



聯傑國際股份有限公司(DAVICOM Semiconductor, Inc.)

# DAVICOM DM9000A Performance Report

## for STx7100 Platform

The DM9000A is a fully integrated and cost-effective low pin (48-pin) count single chip Fast Ethernet controller with a general processor interface and 10/100 PHY. The DM9000A supports 8-bit and 16-bit data interface to internal memory accesses for various processor. The PHY of the DM9000A can interface to the UTP3, 4, 5 in 10Base-T and UTP5 in 100Base-TX with HP AUTO-MDIX.

DM9000A is designed 16-bit mode on STx7100 platform. DM9000A driver uses PIO (not DMA) mode to move data from DM9000A FIFO into memory. There are two test tools to measure DM9000A network performance. One is IPERF (web site : <http://dast.nlanr.net/Projects/Iperf/> ) and another is NETPERF (web site : <http://www.netperf.org/netperf/NetperfPage.html> ). You visit the web sites to get relative document about test tool.

Test tools use client-server mode to measure network performance. The client site sends many large packets during test time. And the server site sends ACK packets at that time. We measure the TX and RX performance separately.

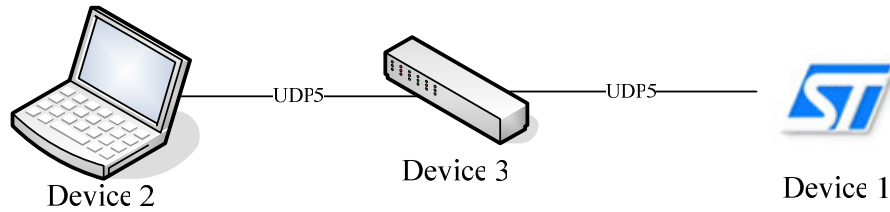
- TX performance : device1 (STx7100) acts client and device2 acts server.
- RX performance : device2 acts client and device1 (STx7100) acts server.

● **Conclusion :**

Unit : Mbits/sec.

	TCP		UDP	
	TX	RX	TX	RX
Netperf	49.384	36.576	81.588	66.23
Iperf	45.38	39.26	N/A	

Table 1



Pic. 1

● **Test Environment**

Device 1. :

Main-chip : STx7100  
 LAN chip : DM9000A E7 (16-bit)  
 O.S. : STLinux-2.0 (linux-sh4-2.6.11.12-stm20-32)  
 IP : 192.168.11.111

Device 2. Notebook :

Compaq Presario V2331AP  
 CPU : Pentium M 1.60GHz  
 RAM : 512MB  
 LAN chip : Realtek 8139/810x Family  
 O.S. : Microsoft Windows XP  
 IP : 192.168.11.100

Device 3. PCI FX-035A switch hub

● **TCP Performance**

Server : #./iperf -s

Client : #./iperf -c \$IP -t 30

Unit : Mbits/sec.

times	TX	RX
1	45.7	39.3
2	45.4	39.3
3	45.1	39.1
4	45.5	39.3
5	45.2	39.3
<b>Average</b>	<b>45.38</b>	<b>39.26</b>

Table 2



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Server : #./netserver

Client : #./netperf -H \$IP -tTCP\_STREAM -l30

Unit : Mbits/sec.

times	TX	RX
1	49.31	36.78
2	49.41	36.65
3	49.41	36.46
4	49.39	36.48
5	49.40	36.51
<b>Average</b>	<b>49.384</b>	<b>36.576</b>

Table 3

● UDP Packets Performance

Server : Device 2

#./netserver

Client : Device 1

#./netperf -H \$IP -tUDP\_STREAM -l30 -- -m1472

Unit : Mbits/sec.

times	TX	RX
1	80.96	65.49
2	81.58	65.81
3	82.45	66.64
4	82.44	66.58
5	80.51	66.63
<b>Average</b>	<b>81.588</b>	<b>66.23</b>

Table 4