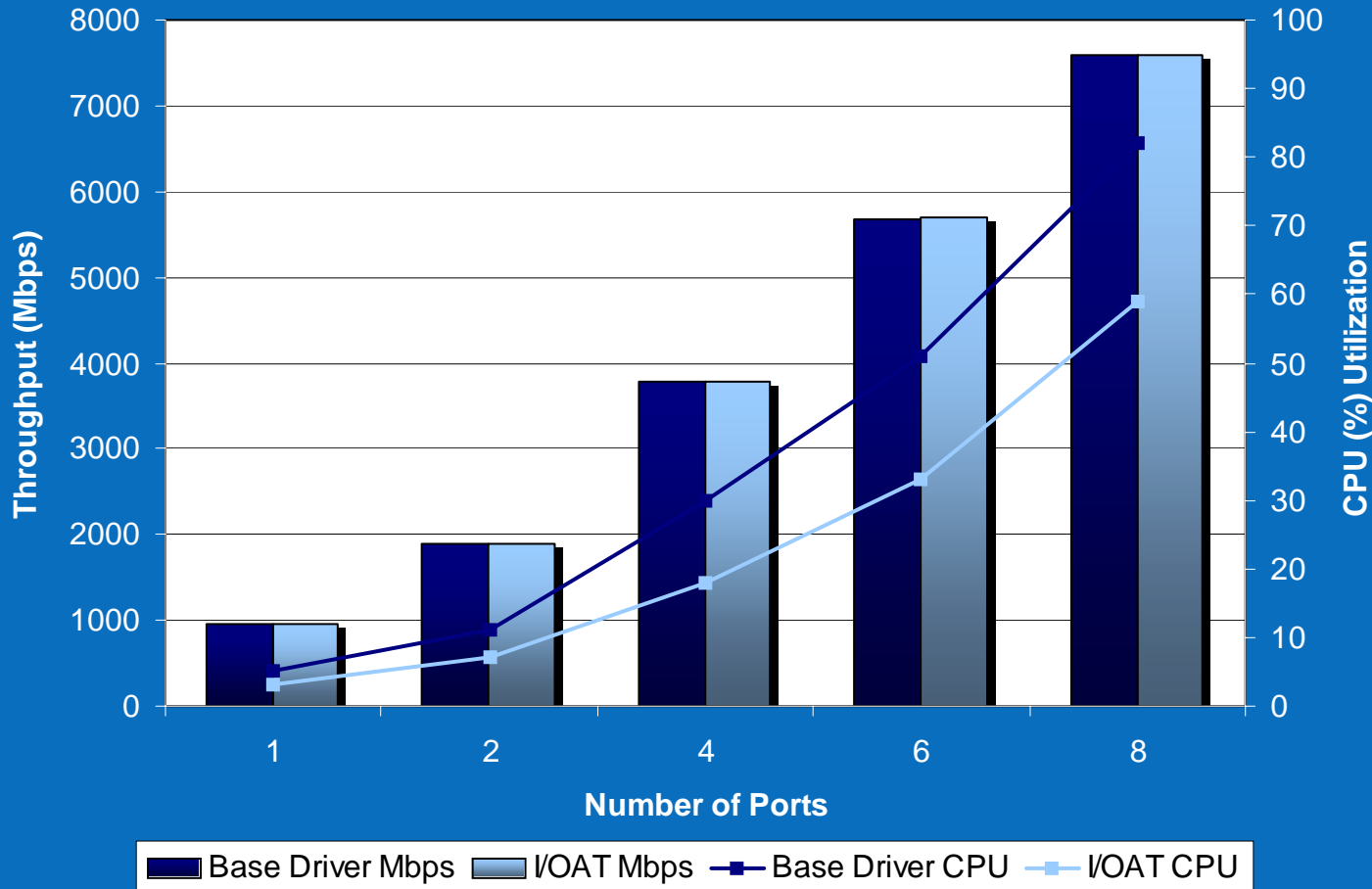# Linux Receive Port Scaling with Intel® I/OAT

**Bensley Linux Kernel 2.6.16.1 Std. GbE vs. Intel® I/OAT
64KB Buffer Size Receive (Rx) Port Scaling Performance Test**

Test
Ixia IxChariot* 6.2
6 Clients Per Port Under Test
High Perf. Throughput script
File Size = 1000000 Bytes
Buffer Sizes = 64 to 64K Bytes
Data Type – Zeros
Data Verification Disabled
Bensley Server
Intel® Bridgeport CRB 55
2x 3.2GHz Dual Core Xeon®
8GB RAM
Linux Kernel 2.6.16.1 patched
with Intel® I/OAT DMA v1.5
Base Driver 7.0.38
Clients
Dell PowerEdge 750
3.4Ghz Pentium® 4 processor
Windows XP Professional SP1
Network Configuration
Cisco 6509
Clients connected @ 1000 Mbs

