configuration:

SATA: SATAIII SSD Transcend TS128GSSD370 128GB (specification: max R/W speed: 570/170MB/s)
CF: Innodisk iCF9000 64GB
CFast: Innodisk 3ME 128GB

Procedure:

Step1. Connect SATA HDD / SSD and CF.
Step2. Boot into BIOS manual and check SATA/CF information is correct.
Step3. Install Linux OS with SATA storage / CF.
Step4. Check SATA/CF read/write speed can meet the specification.
<update# yum update>
<install# yum install hdparm -y>
<check HDD# fdisk -l>
<Read command#: hdparm -tT /dev/sdaX>
<Write command#: #time dd if=/dev/zero of=/var/test bs=2k count=1000000>

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	SATA storage and CF information should correct during POST and OS.	☒	☐	☐	
2	SATA ports speed should meet specification. (SATAII max read speed > 150MB/s) (SATAIII max read speed> 300MB/s)	☒	☐	☐	SATA 1~5 port Read: 520MB/s Write: 138MB/s
3	CF R/W speed should meet specification.	☒	☐	☐	Read: 80.53MB/s Write: 55MB/s
4	CFast R/W speed should meet specification.	☒	☐	☐	Read: 276MB/s Write: 125MB/s

2.4. Video Function Test

Procedure:

Step1. Connect VGA monitor.
Step2. Install Linux OS to DUT system.
Step3. After installation and boot to Linux OS for test X-windows mode and Text mode.

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	Display shouldn't loss during OS installation.	☒	☐	☐	VGA mini card
2	Display shouldn't flicker during POST and OS.	☒	☐	☐	
3	VGA should display normal with x-window and text mode.	☒	☐	☐	
4	Record max resolution in x-window. (If it is support x-window)	☒	☐	☐	1024X768

2.5 Console Function Test

Procedure:

Step1. Execute “Hyper-Terminal” in HOST PC.
Step2. Power on DUT system and use server’s keyboard to press ESC for boot into BIOS setup manual.
Step3. To check server’s keyboard can control properly in BIOS manual.
Step4. DUT boot to DOS(USB flash) and check console redirection work properly.
Step5. Under Linux OS, check console redirection can support display and command typing.

Test Result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	Console support BIOS display and control.	☒	☐	☐	Test with 9600/38400/115200
2	Console support DOS display and command typing.	☒	☐	☐	Test with 9600/38400/115200
3	Console support Linux text mode display and command typing.	☒	☐	☐	Test with 9600/38400/115200
4	Hyper-terminal of HOST should display and control properly while DUT boot during POST and DOS .	☒	☐	☐	
5	Hyper-terminal of HOST should display and typing properly in text of Linux.	☒	☐	☐	ttyS0 Test with 9600/3800/115200

2.6 Com Port Function Test

Procedure:

Step1. Execute “Hyper-Terminal” in Server PC.
Step2. Install “minicom” on DUT. <apt-get install mincom or yum install minicom>
Step3. To run “minicom” and setting com port for test. (#minicom –s)(com1=ttyS0; com2=ttyS1….)
Step4. Connect “Null cable” between Server PC and DUT.
Step5. Transmit words between server and DUT.

Test Result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	Transmission words should not loss or error.	☒	☐	☐	COM2: ttyS1

2.7 USB ports Function Test

Procedure:

Step1. Connect USB keyboard and check it works properly under BIOS/DOS/Linux.
Step2. Connect USB DVD ROM, check system can boot from USB DVD ROM and USB DVD ROM can work properly under Linux OS.
Step3. Connect USB2.0/3.0 Flash, check system can boot from USB flash and USB flash can work properly under Linux OS.
Step4. Check USB2.0/3.0 flash read/write speed can meet the Flash specification.
<Read command#: hdparm -t /dev/sdaX>
<Write command#: #time dd if=/dev/sdb of=/var/test bs=2k count=1000000>

Test Result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	Boot from USB DVD ROM and drive should work properly.	☒	☐	☐	USB3.0 por1 / 2 <Port3/4 was not supported USB2.0 signal.>
2	USB 1.1 / 2.0 /3.0 devices (Flash, keyboard, mouse, DVD ROM) can work properly on USB 3.0 ports.	☒	☐	☐	USB3.0 por1 / 2 <Port3/4 was not supported USB2.0 signal.>
3	USB3.0 R/W speed should meet specification.	☒	☐	☐	USB3.0 por1 / 2/3/4 Read: 87.67MB/s Write: 60MB/s

2.8 LED / LCM / Button Function Test

Procedure:

Step1. Check power LED when system power on.
Step2. Check HDD LED blinks when install OS to HDD/CF.
Step3. Check Bypass LED when AAEON Test AP setting Bypass status.
Step4. Check Test AP resume are correct which press LCM function button. (Up/Down/ESC/Enter)
Step5. Check Test AP resume is correct which press program reset button.
SDK: Button <1.#make clean 2# make 3# ./button>
Step6. Check status LED action same with Test AP setting.
Step7. To check Ethernet LED status can follow below methods.
A. Use LAN cable to connect 1GB switch between Server PC and DUT, transmit some packets between Server PC and DUT.
B. Use LAN cable to connect 100MB switch between Server PC and DUT, transmit some packets between Server PC and DUT.
C. Use LAN cable to connect 10MB switch between Server PC and DUT, transmit some packets between Server PC and DUT.

	Speed LED
10GB/s	Color Green
1GB/s	Color Orange
100MB/s	Color Green
10MB/s	Color Blank

	Link/Act LED
Un-Linked	TBD
Linked	TBD
Transmit	LED Blink

Result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	Power LED should turn on when system power on.	☒	☐	☐	
2	HDD LED should blinks when install OS to HDD and CF.	☒	☐	☐	
3	Bypass LED should turn on when SDK setting bypass status.	☒	☐	☐	Test with NIM-C13A
4	Status LED color and action should same with SDK setting.	☒	☐	☐	SDK: LED
5	Reset value of SDK should show high when press the program reset button.	☒	☐	☐	Open: show high Press: show low
6	LCM value of SDK should show correct when press LCM function button.	☒	☐	☐	SDK: LCM ./lcm –getkey return ./lcm –lcmon ./lcm –lcmoff ./lcm –set String
7	10G connection LAN LED action as below: Speed LED: Green Link LED: Blue / Blinking	☒	☐	☐	
8	1000M connection LAN LED action as below: Speed LED: Orange Link LED: Yellow / Blinking	☒	☐	☐	
9	100M connection LAN LED action as below: Speed LED: Green Link LED: Yellow / Blinking	☒	☐	☐	
10	10M connection LAN LED action as below: Speed LED: blank Link LED: Yellow / Blinking	☒	☐	☐	

2.9. Bypass Function Test

Procedure:

Step1. Under Linux, AAEON SDK(LanByPass) setting "power on" with "PassTru".
Step2. SDK setting "power on" with "ByPass".
Step3. SDK setting "power off" with "PassTru" and turn off DUT(S5).
Step4. SDK setting "power off" with "ByPass" and turn off DUT.(S5)
Step5. SDK setting "power on" with "PassTru and "power off" with "ByPass, remove the AC power code. (G3 status)
Step6. SDK setting "power on" with "PassTru" and "WDT-ByPass", execute watch Dog.

