



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®2006 = 55.2**

Express5800/R120f-1E (Intel Xeon E5-2620 v3)

**SPECint\_base2006 = 54.1**

CPU2006 license: 9006

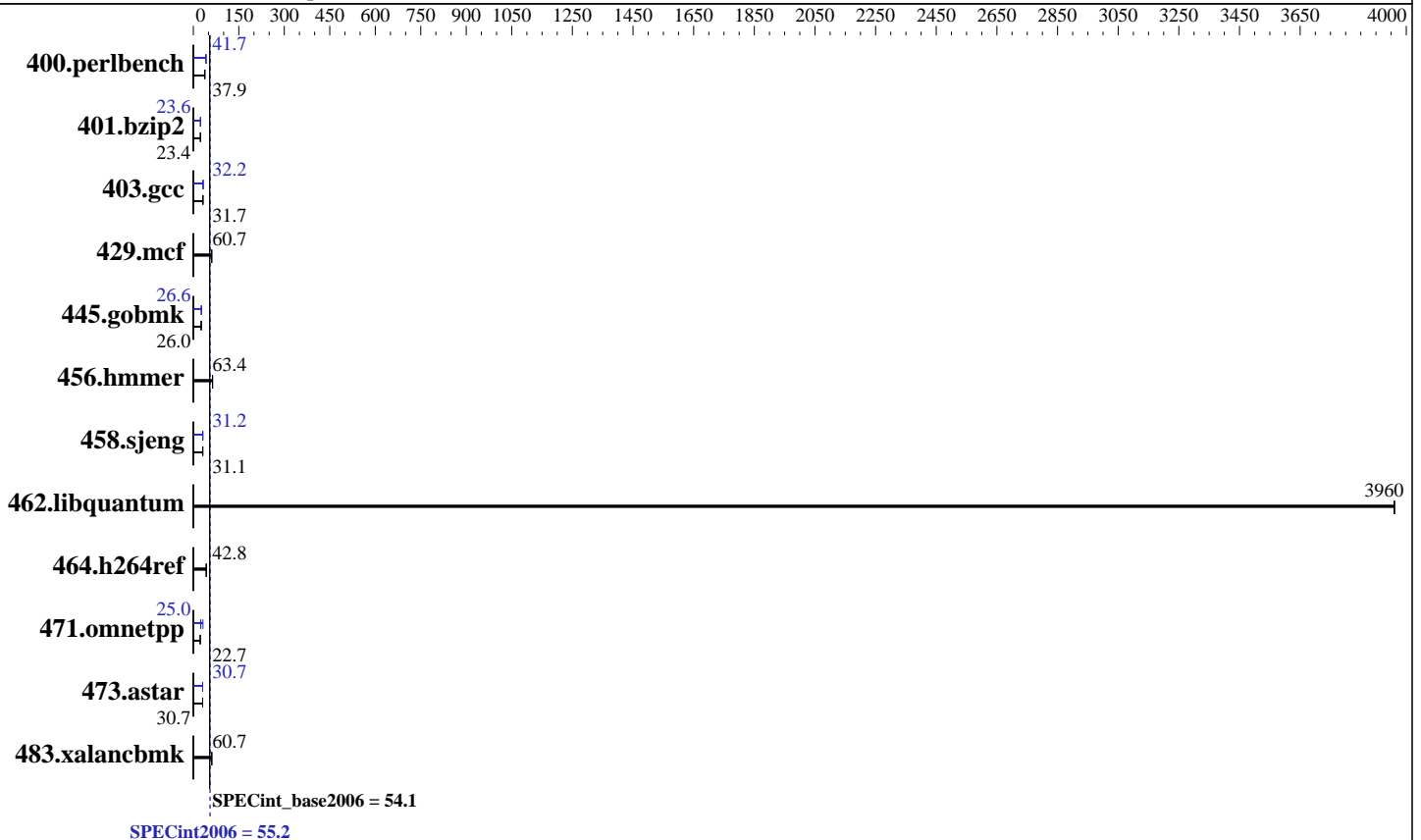
Test date: Apr-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



