



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/R140a-4  
(Intel Xeon E7420)

SPECint®\_rate2006 = 92.4

SPECint\_rate\_base2006 = 87.1

CPU2006 license: 9006

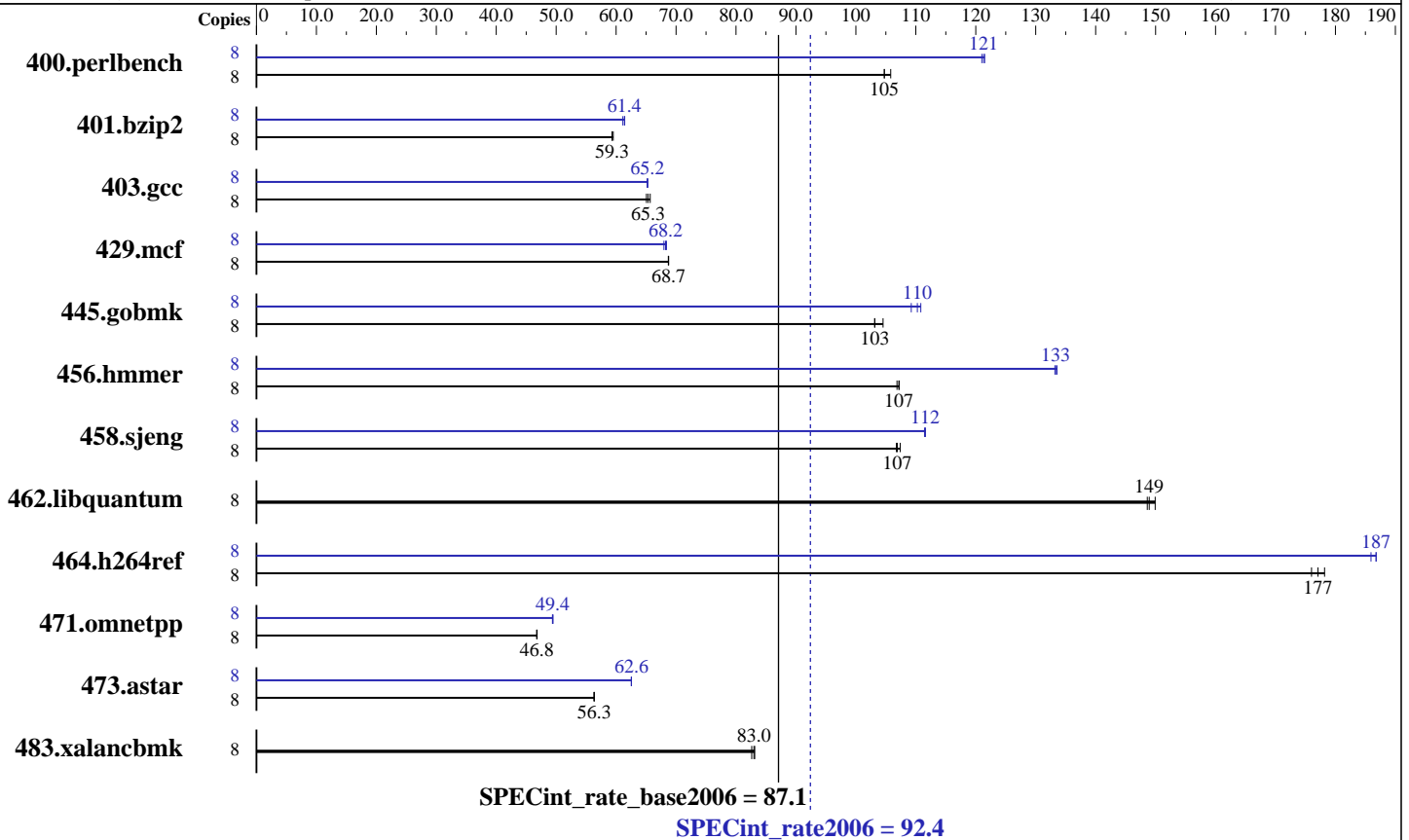
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Nov-2008

