



# SPEC<sup>®</sup> CINT2006 Result

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## NEC Corporation

Express5800/120Lj  
(Intel Xeon E5440)

SPECint<sup>®</sup>\_rate2006 = 67.6

SPECint\_rate\_base2006 = 57.2

CPU2006 license: 9006

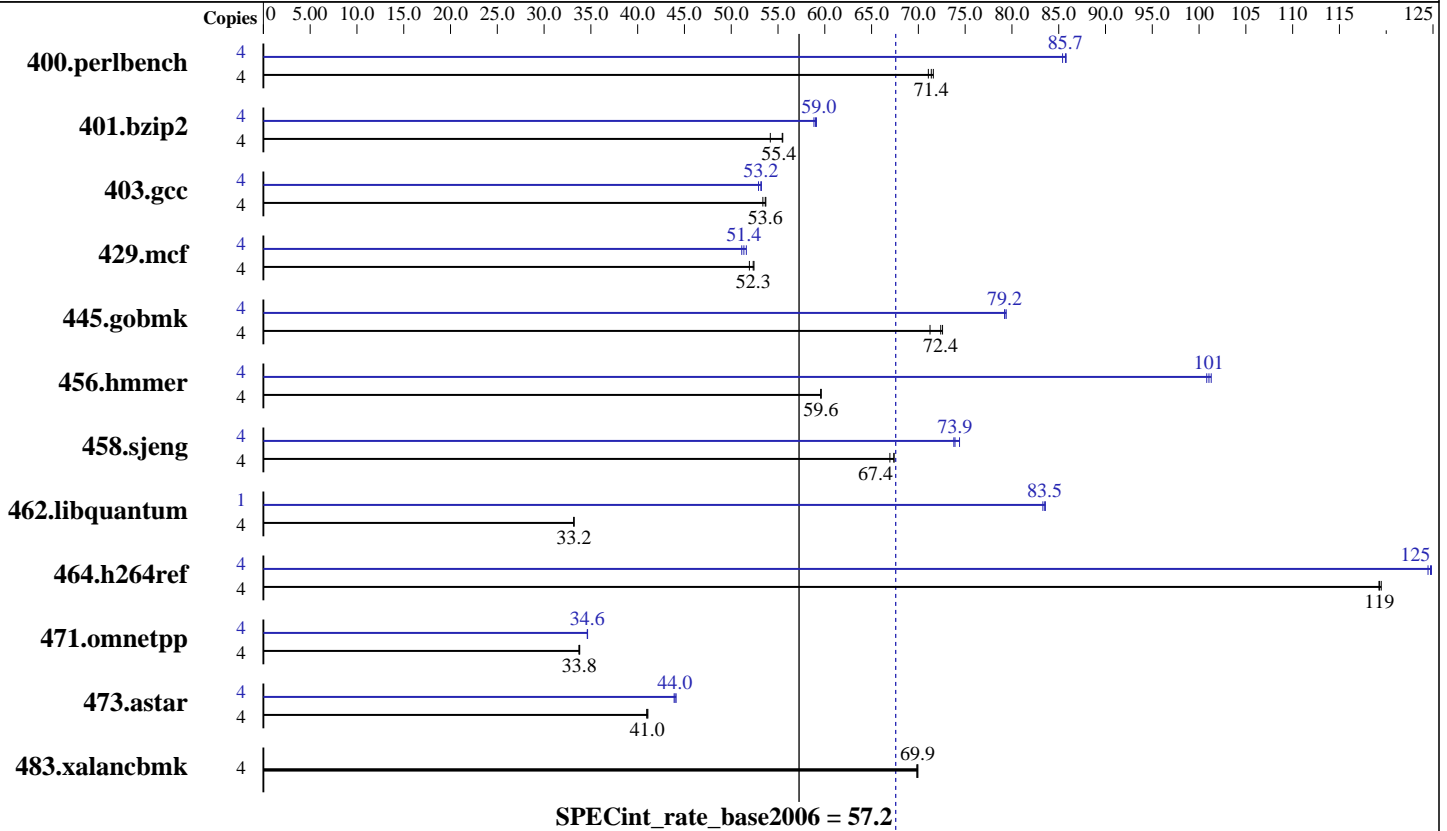
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: May-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5440  
 CPU Characteristics: 2.83 GHz, 2x6 MB L2 shared, 1333 MHz bus  
 CPU MHz: 2833  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8x2 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) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: L\_cc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap library 8.1 binutils-2.17.tar.gz, Version 2.17



