



# SPEC® CFP2006 Result

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## NEC Corporation

Express5800/T120b-E  
(Intel Xeon E5503)

**SPECfp®2006 = 26.3**

**SPECfp\_base2006 = 25.1**

CPU2006 license: 9006

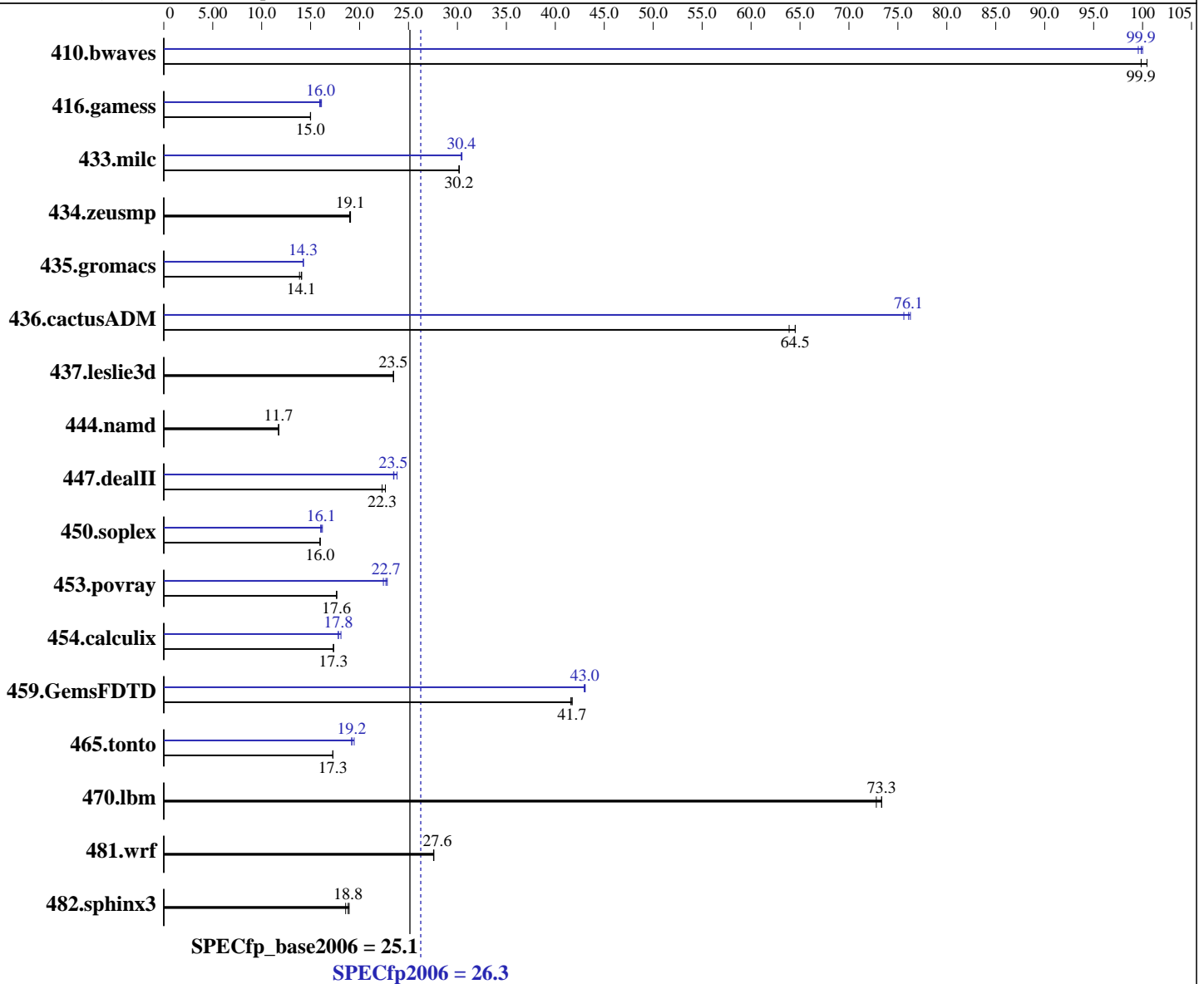
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Aug-2010

Hardware Availability: Jun-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon E5503  
 CPU Characteristics:  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2 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: 4 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12 x 4 GB PC3L-10600R, 2 rank, CL9, ECC, running at 800 MHz)  
Disk Subsystem: 1x160 GB SATA, 7200 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	<b>136</b>	<b>99.9</b>	136	99.9	135	100	<b>136</b>	<b>99.9</b>	137	99.6	136	100
416.gamess	<b>1307</b>	<b>15.0</b>	1307	15.0	1305	15.0	1229	15.9	1215	16.1	<b>1222</b>	<b>16.0</b>
433.milc	304	30.2	304	30.2	<b>304</b>	<b>30.2</b>	302	30.4	301	30.5	<b>302</b>	<b>30.4</b>
434.zeusmp	477	19.1	479	19.0	<b>477</b>	<b>19.1</b>	477	19.1	479	19.0	<b>477</b>	<b>19.1</b>
435.gromacs	515	13.9	507	14.1	<b>508</b>	<b>14.1</b>	<b>501</b>	<b>14.3</b>	501	14.3	501	14.2
436.cactusADM	<b>185</b>	<b>64.5</b>	185	64.5	187	63.9	157	76.3	<b>157</b>	<b>76.1</b>	158	75.6
437.leslie3d	<b>401</b>	<b>23.5</b>	400	23.5	401	23.5	<b>401</b>	<b>23.5</b>	400	23.5	401	23.5
444.namd	684	11.7	<b>684</b>	<b>11.7</b>	683	11.7	684	11.7	<b>684</b>	<b>11.7</b>	683	11.7
447.dealII	513	22.3	505	22.6	<b>513</b>	<b>22.3</b>	487	23.5	480	23.8	<b>487</b>	<b>23.5</b>
450.soplex	522	16.0	<b>522</b>	<b>16.0</b>	522	16.0	515	16.2	520	16.0	<b>519</b>	<b>16.1</b>
453.povray	302	17.6	<b>302</b>	<b>17.6</b>	301	17.7	<b>234</b>	<b>22.7</b>	237	22.4	233	22.8
454.calculix	476	17.3	476	17.3	<b>476</b>	<b>17.3</b>	456	18.1	463	17.8	<b>463</b>	<b>17.8</b>
459.GemsFDTD	254	41.7	<b>254</b>	<b>41.7</b>	255	41.6	247	43.0	<b>247</b>	<b>43.0</b>	246	43.1
465.tonto	570	17.3	<b>570</b>	<b>17.3</b>	570	17.3	<b>512</b>	<b>19.2</b>	512	19.2	506	19.4
470.lbm	189	72.8	<b>187</b>	<b>73.3</b>	187	73.3	189	72.8	<b>187</b>	<b>73.3</b>	187	73.3
481.wrf	405	27.6	<b>405</b>	<b>27.6</b>	405	27.6	405	27.6	<b>405</b>	<b>27.6</b>	405	27.6
482.sphinx3	1029	18.9	<b>1035</b>	<b>18.8</b>	1049	18.6	1029	18.9	<b>1035</b>	<b>18.8</b>	1049	18.6

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:  
NUMA configuration : Disabled

## General Notes

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



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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 -parallel -opt-prefetch

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

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



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## 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: -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)  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

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- -auto-ilp32

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

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:

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## Peak Optimization Flags (Continued)

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.20100721.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.20100721.xml>



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

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