RTL8305SB
SmartBit SmartApp
and AST Test Report

By Y.C.Lin

Smart App. Performance Test :

1. Throughtput Test

Objective **:**

This test determines the throughput rate that can be supported by a device under test (DUT) without a single packet being dropped.

Output Rseults : Throughput per port

Test Result Criterion **:**

The device fails if the throughput is less than 100%.

Test Results : **PASS**

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Spirent Communications - SmartBits Throughput Test Results

             Vendor Name: Vendor
            Product Name: Product
        Software Version: SmartApplications V 2.50
         Library Version: 3.12-115
        Firmware Version: 6.69
           Serial Number: 63667955
  Throughput test length: 30 seconds
              Average of: 1 trial
       Port pairs active: 2
                    Mode: Bi-directional
                    Date: Wed Sep 11 17:06:57 2002

Maximum port-pair throughput with no loss
=========================================================

Frame size                          64     128     256     512    1024    1280    1518
100Mb MaxRate                   148810   84459   45290   23496   11973    9615    8127
Avg % passed                    100.00  100.00  100.00  100.00  100.00  100.00  100.00
Acceptable Loss %                 0.00    0.00    0.00    0.00    0.00    0.00    0.00
---------------------------------------------------------------------------------------
(02,01,01) to (02,02,01)        148810   84459   45290   23496   11973    9615    8127
(02,02,01) to (02,01,01)        148810   84459   45290   23496   11973    9615    8127
(02,03,01) to (02,04,01)        148810   84459   45290   23496   11973    9615    8127
(02,04,01) to (02,03,01)        148810   84459   45290   23496   11973    9615    8127

=========================================================

Frame size                          64     128     256     512    1024    1280    1518
(02,01,01) to (02,02,01)        100.00  100.00  100.00  100.00  100.00  100.00  100.00
(02,02,01) to (02,01,01)        100.00  100.00  100.00  100.00  100.00  100.00  100.00
(02,03,01) to (02,04,01)        100.00  100.00  100.00  100.00  100.00  100.00  100.00
(02,04,01) to (02,03,01)        100.00  100.00  100.00  100.00  100.00  100.00  100.00

Throughput SUMMARY: Total Port-Pairs

Frame size                          64     128     256     512    1024    1280    1518
Maximum Rate                    595240  337836  181160   93984   47892   38460   32508
FPS Passed Rate                 595240  337836  181160   93984   47892   38460   32508
Percentage                      100.00  100.00  100.00  100.00  100.00  100.00  100.00
```

2. Latency Test

Objective **:**

Frame latency is of considerable significance when determining the overall performance of a network. This is especially important if the protocol forces acknowledgment frames at short intervals during network usage (e.g. standard IPX for NetWare).

Output Rseults : Latency per port

Test Results : **PASS**

```
Spirent Communications - SmartBits Latency Test Results

             Vendor Name: Vendor
            Product Name: Product
        Software Version: SmartApplications V 2.50
         Library Version: 3.12-115
        Firmware Version: 6.69
           Serial Number: 63667955
     Latency test length: 30 seconds
              Average of: 1 trial
       Port pairs active: 2
                    Mode: Bi-directional (Measured on one receiving card only)
                    Date: Wed Sep 11 17:13:21 2002

Mode: SmartMetrics Comp. Mode

(Cut Through)Port-Pair Latency in microseconds (us) [or ms where noted]
=========================================================================

Frame size                          64     128     256     512    1024    1280    1518
Percent load                    100.00  100.00  100.00  100.00  100.00  100.00  100.00
-------------------------------------------------------------------------------------
(02,01,01) to (02,02,01)           7.8    12.9    23.2    43.6    84.5   104.9   124.0
(02,03,01) to (02,04,01)           7.9    13.0    23.2    43.6    84.7   105.0   124.2

(Store and Forward)Port-Pair Latency in microseconds (us) [or ms where noted]
=============================================================================

Frame size                          64     128     256     512    1024    1280    1518
Percent load                    100.00  100.00  100.00  100.00  100.00  100.00  100.00
-------------------------------------------------------------------------------------
(02,01,01) to (02,02,01)           2.7     2.7     2.8     2.7     2.6     2.5     2.6
(02,03,01) to (02,04,01)           2.8     2.8     2.8     2.7     2.8     2.6     2.8
```

3. Frame Loss Rate Test

Objective **:**

This test indicates the performance of a DUT in a heavily loaded state, by measuring the percentage of packets that are not forwarded due to lack of resources.

Output Rseults : Frame Loss Rate per port

Test Result Criterion **:**

The device fails if the Frame Loss Rate is greater than 0%.

Test Results : **PASS**

```
Spirent Communications - SmartBits PacketLoss Test Results

             Vendor Name: Vendor
            Product Name: Product
        Software Version: SmartApplications V 2.50
         Library Version: 3.12-115
        Firmware Version: 6.69
           Serial Number: 63667955
  PacketLoss test length: 30 seconds
              Average of: 1 trial
       Port pairs active: 2
                    Mode: Bi-directional
                    Date: Wed Sep 11 17:19:51 2002