### Hardware

CPU Name: Intel Xeon E5-2620 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip  
 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 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: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V8.1



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	257	38.0	<b><u>258</u></b>	<b><u>37.9</u></b>	259	37.7	<b><u>234</u></b>	<b><u>41.7</u></b>	234	41.8	234	41.7
401.bzip2	410	23.6	414	23.3	<b><u>412</u></b>	<b><u>23.4</u></b>	409	23.6	409	23.6	<b><u>409</u></b>	<b><u>23.6</u></b>
403.gcc	<b><u>254</u></b>	<b><u>31.7</u></b>	254	31.7	255	31.6	250	32.2	250	32.2	<b><u>250</u></b>	<b><u>32.2</u></b>
429.mcf	151	60.3	<b><u>150</u></b>	<b><u>60.7</u></b>	150	60.7	151	60.3	<b><u>150</u></b>	<b><u>60.7</u></b>	150	60.7
445.gobmk	398	26.3	<b><u>404</u></b>	<b><u>26.0</u></b>	407	25.8	<b><u>395</u></b>	<b><u>26.6</u></b>	395	26.5	395	26.6
456.hammer	<b><u>147</u></b>	<b><u>63.4</u></b>	147	63.4	147	63.4	<b><u>147</u></b>	<b><u>63.4</u></b>	147	63.4	147	63.4
458.sjeng	389	31.1	389	31.1	<b><u>389</u></b>	<b><u>31.1</u></b>	388	31.2	388	31.2	<b><u>388</u></b>	<b><u>31.2</u></b>
462.libquantum	5.23	3960	<b><u>5.23</u></b>	<b><u>3960</u></b>	5.23	3960	5.23	3960	<b><u>5.23</u></b>	<b><u>3960</u></b>	5.23	3960
464.h264ref	521	42.5	516	42.9	<b><u>517</u></b>	<b><u>42.8</u></b>	521	42.5	516	42.9	<b><u>517</u></b>	<b><u>42.8</u></b>
471.omnetpp	276	22.7	275	22.7	<b><u>275</u></b>	<b><u>22.7</u></b>	258	24.2	<b><u>250</u></b>	<b><u>25.0</u></b>	196	31.9
473.astar	228	30.8	<b><u>229</u></b>	<b><u>30.7</u></b>	229	30.7	228	30.7	229	30.6	<b><u>228</u></b>	<b><u>30.7</u></b>
483.xalancbmk	114	60.7	113	60.8	<b><u>114</u></b>	<b><u>60.7</u></b>	114	60.7	113	60.8	<b><u>114</u></b>	<b><u>60.7</u></b>

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

## 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  
Hyper-Threading: Disabled

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact"

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP\_NUM\_THREADS = "12"

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## Base Compiler Invocation

C benchmarks:

icc -m64

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## Base Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m64

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmr: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh -lsmartheap64

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m64  
400.perlbench: icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32  
445.gobmk: icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

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## Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -DSPEC\_CPU\_LP64  
 429.mcf: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 464.h264ref: -DSPEC\_CPU\_LP64  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LP64 -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)  
 -opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
 -opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
 -ansi-alias

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

462.libquantum: basepeak = yes

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<b>CPU2006 license:</b> 9006	<b>Test date:</b> Apr-2015
<b>Test sponsor:</b> NEC Corporation	<b>Hardware Availability:</b> Jan-2015
<b>Tested by:</b> NEC Corporation	<b>Software Availability:</b> Jul-2014

## Peak Optimization Flags (Continued)

464.h264ref: basepeak = yes

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)
             -opt-ra-region-strategy=block -ansi-alias
             -Wl,-z,muldefs -L/sh -lsmartheap
```

```
473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
           -auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64
```

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at  
<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

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

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