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	PassTru / ByPass should work properly by	☒	☐	☐	Test with NIM-C13B

	SDK control.				SDK: LanByPass Module1: 0&1 Module2: 2&3 Module3:4&5
2	ByPass should support power on / power off status.	☒	☐	☐	
3	ByPass should support G3 status	☒	☐	☐	
4	WDT ByPass should work properly.	☒	☐	☐	

2.10. LAN Function Test

Configuration:

1G switch: D-Link DGS-1210-16
100M switch D-Link DES-1008A
10M HUB SVEC FD916H

Procedure:

Step1. Each LAN port connect DHCP server.
Step2. Connect internet and ping Hi-net (168.95.1.1).
Step3. Each LAN port connect host PXE PC and DUT BIOS enable PXE function.
Step4. BIOS select boot from LAN.
Step11. Test each LAN port WOL function properly which from OS shutdown and Dos power off.
Step12. Client PC to install and execute iperf and host PC execute iperf –s (Windows OS)
Step13. Iperf test with 1G, 100M, 10M switch/Hub.
<#yum install iperf>
<#iperf –c 192.168.3.58 –w 100M –t 120 –i 10>

Test result:

Test item	LAN 1 1G			LAN 2/3 10G Fiber			Note
	Pass	Fail	N/A	Pass	Fail	N/A	
Internet Browser (DHCP Server) Ping website(168.95.1.1) should work properly	☒	☐	☐	☐	☐	☒	
LAN Boot (PXE) Boot from LAN should work properly	☒	☐	☐	☒	☐	☐	
Wake On LAN WOL should work properly when resume from S5/Dos off	☒	☐	☐	☐	☐	☒	10G not support WOL
10Gbps connection Iperf test result should not loss and max bandwidth must be in 9000MB or more.	☐	☐	☒	☒	☐	☐	
1Gbps connection Iperf test result should not loss and max bandwidth must be in 900MB or more.	☒	☐	☐	☐	☐	☒	Test max bandwidth:940MB/s
100Mbps connection Iperf test result should not loss and max bandwidth must be in 90MB or more.	☒	☐	☐	☐	☐	☒	Test max bandwidth:94MB/s
10Mbps connection Iperf test result should not loss and	☒	☐	☐	☐	☐	☒	Test max bandwidth:9.02MB/s

max bandwidth must be in 9MB or more.							

2.11. IPMI Function Test

Procedure:

Step1. Connect LAN cable between IPMI and Host.
Step2. Use web page to link IPMI firmware.
Step3. Test reset, OS shutdown, forced shutdown function by Host control.
Step4. Link FRU page, to check board and product information.
Step5. Link SOL page, to check SOL function.
Step6. Link Sensor page, to check H/W monitor value and UI control function.
Setp7. Link KVM page, to check keyboard, mouse, display control function.

Test result:

No.	Test item		Result			Remark
			Pass	Fail	N/A	
1	Power manager control should work properly	Reset	☒	☐	☐	
2		OS shutdown	☒	☐	☐	
3		Forced shutdown	☒	☐	☐	
		Boot from S5	☒	☐	☐	
4	FRU	Board and product information should show correct.	☒	☐	☐	
5	SOL	Text mode should work properly.	☒	☐	☐	Control under BIOS manual and EFI shell
6	Sensor	HW monitor value should show correct.	☒	☐	☐	
7		UI control should work properly.	☒	☐	☐	UNR/UC/UNC
8	KVM control should work properly.		☒	☐	☐	

2.12. Digital IO Function Test

Procedure:

Step1. Use SDK it87gpio to set DIO high/low output.
Step2. Use meter to measure DIO output value.

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	DIO ports should be controlled correct by SDK.	☒	☐	☐	Test under ubuntu14.04

2.13. TPM Function Test

Procedure:

Step1. Enable BIOS\TPM device and status.
Step2. Download tpm-tool in Linux environment.
<Ubuntu# sudo apt-get install tpm-tool >
Step3. Type “tpm_version” to see the information of TPM module in used. Then, use “tpm_takeownership” to add password to TPM module.
Step4. Generate a text file, then use “tpm_sealdata –i file_name –o key_name” to encrypt the file.
Step5. Use “tpm_unsealdata –i key_name –o file_name_2” to decryption the key to previous

file. Please use “diff file_name file_name_2” to see if there’s any difference between 2 files.

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	Add password and encrypt function should work properly.	☒	☐	☐	

2.14. Jumper and connector Function Test

Configuration:

Procedure:

Step1. Connect power button cable to CN1, check if power on /off can work properly.
Step2. Connect PS/2 keyboard / mouse to CN12, check if keyboard / mouse can work properly
Step3. Connect PWB/Reset/HDD LED/PWR LED cable to FP1, check if each function can work properly
Step4. JP1 jumper set 2-3 close, check if system auto power on when insert AC power code.
Step5. Use meter to measure the CFD voltage.
Step6. Connect IPMI module and open JP3, check if IPMI function can work properly.
Step7. Remove AC cable and CMOS jumper set 2-3 close, check if CMOS all data will be cleaned.