Port-Pair PacketLoss as a percentage of total
=============================================

Frame size                          64      128      256      512     1024     1280     1518
Max  attempted                  100.00   100.00   100.00   100.00   100.00   100.00   100.00
-------------------------------------------------------------------------------------------
(02,01,01) to (02,02,01)         0.000    0.000    0.000    0.000    0.000    0.000    0.000
(02,02,01) to (02,01,01)         0.000    0.000    0.000    0.000    0.000    0.000    0.000
(02,03,01) to (02,04,01)         0.000    0.000    0.000    0.000    0.000    0.000    0.000
(02,04,01) to (02,03,01)         0.000    0.000    0.000    0.000    0.000    0.000    0.000
```

4. Back-to-Back Frames Test

Objective **:**

This test measures the ***buffer capacity*** of a DUT by sending bursts of traffic at the *maximum frame rate* and measuring the longest burst size (in total number of packets) at which no packets are dropped.

Output Rseults : Maximum frame rate per port

Test Result Criterion **:**

The device fails if the result of the maximum frame rate at which no packets are dropped *is less than 100%.*

Test Results : **PASS**

```
Spirent Communications - SmartBits Back-to-back Test Results

             Vendor Name: Vendor
            Product Name: Product
        Software Version: SmartApplications V 2.50
         Library Version: 3.12-115
        Firmware Version: 6.69
           Serial Number: 63667955
Back-to-back test length: 30 seconds
              Average of: 1 trial
       Port pairs active: 2
                    Mode: Bi-directional
                    Date: Wed Sep 11 17:26:07 2002

Port-Pair Back-to-back
======================================

Frame size                              64       128       256       512      1024       12
100Mb offered                      4464300   2533770   1358700    704880    359190    2884
Burst Seconds                      30.0000   30.0000   30.0000   30.0000   30.0000   30.00
Offered %                           100.00    100.00    100.00    100.00    100.00    100.
-------------------------------------------------------------------------------------------
(02,01,01) to (02,02,01)           4464300   2533770   1358700    704880    359190    2884
(02,02,01) to (02,01,01)           4464300   2533770   1358700    704880    359190    2884
(02,03,01) to (02,04,01)           4464300   2533770   1358700    704880    359190    2884
(02,04,01) to (02,03,01)           4464300   2533770   1358700    704880    359190    2884