Legend: Base Driver Mbps | I/OAT Mbps | Base Driver CPU | I/OAT CPU

Source: Intel Labs April 2006

Linux Receive Port Scaling with Intel® I/OAT

Linux Kernel 2.6.16.1 with 7.0.38 Base Driver		
Num Ports	**Base Driver Mbps**	**Base Driver CPU**
1	948	5
	947	5
	948	5
2	1896	11
	1895	11
	1896	11
4	3792	30
	3790	30
	3789	30
6	5686	51
	5684	51
	5688	51
8	7580	83
	7582	82
	7577	81

Num Ports	Base Driver Mbps	Base Driver CPU
1	948	5
2	1895	11
4	3790	30
6	5686	51
8	7580	82

Linux Kernel 2.6.16.1 with I/OAT v1.5		
Num Ports	**I/OAT Mbps**	**I/OAT CPU**
1	948	3
	948	3
	948	3
2	1894	7
	1895	7
	1897	7
4	3790	18
	3791	18
	3790	18
6	5687	33
	5686	33
	5687	33
8	7580	59
	7580	59
	7582	59

Num Ports	I/OAT Mbps	I/OAT CPU
1	948	3
2	1895	7
4	3791	18
6	5687	33
8	7581	59

Test
Ixia IxChariot* 6.2
6 Clients Per Port Under Test
High Perf. Throughput script
File Size = 1000000 Bytes
Buffer Sizes = 64 to 64K Bytes
Data Type – Zeros
Data Verification Disabled
Bensley Server
Intel® Bridgeport CRB 55
2x 3.2GHz Dual Core Xeon®
8GB RAM
Linux Kernel 2.6.16.1 patched
with Intel® I/OAT DMA v1.5
Base Driver 7.0.38
Clients
Dell PowerEdge 750
3.4Ghz Pentium® 4 processor
Windows XP Professional SP1
Network Configuration
Cisco 6509
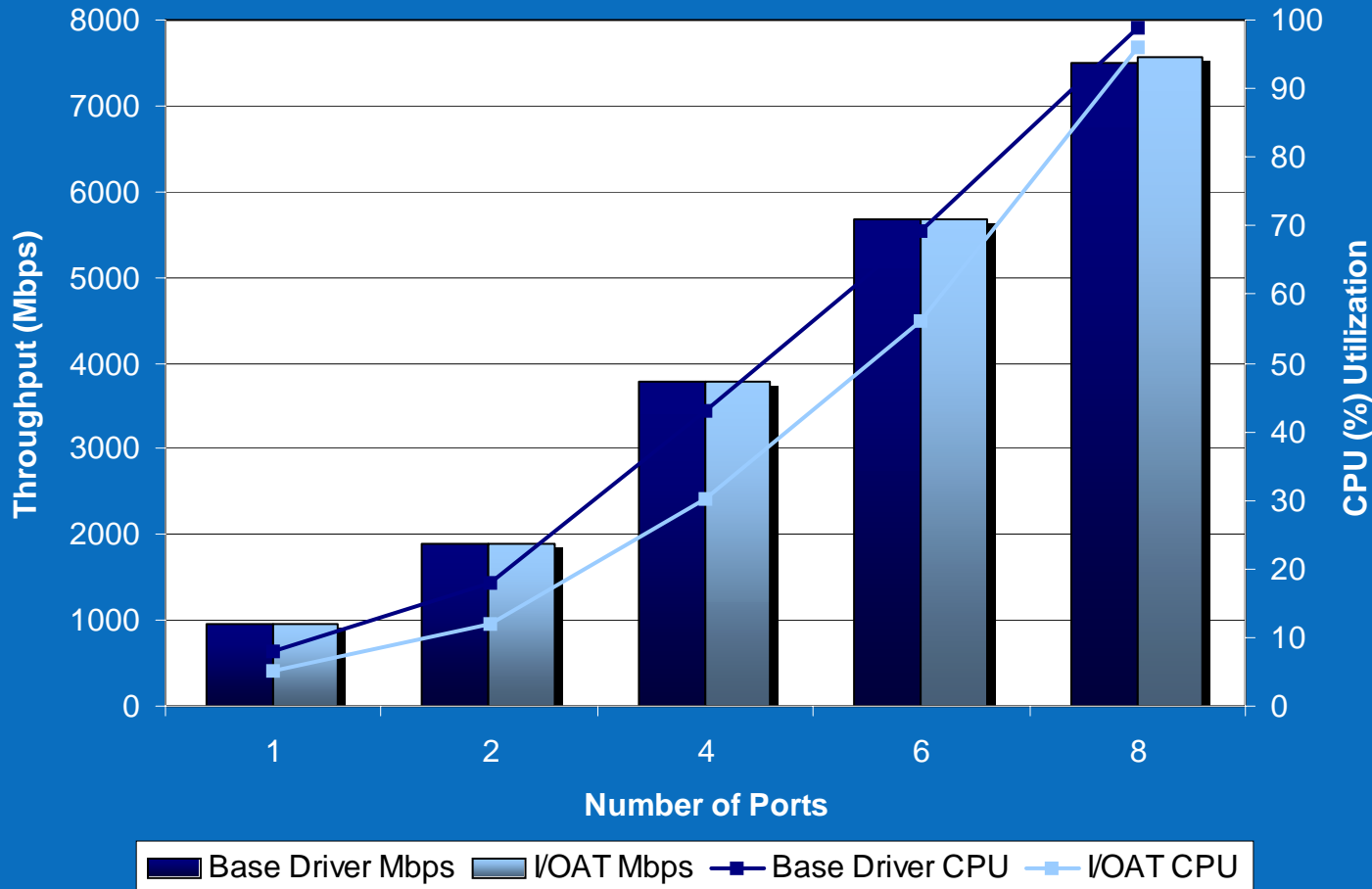Clients connected @ 1000 Mbs