Test result:

No.	Test item	Result			Remark
		Pass	Fail	N/A	
1	CN1 Power switch	☒	☐	☐	
2	CN12 PS/2 Keyboard, mouse.	☒	☐	☐	
3	FP1 1-3 Power Button / 5-7 HDD LED 2-4 Reset / 6-8 PWR LED	☒	☐	☐	
4	FP2 2-4 PS/2 keyboard lock	☒	☐	☐	
5	JP1 Auto power 1-2 disable 2-3 enable	☒	☐	☐	
6	JP2 CFD voltage 1-2 5V 2-3 3.3V	☒	☐	☐	
7	JP3 IPMI PWRBTN close with IPMI Open W/O IPMI	☐	☐	☒	Current IPMI module is not support power button function.
8	CMOS1 1-2 Normal 2-3 Clear CMOS	☒	☐	☐	

4. Time Accuracy Test

4.1. System Clock & RTC Clock Test

Procedure:

Step1. Check RTC time deviation after 24 hrs at power on status.
Step2. Check RTC time deviation after 24 hrs at power off status.
Step3. Press power button to check system with “beep” sound.
Step4. Run watchdog timer test with last version SDK.
<#chmod 777 superio>
<#./superio -w 10> to set time for 10sec, 60sec, 255sec

Test Result:
Under Room Temperature: 26 °C

No.	Test item	Actual		Result			Remark
				Pass	Fail	N/A	
1	RTC Clock in Power On less 2 sec deviation	+1	Sec	☒	☐	☐	
2	RTC Clock in Power Off less 2 sec deviation	-1	Sec	☒	☐	☐	
3	System boot on in 60 sec	22	Sec	☒	☐	☐	
4	Watch dog time in 6+/-10% sec	10.2	Sec	☒	☐	☐	
5	Watch dog time in 60+/-10% sec	62.6	Sec	☒	☐	☐	
6	Watch dog time in 255+/-10% sec	267	sec	☒	☐	☐	

5. PC Health and CMOS Battery Test

5.1. PC Health Status

Procedure:

Step1. Use meter to measure each voltage of H/W monitor supported.
Step2. Use thermometer to measure each Temp of H/W monitor supported.
Step3. Use Tachometer to measure each FAN speed of H/W monitor supported.

Test Result:

H/W monitor	Result			BIOS		Actual		Note
	Pass	Fail	N/A					
(+) Vcore Actual and monitor must be ±5%	☒	☐	☐	1.788	V	1.78	V	
(+) VMEM Actual and monitor must be ±5%	☒	☐	☐	1.2	V	1.19	V	
(+) 12V Actual and monitor must be ±5%	☒	☐	☐	12.04	V	12.06	V	
(+) 5V Actual and monitor must be ±5%	☒	☐	☐	5.11	V	5.10	V	
(+) 5VSB Actual and monitor must be ±5%	☒	☐	☐	5.11	V	5.10	V	
VBAT Actual and monitor must be ±5%	☒	☐	☐	3.024	V	3.08	V	
CPU Fan1 Speed Actual and monitor must be ±10%	☒	☐	☐	16875	rpm	16500	rpm	
CPU Fan2 Speed Actual and monitor must be ±10%	☒	☐	☐	17000	rpm	16500	rpm	
Chassis FAN Speed Actual and monitor must be ±10%	☒	☐	☐	17000	rpm	16500	rpm	
CPU Temp Actual and monitor must be ±15℃	☒	☐	☐	40	℃	35	℃	
System Temp Actual and monitor must be ±5℃	☒	☐	☐	39	℃	37	℃	

5.2. CMOS Battery Test

Procedure:

Step1. DUT AC loss, use meter to measure voltage of CMOS battery
Step2. Use ammeter to measure current of CMOS battery.

Test Result:

(Calculate result=225mA/measured current / 365days/24hours)

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.	3.07	V	3.1	uA	8.2	years	☒	☐	☐	

6. Hardware Compatibility Test

6.1. CPU Compatibility Test

Procedure:

Step1. Check CPU information and frequency should show correct value during POST screen and O.S.
<Linux CPU info # dmidecode -t processor|grep "Version:">

Step2. CPU supported must meet specification.

Test Result:

Test item	Result			Note
	Pass	Fail	N/A	
Below CPU information and frequency should show correct value				
Intel® Xeon® Processor D-1518(6M Cache, 2.20 GHz) / 35W	☒	☐	☐	
Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W	☒	☐	☐	
Intel® Xeon® Processor D-1537(12M Cache, 1.70 GHz),Max 2.3GHz / 35W	☒	☐	☐	
Intel® Xeon® Processor D-1548(12M Cache, 2.00 GHz), Max 2.6G / 45W	☒	☐	☐	

6.2. Memory Compatibility Test

Procedure:

Step1. Check Memory frequency should show correct value during POST screen and O.S.
<<Linux Memory info # dmidecode -t memory|grep "Size:">

Step2. Run Memtest V5.01 for one loop, test result should not error.

Step3. Memory supported must meet specification.

Test Result:

Test item	AAEON P/N	Result			Note
		Pass	Fail	N/A	
a. Below Memory Information and frequency should show correct value. b. Memtest result should not error or halt.					
R-DIMM					
Innodisk DDR4 2133 REG DIMM 32GB M4R0-BGS3GCRG-26 SEC K4A8G045WB BCPB	N/A	☒	☐	☐	
Transcend DDR4 2133 REG DIMM 8GB SEC K4A4G085WD	N/A	☒	☐	☐	
Transcend DDR4 2133 R-DIMM AD4R2133Y8G15-BHYM Hynix H5AN4G4NMFA	N/A	☒	☐	☐	
ADATA DDR4 2133 R-DIMM 16GB AD4R2133Y16G15-BSSD SEC K4A4G045WD	N/A	☒	☐	☐	
ADATA DDR4 2133 R-DIMM 32GB AD4R2133432G15-BSSD SEC K4A8G045WB	N/A	☒	☐	☐	
ECC-DIMM					
ADATA DDR4 2133 16GB ECC AD4E213316G15-BSSB SEC K4ABG085WB	N/A	☒	☐	☐	

Innodisk DDR4 2133 8G ECC M4C0-8GSSMCRG SEC BCPB K4A4G085WD	N/A	☒	☐	☐	
U-DIMM					
Innodisk DDR4 2133 4GB M4U0-4GSSJCRG-26 SEC K4A4G085WD	N/A	☒	☐	☐	Single size
Transcend DDR4 2133 4GB SEC K4A4G085WD	N/A	☒	☐	☐	Single size
Innodisk DDR4 2133 8GB M4U0-8GSSKCRG-26 SEC K4A4G085WD	N/A	☒	☐	☐	
Transcend DDR4 2133 8GB SEC K4A4G085WD	N/A	☒	☐	☐	
Innodisk DDR4 2133 16GB M4U0-AGS1KCRG-26 SEC K4A8G085WB	N/A	☒	☐	☐	
Transcend DDR4 2133 16GB TS0AANBSB0000AA SEC K4A8G085WB	N/A	☒	☐	☐	

6.3. SATA Compatibility Test

6.3.1 SATA IDE / AHCI Mode

Procedure:

Step1. BIOS select IDE mode, check SATA devices information/ size should show correct value in BIOS setup.

