



# SPEC® CINT2006 Result

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## NEC Corporation

SPECint®\_rate2006 = 246

Express5800/R120e-2E (Intel Xeon E5-2430 v2)

SPECint\_rate\_base2006 = 238

CPU2006 license: 9006

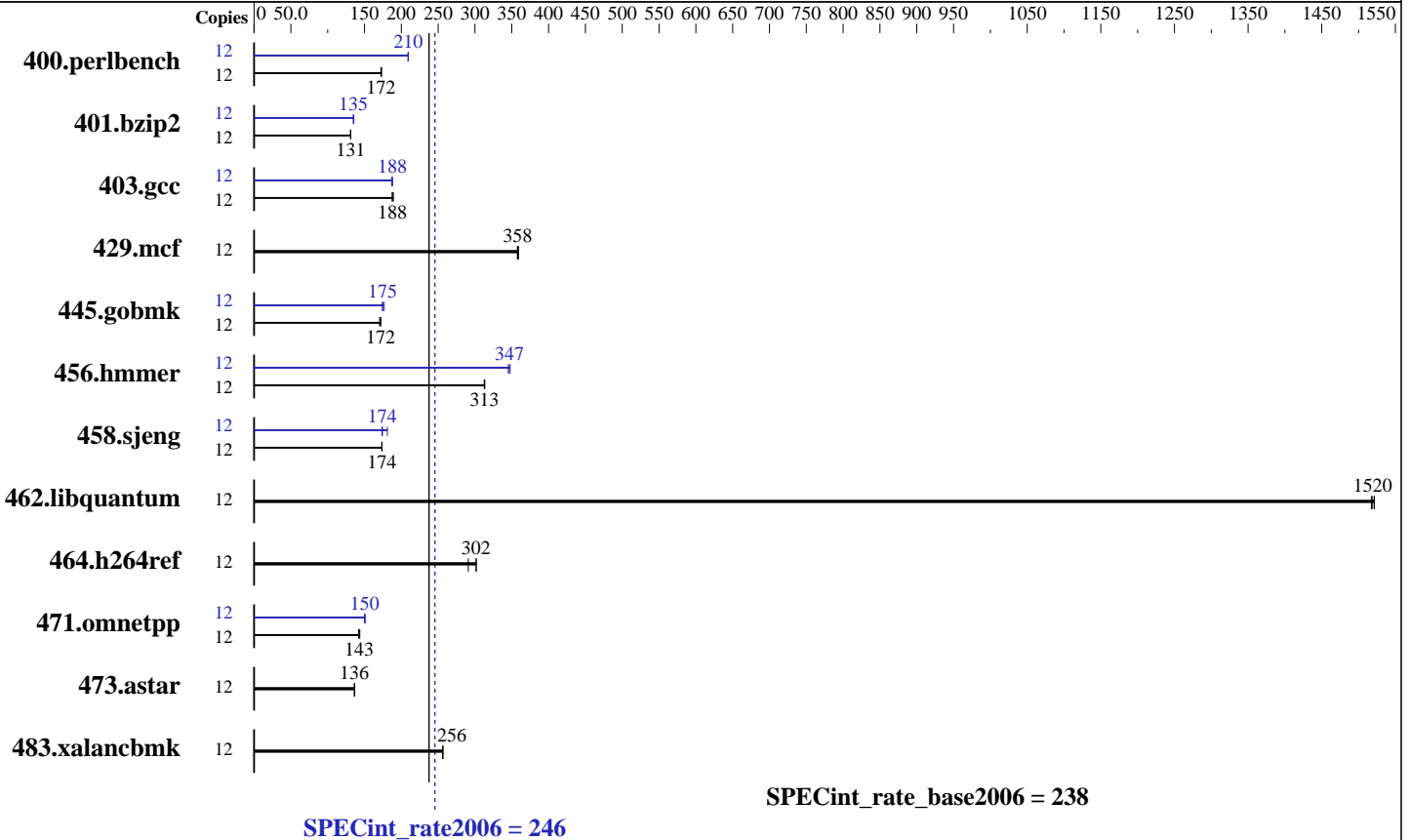
Test date: Jan-2014

Test sponsor: NEC Corporation

Hardware Availability: Jan-2014

Tested by: NEC Corporation

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2430 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 6 cores, 1 chip, 6 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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (6 x 16 GB 2Rx4 PC3L-12800R-11, ECC)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
 Kernel 2.6.32-358.18.1.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 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	12	677	173	<b>680</b>	<b>172</b>	680	172	12	561	209	560	210	<b>560</b>	<b>210</b>
401.bzip2	12	882	131	884	131	<b>883</b>	<b>131</b>	12	855	135	859	135	<b>858</b>	<b>135</b>
403.gcc	12	511	189	<b>514</b>	<b>188</b>	515	188	12	514	188	<b>514</b>	<b>188</b>	517	187
429.mcf	12	306	358	305	359	<b>306</b>	<b>358</b>	12	306	358	305	359	<b>306</b>	<b>358</b>
445.gobmk	12	732	172	738	171	<b>732</b>	<b>172</b>	12	713	177	722	174	<b>721</b>	<b>175</b>
456.hammer	12	357	313	<b>358</b>	<b>313</b>	358	313	12	322	348	324	345	<b>323</b>	<b>347</b>
458.sjeng	12	837	174	<b>836</b>	<b>174</b>	836	174	12	836	174	802	181	<b>833</b>	<b>174</b>
462.libquantum	12	164	1520	<b>164</b>	<b>1520</b>	163	1520	12	164	1520	<b>164</b>	<b>1520</b>	163	1520
464.h264ref	12	913	291	880	302	<b>881</b>	<b>302</b>	12	913	291	880	302	<b>881</b>	<b>302</b>
471.omnetpp	12	<b>526</b>	<b>143</b>	528	142	522	144	12	497	151	500	150	<b>499</b>	<b>150</b>
473.astar	12	616	137	618	136	<b>618</b>	<b>136</b>	12	616	137	618	136	<b>618</b>	<b>136</b>
483.xalancbmk	12	323	256	<b>323</b>	<b>256</b>	323	256	12	323	256	<b>323</b>	<b>256</b>	323	256

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:  
Energy Performance: Performance  
Memory Voltage: 1.5 V

## 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/R120e-1E and the Express5800/R120e-2E models are electronically equivalent. The results have been measured on the Express5800/R120e-2E model.

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

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## General Notes (Continued)

```
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:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:  
-xSSE4.2 -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

401.bzip2: icc -m64

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## Peak Compiler Invocation (Continued)

456.hmmr: 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

456.hmmr: -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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmr: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(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: basepeak = yes

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## Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2(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-R120-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-R120-RevB.xml>

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

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