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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	4	546	71.6	<b>547</b>	<b>71.4</b>	550	71.1	4	<b>456</b>	<b>85.7</b>	456	85.8	458	85.4
401.bzip2	4	695	55.5	712	54.2	<b>696</b>	<b>55.4</b>	4	656	58.8	<b>654</b>	<b>59.0</b>	653	59.1
403.gcc	4	603	53.4	<b>600</b>	<b>53.6</b>	600	53.7	4	605	53.2	<b>606</b>	<b>53.2</b>	608	52.9
429.mcf	4	702	51.9	<b>697</b>	<b>52.3</b>	696	52.4	4	<b>710</b>	<b>51.4</b>	707	51.6	714	51.1
445.gobmk	4	<b>580</b>	<b>72.4</b>	589	71.2	578	72.6	4	530	79.2	<b>530</b>	<b>79.2</b>	529	79.4
456.hmmer	4	626	59.6	626	59.6	<b>626</b>	<b>59.6</b>	4	<b>369</b>	<b>101</b>	368	101	370	101
458.sjeng	4	<b>718</b>	<b>67.4</b>	718	67.4	723	67.0	4	651	74.4	656	73.8	<b>655</b>	<b>73.9</b>
462.libquantum	4	<b>2497</b>	<b>33.2</b>	2498	33.2	2497	33.2	1	248	83.6	249	83.3	<b>248</b>	<b>83.5</b>
464.h264ref	4	<b>742</b>	<b>119</b>	741	119	742	119	4	711	124	709	125	<b>710</b>	<b>125</b>
471.omnetpp	4	741	33.7	<b>740</b>	<b>33.8</b>	739	33.8	4	722	34.6	721	34.7	<b>722</b>	<b>34.6</b>
473.astar	4	683	41.1	685	41.0	<b>684</b>	<b>41.0</b>	4	640	43.9	637	44.1	<b>638</b>	<b>44.0</b>
483.xalancbmk	4	<b>395</b>	<b>69.9</b>	395	69.9	395	69.8	4	<b>395</b>	<b>69.9</b>	395	69.9	395	69.8

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

## 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

## Platform Notes

Bios settings:  
Hardware Prefetcher: Enabled  
Adjacent Cache Line Prefetch: Disabled  
Intel SpeedStep Technology: Disabled

## General Notes

All benchmarks compiled in 32-bit mode except 401.bzip2, 456.hmmer, for peak, are compiled in 64-bit mode

The NEC Express5800/120Lj(Intel Xeon E5440) and the Bull NovaScale T860 E1(Intel Xeon E5440,2.83GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon E5440) model.

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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:  
-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:  
-xT -ipo -O3 -no-prec-div -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/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc  
-L/opt/intel/cce/10.1.008/lib  
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:  
icpc



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## 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) -fast -ansi-alias  
-prefetch  
401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
403.gcc: -fast -inline-calloc -opt-malloc-options=3  
429.mcf: -fast -prefetch  
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xT -O2 -ipo  
-no-prec-div -ansi-alias  
456.hmmer: -fast -unroll2 -ansi-alias -opt-multi-version-aggressive  
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
462.libquantum: -fast -unroll4 -Ob0 -prefetch  
-opt-streaming-stores always -vec-guard-write  
-opt-malloc-options=3 -parallel -par-runtime-control  
464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=block  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap  
473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xT -O3 -ipo  
-no-prec-div -ansi-alias -opt-ra-region-strategy=routine  
-Wl,-z,muldefs -L/opt/SmartHeap\_8.1/lib -lsmarheap  
483.xalancbmk: basepeak = yes



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## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-INT-ia32-linux-flags.xml>

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

Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 17:28:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 11 June 2008.