

S9500-30XS Test Plan

R1.0

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HISTORY

Date	Rev	Author	Summary of Change
2019/01/25	1.0	Alex Liu	Initial version

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Term	Description
FRU	Field Replaceable Unit
GPIO	General Purpose Input Output
HW	Hardware
I2C, IIC, I2C	Inter-Integrated Circuit
SW	Software
UART	Universal Asynchronous Receive and Transmit
DUT	Device Under Test
CSGR	Cell Site Gateway Router

1 INTRODUCTION

1.1 Scope and purpose

This document describes the test cases for S9500-30XS product. The software components of S9500-30XS is applications installed in Ubuntu for x86 and applications in BMC software for BMC. The test cases description in this document includes the Test Name of the Test Cases, Test Purpose, Test Configuration, Test Procedure and Expected Result. All test procedures are provided here as guideline for performing software design validation test.

1.2 Reference Documents

- Ufi Space CSGR_System_Specification_for OCP 1.0.doc

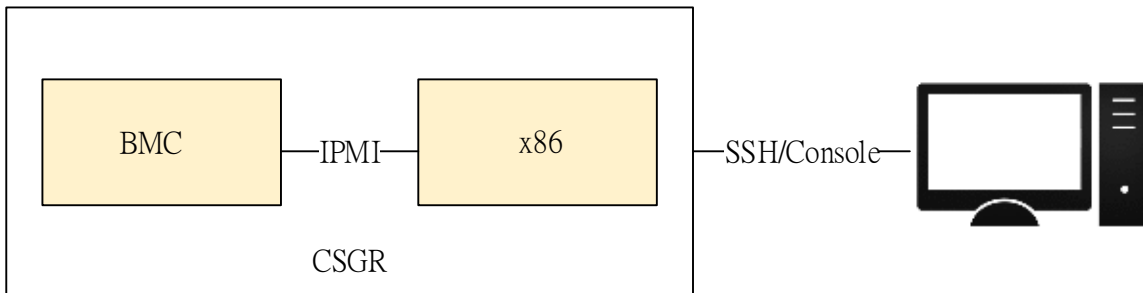
2 Test case

The test cases are designed to verify the major functions which the DUT can work normally as the production specification. These tests are designed to cover as much as possible for the software design and implementation verification.

2.1 BMC IPMI function test

2.1.1 IPMI test setup

BMC IPMI function is enabled for x86 CPU use. The test scenario is test PC connects to x86 Linux in CSGR via console or SSH connection and then use IPMI command to test BMC IPMI functions.



IPMI tools in x86 can be installed with Linux apt utility and BMC IPMI functions is enabled by default.

2.1.2 BMC IPMI functions

BMC supports the below major IPMI functions:

- HW Reboot
- PSU Test PSU Module #1 ~ #2
- FAN Test in PSU Module #1 ~ #2
- FAN Test in FAN Module #1 ~ #5
- System Thermal Temperature Test

2.1.3 Reboot CSGR

A. Test Purpose.

To verify that the CSGR can be reboot via IPMI command.

B. Test Configuration

Install IPMI tool in x86 Linux in CSGR. To configure the testing environment as IPMI test setup.

C. Test Procedure and Expected Result

Use "ipmitool power cycle" to reset CSGR. Expect that x86 Linux do gracefully shutdown and then reboot normally.

D. Test Result.

Pass / NG

2.1.4 PSU status function

A. Test Purpose.

To verify that the specified PSU#n of the CSGR. BMC software will reply the correct status information: PSU#n PG status / PSU#n presence status

B. Test Configuration

Install IPMI tool in x86 Linux in CSGR. To configure the testing environment as IPMI test setup.

