SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

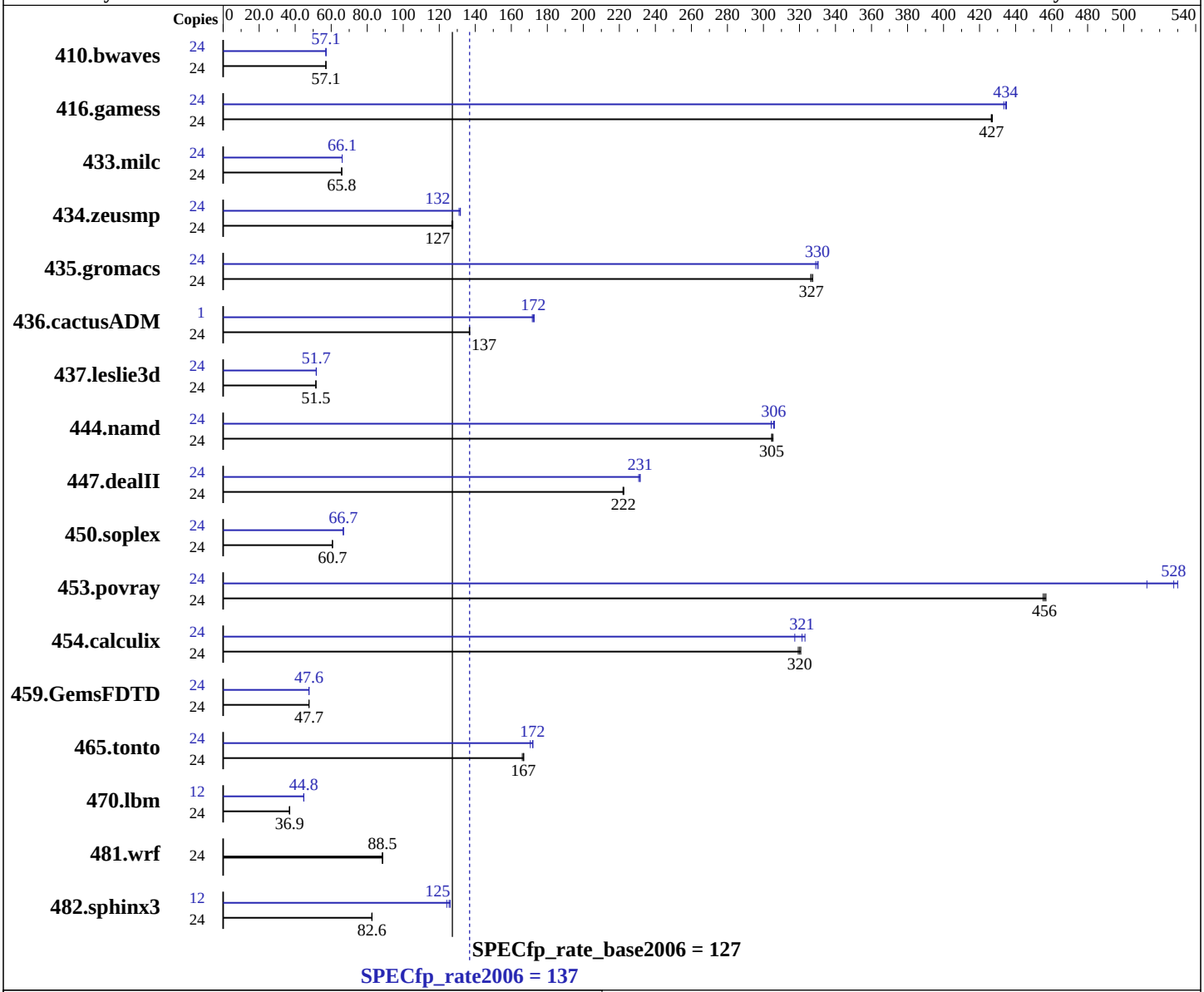
Express5800/R140a-4
(Intel Xeon E7450)

SPECfp®_rate2006 = 137

SPECfp_rate_base2006 = 127

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: Bull SAS

Test date: Dec-2008
Hardware Availability: Nov-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon E7450
CPU Characteristics:	1066 MHz system bus
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	1,2,3,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	9 MB I+D on chip per chip, 3 MB shared / 2 cores

