



# SPEC® CINT2006 Result

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## NEC Corporation

Express5800/320Fd-MR  
(Intel Xeon E5450)

SPECint®2006 = 27.0

SPECint\_base2006 = 23.8

CPU2006 license: 9006

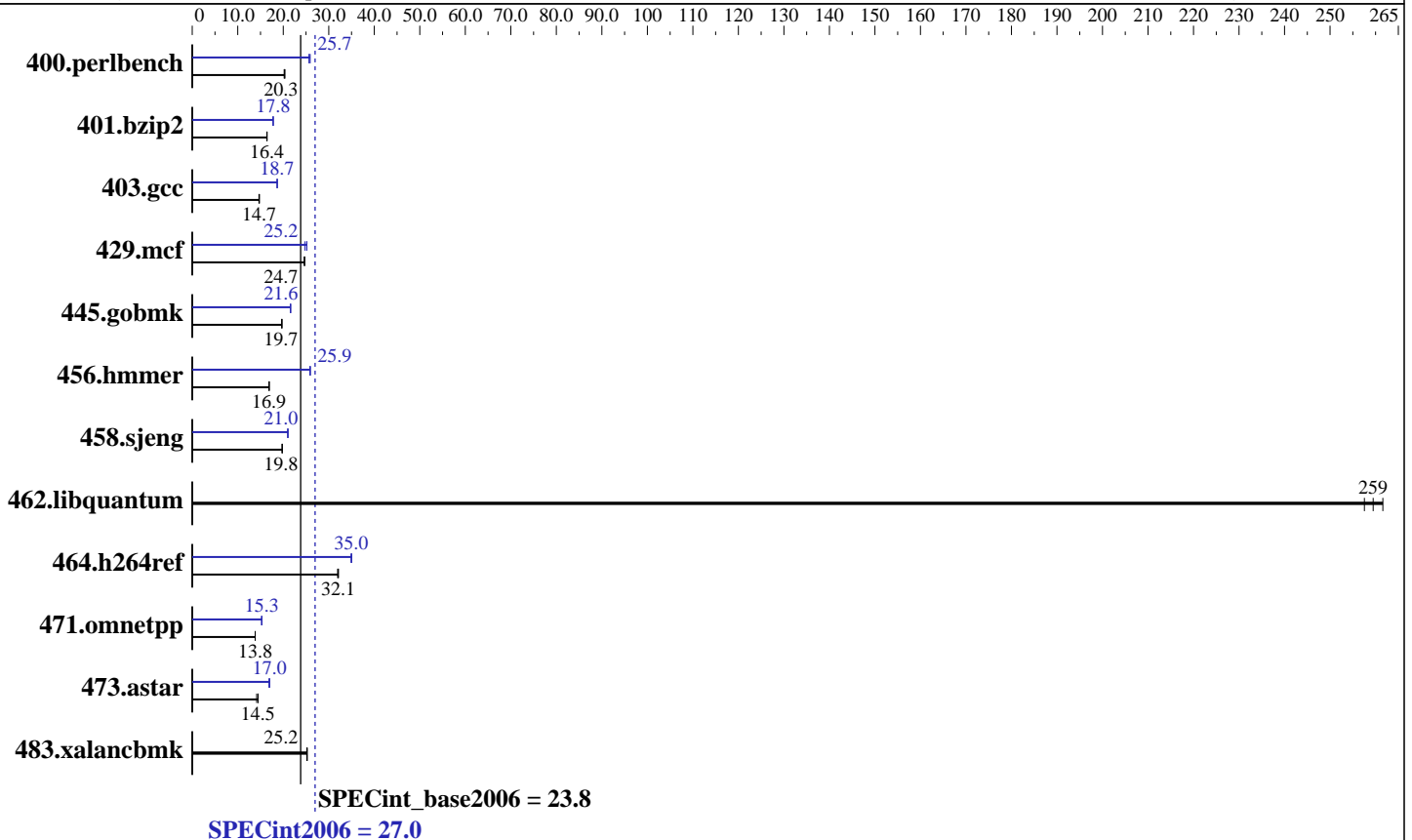
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E5450  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips (fault tolerant, see Platform Notes)  
 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: 24 GB (6x4 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
 Disk Subsystem: 2x146.5 GB SAS, 15000 RPM, Software RAID Level1  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 5.2  
 Advanced Platform, Kernel 2.6.18-92.1.13.el5 on  
 an x86\_64  
 Compiler: Intel C++ Compiler 11.0 for Linux  
 Build 20081105 Package ID: l\_cproc\_p\_11.0.074  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap Library 8.1  
 ft Server Control Software 6.0.2-198



