



# SPEC® CINT2006 Result

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## NEC Corporation

**SPECint®2006 = 66.3**

Express5800/B120f-h (Intel Xeon E5-2699 v3)

**SPECint\_base2006 = 64.5**

CPU2006 license: 9006

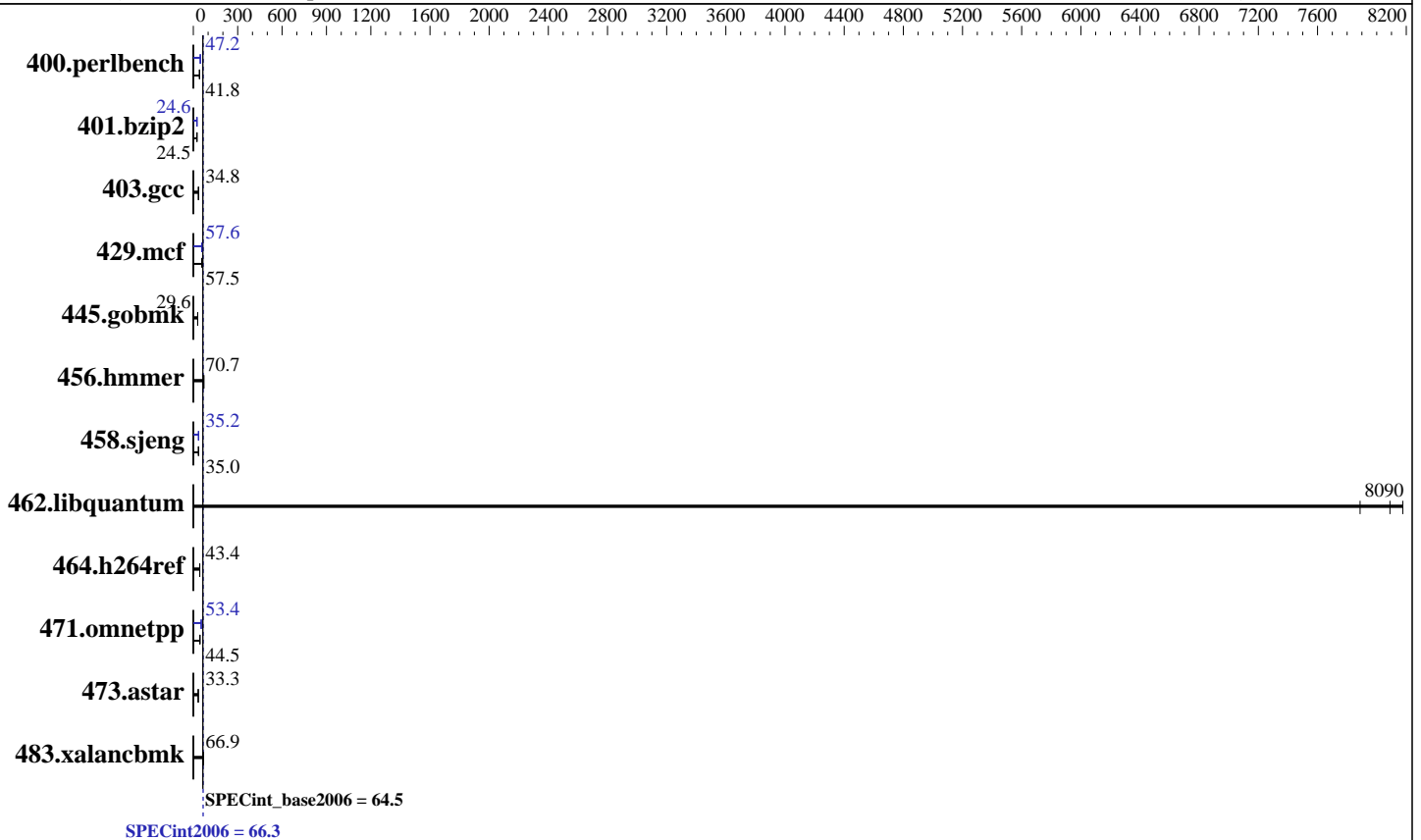
Test date: Jul-2015

Test sponsor: NEC Corporation

Hardware Availability: Jun-2015

Tested by: NEC Corporation

Software Availability: Oct-2014



### Hardware

CPU Name: Intel Xeon E5-2699 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 36 cores, 2 chips, 18 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: 45 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: NEC Storage M100 via Fibre Channel  
 (See additional details below)  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.6 (Santiago)  
 Kernel 2.6.32-504.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	233	41.9	<b><u>234</u></b>	<b><u>41.8</u></b>	234	41.7	<b><u>207</u></b>	<b><u>47.2</u></b>	207	47.2	207	47.2
401.bzip2	<b><u>393</u></b>	<b><u>24.5</u></b>	393	24.6	396	24.4	391	24.6	<b><u>392</u></b>	<b><u>24.6</u></b>	392	24.6
403.gcc	231	34.9	231	34.8	<b><u>231</u></b>	<b><u>34.8</u></b>	231	34.9	231	34.8	<b><u>231</u></b>	<b><u>34.8</u></b>
429.mcf	159	57.3	<b><u>159</u></b>	<b><u>57.5</u></b>	157	58.0	158	57.6	160	57.1	<b><u>158</u></b>	<b><u>57.6</u></b>
445.gobmk	354	29.6	<b><u>355</u></b>	<b><u>29.6</u></b>	355	29.6	354	29.6	<b><u>355</u></b>	<b><u>29.6</u></b>	355	29.6
456.hammer	132	70.7	132	70.6	<b><u>132</u></b>	<b><u>70.7</u></b>	132	70.7	132	70.6	<b><u>132</u></b>	<b><u>70.7</u></b>
458.sjeng	346	35.0	346	35.0	<b><u>346</u></b>	<b><u>35.0</u></b>	344	35.2	343	35.2	<b><u>344</u></b>	<b><u>35.2</u></b>
462.libquantum	2.53	8180	<b><u>2.56</u></b>	<b><u>8090</u></b>	2.63	7890	2.53	8180	<b><u>2.56</u></b>	<b><u>8090</u></b>	2.63	7890
464.h264ref	<b><u>510</u></b>	<b><u>43.4</u></b>	510	43.4	511	43.3	<b><u>510</u></b>	<b><u>43.4</u></b>	510	43.4	511	43.3