Hardware Availability: Nov-2008

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E7420  
 CPU Characteristics: 1066 MHz system bus  
 CPU MHz: 2133  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2,3,4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 6 MB I+D on chip per chip, 3 MB shared / 2 cores  
 L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (16x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 1x73.2 GB SAS, 15000RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP2, Kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.044  
 Auto Parallel: No  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap Library 8.1 Binutils 2.18.50.0.7.20080502



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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	746	105	<b>746</b>	<b>105</b>	739	106	8	643	121	<b>644</b>	<b>121</b>	646	121
401.bzip2	8	1297	59.5	1302	59.3	<b>1301</b>	<b>59.3</b>	8	<b>1258</b>	<b>61.4</b>	1263	61.1	1257	61.4
403.gcc	8	<b>985</b>	<b>65.3</b>	980	65.7	990	65.1	8	<b>987</b>	<b>65.2</b>	988	65.2	986	65.3
429.mcf	8	<b>1061</b>	<b>68.7</b>	1061	68.8	1062	68.7	8	1073	68.0	1067	68.4	<b>1069</b>	<b>68.2</b>
445.gobmk	8	<b>814</b>	<b>103</b>	814	103	803	105	8	757	111	768	109	<b>761</b>	<b>110</b>
456.hammer	8	699	107	<b>696</b>	<b>107</b>	696	107	8	559	134	<b>560</b>	<b>133</b>	560	133
458.sjeng	8	<b>905</b>	<b>107</b>	907	107	901	107	8	869	111	<b>868</b>	<b>112</b>	867	112
462.libquantum	8	<b>1113</b>	<b>149</b>	1115	149	1106	150	8	<b>1113</b>	<b>149</b>	1115	149	1106	150
464.h264ref	8	994	178	1006	176	<b>1000</b>	<b>177</b>	8	948	187	<b>948</b>	<b>187</b>	952	186
471.omnetpp	8	<b>1069</b>	<b>46.8</b>	1069	46.8	1068	46.8	8	1013	49.4	1011	49.5	<b>1012</b>	<b>49.4</b>
473.astar	8	<b>997</b>	<b>56.3</b>	997	56.4	997	56.3	8	898	62.5	<b>898</b>	<b>62.6</b>	898	62.6
483.xalancbmk	8	664	83.1	668	82.6	<b>665</b>	<b>83.0</b>	8	664	83.1	668	82.6	<b>665</b>	<b>83.0</b>

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.  
taskset was used to bind processes to cores

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M

## Platform Notes

Bios settings:  
Hardware Prefetcher: Disabled  
Adjacent Cache Line Prefetch: Disabled  
FSB High Bandwidth Optimization: Disabled

## General Notes

The NEC Express5800/R140a-4(Intel Xeon E7420) and the Bull NovaScale R480 E1(Intel Xeon E7420, 2.13 GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/R140a-4(Intel Xeon E7420) model.



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## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc  
-opt-malloc-options=3 -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs  
-L/opt/SmartHeap\_8.1/lib -lsmartheap

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

401.bzip2: /opt/intel/Compiler/11.0/044/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/044/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/044/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/044/ipp/em64t/include

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## Peak Compiler Invocation (Continued)

C++ benchmarks:  
icpc

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -ansi-alias -opt-prefetch  
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -ansi-alias  
403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3  
429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch  
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo  
-no-prec-div -ansi-alias  
456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2  
-ansi-alias  
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4  
462.libquantum: basepeak = yes  
464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmartheap

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## Peak Optimization Flags (Continued)

```
473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -ansi-alias -opt-ra-region-strategy=routine
          -Wl,-z,muldefs -L/opt/SmartHeap_8.1/lib -lsmartheap
```

```
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-ic11.0-int-linux64-revD.20090713.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revD.20090713.xml>

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

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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