



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®\_rate2006 = 630**

Express5800/R120f-2M (Intel Xeon E5-2697 v3)

**SPECint\_rate\_base2006 = 612**

CPU2006 license: 9006

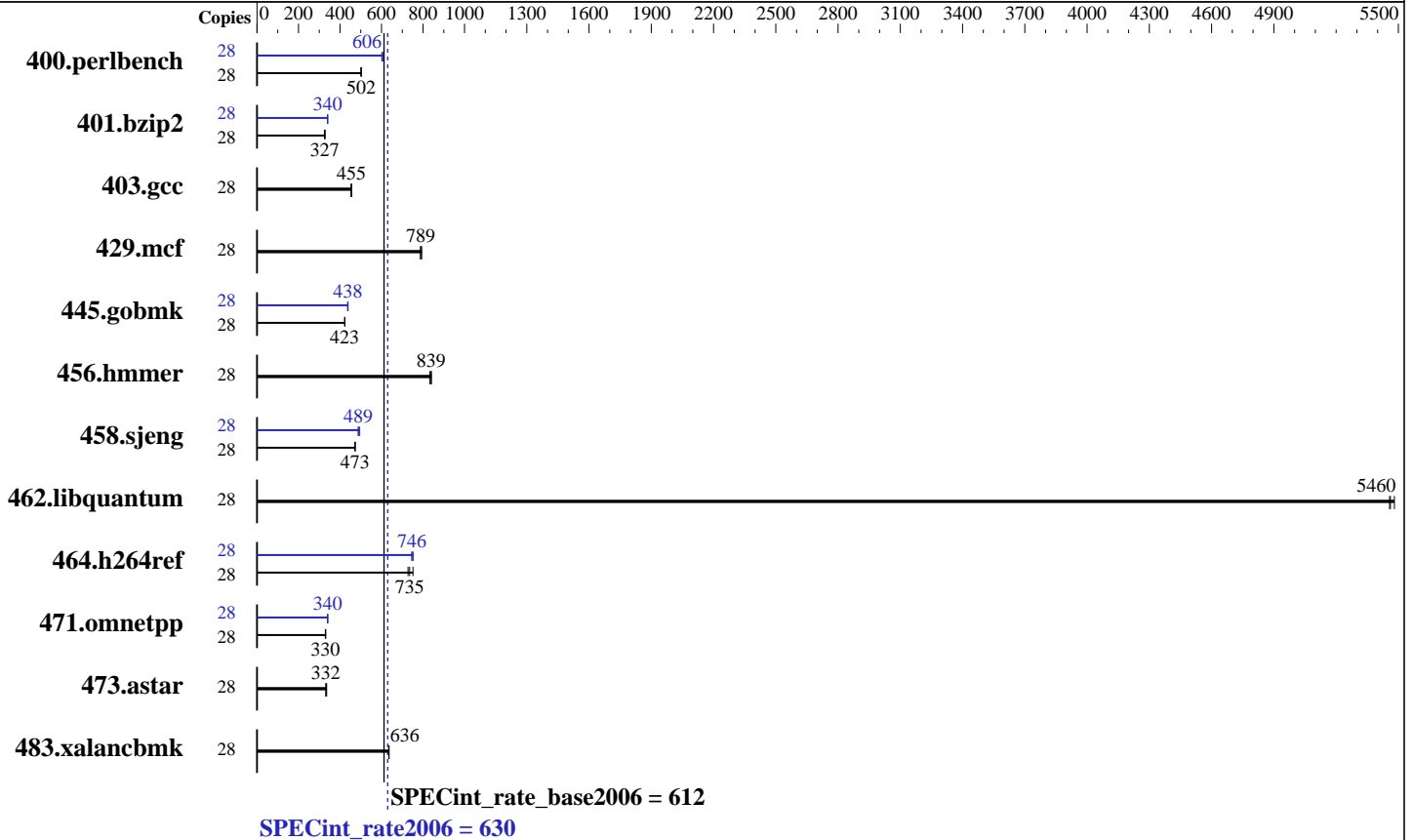
Test date: Nov-2014

Test sponsor: NEC Corporation

Hardware Availability: Feb-2015

Tested by: NEC Corporation

Software Availability: May-2014



### Hardware

CPU Name: Intel Xeon E5-2697 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 14 cores, 1 chip, 14 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: 35 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 2.6.32-431.17.1.el6.x86\_64  
 Compiler: C/C++: Version 14.0.2.144 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  | 28     | 545               | 502               | <b><u>545</u></b> | <b><u>502</u></b>  | 546               | 501               | 28     | <b><u>452</u></b> | <b><u>606</u></b> | 455               | 601                | 452               | 606               |
| 401.bzip2      | 28     | 832               | 325               | <b><u>827</u></b> | <b><u>327</u></b>  | 824               | 328               | 28     | <b><u>794</u></b> | <b><u>340</u></b> | 793               | 341                | 795               | 340               |
| 403.gcc        | 28     | <b><u>495</u></b> | <b><u>455</u></b> | 495               | 455                | 497               | 453               | 28     | <b><u>495</u></b> | <b><u>455</u></b> | 495               | 455                | 497               | 453               |
| 429.mcf        | 28     | <b><u>324</u></b> | <b><u>789</u></b> | 324               | 788                | 322               | 794               | 28     | <b><u>324</u></b> | <b><u>789</u></b> | 324               | 788                | 322               | 794               |
| 445.gobmk      | 28     | 693               | 424               | <b><u>695</u></b> | <b><u>423</u></b>  | 695               | 423               | 28     | 669               | 439               | 673               | 437                | <b><u>671</u></b> | <b><u>438</u></b> |
| 456.hammer     | 28     | <b><u>312</u></b> | <b><u>839</u></b> | 314               | 832                | 311               | 840               | 28     | <b><u>312</u></b> | <b><u>839</u></b> | 314               | 832                | 311               | 840               |
| 458.sjeng      | 28     | 716               | 473               | <b><u>717</u></b> | <b><u>473</u></b>  | 717               | 472               | 28     | 685               | 495               | 695               | 488                | <b><u>693</u></b> | <b><u>489</u></b> |
