



# SPEC® CINT2006 Result

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## NEC Corporation

SPECint®\_rate2006 = 380

Express5800/R120f-2E (Intel Xeon E5-2640 v3)

SPECint\_rate\_base2006 = 364

CPU2006 license: 9006

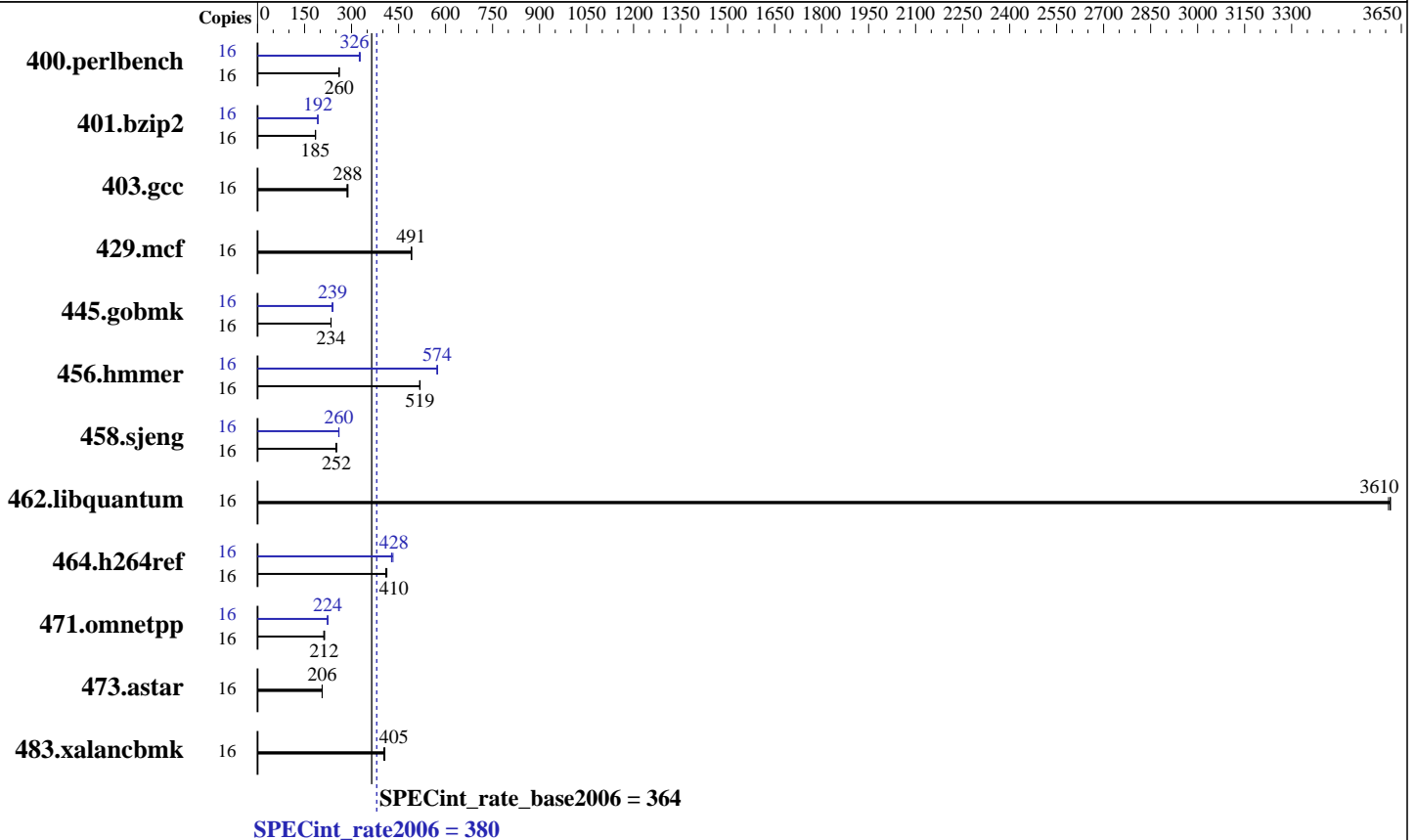
Test date: Jan-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



### Hardware

CPU Name: Intel Xeon E5-2640 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 1 chip, 8 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: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)  
 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	16	599	261	<b><u>601</u></b>	<b><u>260</u></b>	602	260	16	481	325	477	327	<b><u>479</u></b>	<b><u>326</u></b>
401.bzip2	16	838	184	<b><u>835</u></b>	<b><u>185</u></b>	834	185	16	<b><u>803</u></b>	<b><u>192</u></b>	802	193	804	192
403.gcc	16	451	285	446	289	<b><u>448</u></b>	<b><u>288</u></b>	16	451	285	446	289	<b><u>448</u></b>	<b><u>288</u></b>
429.mcf	16	297	492	297	490	<b><u>297</u></b>	<b><u>491</u></b>	16	297	492	297	490	<b><u>297</u></b>	<b><u>491</u></b>
445.gobmk	16	717	234	<b><u>716</u></b>	<b><u>234</u></b>	715	235	16	699	240	<b><u>701</u></b>	<b><u>239</u></b>	705	238
456.hammer	16	289	517	<b><u>288</u></b>	<b><u>519</u></b>	288	519	16	260	575	261	572	<b><u>260</u></b>	<b><u>574</u></b>
458.sjeng	16	767	252	774	250	<b><u>769</u></b>	<b><u>252</u></b>	16	748	259	<b><u>746</u></b>	<b><u>260</u></b>	746	260
462.libquantum	16	91.7	3620	91.9	3610	<b><u>91.7</u></b>	<b><u>3610</u></b>	16	91.7	3620	91.9	3610	<b><u>91.7</u></b>	<b><u>3610</u></b>
464.h264ref	16	<b><u>863</u></b>	<b><u>410</u></b>	865	409	858	413	16	<b><u>827</u></b>	<b><u>428</u></b>	819	432	828	427
471.omnetpp	16	<b><u>472</u></b>	<b><u>212</u></b>	467	214	472	212	16	<b><u>447</u></b>	<b><u>224</u></b>	449	223	446	224
473.astar	16	<b><u>545</u></b>	<b><u>206</u></b>	544	206	545	206	16	<b><u>545</u></b>	<b><u>206</u></b>	544	206	545	206
483.xalancbmk	16	272	406	<b><u>273</u></b>	<b><u>405</u></b>	274	403	16	272	406	<b><u>273</u></b>	<b><u>405</u></b>	274	403

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: 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: -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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