



# SPEC<sup>®</sup> CINT2006 Result

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## NEC Corporation

### SPECint<sup>®</sup>\_rate2006 = 78.2

Express5800/140Ba-10  
(Intel Xeon E7220)

### SPECint\_rate\_base2006 = 65.2

CPU2006 license: 9006

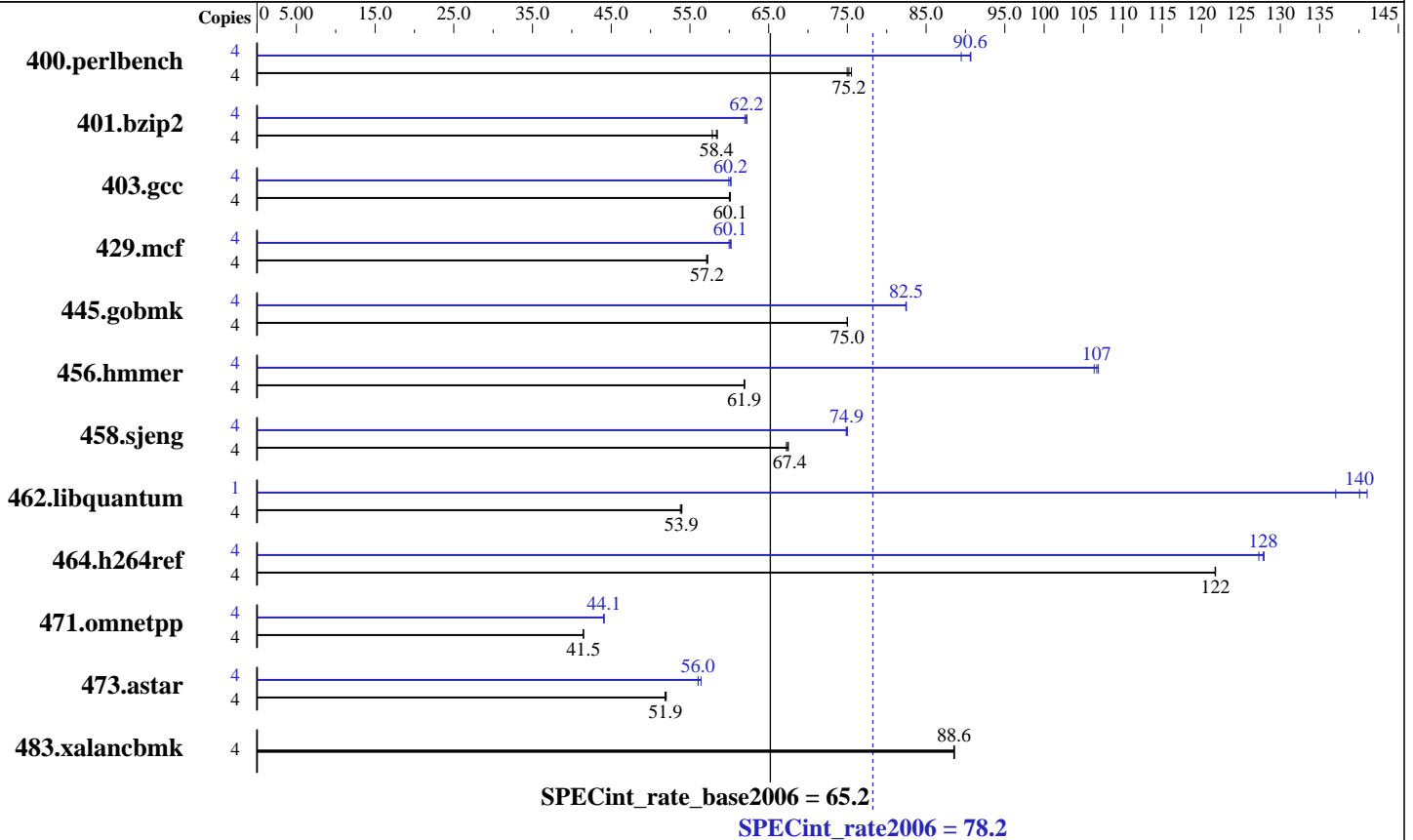
Test date: Mar-2008

Test sponsor: NEC Corporation

Hardware Availability: Sep-2007

Tested by: NEC Corporation

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E7220  
 CPU Characteristics: 2.93 GHz, 1066 MHz bus  
 CPU MHz: 2933  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2,3,4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per core  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (16x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 1x73.2 GB SAS, 10000RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: L\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap library 8.1 binutils-2.17.tar.gz, Version 2.17



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	521	75.0	<u>520</u>	<u>75.2</u>	517	75.5	4	431	90.7	<u>431</u>	<u>90.6</u>	437	89.5
401.bzip2	4	660	58.5	667	57.8	<u>661</u>	<u>58.4</u>	4	620	62.2	623	62.0	<u>621</u>	<u>62.2</u>
403.gcc	4	<u>536</u>	<u>60.1</u>	537	60.0	536	60.1	4	<u>535</u>	<u>60.2</u>	535	60.2	537	59.9
429.mcf	4	637	57.3	639	57.1	<u>638</u>	<u>57.2</u>	4	608	60.0	<u>607</u>	<u>60.1</u>	606	60.2
445.gobmk	4	560	75.0	559	75.0	<u>559</u>	<u>75.0</u>	4	509	82.4	509	82.5	<u>509</u>	<u>82.5</u>
456.hmmer	4	603	61.9	<u>603</u>	<u>61.9</u>	602	62.0	4	351	106	<u>350</u>	<u>107</u>	349	107
458.sjeng	4	717	67.5	720	67.3	<u>718</u>	<u>67.4</u>	4	645	75.0	<u>646</u>	<u>74.9</u>	647	74.8
462.libquantum	4	1541	53.8	<u>1537</u>	<u>53.9</u>	1535	54.0	1	147	141	151	137	<u>148</u>	<u>140</u>
464.h264ref	4	727	122	<u>727</u>	<u>122</u>	727	122	4	692	128	695	127	<u>693</u>	<u>128</u>
471.omnetpp	4	603	41.5	<u>603</u>	<u>41.5</u>	603	41.5	4	567	44.1	<u>567</u>	<u>44.1</u>	567	44.1
473.astar	4	542	51.8	<u>541</u>	<u>51.9</u>	540	52.0	4	498	56.4	501	56.0	<u>501</u>	<u>56.0</u>
483.xalanbmk	4	<u>312</u>	<u>88.6</u>	312	88.5	311	88.6	4	<u>312</u>	<u>88.6</u>	312	88.5	311	88.6

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2,  
456.hmmer, for peak, are compiled in 64-bit mode

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalanbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:

-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -fast -ansi-alias  
-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch

403.gcc: -fast -inline-calloc -opt-malloc-options=3

429.mcf: -fast -prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo  
-no-prec-div -ansi-alias

456.hmmr: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4

462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.20090713.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.20090713.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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