



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/R140b-4  
(Intel Xeon E7530)

SPECfp®2006 = 32.5

SPECfp\_base2006 = 30.7

CPU2006 license: 9006

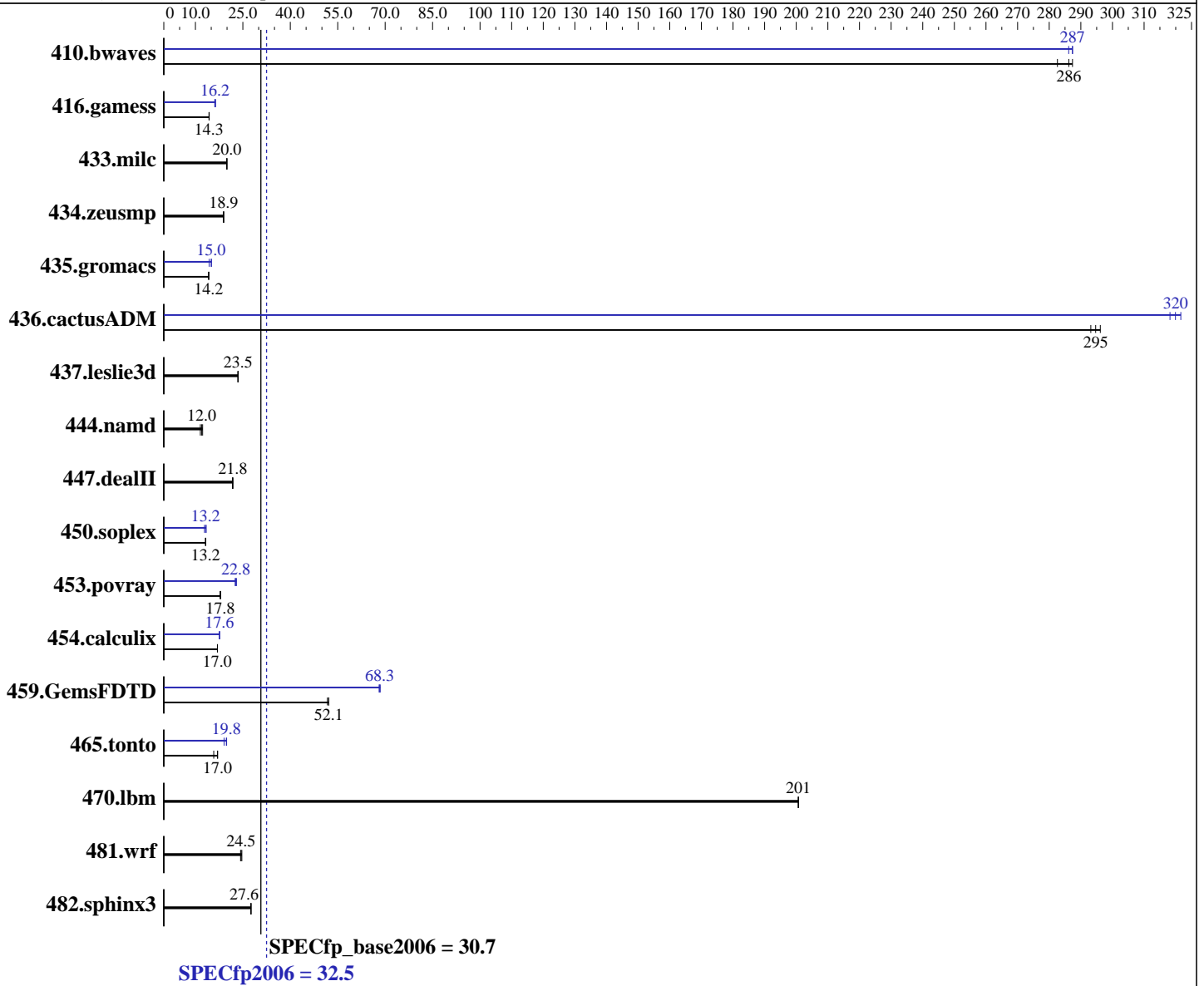
Test sponsor: NEC Corporation

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  
 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: Yes  
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48.1	283	<b>47.5</b>	<b>286</b>	47.3	287	47.3	287	<b>47.3</b>	<b>287</b>	47.5	286
416.gamess	1363	14.4	1370	14.3	<b>1367</b>	<b>14.3</b>	1214	16.1	<b>1206</b>	<b>16.2</b>	1196	16.4
433.milc	459	20.0	<b>460</b>	<b>20.0</b>	461	19.9	459	20.0	<b>460</b>	<b>20.0</b>	461	19.9
434.zeusmp	483	18.9	480	19.0	<b>481</b>	<b>18.9</b>	483	18.9	480	19.0	<b>481</b>	<b>18.9</b>
435.gromacs	<b>503</b>	<b>14.2</b>	501	14.2	504	14.2	498	14.3	474	15.1	<b>477</b>	<b>15.0</b>
436.cactusADM	40.4	296	<b>40.6</b>	<b>295</b>	40.8	293	<b>37.4</b>	<b>320</b>	37.2	322	37.6	318
437.leslie3d	<b>400</b>	<b>23.5</b>	402	23.4	399	23.5	<b>400</b>	<b>23.5</b>	402	23.4	399	23.5
444.namd	694	11.6	653	12.3	<b>669</b>	<b>12.0</b>	694	11.6	653	12.3	<b>669</b>	<b>12.0</b>
447.dealII	523	21.9	<b>525</b>	<b>21.8</b>	527	21.7	523	21.9	<b>525</b>	<b>21.8</b>	527	21.7
450.soplex	628	13.3	<b>631</b>	<b>13.2</b>	633	13.2	648	12.9	<b>632</b>	<b>13.2</b>	622	13.4
453.povray	298	17.8	<b>298</b>	<b>17.8</b>	295	18.0	236	22.6	<b>234</b>	<b>22.8</b>	232	23.0
454.calculix	486	17.0	<b>487</b>	<b>17.0</b>	487	16.9	468	17.6	<b>468</b>	<b>17.6</b>	469	17.6
459.GemsFDTD	203	52.2	205	51.7	<b>203</b>	<b>52.1</b>	156	68.1	155	68.4	<b>155</b>	<b>68.3</b>
465.tonto	<b>579</b>	<b>17.0</b>	623	15.8	579	17.0	495	19.9	516	19.1	<b>498</b>	<b>19.8</b>
470.lbm	68.4	201	<b>68.5</b>	<b>201</b>	68.5	201	68.4	201	<b>68.5</b>	<b>201</b>	68.5	201
481.wrf	460	24.3	<b>457</b>	<b>24.5</b>	453	24.7	460	24.3	<b>457</b>	<b>24.5</b>	453	24.7
482.sphinx3	708	27.5	<b>707</b>	<b>27.6</b>	706	27.6	708	27.5	<b>707</b>	<b>27.6</b>	706	27.6

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

## Platform Notes

BIOS setting:  
Performance/Watt: Traditional  
Hyper-Threading Technology: Disabled  
NUMA Configuration: Disabled  
Interleave Mode: 8 Way



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## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M

## 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 -parallel -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

## Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks:

`icpc -m64`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealII: `basepeak = yes`

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 -auto-ilp32`

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## Peak Optimization Flags (Continued)

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  
-parallel

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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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)  
-inline-alloc -opt-malloc-options=3 -auto -unroll4

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: -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 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes

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-R140b.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-R140b.xml>



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

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