



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

SPECfp<sup>®</sup>\_rate2006 = **951**

Express5800/A1080a-E (Intel Xeon E7-8850)

SPECfp\_rate\_base2006 = **930**

CPU2006 license: 9006

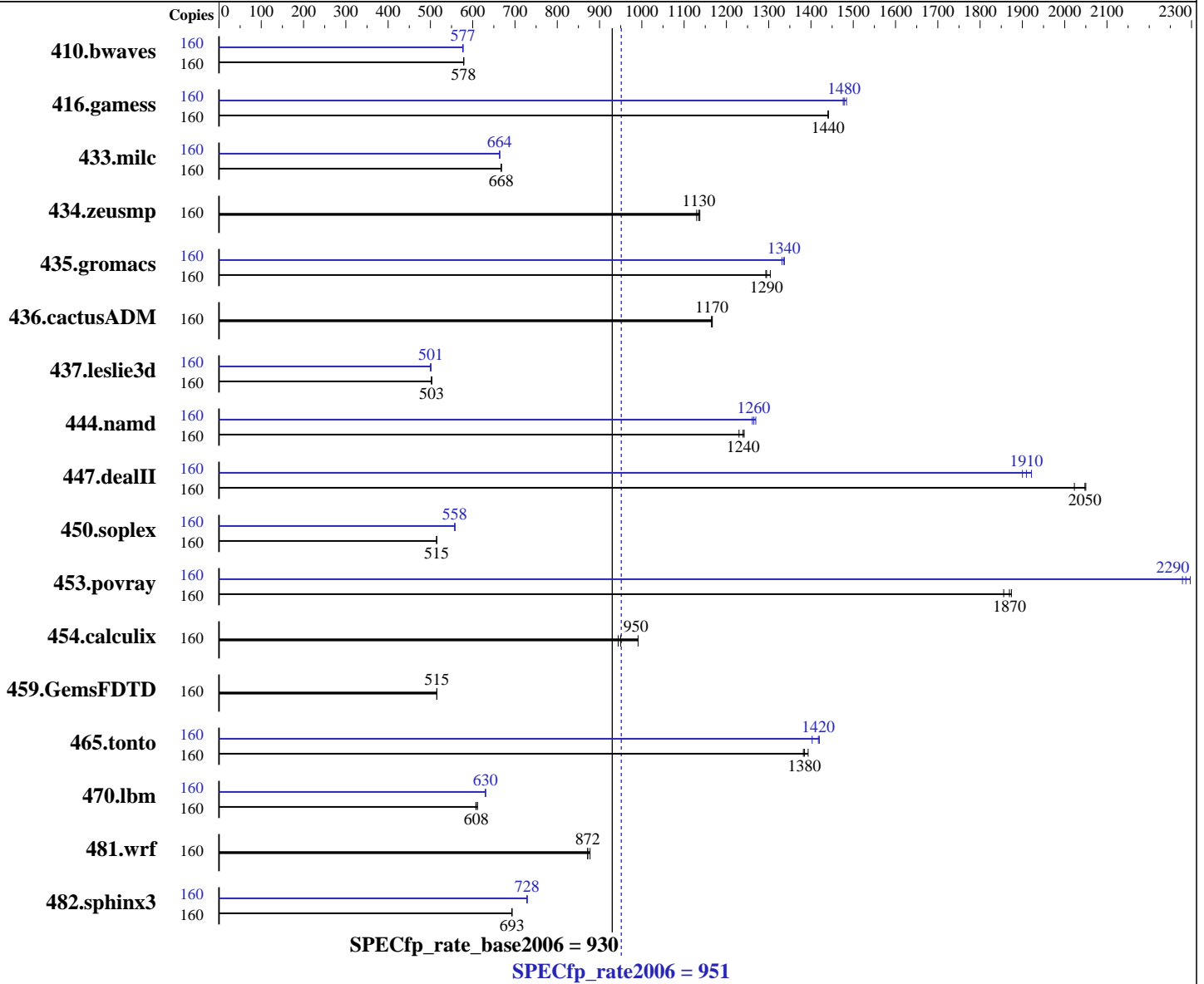
Test date: Nov-2011

Test sponsor: NEC Corporation

Hardware Availability: Nov-2011

Tested by: NEC Corporation

Software Availability: May-2011



### Hardware

CPU Name: Intel Xeon E7-8850  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 80 cores, 8 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 8 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

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### Software

Operating System: Red Hat Enterprise Linux Server release 6.1, Kernel 2.6.32-131.0.15.el6.x86\_64 on an x86\_64  
 Compiler: C/C++/Fortran: Version 12.0.4.191 of Intel Compiler XE Build 20110427  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit

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L3 Cache: 24 MB I+D on chip per chip  
Other Cache: None  
Memory: 1 TB (128 x 8 GB 2Rx4 PC3-8500R-7, ECC)  
Disk Subsystem: 2x300 GB SAS, 10000 RPM, RAID 0  
Other Hardware: None

Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	160	3754	579	3760	578	<b><u>3759</u></b>	<b><u>578</u></b>	160	<b><u>3768</u></b>	<b><u>577</u></b>	3767	577	3773	576
416.gamess	160	2174	1440	2175	1440	<b><u>2175</u></b>	<b><u>1440</u></b>	160	2122	1480	<b><u>2119</u></b>	<b><u>1480</u></b>	2111	1480
433.milc	160	2199	668	2202	667	<b><u>2200</u></b>	<b><u>668</u></b>	160	<b><u>2213</u></b>	<b><u>664</u></b>	2213	664	2212	664
434.zeusmp	160	1280	1140	1289	1130	<b><u>1283</u></b>	<b><u>1130</u></b>	160	1280	1140	1289	1130	<b><u>1283</u></b>	<b><u>1130</u></b>
435.gromacs	160	876	1300	883	1290	<b><u>882</u></b>	<b><u>1290</u></b>	160	<b><u>855</u></b>	<b><u>1340</u></b>	858	1330	854	1340
436.cactusADM	160	1639	1170	<b><u>1641</u></b>	<b><u>1170</u></b>	1641	1160	160	1639	1170	<b><u>1641</u></b>	<b><u>1170</u></b>	1641	1160
437.leslie3d	160	2987	503	<b><u>2992</u></b>	<b><u>503</u></b>	2993	503	160	3009	500	<b><u>3001</u></b>	<b><u>501</u></b>	3000	501
444.namd	160	<b><u>1035</u></b>	<b><u>1240</u></b>	1033	1240	1043	1230	160	<b><u>1014</u></b>	<b><u>1260</u></b>	1011	1270	1017	1260
447.dealII	160	905	2020	893	2050	<b><u>894</u></b>	<b><u>2050</u></b>	160	<b><u>959</u></b>	<b><u>1910</u></b>	953	1920	963	1900
450.soplex	160	2589	515	2594	514	<b><u>2592</u></b>	<b><u>515</u></b>	160	2393	558	2391	558	<b><u>2393</u></b>	<b><u>558</u></b>
453.povray	160	<b><u>455</u></b>	<b><u>1870</u></b>	454	1870	459	1860	160	371	2300	374	2280	<b><u>372</u></b>	<b><u>2290</u></b>
454.calculix	160	<b><u>1389</u></b>	<b><u>950</u></b>	1332	991	1398	944	160	<b><u>1389</u></b>	<b><u>950</u></b>	1332	991	1398	944
459.GemsFDTD	160	<b><u>3295</u></b>	<b><u>515</u></b>	3294	515	3295	515	160	<b><u>3295</u></b>	<b><u>515</u></b>	3294	515	3295	515
465.tonto	160	1130	1390	1139	1380	<b><u>1137</u></b>	<b><u>1380</u></b>	160	1122	1400	1109	1420	<b><u>1111</u></b>	<b><u>1420</u></b>
470.lbm	160	<b><u>3613</u></b>	<b><u>608</u></b>	3619	607	3595	611	160	3492	630	<b><u>3488</u></b>	<b><u>630</u></b>	3486	631
481.wrf	160	<b><u>2049</u></b>	<b><u>872</u></b>	2037	878	2050	872	160	<b><u>2049</u></b>	<b><u>872</u></b>	2037	878	2050	872
482.sphinx3	160	4499	693	4504	692	<b><u>4500</u></b>	<b><u>693</u></b>	160	4282	728	4277	729	<b><u>4281</u></b>	<b><u>728</u></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.  
numactl was used to bind copies to the cores

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
echo 1 > /proc/sys/vm/zone_reclaim_mode
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 72000 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```



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SPECfp\_rate\_base2006 = 930

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Nov-2011

Hardware Availability: Nov-2011

Software Availability: May-2011

## Platform Notes

ACPI type set to Type-3 in BIOS  
Patrol Scrubbing set to disabled in Maintenance Console

## General Notes

Binaries were compiled on RHEL 5.6

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.milc: -DSPEC\_CPU\_LP64  
434.zeusmp: -DSPEC\_CPU\_LP64  
435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
437.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64  
450.soplex: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
459.GemsFDTD: -DSPEC\_CPU\_LP64  
465.tonto: -DSPEC\_CPU\_LP64  
470.lbm: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
 416.gamess: -DSPEC\_CPU\_LP64  
 433.milc: -DSPEC\_CPU\_LP64  
 434.zeusmp: -DSPEC\_CPU\_LP64  
 435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
 436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
 437.leslie3d: -DSPEC\_CPU\_LP64  
 444.namd: -DSPEC\_CPU\_LP64  
 447.deallI: -DSPEC\_CPU\_LP64  
 453.povray: -DSPEC\_CPU\_LP64  
 454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX



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## Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -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  
-inline-calloc -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: -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  
-static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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.20110705.html>

<http://www.spec.org/cpu2006/flags/NEC-platform-linux64-revB.20120103.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.20110705.xml>

<http://www.spec.org/cpu2006/flags/NEC-platform-linux64-revB.20120103.xml>

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

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