Source: Intel Labs April 2006

(intel)

Linux Receive Port Scaling with Intel® I/OAT Chariot Data Verification Enabled*

Bensley Linux Kernel 2.6.16.1 Std. GbE vs. Intel® I/OAT
64KB Buffer Size Receive (Rx) Port Scaling Performance Test

Test
Ixia IxChariot* 6.2
6 Clients Per Port Under Test
High Perf. Throughput script
File Size = 1000000 Bytes
Buffer Sizes = 64 to 64K Bytes
Data Type – Zeros
Data Verification Enabled
*(Touched Data)
Bensley Server
Intel® Bridgeport CRB 55
2x 3.2GHz Dual Core Xeon®
8GB RAM
Linux Kernel 2.6.16.1 patched
with Intel® I/OAT DMA v1.5
Base Driver 7.0.38
Clients
Dell PowerEdge 750
3.4Ghz Pentium® 4 processor
Windows XP Professional SP1
Network Configuration
Cisco 6509
Clients connected @ 1000 Mbs

Legend: Base Driver Mbps | I/OAT Mbps | Base Driver CPU | I/OAT CPU

Source: Intel Labs April 2006

Linux Receive Port Scaling with Intel® I/OAT Chariot Data Verification Enabled*

Linux Kernel 2.6.16.1 with 7.0.38 Base Driver		
Num Ports	Base Driver Mbps	Base Driver CPU
1	947	8
	948	8
	948	8
2	1896	18
	1894	18
	1895	18
4	3791	43
	3790	43
	3790	43
6	5686	69
	5686	69
	5686	70
8	7509	99
	7507	99
	7501	99

Linux Kernel 2.6.16.1 with I/OAT v1.5		
Num Ports	I/OAT Mbps	I/OAT CPU
1	948	5
	948	5
	948	5
2	1896	12
	1895	12
	1897	12
4	3790	31
	3790	30
	3792	30
6	5686	58
	5684	56
	5685	56
8	7572	96
	7573	96
	7576	96

Num Ports	Base Driver Mbps	Base Driver CPU
1	948	8
2	1895	18
4	3790	43
6	5686	69
8	7506	99

Num Ports	I/OAT Mbps	I/OAT CPU
1	948	5
2	1896	12
4	3791	30
6	5685	56
8	7574	96

Test
Ixia IxChariot* 6.2
6 Clients Per Port Under Test
High Perf. Throughput script
File Size = 1000000 Bytes
Buffer Sizes = 64 to 64K Bytes
Data Type – Zeros
Data Verification Enabled
*(Touched Data)
Bensley Server
Intel® Bridgeport CRB 55
2x 3.2GHz Dual Core Xeon®
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with Intel® I/OAT DMA v1.5
Base Driver 7.0.38
Clients
Dell PowerEdge 750
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Windows XP Professional SP1
Network Configuration
Cisco 6509
Clients connected @ 1000 Mbs

Source: Intel Labs April 2006