



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

Express5800/R140b-4  
(Intel Xeon E7530)

SPECfp<sup>®</sup>\_rate2006 = 382

SPECfp\_rate\_base2006 = 372

CPU2006 license: 9006

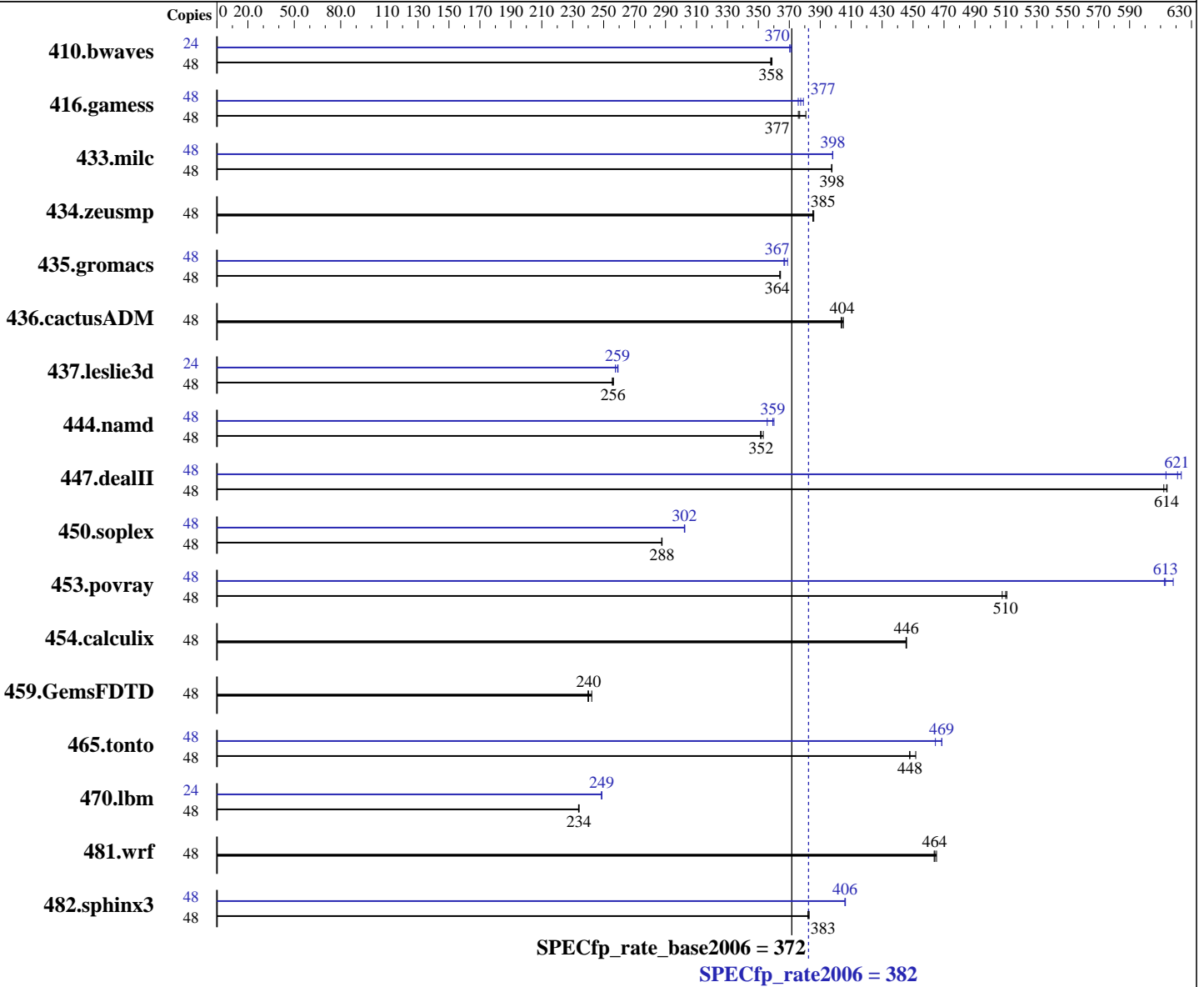
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jul-2010