C. Test Procedure and Expected Result

1. Make sure the PSU#1 and PSU#2 are attached with power Cable to CSGR.

1.1 Execute "ipmitool sdr elist" to check the status shall show PSU#n_Presence="Device Present", PSU#n_POWEROK="Device Enabled"

2. Remove the power cable from PSU#n,

2.1 Execute "ipmitool sdr elist" to check the status shall show PSU#n_Presence="Device Present", PSU#n_POWEROK="Device Disabled"

3. Re-insert the power cable into PSU#n,

3.1 Execute "ipmitool sdr elist" to check the status shall show PSU#n_Presence="Device Present", PSU#n_POWEROK="Device Enabled"

4. Remove the PSU#1 from CSGR,

4.1 Execute "ipmitool sdr elist" to check the status shall show PSU1_Presence="Device Absent", PSU1_POWEROK="Device Disabled"

5. Re-insert the power cable into PSU#n,

5.1 Execute "ipmitool sdr elist" to check the status shall show PSU#n_Presence="Device Present", PSU#n_POWEROK="Device Enabled"

D. Test Result.

	PSU#1 result	PSU#2 result
1.1	Pass / NG	Pass / NG
2.1		
3.1		
4.1		
5.1		

2.1.5 FAN status function**A. Test Purpose.**

To verify that the specified FAN#n or FAN/PSU#n of the CSGR. BMC software will reply the correct status information.

B. Test Configuration

Install IPMI tool in x86 Linux in CSGR. To configure the testing environment as IPMI test setup.

C. Test Procedure and Expected Result

1. Make sure the FAN#1 ~ FAN#6 FAN/PSU#1 and FAN/PSU#2 are attached to CSGR.

1.1 Execute "ipmitool sdr elist" and check the FAN_#n and FAN_PSU#n status shall show "ok" status and has RPM rate. FAN#0_Presence shall show "Device Present".

2. Remove FAN#n and FAN/PSU#n from the CSGR,

2.1 Execute "ipmitool sdr elist" and check the FAN_#n status shall show "Inr" status, and FAN_PSU#n shall show "ns" status. FAN#0_Presence shall show "Device Absent".

3. Re-insert the FAN#n into CSGR,

3.1 Execute "ipmitool sdr elist" and check the FAN_#n and FAN_PSU#n status shall show "ok" status and has RPM rate. FAN#0_Presence shall show "Device Present".

D. Test Result.

	FAN#1 result	FAN#2 result	FAN#3 result	FAN#4 result	FAN#5 result
1.1	Pass / NG	Pass / NG	Pass / NG	Pass / NG	Pass / NG
2.1					
3.1					

	FAN_PSU#1 result	FAN_PSU#2 result
1.1	Pass / NG	Pass / NG

2.1		
-----	--	--

2.1.6 System Thermal Temperature Test

A. Test Purpose.

To verify that System Thermal Temperature can be detected when fan are remove

B. Test Configuration

Install IPMI tool in x86 Linux in CSGR. To configure the testing environment as IPMI test setup.

C. Test Procedure and Expected Result

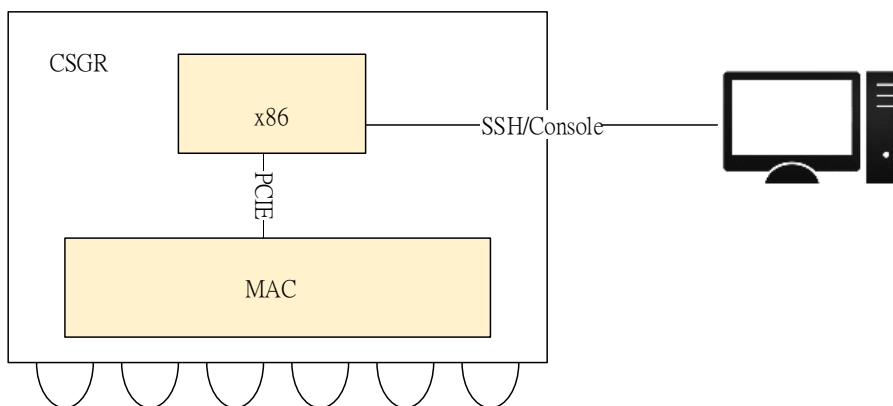
1. Make sure all fans are attached to CSGR.
 - 1.1 Read the System Thermal Temperature with "ipmitool sensor" command
 2. Remove all fans from CSGR for 30 s
 - 2.1 Read the System Thermal Temperature with "ipmitool sensor" command
 3. Attach all fans to CSGR to stop the case.

