



# SPEC<sup>®</sup> CINT2006 Result

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## NEC Corporation

SPECint<sup>®</sup>\_rate2006 = 430

Express5800/R120e-2M (Intel Xeon E5-2620 v2)

SPECint\_rate\_base2006 = 414

CPU2006 license: 9006

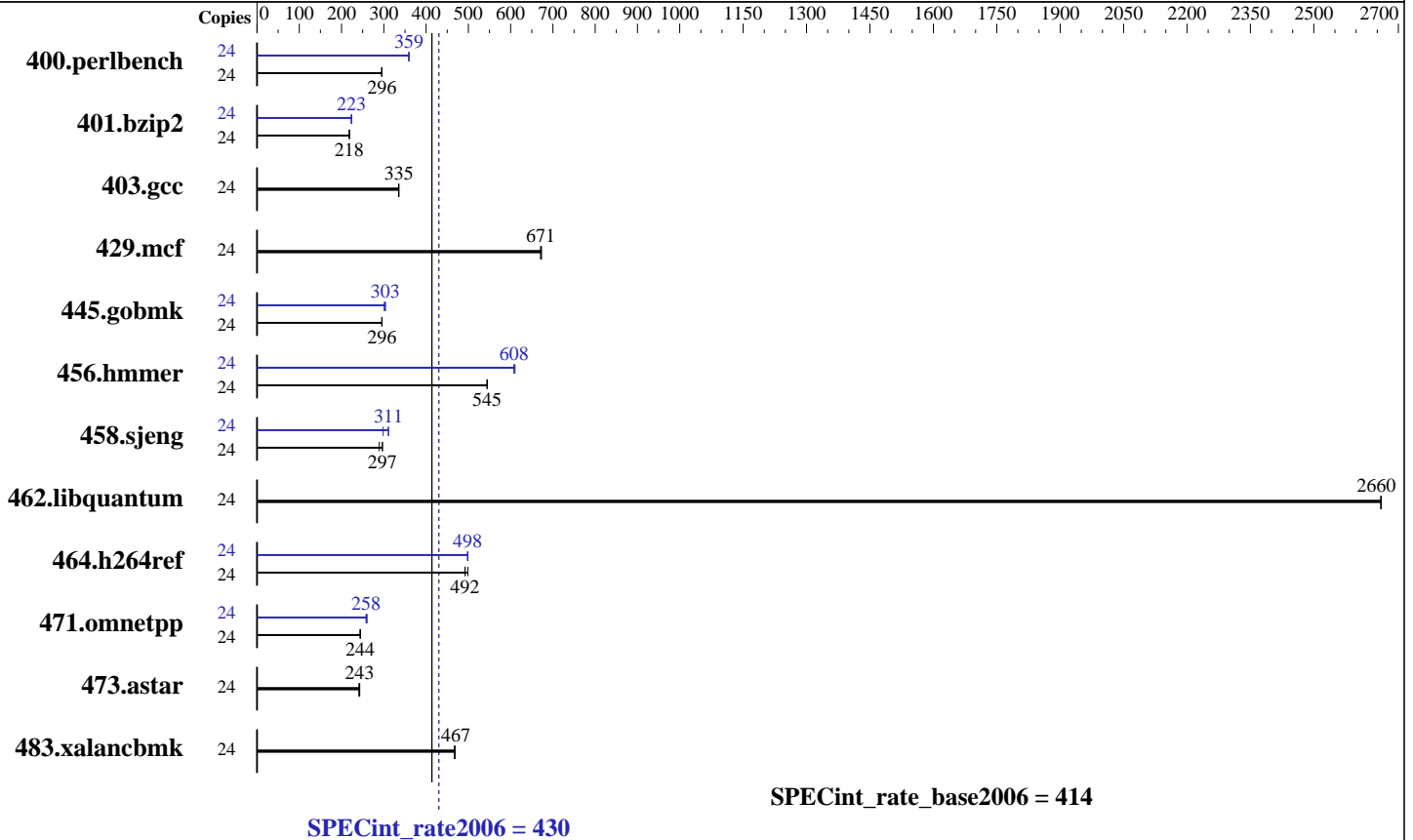
Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2620 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.60 GHz  
 CPU MHz: 2100  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3L-12800R-11, ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 10000 RPM, RAID 0  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 Kernel 2.6.32-358.18.1.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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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	24	796	295	<b><u>793</u></b>	<b><u>296</u></b>	793	296	24	653	359	<b><u>653</u></b>	<b><u>359</u></b>	653	359
401.bzip2	24	1061	218	1059	219	<b><u>1060</u></b>	<b><u>218</u></b>	24	<b><u>1037</u></b>	<b><u>223</u></b>	1037	223	1035	224
403.gcc	24	576	336	<b><u>576</u></b>	<b><u>335</u></b>	577	335	24	576	336	<b><u>576</u></b>	<b><u>335</u></b>	577	335
429.mcf	24	<b><u>326</u></b>	<b><u>671</u></b>	325	673	326	671	24	<b><u>326</u></b>	<b><u>671</u></b>	325	673	326	671
445.gobmk	24	<b><u>852</u></b>	<b><u>296</u></b>	852	296	852	295	24	829	304	837	301	<b><u>830</u></b>	<b><u>303</u></b>
456.hammer	24	411	545	<b><u>411</u></b>	<b><u>545</u></b>	412	544	24	367	610	368	608	<b><u>368</u></b>	<b><u>608</u></b>
458.sjeng	24	1004	289	979	297	<b><u>979</u></b>	<b><u>297</u></b>	24	973	298	934	311	<b><u>934</u></b>	<b><u>311</u></b>
462.libquantum	24	<b><u>187</u></b>	<b><u>2660</u></b>	187	2660	187	2660	24	<b><u>187</u></b>	<b><u>2660</u></b>	187	2660	187	2660
464.h264ref	24	1079	492	1065	499	<b><u>1079</u></b>	<b><u>492</u></b>	24	<b><u>1065</u></b>	<b><u>498</u></b>	1066	498	1065	499
471.omnetpp	24	615	244	613	245	<b><u>614</u></b>	<b><u>244</u></b>	24	<b><u>580</u></b>	<b><u>258</u></b>	576	260	581	258
473.astar	24	693	243	<b><u>694</u></b>	<b><u>243</u></b>	699	241	24	693	243	<b><u>694</u></b>	<b><u>243</u></b>	699	241
483.xalancbmk	24	353	469	<b><u>354</u></b>	<b><u>467</u></b>	355	467	24	353	469	<b><u>354</u></b>	<b><u>467</u></b>	355	467

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS Settings:  
Energy Performance: Performance  
Memory Voltage: 1.5 V

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled  
Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>  
The Express5800/R120e-1M and

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## General Notes (Continued)

the Express5800/R120e-2M models are electronically equivalent.  
The results have been measured on the Express5800/R120e-2M model.

## Base Compiler Invocation

C benchmarks:

icc -m32

C++ benchmarks:

icpc -m32

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

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## Peak Compiler Invocation (Continued)

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

456.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LINUX

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

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## Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## 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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>

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

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