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

Express5800/R140a-4
(Intel Xeon E7450)

SPECfp_rate2006 = 137

SPECfp_rate_base2006 = 127

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: Bull SAS

Test date: Dec-2008
Hardware Availability: Nov-2008
Software Availability: Nov-2008

L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16 x 4GB DDR2-667 FBDIMM)
Disk Subsystem: 1x146 GB SAS, 10000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	5720	57.0	5714	57.1	**5715**	**57.1**	24	5713	57.1	**5713**	**57.1**	5712	57.1
416.gamess	24	**1102**	**427**	1102	427	1100	427	24	1080	435	1084	433	**1082**	**434**
433.milc	24	3351	65.7	**3347**	**65.8**	3345	65.9	24	**3334**	**66.1**	3335	66.1	3334	66.1
434.zeusmp	24	1720	127	**1716**	**127**	1712	128	24	1668	131	**1659**	**132**	1658	132
435.gromacs	24	523	327	**525**	**327**	525	326	24	519	330	**519**	**330**	521	329
436.cactusADM	24	2099	137	2095	137	**2097**	**137**	1	69.2	173	69.6	172	**69.4**	**172**
437.leslie3d	24	4378	51.5	4383	51.5	**4379**	**51.5**	24	4363	51.7	4362	51.7	**4363**	**51.7**
444.namd	24	**632**	**305**	630	305	632	305	24	633	304	**630**	**306**	629	306
447.dealII	24	1237	222	1234	222	**1235**	**222**	24	**1186**	**231**	1186	232	1190	231
450.soplex	24	**3298**	**60.7**	3301	60.6	3297	60.7	24	3000	66.7	**3000**	**66.7**	2998	66.8
453.povray	24	280	455	279	457	**280**	**456**	24	249	513	**242**	**528**	241	530
454.calculix	24	620	319	617	321	**618**	**320**	24	613	323	**616**	**321**	624	317
459.GemsFDTD	24	5348	47.6	5339	47.7	**5341**	**47.7**	24	5333	47.7	**5347**	**47.6**	5350	47.6
465.tonto	24	1422	166	**1416**	**167**	1415	167	24	**1374**	**172**	1385	171	1373	172
470.lbm	24	8951	36.8	**8946**	**36.9**	8938	36.9	12	3684	44.8	**3680**	**44.8**	3680	44.8
481.wrf	24	**3030**	**88.5**	3030	88.5	3031	88.4	24	**3030**	**88.5**	3030	88.5	3031	88.4
482.sphinx3	24	**5664**	**82.6**	5665	82.6	5655	82.7	12	1855	126	**1864**	**125**	1884	124

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.
 taskset was used to bind processes to cores except
 for 436.cactusADM peak
 For peak modules using 1/2 the number of available cores, copies
 were each assigned to a single L2 cache using mysubmit.pl script.
 See the flags description file for mysubmit.pl details.
```

Operating System Notes

```
 'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
 OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to physical,0
 KMP_STACKSIZE set to 64M
```

Platform Notes

```
BIOS Settings:
Adjacent Cache Line Prefetch = Disabled
Hardware Prefetcher = Disabled
High Bandwidth option = Enabled
```

General Notes

```
The NEC Express5800/R140a-4(Intel Xeon E7450) and
the Bull NovaScale R480 E1(Intel Xeon E7450, 2.40 GHz) models are electronically equivalent.
The results have been measured on a Bull NovaScale R480 E1(Intel Xeon E7450, 2.40 GHz) model.
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

C++ benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Fortran benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc`

482.sphinx3: `/opt/intel/Compiler/11.0/042/bin/ia32/icc -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/Compiler/11.0/042/bin/ia32/icpc -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/Compiler/11.0/042/bin/ia32/ifort -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

Benchmarks using both Fortran and C:
`icc ifort`

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`

Continued on next page

Peak Portability Flags (Continued)

436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

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

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

Continued on next page

Peak Optimization Flags (Continued)

437.leslie3d: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-malloc-options=3 -opt-prefetch`

459.GemsFDTD: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch`

465.tonto: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

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-Linux64-Platform.20090713.01.html
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.04.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.01.xml
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.04.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 22:39:58 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 4 February 2009.