D. Test Result.

If observe the Temperature at 2.1 is higher than 1.1 which is Pass

2.2 Switch traffic function test

2.2.1 Line speed test setup with DAC cable



Use DAC cable to connect top and bottom ports as port pair

Line speed test utility is an application running on x86 Linux. When utility runs up, it will initialize MAC and related SDK configuration.

2.2.2 Line speed test

A. Test Purpose.

To do traffic test with DAC cable

B. Test Configuration

Install Linespeed utility in x86 Linux in CSGR. To configure the testing environment as Line speed test setup. Linespeed test utility will send fixed number of packets to each port pair and then make traffic loop in the port pair to approach line rate traffic. When test done, it will calculate error packets number and related traffic rate.

C. Test Procedure and Expected Result

1. Make sure all DAC cable connects well for each top and bottom port pair.
2. SSH or console connects to x86 Linux
3. Execute linespeed utility in x86 Linux

```
root@ubuntu~# cd /root/DIAG/DNX_QAX_DIAG
root@ubuntu~# ./runbcm.sh ufi
DIAG>
```

4. Execute linespeed test commands

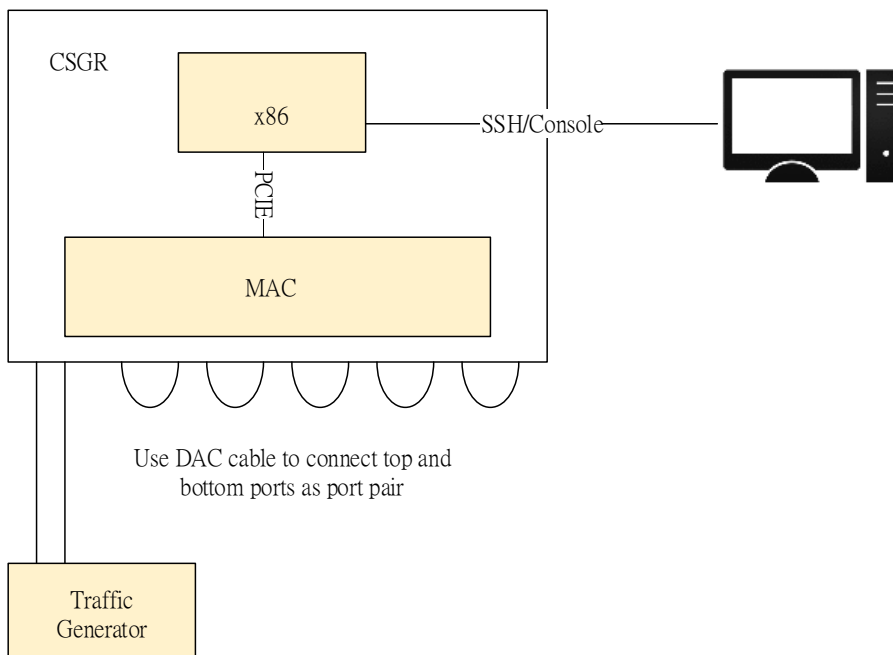
```
DIAG> linespeed extp 0 29 0x55 1500 30 30
```

5. Check test result if all pass or CRC error

D. Test Result.

If there is no CRC packet and traffic rate can reach 90% port speed, result is Pass. Otherwise, result is NG.

2.2.3 Snake test setup with DAC cable and traffic generator



snake test utility is an application running on x86 Linux. When utility runs up, it will initialize MAC and related SDK configuration.

2.2.4 Snake traffic test

A. Test Purpose.

To do traffic test with DAC cable

B. Test Configuration

Install snake test utility in x86 Linux in CSGR. To configure the testing environment as snake test setup. Snake test utility will make all front switch ports as a chain.

C. Test Procedure and Expected Result

1. Make sure all DAC cable connects well for each top and bottom port pair.

And connect one port pair with two ports of traffic generator.