Step2. BIOS select AHCI mode, check SATA devices information/ size should show correct value in BIOS setup.

Step3. Boot into OS, check SATA devices information/size should show correct value.

OS: CentOS7

Test Result:

Test item		Result			Note
		Pass	Fail	N/A	
a. Below SATA devices information and size should show correct value with IDE mode.					
SATAII	Toshiba MK1676GSX 2.5” 5400rpm /160GB	☒	☐	☐	
SATAII	Toshiba MQ01ABD032 2.5” 5400rpm/320GB	☒	☐	☐	
SATAII	Toshiba MQ01ABF050 2.5” 5400rpm/500GB	☒	☐	☐	
SATAIII	Toshiba HDS721010DLE630 3.5” 7200rpm/1TB	☒	☐	☐	
SATAIII	WD WD3200AAKX 3.5” 7200rpm / 500GB	☒	☐	☐	
SATAIII	WD WD20EZRX-00DC0B0 3.5” 7200rpm/2TB	☒	☐	☐	
SATAIII	Seagate ST3000DM001 3.5” 7200rpm/3TB	☒	☐	☐	
SATAIII	SSD ADATA SX900 128GB	☒	☐	☐	
SATAIII	Transcend TS32GSSD370 2.5” 32GB	☒	☐	☐	
SATAIII	Transcend TS64GSSD370 2.5” 64GB	☒	☐	☐	
SATAIII	Transcend TS128GSSD370 2.5” 128GB	☒	☐	☐	
b. Below SATA devices information and size should show correct value with AHCI mode.					
SATAII	Toshiba MK1676GSX 2.5” 5400rpm /160GB	☒	☐	☐	
SATAII	Toshiba MQ01ABD032 2.5” 5400rpm / 320GB	☒	☐	☐	
SATAII	Toshiba MQ01ABF050 2.5” 5400rpm / 500GB	☒	☐	☐	
SATAIII	WD WD3200AAKX 3.5” 7200rpm / 500GB	☒	☐	☐	
SATAIII	Toshiba HDS721010DLE630 3.5” 7200rpm / 1TB	☒	☐	☐	

SATAIII	WD WD20EZRX-00DC0B0 3.5” 7200rpm / 2TB	☒	☐	☐	
SATAIII	Seagate ST3000DM001 3.5” 7200rpm/3TB	☒	☐	☐	
SATAIII	SSD ADATA SX900 128GB	☒	☐	☐	
SATAIII	Transcend TS32GSSD370 2.5” 32GB	☒	☐	☐	
SATAIII	Transcend TS64GSSD370 2.5” 64GB	☒	☐	☐	
SATAIII	Transcend TS128GSSD370 2.5” 128GB	☒	☐	☐	

6.3.2 SATA RAID Mode

Procedure:

Step1. BIOS select RAID mode and press Ctrl +I during POST screen for RAID setting.

Step2. Test with RAID 0 / 1 / 5 /10 respectively, check RAID function is work properly.

Test Result:

Test item		Result			Note
		Pass	Fail	N/A	
a. RAID 0 function should work properly and storage information and size should show correct value.					
RAID-0 (HDDx2) Striping/Span Test	1 WD WD20EZRX-00DC0B0 3.5” 7200rpm / 2TB	☒	☐	☐	CentOS7
	2 WD WD20EZRX-00DC0B0 3.5” 7200rpm / 2TB	☒	☐	☐	
b. RAID 1 function should work properly and storage information and size should show correct value.					
RAID-1 (HDDx2) Mirror Test	1 WD WD20EZRX-00DC0B0 3.5” 7200rpm / 2TB	☒	☐	☐	CentOS7
	2 WD WD20EZRX-00DC0B0 3.5” 7200rpm / 2TB	☒	☐	☐	
c. RAID 5 function should work properly and storage information and size should show correct value.					
RAID-5 (HDDx3) Striping/Span Test Rotation Parity	1 WD WD5000LPVX 500GB	☒	☐	☐	
	2 WD WD5000AAKX 500GB	☒	☐	☐	
	3 Seagate ST500DM002 500GB	☒	☐	☐	
d. RAID10 function should work properly and storage information and size should show correct value.					
RAID-10 (HDDx4) Striping/Span Test Mirroring	1 WD WD5000LPVX 500GB	☒	☐	☐	
	2 WD WD5000AAKX 500GB	☒	☐	☐	
	3 Seagate ST500DM002 500GB	☒	☐	☐	
	4 Toshiba MQ01ABF050 500GB	☒	☐	☐	

6.4. Flash Card Compatibility Test

Procedure:

Step1. Connect Flash card and boot into BIOS, check Flash card information is correct.

Step2. Boot into OS.

Step3. Test Flash read / write function.

OS: CentOS7

Test Result

Test Item	AAEON P/N	Result			Note
		Pass	Fail	N/A	
a. CF information and size should show correct value. b. R/W function should work properly.					
Innodisk iCF9000 64GB	N/A	☒	☐	☐	
Innodisk iCF9000 32GB	N/A	☒	☐	☐	
a. CFast information and size should show correct value. b. R/W function should work properly.					

Innodisk.DECFA-04GD07AC2DT-26 4G.SLC	968C004G0P	☒	☐	☐	
InnoDisk.DECFA-08GD07RC2SC-26 8GB.MLC.3ME.	AP-SS968C00 8G10	☒	☐	☐	
Innodisk.3ME.DECFA-16GD07RC2DC-26 16GB.MLC.	968C016G4C	☒	☐	☐	
Innodisck.DECFA-32GD07RC2DC-26 SATA3.MLC.32GB	968C032G2B	☒	☐	☐	
Innodisck.DECFA-64GD07RC2DC-26 SATA3.MLC.64GB.CFAST.	AP-SS968C06 4G2T	☒	☐	☐	
Innodisck.DECFA-A28D07RC2DC-26 SATA3.MLC.128GB	AP-SS968C12 8G19	☒	☐	☐	

6.5. USB Compatibility Test

Procedure:

Step1. Insert USB device to USB2.0 / 3.0 ports.

Step2. Test each USB device function.

