



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/120Rh-1  
(Intel Xeon X5470)

SPECint®2006 = 30.2

SPECint\_base2006 = 26.3

CPU2006 license: 9006

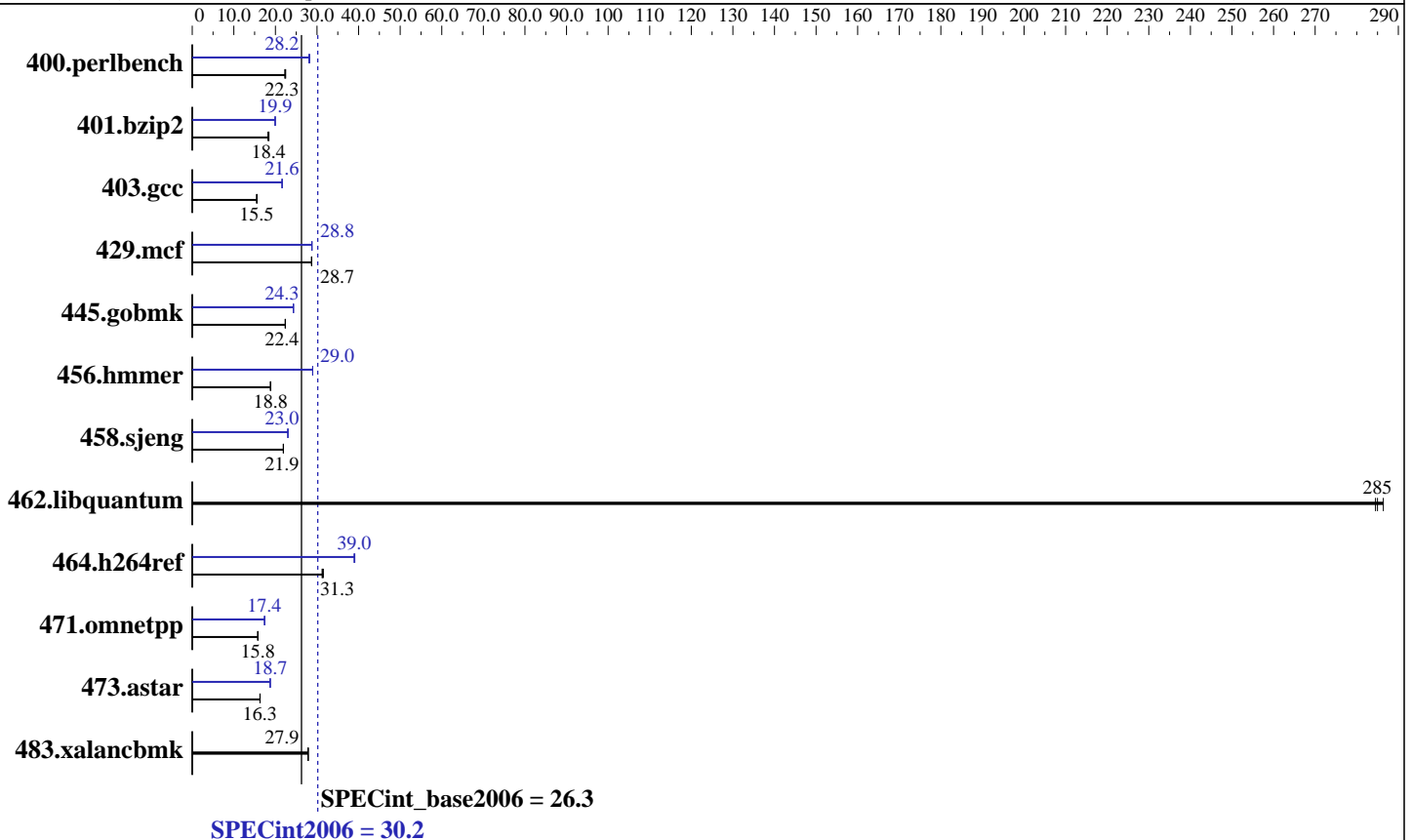
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Oct-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 1x146.5 GB SAS, 15000RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.044  
 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 2.18.50.0.7.20080502



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b><u>437</u></b>	<b><u>22.3</u></b>	438	22.3	435	22.5	<b><u>347</u></b>	<b><u>28.2</u></b>	346	28.2	348	28.1
401.bzip2	523	18.4	<b><u>525</u></b>	<b><u>18.4</u></b>	531	18.2	485	19.9	<b><u>484</u></b>	<b><u>19.9</u></b>	483	20.0
403.gcc	520	15.5	517	15.6	<b><u>519</u></b>	<b><u>15.5</u></b>	373	21.6	372	21.6	<b><u>372</u></b>	<b><u>21.6</u></b>
429.mcf	318	28.7	317	28.7	<b><u>317</u></b>	<b><u>28.7</u></b>	<b><u>317</u></b>	<b><u>28.8</u></b>	317	28.7	317	28.8
445.gobmk	469	22.4	469	22.4	<b><u>469</u></b>	<b><u>22.4</u></b>	431	24.3	431	24.3	<b><u>431</u></b>	<b><u>24.3</u></b>
456.hammer	<b><u>495</u></b>	<b><u>18.8</u></b>	496	18.8	495	18.8	322	29.0	<b><u>322</u></b>	<b><u>29.0</u></b>	322	29.0
458.sjeng	<b><u>552</u></b>	<b><u>21.9</u></b>	552	21.9	552	21.9	526	23.0	<b><u>526</u></b>	<b><u>23.0</u></b>	526	23.0
462.libquantum	<b><u>72.7</u></b>	<b><u>285</u></b>	72.8	285	72.3	286	<b><u>72.7</u></b>	<b><u>285</u></b>	72.8	285	72.3	286
464.h264ref	708	31.2	702	31.5	<b><u>707</u></b>	<b><u>31.3</u></b>	568	38.9	566	39.1	<b><u>568</u></b>	<b><u>39.0</u></b>
471.omnetpp	397	15.7	<b><u>396</u></b>	<b><u>15.8</u></b>	396	15.8	360	17.4	<b><u>359</u></b>	<b><u>17.4</u></b>	359	17.4
473.astar	430	16.3	<b><u>431</u></b>	<b><u>16.3</u></b>	431	16.3	375	18.7	374	18.8	<b><u>374</u></b>	<b><u>18.7</u></b>
483.xalancbmk	247	27.9	248	27.8	<b><u>248</u></b>	<b><u>27.9</u></b>	247	27.9	248	27.8	<b><u>248</u></b>	<b><u>27.9</u></b>

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  
KMP\_AFFINITY set to "physical,0"

## Platform Notes

Bios settings:  
Hardware Prefetcher: Enabled  
Adjacent Cache Line Prefetch: Enabled

## General Notes

The NEC Express5800/120Rh-1(Intel Xeon X5470),  
the NEC Express5800/120Rj-2(Intel Xeon X5470),  
the Bull NovaScale R440 E1(Intel Xeon X5470, 3.33 GHz) and  
the Bull NovaScale R460 E1(Intel Xeon X5470, 3.33 GHz) models are electronically equivalent.  
The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon X5470) model.

## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc



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## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel  
-par-runtime-control -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -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/Compiler/11.0/044/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/044/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include

C++ benchmarks:

icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch  
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -auto-ilp32 -opt-prefetch  
-ansi-alias  
403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3  
429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias  
456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias -auto-ilp32  
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4  
462.libquantum: basepeak = yes  
464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-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) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap  
483.xalancbmk: basepeak = yes



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## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.html>  
<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.xml>  
<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revB.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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