



# SPEC® CINT2006 Result

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## NEC Corporation

SPECint®\_rate2006 = 454

Express5800/R120e-2M (Intel Xeon E5-2690 v2)

SPECint\_rate\_base2006 = 439

CPU2006 license: 9006

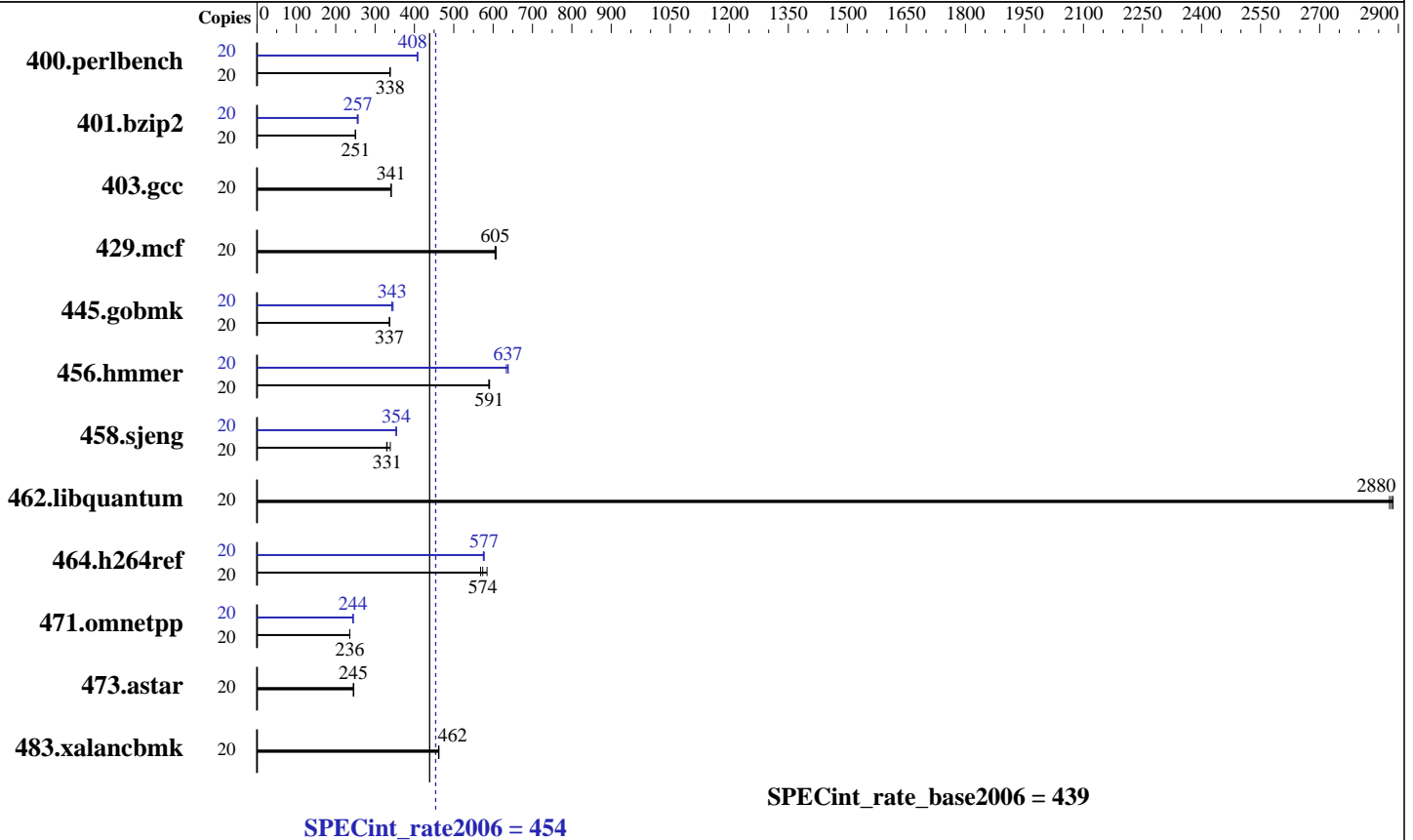
Test date: Oct-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



**Hardware**

CPU Name: Intel Xeon E5-2690 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 10 cores, 1 chip, 10 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: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (4 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 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  | 20     | 578        | 338        | 578        | 338        | <b>578</b> | <b>338</b>  | 20     | 479        | 408        | <b>479</b> | <b>408</b> | 479        | 408         |
| 401.bzip2      | 20     | <b>770</b> | <b>251</b> | 774        | 249        | 770        | 251         | 20     | <b>752</b> | <b>257</b> | 752        | 257        | 758        | 255         |
| 403.gcc        | 20     | 472        | 341        | 473        | 340        | <b>473</b> | <b>341</b>  | 20     | 472        | 341        | 473        | 340        | <b>473</b> | <b>341</b>  |
| 429.mcf        | 20     | 300        | 608        | 301        | 605        | <b>301</b> | <b>605</b>  | 20     | 300        | 608        | 301        | 605        | <b>301</b> | <b>605</b>  |
| 445.gobmk      | 20     | 623        | 337        | <b>623</b> | <b>337</b> | 623        | 337         | 20     | 607        | 346        | <b>612</b> | <b>343</b> | 612        | 343         |
| 456.hammer     | 20     | 317        | 589        | <b>316</b> | <b>591</b> | 316        | 591         | 20     | 295        | 633        | <b>293</b> | <b>637</b> | 292        | 638         |
| 458.sjeng      | 20     | 715        | 339        | 735        | 329        | <b>732</b> | <b>331</b>  | 20     | <b>684</b> | <b>354</b> | 685        | 353        | 684        | 354         |
| 462.libquantum | 20     | 144        | 2880       | 144        | 2890       | <b>144</b> | <b>2880</b> | 20     | 144        | 2880       | 144        | 2890       | <b>144</b> | <b>2880</b> |
| 464.h264ref    | 20     | 757        | 584        | 779        | 568        | <b>772</b> | <b>574</b>  | 20     | 770        | 575        | 767        | 577        | <b>767</b> | <b>577</b>  |
| 471.omnetpp    | 20     | 531        | 236        | 530        | 236        | <b>530</b> | <b>236</b>  | 20     | 513        | 244        | 511        | 244        | <b>512</b> | <b>244</b>  |
| 473.astar      | 20     | 573        | 245        | 571        | 246        | <b>573</b> | <b>245</b>  | 20     | 573        | 245        | 571        | 246        | <b>573</b> | <b>245</b>  |
| 483.xalancbmk  | 20     | 299        | 461        | 298        | 462        | <b>299</b> | <b>462</b>  | 20     | 299        | 461        | 298        | 462        | <b>299</b> | <b>462</b>  |

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

## 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  
the Express5800/R120e-2M models are electronically equivalent.

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## General Notes (Continued)

The results have been measured on the Express5800/R120e-1M 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

456.hmmer: icc -m64

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## Peak Compiler Invocation (Continued)

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

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