OS: CentOS7

Test Result

Test Item		**Result**			**Note**
		Pass	**Fail**	**N/A**	
USB devices function should work properly.					
keyboard	Logitech K200	☒	☐	☐	
Mouse	Logitech M-U0003	☒	☐	☐	
DVD ROM	ASUS SBW-06DX	☒	☐	☐	
HUB	Axpro USB3.0 4ports HUB	☒	☐	☐	
HDD	USB3.0 TS500GSJ25D3 500GB	☒	☐	☐	
USB2.0 Flash	Sandisk cruzer USB 2.0 8GB	☒	☐	☐	
USB3.0 Flash	Transcend USB3.0 8GB	☒	☐	☐	
	Kingston DT Ultimate G2 USB3.0 16GB	☒	☐	☐	
	Transcend USB3.0 16GB	☒	☐	☐	
	PNY USB3.0 128GB	☒	☐	☐	

6.6. PCI-Express Compatibility Test:

Procedure:

Step1. Connect PCI-e device and boot into OS.

Step2. Test PCI-e card basic function.

OS: CentOS7

Test result:

PCI-Express Bear card Test		**Result**			**Note**
		Pass	**Fail**	**N/A**	
Test result should show Pass as below item					
Test with PCI-e 4X		☒	☐	☐	X4 / Gen2
PCI-Express x4		**Result**			**Note**
		Pass	**Fail**	**N/A**	
Function should work properly as below item					
1x	Intel Gigabit CT Desktop Adapter	☒	☐	☐	WOL pass
1x	Broadcom BCM95721 LAN card	☒	☐	☐	

1x	Realtek RTL8111E Gigabit LAN card	☒	☐	☐	
1x	SUNIX SATA1414 eSATA & SATAII x1Express card	☒	☐	☐	GEN1
1x	Uptech UTB242 USB3.0 4ports	☒	☐	☐	
1x	DigiFusion PTU302A USB3.0 2 ports card	☒	☐	☐	
1x	Digifusion STATIII card ASM1061	☒	☐	☐	
1x	Moxa Multi serial ports Moxa CP-118EL-A	☒	☐	☐	lspci detection only, no driver support kernel 3.10.0
1x	Graphics card SFPX84 A8.2	☒	☐	☐	
4x	Intel Gigabit ET2 Quad Port Svr Adapter	☒	☐	☐	
4x	Intel Pro/1000 PF Dual Port	☒	☐	☐	
4x	AAR-1430SA Adaptec SATA card	☒	☐	☐	
4x	PLEXTOR PX-AG128M6e 128GB	☒	☐	☐	
Mini PCI-Express		**Result**			**Note**
		Pass	**Fail**	**N/A**	
Function should work properly as below item					
AAEON PER-V09V		☒	☐	☐	
AAEON PER-C11L Intel 82574 Gigabit LAN card + USB port		☒	☐	☐	

6.7. NIM Card Compatibility Test

Procedure:

(SPEC define which NIM module in P2 and P3 perform test)
Step1. Connect NIM device and boot into Linux OS.
Step2. Test NIM device basic function.

Test result:

NIM card information and test item			**Result**			**Note**
			Pass	**Fail**	**N/A**	
Slot1	NIM-C13A	Visit Web-side should work properly	☒	☐	☐	
		ByPass should work properly	☒	☐	☐	
		Wake On LAN WOL should work properly when resume from S5/Dos off	☒	☐	☐	
		1Gbps connection Iperf test result should not loss and max bandwidth must be in 900MB or more.	☒	☐	☐	Test max bandwidth:940MB/s
Slot2	NIM-C13B	Visit Web-side should work properly	☒	☐	☐	
		ByPass should work properly	☒	☐	☐	
		Wake On LAN WOL should work properly when resume from S5/Dos off	☐	☐	☒	Slot2/3 are not support WOL
		1Gbps connection Iperf test result should not loss and max bandwidth must be in 900MB or more.	☒	☐	☐	Test max bandwidth:940MB/s
Slot3	NIM-C13B	Visit Web-side should work properly	☒	☐	☐	
		ByPass should work properly	☒	☐	☐	

		Wake On LAN WOL should work properly when resume from S5/Dos off	☐	☐	☒	Slot2/3 are not support WOL
		1Gbps connection Iperf test result should not loss and max bandwidth must be in 900MB or more.	☒	☐	☐	Test max bandwidth:940MB/s
	NIM-S13B	Visit Web-side should work properly	☒	☐	☐	
		ByPass should work properly	☐	☐	☒	
		Wake On LAN WOL should work properly when resume from S5/Dos off	☐	☐	☒	
		1Gbps connection Iperf test result should not loss and max bandwidth must be in 900MB or more.	☒	☐	☐	Test max bandwidth:940MB/s

7. O.S Compatibility Test

7.1. Linux OS Compatibility Test

Procedure:

Step1. Install Linux x86 & x64 serial from USB DVD ROM.
Step2. Enter lspci command detect H/W.
Step3. Enter dmesg or dmesg|mort, review dmesg log to find out the error and warning key words.
Step3. Install all required 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 4.2 Force speed
(1) Execute command “ethtool –s ethx autoneg off speed 1000” ,link cable to confirm speed light is orange
(2) Execute command “ethtool –s ethx autoneg off speed 100” ,link cable to confirm speed light is green
(3) Execute command “ethtool –s ethx autoneg off speed 10” ,link cable to confirm speed light is blank
Step 4.3 ifconfig Ethernet
(1) Execute command “ifdown ethx” close ethernet interface
(2) Execute command “ifup ethx” start ethernet interface
Step 4.6 Jumbo Frame
Setting #ifconfig LAN mtu 9000
Check #ifconfig LAN (mtu will change from 1500 to 9000)
Step 5 Enter PING TW Hinet(168.95.1.1) test network function is whether normal
Step 7 Execute command “init 0” or “shutdown –h” to shutdown system.
Step 8 Execute command “init 6” or “reboot” to reset system.