Back-to-back SUMMARY: Total Port-Pairs
======================================

Frame size                              64       128       256       512      1024       12
-------------------------------------------------------------------------------------------
Frames Rcv'd                       17857200  10135080   5434800   2819520   1436760   11538
```

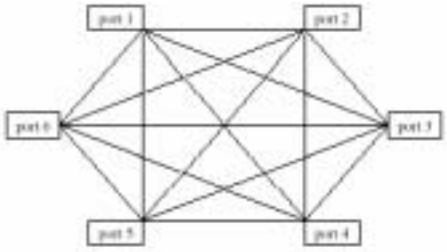
Smart App. Performance Test :

5. X-Stream Test

***Objective*:**

Determines the throughput of the Device Under Test (DUT) when receiving multiple streams of traffic with all of the ports on the device both sending and receiving frames at the same time.

***Test Setup*:** (test on full ports)



Source Port	Destination Ports (in order of transmission)					
Port #1	2	3	4	5	6	1…
Port#2	3	4	5	6	1	2...
Port#3	4	5	6	1	2	3…
Port#4	5	6	1	2	3	4…
Port#5	6	1	2	3	4	5…
Port#6	1	2	3	4	5	6…

***Test Methodlogy*:**

Output Rseults: (1) Lost Packets; (2)%Loss Packets; (3) Flooded Packets; (4) Rate & Rate Max Value

***Test Result Criterion*:**

The device fails if lost packets rate of any trials greater than 0%.

Check that the CRC, Oversize Pkt and Alignment error counter are all zero.

***Test Results:* PASS**

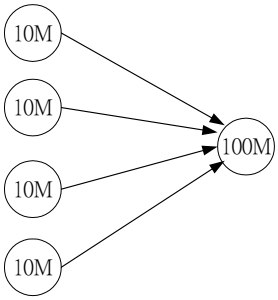
Item	Description	Result	Note
1	100F_Xstream_1	Pass	
2	100F_Xstream_16	Pass	
3	100F_Xstream_256	Pass	
4	100H_Xstream_1	Pass	
5	100H_Xstream_16	Pass	
6	100H_Xstream_256	Pass	
7	10F_Xstream_1	Pass	
8	10F_Xstream_16	Pass	
9	10F_Xstream_256	Pass	
10	10H_Xstream_1	Pass	
11	10H_Xstream_16	Pass	
12	10H_Xstream_256	Pass	

6. Many to One Test

***Objective*:**

Determines the throughput when transmitting from one or more 10Mbps ports and receiving on one 100Mbps port.

***Test Setup*:**



Output Rseults: (1) Fast Ethernet Port Counters (2) Individual Ethernet Port Counters (3) Group Counter for Ethernet Ports

***Test Result Criterion*:**

Analyzing the transmitted frames and rates at the source ports vs. the received frames and rates at the fast Ethernet test port.

The device fails if lost packets rate of any trials greater than 0%..

Check that the CRC, Oversize Pkt and Alignment error counters should be all zero.

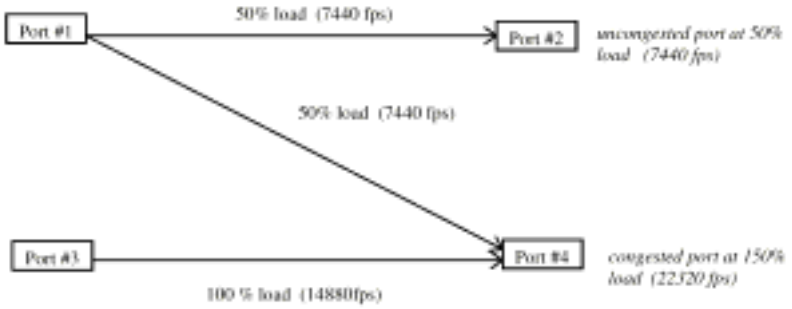
***Test Results:* PASS**

Item	Description	Result	Note
1	100F_Many2one_1	Pass	
2	100F_Many2one_16	Pass	
3	100F_Many2one_256	Pass	
4	100H_Many2one_1	Pass	
5	100H_Many2one_16	Pass	
6	100H_Many2one_256	Pass	
7	10F_Many2one_1	Pass	
8	10F_Many2one_16	Pass	
9	10F_Many2one_256	Pass	
10	10H_Many2one_1	Pass	
11	10H_Many2one_16	Pass	
12	10H_Many2one_256	Pass	

7. Head-of-Line Blocking Test

***Objective*:**

Determines frame loss between two ports when a stream of traffic is sent from one port to a second port which is uncongested at the same time that the same source port is sending traffic to a congested port. Determines whether congestion on one port "spills over" and causes frame loss on another uncongested port.



***Test Setup*:**

***Test Methodlogy*:**

Output Rseults: (1) Congestion control (2) Forwarding rate on congested & un-congested port

***Test Result Criterion*:**

The devices fails if there is frame loss at the uncongested port or if the frame loss rate greater than 33%(0%, with congestion control) at the congested port.

Check that the CRC, Oversize Pkt and Alignment error counters should be all zero.

Test Results: **PASS**

Item	Description	Flow Control	Result	Note
1	100F_HOLB_1	On	Pass	
2	100F_HOLB_16	On	Pass	
3	100F_HOLB_256	On	Pass	
4	100H_HOLB_1	On	Pass	
5	100H_HOLB_16	On	Pass	
6	100H_HOLB_256	On	Pass	
7	10F_HOLB_1	On	Pass	
8	10F_HOLB_16	On	Pass	
9	10F_HOLB_256	On	Pass	
10	10H_HOLB_1	On	Pass	
11	10H_HOLB_16	On	Pass	
12	10H_HOLB_256	On	Pass	
13	100F_FCOff_HOLB	Off	Pass	
14	100H_BPOff_HOLB	Off	Pass	
15	10F_FCOff_HOLB	Off	Pass	
16	10H_BPOff_HOLB	Off	Pass	

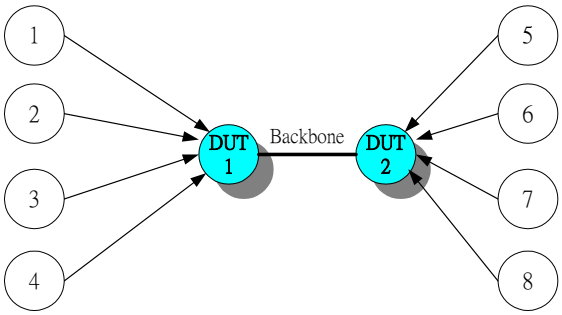
8. Backbone switching Test

***Objective*:**

Determines the throughput of two switching devices equipped with one or more 10Mbps Ethernet ports and one high-speed backbone link.

It indicate that how a backbone-type media handles buffering & bursty traffic and how buffering is handled when multiple ports are attempting to access a single port

***Test Setup*:**



Output Rseults: (1) Loss packets (2) % Loss Packets (3) Flooded packets (4) Rate and Max rate values

***Test Result Criterion*:**

Look at Tx and Rx group counters for both sides (right mouse selection) to determine rate of frame loss.

There should be no frame loss. Check that the CRC, Over and Align counters should zero.

Test Results: **PASS**

Item	Description	Result	Note
1	100F_Backbone_1	Pass	
2	100F_Backbone_16	Pass	
3	100F_Backbone_256	Pass	
4	100H_Backbone_1	Pass	
5	100H_Backbone_16	Pass	
6	100H_Backbone_256	Pass	
7	10F_Backbone_1	Pass	
8	10F_Backbone_16	Pass	
9	10F_Backbone_256	Pass	
10	10H_Backbone_1	Pass	
11	10H_Backbone_16	Pass	
12	10H_Backbone_256	Pass	