471.omnetpp	139	44.8	141	44.3	<b><u>141</u></b>	<b><u>44.5</u></b>	117	53.5	118	53.2	<b><u>117</u></b>	<b><u>53.4</u></b>
473.astar	211	33.3	<b><u>211</u></b>	<b><u>33.3</u></b>	212	33.2	211	33.3	<b><u>211</u></b>	<b><u>33.3</u></b>	212	33.2
483.xalancbmk	<b><u>103</u></b>	<b><u>66.9</u></b>	103	67.0	104	66.5	<b><u>103</u></b>	<b><u>66.9</u></b>	103	67.0	104	66.5

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:

Energy Performance: Performance

Patrol Scrub: Disabled

Hyper-Threading: Disabled

Storage Configuration for Disk Subsystem:

NEC Storage M100 has 4 x 600 GB 10000 RPM SAS disks under RAID-10 configuration mounted over 8Gbps Fibre Channel interface with these options

"defaults" in the /etc/fstab.

## 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 = "36"

Transparent Huge Pages enabled with:

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



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## Base Compiler Invocation

C benchmarks:

icc -m64

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

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## Peak Compiler Invocation (Continued)

400.perlbench: icc -m32 -L/opt/intel/composer\_xe\_2015/lib/ia32

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

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

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: basepeak = yes

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32

445.gobmk: basepeak = yes

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

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## Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

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: 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-B120f-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-B120f-RevB.xml>

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

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