| 462.libquantum | 28     | 106               | 5480              | <b><u>106</u></b> | <b><u>5460</u></b> | 106               | 5460              | 28     | 106               | 5480              | <b><u>106</u></b> | <b><u>5460</u></b> | 106               | 5460              |
| 464.h264ref    | 28     | <b><u>843</u></b> | <b><u>735</u></b> | 824               | 752                | 851               | 728               | 28     | 831               | 746               | <b><u>830</u></b> | <b><u>746</u></b>  | 823               | 753               |
| 471.omnetpp    | 28     | <b><u>531</u></b> | <b><u>330</u></b> | 532               | 329                | 528               | 332               | 28     | <b><u>514</u></b> | <b><u>340</u></b> | 515               | 340                | 512               | 342               |
| 473.astar      | 28     | 592               | 332               | <b><u>592</u></b> | <b><u>332</u></b>  | 586               | 336               | 28     | 592               | 332               | <b><u>592</u></b> | <b><u>332</u></b>  | 586               | 336               |
| 483.xalancbmk  | 28     | 304               | 636               | 304               | 635                | <b><u>304</u></b> | <b><u>636</u></b> | 28     | 304               | 636               | 304               | 635                | <b><u>304</u></b> | <b><u>636</u></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:  
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"

The Express5800/R120f-1M (Intel Xeon E5-2697 v3) and the Express5800/R120f-2M (Intel Xeon E5-2697 v3) models are electronically equivalent. The results have been measured on the Express5800/R120f-2M (Intel Xeon E5-2697 v3) model.

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

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## General Notes (Continued)

Filesystem page cache cleared with:  
echo 1 > /proc/sys/vm/drop\_caches  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

## 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:  
-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

400.perlbench: icc -m64

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## Peak Compiler Invocation (Continued)

401.bzip2: 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

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: basepeak = yes

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: basepeak = yes

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

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## Peak Optimization Flags (Continued)

C++ benchmarks:

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-ic14.0-official-linux64.20140128.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-ic14.0-official-linux64.20140128.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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