



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/140Ba-10  
(Intel Xeon E7220)

SPECint®2006 = 23.7

SPECint\_base2006 = 20.7

CPU2006 license: 9006

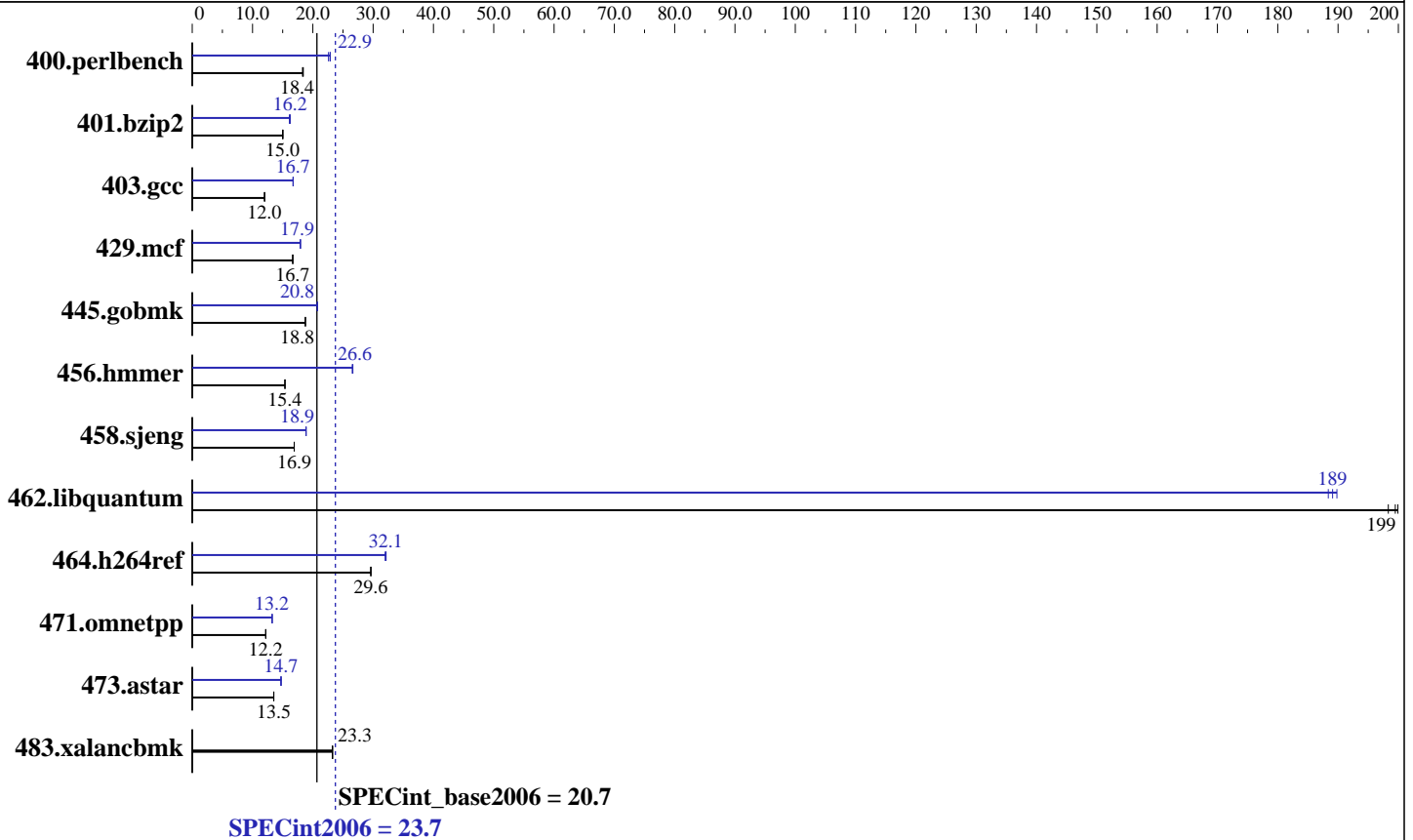
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Mar-2008

Hardware Availability: Sep-2007

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: 8 cores, 4 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	534	18.3	<b><u>532</u></b>	<b><u>18.4</u></b>	530	18.4	427	22.9	<b><u>427</u></b>	<b><u>22.9</u></b>	432	22.6
401.bzip2	641	15.1	<b><u>643</u></b>	<b><u>15.0</u></b>	645	15.0	<b><u>595</u></b>	<b><u>16.2</u></b>	594	16.2	599	16.1
403.gcc	672	12.0	<b><u>671</u></b>	<b><u>12.0</u></b>	670	12.0	481	16.7	<b><u>481</u></b>	<b><u>16.7</u></b>	482	16.7
429.mcf	547	16.7	<b><u>547</u></b>	<b><u>16.7</u></b>	547	16.7	509	17.9	508	18.0	<b><u>508</u></b>	<b><u>17.9</u></b>
445.gobmk	<b><u>559</u></b>	<b><u>18.8</u></b>	559	18.8	559	18.8	<b><u>505</u></b>	<b><u>20.8</u></b>	505	20.8	506	20.7
456.hmmer	606	15.4	<b><u>607</u></b>	<b><u>15.4</u></b>	607	15.4	352	26.5	350	26.6	<b><u>350</u></b>	<b><u>26.6</u></b>
458.sjeng	715	16.9	<b><u>716</u></b>	<b><u>16.9</u></b>	716	16.9	641	18.9	641	18.9	<b><u>641</u></b>	<b><u>18.9</u></b>
462.libquantum	<b><u>104</u></b>	<b><u>199</u></b>	104	198	104	200	110	188	109	190	<b><u>110</u></b>	<b><u>189</u></b>
464.h264ref	747	29.6	748	29.6	<b><u>747</u></b>	<b><u>29.6</u></b>	688	32.1	692	32.0	<b><u>689</u></b>	<b><u>32.1</u></b>
471.omnetpp	512	12.2	<b><u>512</u></b>	<b><u>12.2</u></b>	513	12.2	471	13.3	<b><u>472</u></b>	<b><u>13.2</u></b>	472	13.2
473.astar	<b><u>519</u></b>	<b><u>13.5</u></b>	519	13.5	520	13.5	476	14.8	<b><u>476</u></b>	<b><u>14.7</u></b>	478	14.7
483.xalancbmk	<b><u>297</u></b>	<b><u>23.3</u></b>	296	23.3	297	23.2	<b><u>297</u></b>	<b><u>23.3</u></b>	296	23.3	297	23.2

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 and 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.xalancbmk: -DSPEC\_CPU\_LINUX



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## Base Optimization Flags

C benchmarks:

`-fast -vec-guard-write -parallel -par-runtime-control`

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  
-auto-ilp32

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  
-auto-ilp32

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>



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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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