



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®2006 = 48.5**

Express5800/R120f-1E (Intel Xeon E5-2650L v3)

**SPECint\_base2006 = 46.7**

CPU2006 license: 9006

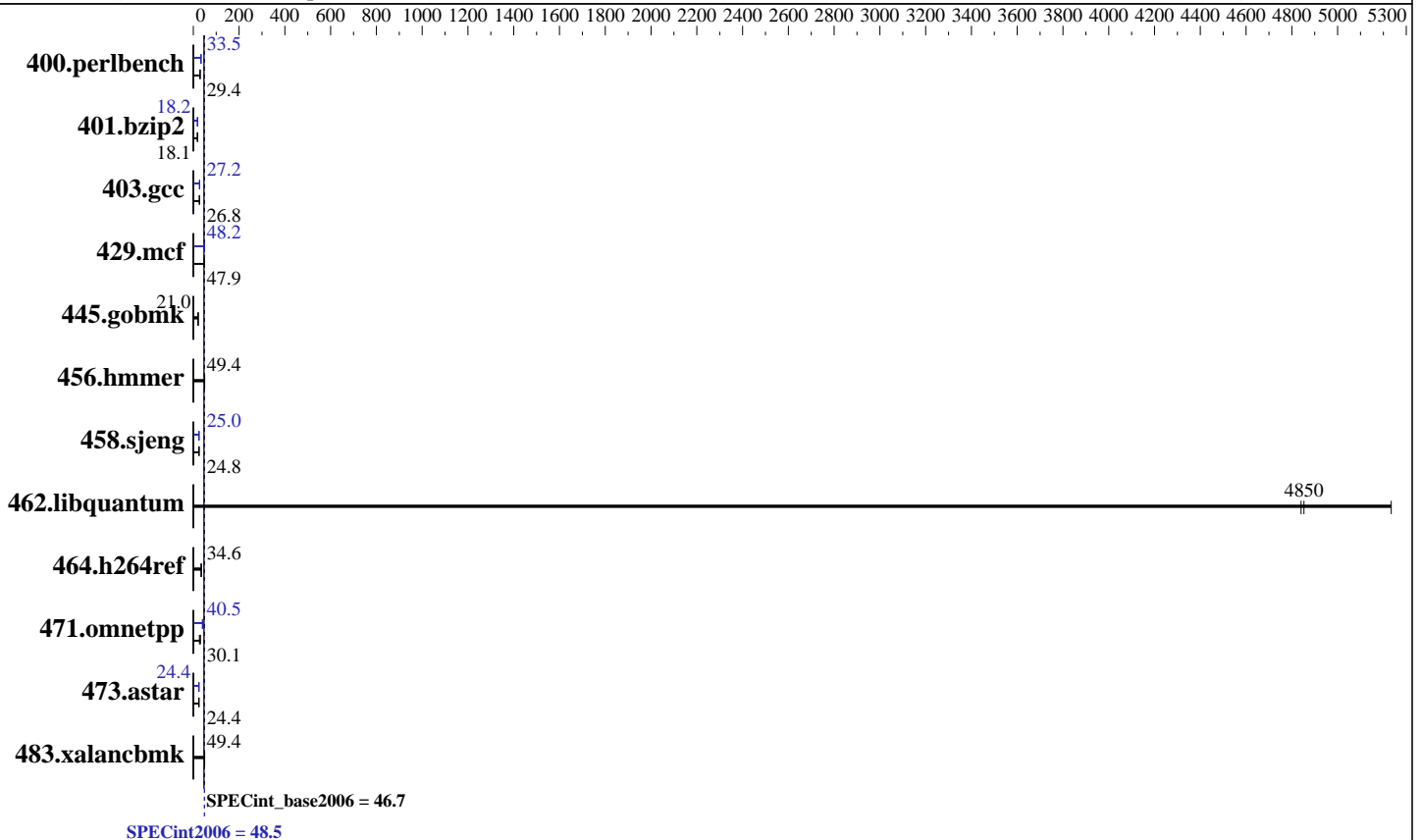
Test date: Jun-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



### Hardware

CPU Name: Intel Xeon E5-2650L v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 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: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 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: 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	330	29.6	333	29.4	<b>332</b>	<b>29.4</b>	292	33.5	292	33.4	<b>292</b>	<b>33.5</b>
401.bzip2	533	18.1	<b>533</b>	<b>18.1</b>	535	18.0	<b>530</b>	<b>18.2</b>	530	18.2	532	18.2
403.gcc	<b>301</b>	<b>26.8</b>	302	26.7	301	26.8	296	27.2	296	27.2	<b>296</b>	<b>27.2</b>
429.mcf	191	47.8	<b>191</b>	<b>47.9</b>	190	48.0	189	48.3	<b>189</b>	<b>48.2</b>	190	48.1
445.gobmk	500	21.0	<b>500</b>	<b>21.0</b>	501	20.9	500	21.0	<b>500</b>	<b>21.0</b>	501	20.9
456.hammer	189	49.5	189	49.4	<b>189</b>	<b>49.4</b>	189	49.5	189	49.4	<b>189</b>	<b>49.4</b>
458.sjeng	487	24.8	487	24.8	<b>487</b>	<b>24.8</b>	485	25.0	<b>485</b>	<b>25.0</b>	503	24.1
462.libquantum	3.96	5230	4.28	4840	<b>4.27</b>	<b>4850</b>	3.96	5230	4.28	4840	<b>4.27</b>	<b>4850</b>
464.h264ref	641	34.5	639	34.6	<b>640</b>	<b>34.6</b>	641	34.5	639	34.6	<b>640</b>	<b>34.6</b>
471.omnetpp	236	26.5	205	30.5	<b>208</b>	<b>30.1</b>	154	40.6	158	39.6	<b>154</b>	<b>40.5</b>
473.astar	<b>288</b>	<b>24.4</b>	289	24.3	286	24.6	287	24.5	288	24.4	<b>287</b>	<b>24.4</b>
483.xalancbmk	140	49.4	139	49.5	<b>140</b>	<b>49.4</b>	140	49.4	139	49.5	<b>140</b>	<b>49.4</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 = "24"

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.hmmer: -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

C++ benchmarks (except as noted below):  
icpc -m64

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## Peak Compiler Invocation (Continued)

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  
 445.gobmk: -DSPEC\_CPU\_LP64  
 456.hmmmer: -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: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
 -opt-prefetch -auto-p32

445.gobmk: basepeak = yes

456.hmmmer: 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

464.h264ref: basepeak = yes

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<b>CPU2006 license:</b> 9006	<b>Test date:</b> Jun-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)

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 -lsmarheap
```

```
473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
           -auto-p32 -Wl,-z,muldefs -L/sh -lsmarheap64
```

```
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-RevC.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-RevC.xml>

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

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