Test result:

7.1.1 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.		☒	☐	☐	
Ispci to check H/W device.		☒	☐	☐	
Record log file which was error or warring key words.		☒	☐	☐	
System should not error during LAN driver installation.		☒	☐	☐	
Force speed	LAN connection speed should show 1000Mb when execute command “ ethtool –s ethx autoneg off speed 1000”	☒	☐	☐	
	LAN connection speed should show 100Mb when execute command “ ethtool –s ethx autoneg off speed 100”	☒	☐	☐	
	LAN connection speed should show 10Mb when execute command “ ethtool –s ethx autoneg off speed 10”	☒	☐	☐	

Ifconfig	Ethernet interface should be closed when execute command ““ifdown ethx”	☒	☐	☐	I210 and NIM-C13A
	Ethernet interface should be started when execute command ““ifup ethx”	☒	☐	☐	I210 and NIM-C13A
Jumbo	Jumbo function should work properly	☒	☐	☐	I210
Connected internet and ping the website should work properly. (Hinet: 168.95.1.1)		☒	☐	☐	I210 and NIM-C13A
Shutdown	System should be shutdown when execute command "init 0"	☒	☐	☐	
Reboot	System should be reset when execute command "init 6"	☒	☐	☐	

7.1.2 Ubuntu14.10 x86_64 kernel 3.16.0-23-generic

Test Item		Result			Note
		Pass	Fail	N/A	
System should not any error during install process.		☒	☐	☐	
Ispci to check H/W device.		☒	☐	☐	
Record log file which was error or warring key words.		☒	☐	☐	
System should not error during LAN driver installation.		☒	☐	☐	
Force speed	LAN connection speed should show 1000Mb when execute command “ ethtool –s ethx autoneg off speed 1000”	☒	☐	☐	
	LAN connection speed should show 100Mb when execute command “ ethtool –s ethx autoneg off speed 100”	☒	☐	☐	
	LAN connection speed should show 10Mb when execute command “ ethtool –s ethx autoneg off speed 10”	☒	☐	☐	
Ifconfig	Ethernet interface should be closed when execute command ““ifdown ethx”	☒	☐	☐	I210 and NIM-C13A
	Ethernet interface should be started when execute command ““ifup ethx”	☒	☐	☐	I210 and NIM-C13A
Jumbo	Jumbo function should work properly	☒	☐	☐	I210
Connected internet and ping the website should work properly. (Hinet: 168.95.1.1)		☒	☐	☐	I210 and NIM-C13A
Shutdown	System should be shutdown when execute command "init 0"	☒	☐	☐	
Reboot	System should be reset when execute command "init 6"	☒	☐	☐	

8. BIOS Function Test

Procedure:

Step1. Flash BIOS process will complete and run correctly
Step2. Press Keyboard " DEL" Key into BIOS.
Step3. To ensure the BIOS setting can be controlled correctly.
Step4. Please add or del test item from your test BIOS Version.

Test Result:

8.1. Flash BIOS

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
*Execute Go.bat for flash BIOS	☒	☐	☐	
*Press keyboard Del into BIOS setup	☒	☐	☐	

8.2. Advanced Test

Test Item (Following item should work properly)			Result			Note
			Pass	Fail	N/A	
H/W Monitor\SmartFAN	CPU_FAN1	Enable/Disable	☒	☐	☐	Disable: 16875rpm
		Manual	☒	☐	☐	Duty 0~255
		Automatic	☒	☐	☐	
	CPU_FAN2	Enable/Disable	☒	☐	☐	Disable: 16875rpm
		Manual	☒	☐	☐	Duty 0~255
		Automatic	☒	☐	☐	
	Chassis_FAN1	Enable/Disable	☒	☐	☐	Disable: 16875rpm
		Manual	☒	☐	☐	Duty 0~255
		Automatic	☒	☐	☐	
H/W Monitor	Temp / voltage / RPM		☒	☐	☐	
TPM	Security Device Sup		☒	☐	☐	
	TPM State		☒	☐	☐	
	Pending operation		☒	☐	☐	None / TPM Clear
JMB36X ATA Controller Config.	CF information		☒	☐	☐	
Serial Port console redirection	COM0	Enable/disable	☒	☐	☐	
		setting	☒	☐	☐	115200/38400/9600
SIO config.	Serial port1		☒	☐	☐	
	Serial port2		☒	☐	☐	
	Parallel Port		☒	☐	☐	
USB Config.	Legacy USB support		☒	☐	☐	Enable /disable
DIO configuration	Port0~7		☒	☐	☐	
Power Manager	Resume From PCIe		☒	☐	☐	
	Resume From RI		☒	☐	☐	
LAN Bypass Status LED	LED Status		☒	☐	☐	LED off / Red LED on / Red LED Blink / Red LED Fast Blink / Green LED on / Green LED Blink / Green LED Fast Blink

	Kit1	Power on	☒	☐	☐	PassTru / Bypass
		Power off	☒	☐	☐	PassTru / Bypass
	Kit2	Power on	☒	☐	☐	PassTru / Bypass
		Power off	☒	☐	☐	PassTru / Bypass
	Kit3	Power on	☒	☐	☐	PassTru / Bypass
		Power off	☒	☐	☐	PassTru / Bypass
	Kit4	Power on	☒	☐	☐	PassTru / Bypass
		Power off	☒	☐	☐	PassTru / Bypass
	Kit5	Power on	☒	☐	☐	PassTru / Bypass
		Power off	☒	☐	☐	PassTru / Bypass
	Kit6	Power on	☒	☐	☐	PassTru / Bypass
		Power off	☒	☐	☐	PassTru / Bypass
	WDT CONFIG	Reset	☒	☐	☐	
		Bypass	☒	☐	☐	

8.3. Intel RC Setup Test

Test Item (Following item should work properly)			**Result**			**Note**
			Pass	**Fail**	**N/A**	
Processor Config.	CPU information		☒	☐	☐	
	Hyper-Threading		☒	☐	☐	Enable / disable
	EIST		☒	☐	☐	Default Disable
Memory Toplogy	Information		☒	☐	☐	
IIO0 config	IOU2 (PCI-e port1)		☐	☐	☒	Test with default x4x4
	IOU1 (PCI-e port3)		☐	☐	☒	Test with default x4x4x4x4
PCH Config.	SATA Config.	Enable/disable	☒	☐	☐	
		IDE	☒	☐	☐	
		AHCI	☒	☐	☐	
		RAID	☒	☐	☐	
		Port0	☒	☐	☐	
		Port1	☒	☐	☐	
		Port2	☒	☐	☐	
		Port3	☒	☐	☐	
		Port4	☒	☐	☐	
		Port5	☒	☐	☐	
	PCH State after G3	S0	☒	☐	☐	Power on
		S5	☒	☐	☐	Power off
		Last state	☒	☐	☐	
	PCIe Config	PCI-e speed	☒	☐	☐	GEN1/GEN2/auto

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8.4. Server Mgmt Test

Test Item (Following item should work properly)		**Result**			**Note**
		Pass	**Fail**	**N/A**	
Information	BMC Self Test Status	☒	☐	☐	
	BMC Device ID	☒	☐	☐	32
	BMC Device Revision	☒	☐	☐	1
	BMC Firmware Revision	☒	☐	☐	2.1
	IPMI Version	☒	☐	☐	2.0