Hardware Availability: Aug-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon E7530  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.13 GHz  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 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: SUSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: I\_cproc\_p\_11.1.064, I\_cprof\_p\_11.1.064  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (64 x 4 GB PC3-10600R, 2 rank, CL9, ECC, running at 978 MHz)  
Disk Subsystem: 1x300 GB SAS, 10000 RPM  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	1818	359	<b>1821</b>	<b>358</b>	1822	358	24	<b>881</b>	<b>370</b>	878	371	881	370
416.gamess	48	<b>2495</b>	<b>377</b>	2500	376	2469	381	48	2479	379	<b>2490</b>	<b>377</b>	2501	376
433.milc	48	1108	398	<b>1108</b>	<b>398</b>	1109	397	48	<b>1107</b>	<b>398</b>	1107	398	1107	398
434.zeusmp	48	1134	385	1132	386	<b>1133</b>	<b>385</b>	48	1134	385	1132	386	<b>1133</b>	<b>385</b>
435.gromacs	48	941	364	<b>942</b>	<b>364</b>	942	364	48	929	369	<b>934</b>	<b>367</b>	935	367
436.cactusADM	48	<b>1419</b>	<b>404</b>	1422	403	1416	405	48	<b>1419</b>	<b>404</b>	1422	403	1416	405
437.leslie3d	48	1766	256	1760	256	<b>1762</b>	<b>256</b>	24	870	259	<b>871</b>	<b>259</b>	876	258
444.namd	48	<b>1094</b>	<b>352</b>	1090	353	1096	351	48	<b>1071</b>	<b>359</b>	1082	356	1069	360
447.dealII	48	894	614	<b>894</b>	<b>614</b>	897	612	48	881	623	895	613	<b>884</b>	<b>621</b>
450.soplex	48	1392	288	1391	288	<b>1392</b>	<b>288</b>	48	<b>1324</b>	<b>302</b>	1325	302	1324	302
453.povray	48	<b>501</b>	<b>510</b>	500	511	503	508	48	413	618	<b>416</b>	<b>613</b>	417	612
454.calculix	48	<b>888</b>	<b>446</b>	888	446	889	445	48	<b>888</b>	<b>446</b>	888	446	889	445
459.GemsFDTD	48	<b>2120</b>	<b>240</b>	2123	240	2102	242	48	<b>2120</b>	<b>240</b>	2123	240	2102	242
465.tonto	48	1046	452	1055	448	<b>1054</b>	<b>448</b>	48	<b>1008</b>	<b>469</b>	1008	469	1017	464
470.lbm	48	2817	234	<b>2819</b>	<b>234</b>	2821	234	24	1326	249	<b>1326</b>	<b>249</b>	1327	249
481.wrf	48	1153	465	<b>1155</b>	<b>464</b>	1156	464	48	1153	465	<b>1155</b>	<b>464</b>	1156	464
482.sphinx3	48	2449	382	<b>2445</b>	<b>383</b>	2444	383	48	2304	406	<b>2304</b>	<b>406</b>	2303	406

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

## Platform Notes

BIOS setting:  
Performance/Watt: Traditional



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## 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

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:  
-xSSE4.2 -ipo -O3 -no-prec-div -static



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## 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.dealII: -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

## 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) -static(pass 2) -prof-use(pass 2)  
-fno-alias -opt-prefetch

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

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## Peak Optimization Flags (Continued)

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

### C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(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) -static(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

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) -static(pass 2) -prof-use(pass 2)  
-unroll4 -auto -inline-calloc -opt-malloc-options=3

### 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) -static(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes



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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-R140.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE-R140.xml>

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