



# SPEC® CINT2006 Result

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## NEC Corporation

SPECint®\_rate2006 = 169

### Express5800/R120b-2 (Intel Xeon E5606)

SPECint\_rate\_base2006 = 159

CPU2006 license: 9006

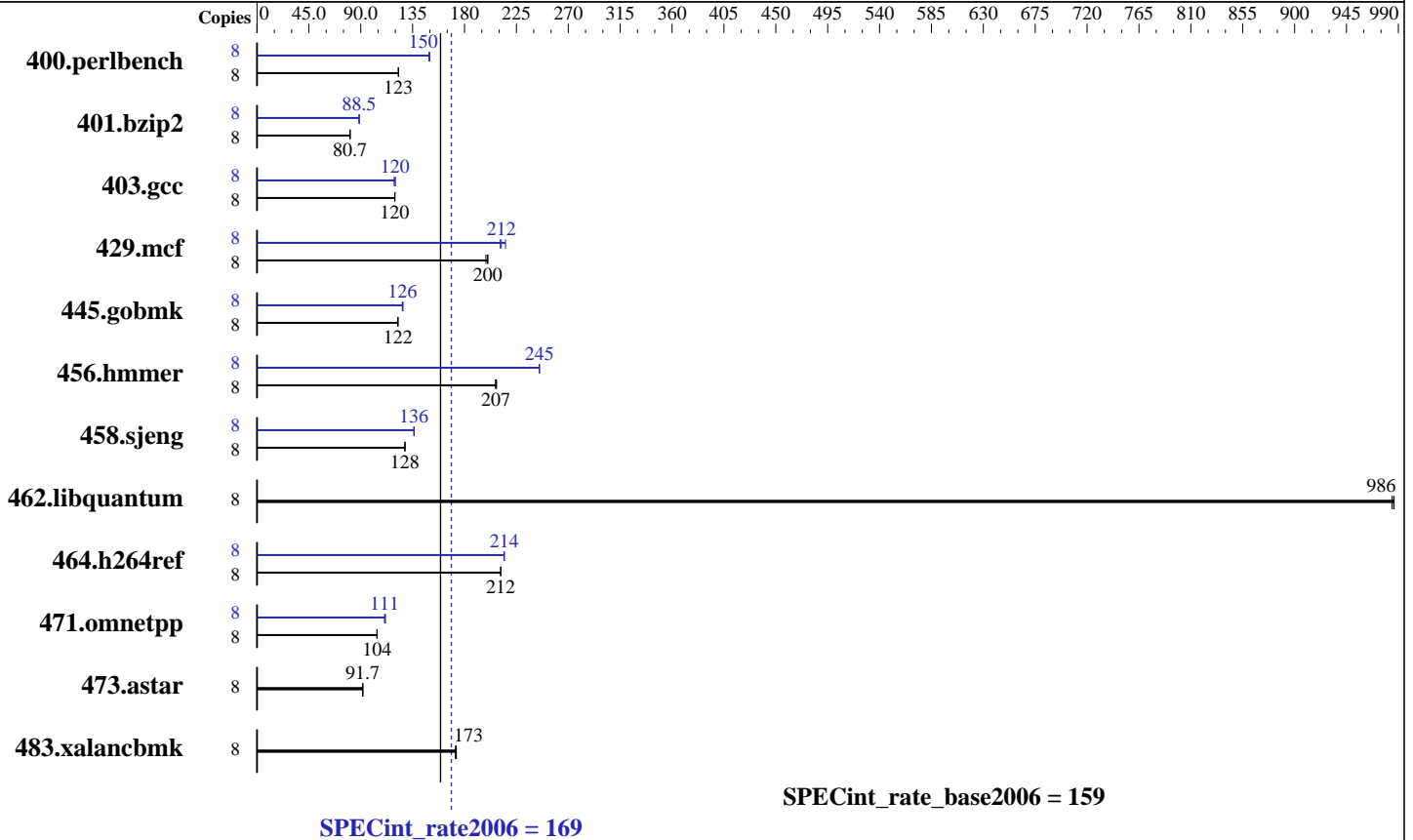
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: May-2011

Hardware Availability: Feb-2011

Software Availability: Mar-2011



### Hardware

CPU Name: Intel Xeon E5606  
 CPU Characteristics:  
 CPU MHz: 2133  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz and CL7)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Compiler XE for applications running on IA32, Version 12.0.3.174 Build 20110309  
 Auto Parallel: No  
 File System: ext3  
 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	8	638	123	<b><u>637</u></b>	<b><u>123</u></b>	637	123	8	522	150	524	149	<b><u>522</u></b>	<b><u>150</u></b>
401.bzip2	8	<b><u>957</u></b>	<b><u>80.7</u></b>	956	80.8	957	80.7	8	<b><u>872</u></b>	<b><u>88.5</u></b>	872	88.5	870	88.8
403.gcc	8	<b><u>539</u></b>	<b><u>120</u></b>	538	120	539	119	8	<b><u>538</u></b>	<b><u>120</u></b>	537	120	541	119
429.mcf	8	367	199	<b><u>365</u></b>	<b><u>200</u></b>	364	200	8	338	216	<b><u>344</u></b>	<b><u>212</u></b>	346	211
445.gobmk	8	<b><u>687</u></b>	<b><u>122</u></b>	686	122	687	122	8	<b><u>665</u></b>	<b><u>126</u></b>	663	127	666	126
456.hammer	8	359	208	<b><u>360</u></b>	<b><u>207</u></b>	361	207	8	<b><u>305</u></b>	<b><u>245</u></b>	305	245	305	245
458.sjeng	8	754	128	755	128	<b><u>755</u></b>	<b><u>128</u></b>	8	711	136	<b><u>711</u></b>	<b><u>136</u></b>	710	136
462.libquantum	8	<b><u>168</u></b>	<b><u>986</u></b>	168	984	168	986	8	<b><u>168</u></b>	<b><u>986</u></b>	168	984	168	986
464.h264ref	8	<b><u>837</u></b>	<b><u>212</u></b>	838	211	837	212	8	827	214	825	215	<b><u>826</u></b>	<b><u>214</u></b>
471.omnetpp	8	<b><u>480</u></b>	<b><u>104</u></b>	481	104	480	104	8	<b><u>451</u></b>	<b><u>111</u></b>	449	111	451	111
473.astar	8	<b><u>612</u></b>	<b><u>91.7</u></b>	613	91.6	612	91.8	8	<b><u>612</u></b>	<b><u>91.7</u></b>	613	91.6	612	91.8
483.xalancbmk	8	<b><u>320</u></b>	<b><u>173</u></b>	319	173	321	172	8	<b><u>320</u></b>	<b><u>173</u></b>	319	173	321	172

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

### Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

### Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
Huge pages were not configured for this run

### Platform Notes

BIOS Settings:  
Performance/Watt: Traditional  
Server Class: Custom  
Data Reuse Optimization: Disabled  
Memory Voltage: Normal

### General Notes

The Express5800/R120b-1 and the Express5800/R120b-2 models are electronically equivalent.  
The results have been measured on the Express5800/R120b-1 model.



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## 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  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/lib -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

## 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

456.hmmer: icc -m64

458.sjeng: icc -m64

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## Peak Compiler Invocation (Continued)

C++ benchmarks:  
icpc -m32

## 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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

462.libquantum: basepeak = yes

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## Peak Optimization Flags (Continued)

464.h264ref: -xSSE4.2(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:

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/opt/SmartHeap\_8.1/lib -lsmarheap

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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.xml>

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

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