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	484	20.2	480	20.3	<u>481</u>	<u>20.3</u>	380	25.7	377	25.9	<u>380</u>	<u>25.7</u>
401.bzip2	589	16.4	587	16.4	<u>587</u>	<u>16.4</u>	543	17.8	542	17.8	<u>543</u>	<u>17.8</u>
403.gcc	<u>547</u>	<u>14.7</u>	549	14.7	546	14.7	431	18.7	432	18.6	<u>431</u>	<u>18.7</u>
429.mcf	369	24.7	<u>369</u>	<u>24.7</u>	371	24.6	369	24.7	<u>363</u>	<u>25.2</u>	362	25.2
445.gobmk	532	19.7	<u>533</u>	<u>19.7</u>	533	19.7	<u>486</u>	<u>21.6</u>	485	21.6	486	21.6
456.hammer	<u>552</u>	<u>16.9</u>	552	16.9	552	16.9	<u>360</u>	<u>25.9</u>	360	25.9	360	25.9
458.sjeng	612	19.8	<u>612</u>	<u>19.8</u>	612	19.8	575	21.0	<u>576</u>	<u>21.0</u>	577	21.0
462.libquantum	<u>79.9</u>	<u>259</u>	79.2	262	80.5	258	<u>79.9</u>	<u>259</u>	79.2	262	80.5	258
464.h264ref	689	32.1	<u>690</u>	<u>32.1</u>	693	31.9	634	34.9	632	35.0	<u>633</u>	<u>35.0</u>
471.omnetpp	<u>452</u>	<u>13.8</u>	452	13.8	452	13.8	410	15.2	<u>409</u>	<u>15.3</u>	409	15.3
473.astar	496	14.2	<u>486</u>	<u>14.5</u>	485	14.5	<u>414</u>	<u>17.0</u>	416	16.9	413	17.0
483.xalancbmk	273	25.3	<u>274</u>	<u>25.2</u>	274	25.2	273	25.3	<u>274</u>	<u>25.2</u>	274	25.2

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  
KMP\_AFFINITY set to "physical,0"

## Platform Notes

This Express5800/320Fd-MR is a fault-tolerant server.  
Two modules are installed in this server.  
Each module physically has "2CPU chips,24GB memory", The total physical configuration is "4CPU chips,48GB memory".  
Using fault-tolerant lockstep technology, these two modules communicate with each other and execute the same instructions at the same time, The operating system only sees "2CPU chips,24GB memory" as the other components add only redundancy and do not contribute to any performance benefit.

## General Notes

The NEC Express5800/320Fd-MR(Intel Xeon E5450) and the Bull NovaScale R630 E1 MR(Intel Xeon E5450, 3.00 GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/320Fd-MR(Intel Xeon E5450) model.

## Base Compiler Invocation

C benchmarks:  
icc

Continued on next page



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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:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel  
-par-runtime-control -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/11.0/074/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/074/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/074/ipp/em64t/include

456.hmmer: /opt/intel/Compiler/11.0/074/bin/intel64/icc  
-L/opt/intel/Compiler/11.0/074/ipp/em64t/lib  
-I/opt/intel/Compiler/11.0/074/ipp/em64t/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) -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 -auto-ilp32 -opt-prefetch  
-ansi-alias  
403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-alloc  
-opt-malloc-options=3  
429.mcf: -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 -auto-ilp32  
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  
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



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## 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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