BMC support	☒	☐	☐	
System Event Log	☒	☐	☐	
BMC self test log	☒	☐	☐	
View FRU info.	☒	☐	☐	
BMC network config.	☒	☐	☐	
View System Event Log	☒	☐	☐	
BMC user settings	☒	☐	☐	

8.5. Boot Test

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Quiet Boot	☒	☐	☐	
Launch Intel PXE OpROM	☒	☐	☐	
Boot From Hard Disk	☒	☐	☐	
Boot From CDROM	☐	☐	☒	
Boot From USB HDD	☒	☐	☐	
Boot From USB Floppy	☒	☐	☐	
Boot From USB CD-ROM	☒	☐	☐	
Boot from LAN	☒	☐	☐	
Disable	☒	☐	☐	

8.6. CMOS Backup / Clear CMOS Test

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Clear CMOS Test by Jumper	☒	☐	☐	Clear All data and password
Clear CMOS Test by remove CMOS battery	☒	☐	☐	Clear All data and password

8.7. AAEON Tag Check Utility

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Check AAEON BIOS OK	☒	☐	☐	AONCHECK.EXE

8.8. Supervisor / User Password Test

Test Item (Following item should work properly)	Result			Note
	Pass	Fail	N/A	
Administrator Password	☒	☐	☐	
User Password	☒	☐	☐	

8.9. Negative Test

8.9.1 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				

8.9.2 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.	☒	☐	☐	

9. Stability Test

9.1. Stress Test

Configuration:

CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W
Intel® Xeon® Processor D-1537(12M Cache, 1.70 GHz),Max 2.3GHz / 35W
RAM: Innodisk DDR4 2133 ECC DIMM 8GB M4C0-8GSSMCRG SEC K4A4G085WD
Storage: ADATA SATAIII SSD SX900 128GB
PIC-e Graphics: AAEON PER-V09V
OS: CentOS7 kernel:3.10.0-229.11.1e17.x86_64

Procedure:

Step1. Install stress <rpm –iv stress-1.0.2-1.el6.rf.x86_64.rpm>
Step2. Run the aging programs over 12 hours to test system stability at room temp.
<stress –c 16>

Test item		Result			Note
		Pass	Fail	N/A	
System should not halt or shutdown	CPU D-1528 1.9G	☒	☐	☐	#stress –c 12 Full load CPU speed: 2.13GHz
	CPU D-1537 1.7G	☒	☐	☐	#stress –c 16 Full load CPU speed:1.89GHz.

9.2. Cold Boot Test

9.2.1 ACPI G3 Cold Boot Test

Configuration:

CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W
RAM: ADATA DDR4 2133 R-DIMM 16GB AD4R2133Y16G15-BSSD SEC K4A4G045WD x4
Storage: USB3.0 Flash Transcend 8GB
PIC-e Graphics: AAEON PER-V09V
OS: DOS

Procedure:

Step1. Set auto power on jumper for enable or set BIOS\restore AC loss for always on.
Step2. Set power on with 90 second and power off with 20 second.
Step3. Run the on/off test over 1000 cycles to test system boot up stability at room temp.

Test Result:

Test item	Result			Note
	Pass	Fail	N/A	
AC loss cold boot over 1000 cycles <loss rate: 0 /1000 times>	☒	☐	☐	☒Jumper setting auto power button ☐BIOS select “ power on”

9.2.2 Power Button Cold Boot Test

Configuration:

CPU: Intel® Xeon® Processor D-1528(9M Cache, 1.90 GHz), max 2.5GHz / 35W
RAM: ADATA DDR4 2133 R-DIMM 16GB AD4R2133Y16G15-BSSD SEC K4A4G045WD x4
Storage: USB3.0 Flash Transcend 8GB
PIC-e Graphics: AAEON PER-V09V
OS: DOS

Procedure:

Step1. Set auto power on jumper for disable.
Step2. Set each ON/OFF cycle with 180 second.
Step3. Run the power button on/off test over 500 cycles to test system boot up stability at room temp.

Test Result:

Test item	Result			Note
	Pass	Fail	N/A	
Power button boot over 500 cycles <loss rate: 0 /500 times>	☒	☐	☐	

10. Gigabit LAN Performance Test

10.1 DUT and Test Equipments

10.1.1. DUT Specification

Hardware:

- Model name: FWS-7520
- M/B: FWB-7520 A0.3
- CPU: Intel® Xeon® Processor D-1548(12M Cache, 2.00 GHz)
- RAM: ADATA DDR4 2133 32GB R-DIMM SEC K4A8G045WB x4
- HDD: Transcend TS16GSSD25S-S 16GB
- NIM module: PER-T362 / PER-S13A / PER-C13A / PER-C13A

Software:

- BIOS: FWS-7520 R0.F (K752AM0F)(04/14/2016)
- Operating System: CentOS5.6 Kernel 2.6.18-238.e15PAE
- NIM LAN driver: Driver:Intel Gigabit Ethernet Network Driver igb 5.2.5

10.1.2. Test Equipments Specification

SPIRENT Smartbits

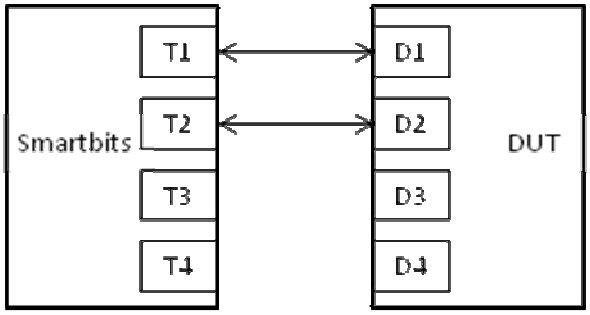
- Chassis: SPIRENT Smartbits 600B
- Chassis Version: 2.80.003 (Cur) 2.50.000
- Chassis Serial #: 06014047
- Library: 6.00-29
- API: 5.50.42.01
- File: 0550042
- Module: 2 * LAN-3324A SmartMetrics XD 4-Port 10/100/1000Base-T Gigabit Ethernet
- Test Software: SmartFlow5.50.42.1

