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# 10 Gigabit Ethernet: current state

## Internet2 Performance Workshop

6-Dec-2005 v0.1

Caveat: we personally have limited experience with 10GE servers

Reporting current “best of breed”

- Some general principles
- Land speed record candidates
- What High-Energy Physics is doing

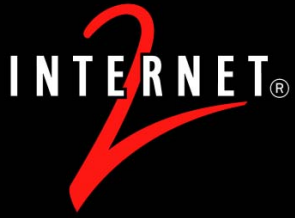
# 10GE: setting expectations

~833,400 pps at 1500 MTU

~138,900 pps at 9000 MTU

## Bus limitations

- PCI-X 1.0 is ~8Gbps
- PCI Express helps



# Four Card Vendors

Intel

Neterion (nee S2IO)

Chelsio

Myricom

You want dual AMD 64 bit processors  
PCI-X 1.0 at 133 Mhz has achieved  
7.5Gbps TCP on Linux (Neterion)

PCI-X 1.0 at 100 Mhz has achieved 5.0  
Gbps

UDP: Esnet had some problems;  
Harvey's group at CALTECH has  
achieved 6.5 Gbps

1<sup>st</sup> gen Intel 10GE NICs

Dell 2650

2.4 GHz Xeon, 400Mhz FSB

3.8Gbps TCP

Use 64 bit architecture

S2IO XFrame (now Neterion)

- 6.5Gbps

1<sup>st</sup> Gen Intel: 5.8 Gbps

Opteron slightly more performant than  
Itanium

## Opteron

- Tyan Thunder K8S Pro (S2882), 2x Opteron 2.2GHz, 2GB mem

## Itanium

- HP rx 4640, 4x1.5GHz Itanium-2, zx1 chipset, 8GB memory

Tyan S2895A2NRF IDE Version

“thunderk8we”

Dual AMD 252 Opteron CPUs

2GB DDR 400 ECC/Reg.

Neterion X-Frame PCI-X NIC

Linux (2.6?)

7.5Gbps TCP

“Dual Opteron, PCI-X”

Chelsio N210 cards

6.5Gbps

MTU 8160, a bunch of other tuning  
parms

“it just worked”

Supermicro X6DHE-XG2, Dual Xeon  
800MHz FSB motherboard

(2) Intel Xeon64 3.2GHz, 1MB Cache,  
800MHz FSB Processors

Chelsio S210 card

Talk to your NIC vendor

MTU 9000 (8160?)

Iptables off (and unloaded)

Actual tweaks vary by version (and have changed a lot recently)



# A running list

<http://e2epi.internet2.edu/net-perf-wkshp/binder-docs/10GEexamples.html>



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