



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = 44.5

Express5800/R120d-2E (Intel Xeon E5-2403)

SPECfp\_base2006 = 43.1

CPU2006 license: 9006

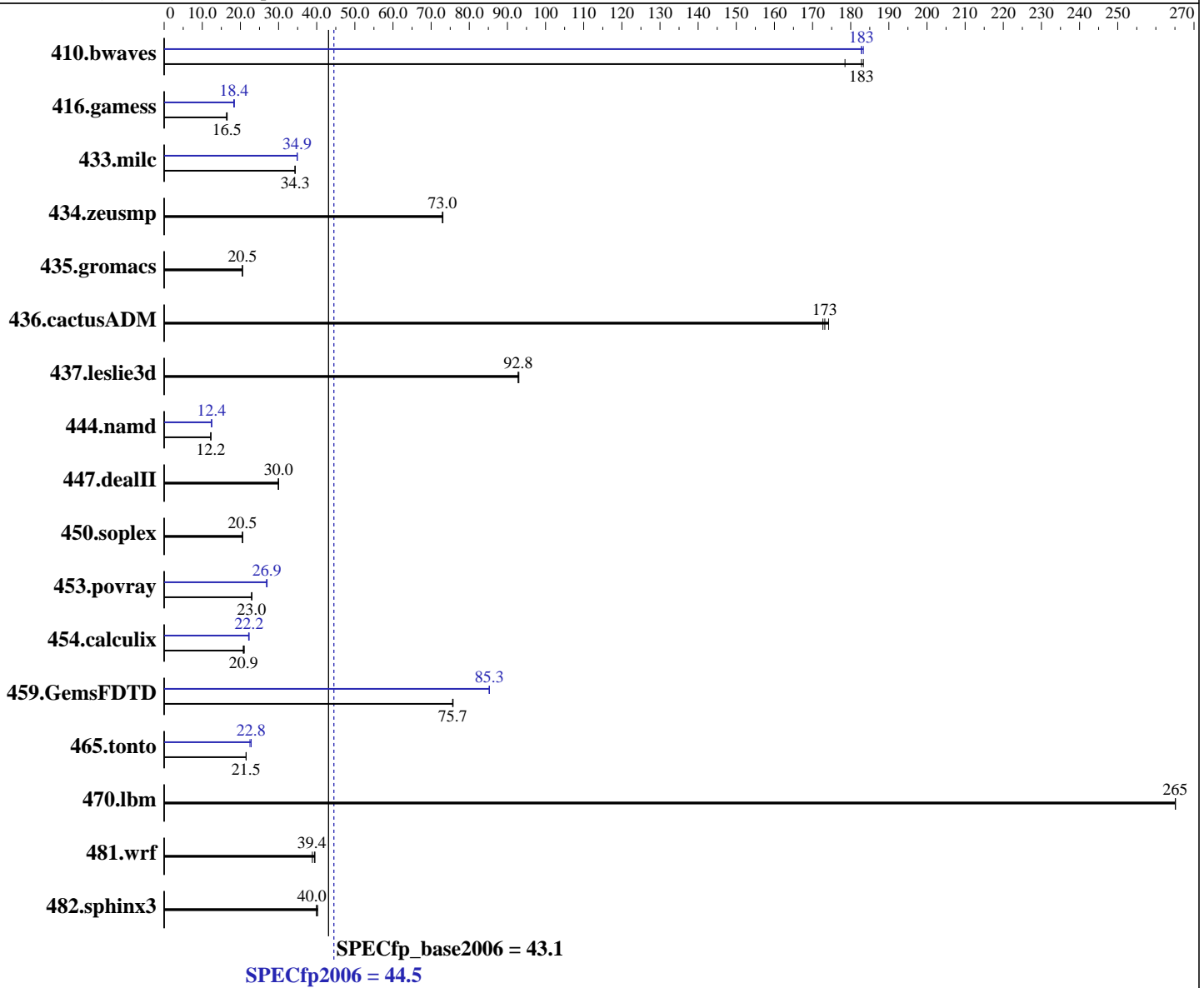
Test date: Jun-2012

Test sponsor: NEC Corporation

Hardware Availability: May-2012

Tested by: NEC Corporation

Software Availability: Dec-2011



### Hardware

CPU Name: Intel Xeon E5-2403  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: Red Hat Enterprise Linux Server release 6.2 (Santiago)  
 Kernel 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz and CL7)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 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	76.1	179	<b>74.3</b>	<b>183</b>	74.1	183	<b>74.3</b>	<b>183</b>	74.3	183	74.1	183
416.gamess	1184	16.5	1198	16.3	<b>1188</b>	<b>16.5</b>	1073	18.2	<b>1066</b>	<b>18.4</b>	1064	18.4
433.milc	<b>267</b>	<b>34.3</b>	267	34.3	268	34.3	<b>263</b>	<b>34.9</b>	263	34.9	263	34.9
434.zeusmp	124	73.1	125	73.0	<b>125</b>	<b>73.0</b>	124	73.1	125	73.0	<b>125</b>	<b>73.0</b>
435.gromacs	<b>348</b>	<b>20.5</b>	348	20.5	348	20.5	<b>348</b>	<b>20.5</b>	348	20.5	348	20.5
436.cactusADM	<b>69.0</b>	<b>173</b>	69.2	173	68.6	174	<b>69.0</b>	<b>173</b>	69.2	173	68.6	174
437.leslie3d	<b>101</b>	<b>92.8</b>	101	93.0	101	92.8	<b>101</b>	<b>92.8</b>	101	93.0	101	92.8
444.namd	655	12.2	656	12.2	<b>655</b>	<b>12.2</b>	644	12.4	645	12.4	<b>644</b>	<b>12.4</b>
447.dealII	<b>381</b>	<b>30.0</b>	382	29.9	381	30.0	<b>381</b>	<b>30.0</b>	382	29.9	381	30.0
450.soplex	406	20.6	406	20.5	<b>406</b>	<b>20.5</b>	406	20.6	406	20.5	<b>406</b>	<b>20.5</b>
453.povray	231	23.0	232	22.9	<b>232</b>	<b>23.0</b>	198	26.8	197	27.0	<b>198</b>	<b>26.9</b>
454.calculix	393	21.0	<b>395</b>	<b>20.9</b>	398	20.7	371	22.3	373	22.1	<b>371</b>	<b>22.2</b>
459.GemsFDTD	140	75.8	140	75.7	<b>140</b>	<b>75.7</b>	124	85.3	124	85.3	<b>124</b>	<b>85.3</b>
465.tonto	<b>458</b>	<b>21.5</b>	458	21.5	457	21.5	<b>432</b>	<b>22.8</b>	431	22.8	437	22.5
470.lbm	<b>51.8</b>	<b>265</b>	51.8	265	51.8	265	<b>51.8</b>	<b>265</b>	51.8	265	51.8	265
481.wrf	287	38.9	282	39.5	<b>283</b>	<b>39.4</b>	287	38.9	282	39.5	<b>283</b>	<b>39.4</b>