10.2 RFC-2544 performance test (2 port)

10.2.1. 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>

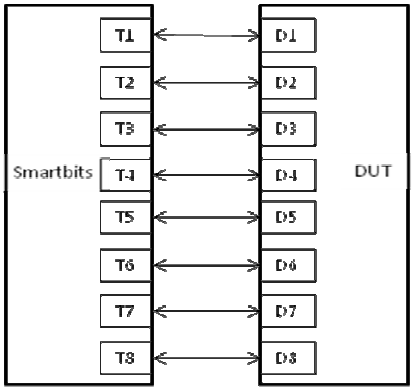
Speed: 1000_Full		Frame Size(bytes)						
LAN ports		64	128	256	512	1024	1280	1518
T362 I210	1-2	63.648437	98.45313	100	100	98.45313	100	100
Slot 1	2-3	63.648437	100	100	100	100	100	100
	4-5	63.648437	100	100	100	100	100	100
	6-7	63.648437	100	100	100	100	100	100
	8-9	63.648437	100	100	100	100	100	100
Slot 2	10-11	63.648437	100	100	100	100	100	100
	12-13	63.648437	100	100	100	100	100	100
	14-15	64.421875	100	100	100	100	100	100
	16-17	63.648437	100	100	100	100	100	100
Slot 3	18-19	63.648437	100	100	100	100	100	100
	20-21	63.648437	100	100	100	100	100	100
	22-23	63.648437	100	100	100	100	100	100
	24-25	63.648437	100	100	100	100	100	100

10.3 RFC-2544 performance test (8 ports)

10.3.1. Throughput test

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, port3<->port4 with Bi-directional, port5<->port6 with Bi-directional, port7<->port8 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> ; <LAN3-LAN4 bi-directional>
<LAN5-LAN6 bi-directional> ; <LAN7-LAN8 bi-directional>

Speed: 1000_Full		Frame Size(bytes)						
LAN ports		64	128	256	512	1024	1280	1518
Slot1 S13A	2~9	49.726562	87.625	100	100	100	100	100
Slot2 C13A	10~17	49.726562	86.85156	100	100	100	100	100
Slot3 C13A	18~25	48.953125	85.30469	100	100	100	100	100

11. 10G LAN Performance Test

11.1 DUT and Test Equipments

11.1.1. DUT Specification

Hardware:

- Model name: FWS-7520
- M/B: FWB-7520 A0.3
- CPU: Intel® Xeon® Processor D-1548(12M Cache, 2.00 GHz)
- RAM: ADATA DDR4 2133 32GB R-DIMM SEC K4A8G045WB x4
- HDD: Toshiba MK3276GSX 320GB
- 10G LAN: CORTINA SC4227 10GB (Fiber)

Software:

- BIOS: FWS-7520 R1.0 (K752AM10)
- Operating System: CentOS5.6 Kernel 2.6.18-238.e15PAE
- 10G LAN driver: ixgbe-4.2.0.12.tar.gz / Intel® 10 Gigabit Ethernet Network

11.1.2. Test Equipments Specification

SPIRENT Test Center

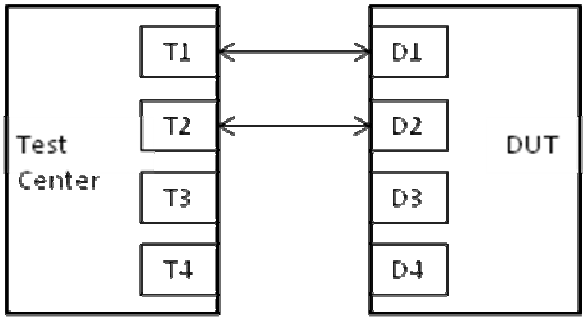
- Chassis: SPIRENT CTL-N4U E16100679
- Chassis Version: E1
- Module: SPIRENT FX2 2-port 40/10GBE QSFP+
- Test Software: SPIRENT Test Center Application 4.64

11.2 RFC-2544 performance test (2 port)

11.2.1. 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.

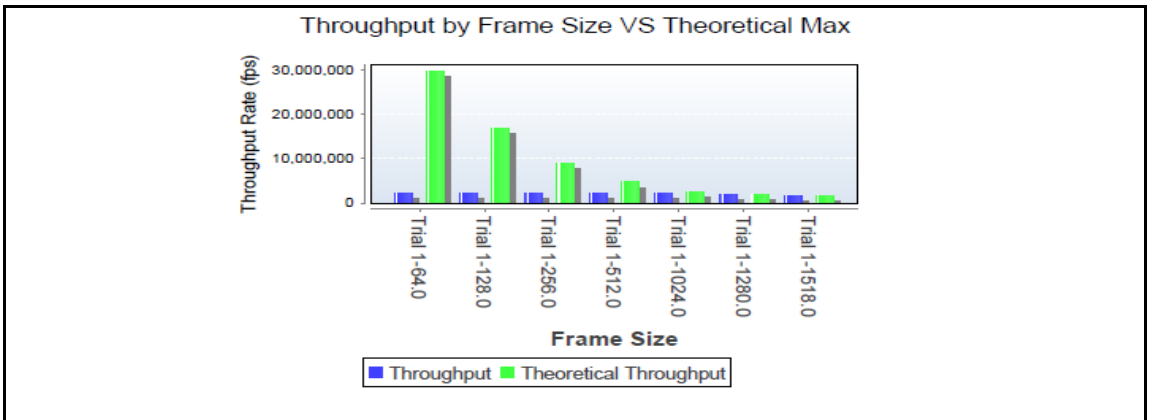


3. Test Center\Test Group to add port1<->port2 with Bi-directional,
4. The tester set loading traffic from 1% to 100% and the traffic step is 50%.
5. Interaction Constants Duration Time Set to 60 Sec.
6. Test all LAN ports performance.

Test Result:

Test Group: <LAN1-LAN2 bi-directional>

Speed: 10Gbps_Full	Frame Size(bytes)						
LAN ports	64	128	256	512	1024	1280	1518
1-2	7.188	13.516	24.766	46.563	91.563	100	100



Total Trials	Number of Passed Trials	Frame Size (bytes)	Intended Load (%)	Offered Load (%)	Throughput (%)	Aggregated Throughput (fps)	Aggregated Theoretical Max (fps)	Aggregated Throughput (Mbps)
1	1	64	7.187	7.188	7.188	2139136.933	29761904.762	1437.5
1	1	128	13.516	13.516	13.516	2283044.767	16891891.892	2703.125
1	1	256	24.766	24.766	24.766	2243263.167	9057971.014	4953.125
1	1	512	46.563	46.563	46.563	2188087.433	4699248.12	9312.5
1	1	1024	91.563	91.563	91.563	2192588.633	2394636.015	18312.5
1	1	1280	100	100	100	1923076.933	1923076.923	20000
1	1	1518	100	100	100	1625487.667	1625487.646	20000