



# SPEC® CINT2006 Result

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## NEC Corporation

SPECint®\_rate2006 = 441

Express5800/R120f-2E (Intel Xeon E5-2650 v3)

SPECint\_rate\_base2006 = 424

CPU2006 license: 9006

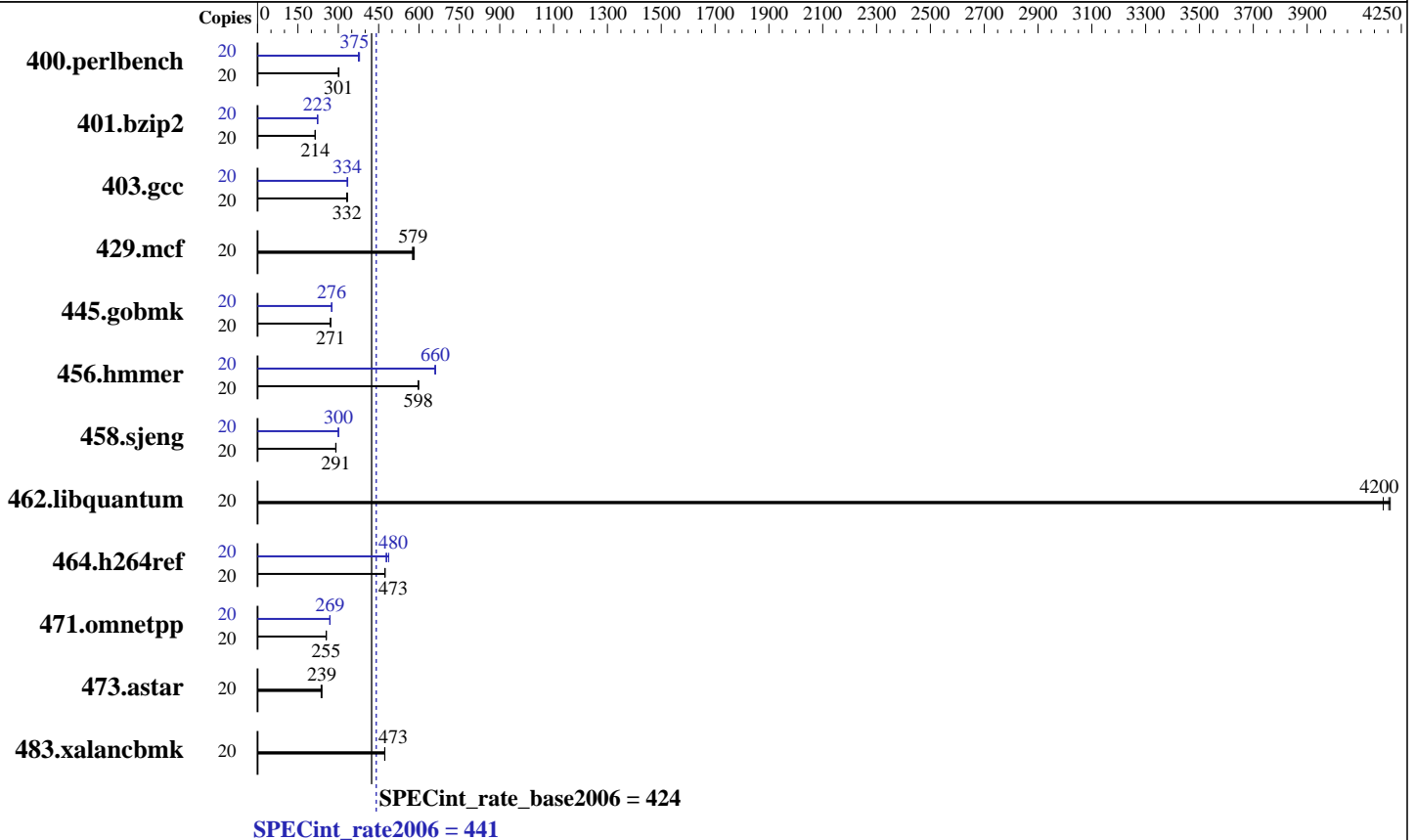
Test date: Jan-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



### Hardware

CPU Name: Intel Xeon E5-2650 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2300  
 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: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 Kernel 2.6.32-431.20.3.el6.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 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     | <b>650</b> | <b>301</b> | 646        | 302        | 650         | 301         | 20     | 516        | 379        | 521        | 375        | <b>521</b>  | <b>375</b>  |
| 401.bzip2      | 20     | 899        | 215        | 904        | 214        | <b>900</b>  | <b>214</b>  | 20     | 865        | 223        | <b>865</b> | <b>223</b> | 865         | 223         |
| 403.gcc        | 20     | <b>485</b> | <b>332</b> | 485        | 332        | 482         | 334         | 20     | 483        | 333        | 481        | 335        | <b>483</b>  | <b>334</b>  |
| 429.mcf        | 20     | <b>315</b> | <b>579</b> | 313        | 582        | 317         | 576         | 20     | <b>315</b> | <b>579</b> | 313        | 582        | 317         | 576         |
| 445.gobmk      | 20     | <b>774</b> | <b>271</b> | 774        | 271        | 772         | 272         | 20     | 762        | 275        | 761        | 276        | <b>761</b>  | <b>276</b>  |
| 456.hammer     | 20     | 312        | 598        | 313        | 597        | <b>312</b>  | <b>598</b>  | 20     | <b>283</b> | <b>660</b> | 283        | 659        | 282         | 662         |
| 458.sjeng      | 20     | <b>831</b> | <b>291</b> | 834        | 290        | 830         | 292         | 20     | <b>805</b> | <b>300</b> | 805        | 301        | 807         | 300         |
| 462.libquantum | 20     | 99.1       | 4180       | 98.5       | 4210       | <b>98.6</b> | <b>4200</b> | 20     | 99.1       | 4180       | 98.5       | 4210       | <b>98.6</b> | <b>4200</b> |
| 464.h264ref    | 20     | 934        | 474        | <b>935</b> | <b>473</b> | 936         | 473         | 20     | <b>922</b> | <b>480</b> | 908        | 487        | 927         | 478         |
| 471.omnetpp    | 20     | 491        | 255        | <b>490</b> | <b>255</b> | 489         | 256         | 20     | 466        | 268        | <b>464</b> | <b>269</b> | 464         | 269         |
| 473.astar      | 20     | 588        | 239        | <b>589</b> | <b>239</b> | 594         | 236         | 20     | 588        | 239        | <b>589</b> | <b>239</b> | 594         | 236         |
| 483.xalancbmk  | 20     | 292        | 472        | <b>292</b> | <b>473</b> | 292         | 473         | 20     | 292        | 472        | <b>292</b> | <b>473</b> | 292         | 473         |

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:  
Power Management Policy: Custom  
Energy Performance: Performance  
Patrol Scrub: Disabled

## 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>



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## Base Compiler Invocation

C benchmarks:

icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

C++ benchmarks:

icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## Base Portability Flags

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

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -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 -L/opt/intel/composer\_xe\_2015/lib/ia32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

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## Peak Compiler Invocation (Continued)

C++ benchmarks:

icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## 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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div  
429.mcf: basepeak = yes  
445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3  
456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
458.sjeng: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

C++ benchmarks:

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## Peak Optimization Flags (Continued)

471.omnetpp: -xCORE-AVX2(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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevB.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-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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