482.sphinx3	484	40.3	488	39.9	<b>488</b>	<b>40.0</b>	484	40.3	488	39.9	<b>488</b>	<b>40.0</b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS Settings:  
Energy Performance: Performance

## General Notes

Environment variables set by runspec before the start of the run:  
 KMP\_AFFINITY = "granularity=fine,scatter"  
 LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

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<b>CPU2006 license:</b> 9006	<b>Test date:</b> Jun-2012
<b>Test sponsor:</b> NEC Corporation	<b>Hardware Availability:</b> May-2012
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## General Notes (Continued)

OMP\_NUM\_THREADS = "8"

The Express5800/R120d-1E and the Express5800/R120d-2E models are electronically equivalent. The results have been measured on the Express5800/R120d-2E model.

Added glibc-static-2.12-1.47.el6.x86\_64.rpm to enable static linking

Transparent Huge Pages disabled with:  
echo never > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## 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.deallI: -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



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## Base Optimization Flags

C benchmarks:  
 -xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
 -ansi-alias

C++ benchmarks:  
 -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:  
 -xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:  
 -xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
 -ansi-alias

## 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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(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: basepeak = yes

450.soplex: basepeak = yes

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

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

416.gamess: -xAVX(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: basepeak = yes

459.GemsFDTD: -xAVX(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 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html>



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You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 09:44:45 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 3 July 2012.