2. SSH or console connects to x86 Linux

3. Execute snake test utility in x86 Linux

```
root@ubuntu~# cd /root/DIAG/DNX_QAX_DIAG
```

```
root@ubuntu~# ./runbcm.sh ufi
```

```
DIAG>
```

4. Execute snake test commands

```
DIAG> snakesetup 0 29
```

5. Send traffic from traffic generator and shall also receive traffic in generator. Check if traffic received by traffic generator has CRC packets or not

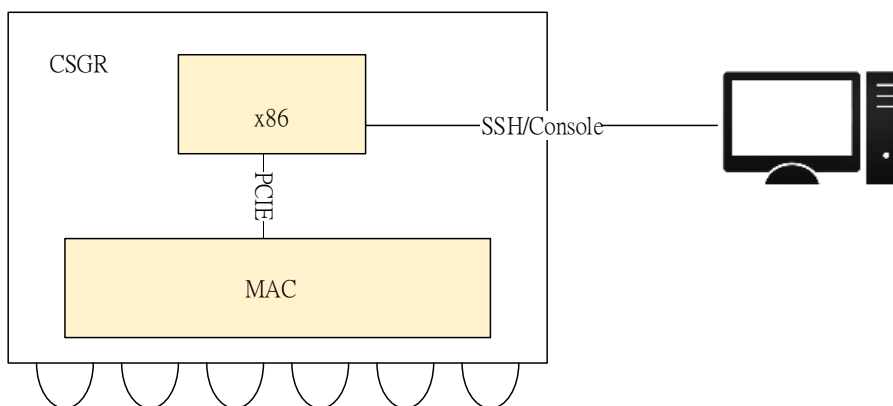
D. Test Result.

If there is no any CRC or drop packets, result is Pass.

Otherwise, result is NG.

2.3 LED function test

2.3.1 Switch port LED test setup with DAC cable



Use DAC cable to connect top and bottom ports as port pair

linespeed test utility is an application running on x86 Linux. When utility runs up, it will initialize MAC and related SDK configuration

2.3.2 Switch port LED test

A. Test Purpose.

To do switch LED behavior check

B. Test Configuration

Install linespeed test utility in x86 Linux in CSGR. To configure the testing environment as switch port LED test setup.

C. Test Procedure and Expected Result

1. Make sure all DAC cable connects well for each top and bottom port pair.

2. SSH or console connects to x86 Linux

3. Execute snake test utility in x86 Linux

```
root@ubuntu~# cd /root/DIAG/DNX_QAX_DIAG
```

```
root@ubuntu~# ./runbcm.sh ufi
```

```
DIAG>
```

4. Check all switch ports are solid green

5. Execute linespeed test commands

```
DIAG> linespeed extp 0 29 0x55 1500 30 30
```

6. Check all switch ports are blinking green

7. Execute port speed change command to change port0 ~ port 19 as 1G / port 20 ~ port 27 as 10G / port 28 and port 29 as 40G

```
DIAG> port 28 29 speed 40g
```

```
DIAG> port 0 19 speed 1g
```

```
DIAG> port 20 27 speed 10g
```

8. Check all switch ports are solid yellow
9. Execute linespeed test commands
 DIAG> linespeed extp 0 29 0x55 1500 30 30
10. Check all switch ports are blinking yellow

D. Test Result.

If test steps 4, 6, 8, 10 are as expected, then result is pass.
 Otherwise, result is NG.

2.3.3 FAN LED test setup

The setup is the same with switch LED test setup.

2.3.4 FAN LED test

A. Test Purpose.

To do FAN#n LED behavior check

B. Test Configuration

To configure the testing environment as FAN port LED test setup.

C. Test Procedure and Expected Result

1. Power up device.
2. Check all FAN LED is green
3. Plug out FAN#n, Check FAN#n LED is off
4. Re-plug in FAN#n, Check FAN#n LED is green
5. Use fan stopper to stop FAN#n, Check FAN#n LED is blinking amber
6. Remove fan stopper, Check FAN#n LED is green

D. Test Result.

	FAN#1 result	FAN#2 result	FAN#3 result	FAN#4 result	FAN#5 result
2	Pass / NG	Pass / NG	Pass / NG	Pass / NG	Pass / NG
3					
4					
5					
6					

3 TEST MATRIX AND SUMMARY

TBD

4 APPENDIX

TBD