SPEC® CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

$SPECfp^{®}_rate2006 = $ 533

IBM BladeCenter HX5 (Intel Xeon X7560)
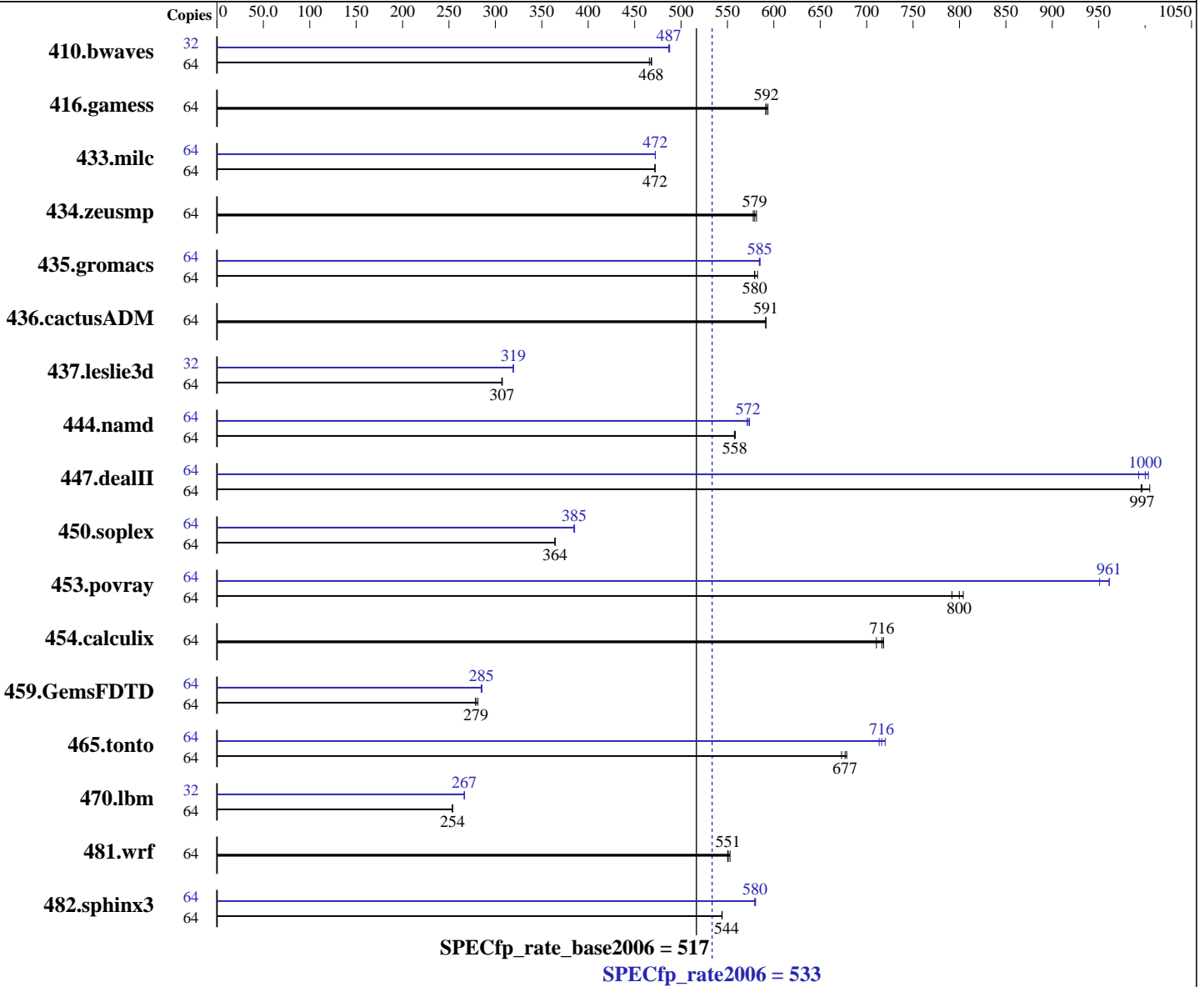
$SPECfp_rate_base2006 = $ 517

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

SPECfp_rate_base2006 = 517

SPECfp_rate2006 = 533

Hardware

CPU Name:	Intel Xeon X7560
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable:	1,2,3,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

Continued on next page

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: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM BladeCenter HX5 (Intel Xeon X7560)

$SPECfp\_rate2006 =$ 533

$SPECfp\_rate\_base2006 =$ 517

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

L3 Cache:	24 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (32 x 8 GB PC3-8500R CL7, Quad Rank, running at 978 MHz)
Disk Subsystem:	2 x 50 GB SATA, SSD, RAID 0
Other Hardware:	None

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

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	64	1857	468	**1859**	**468**	1867	466	32	**893**	**487**	892	488	893	487
416.gamess	64	2119	591	**2117**	**592**	2111	594	64	2119	591	**2117**	**592**	2111	594
433.milc	64	1245	472	1245	472	**1245**	**472**	64	**1244**	**472**	1244	472	1244	472
434.zeusmp	64	1008	578	**1005**	**579**	1002	581	64	1008	578	**1005**	**579**	1002	581
435.gromacs	64	789	579	**789**	**580**	785	582	64	782	584	781	585	**781**	**585**
436.cactusADM	64	**1293**	**591**	1293	592	1293	591	64	**1293**	**591**	1293	592	1293	591
437.leslie3d	64	**1959**	**307**	1956	308	1960	307	32	**942**	**319**	942	319	942	319
444.namd	64	921	557	**920**	**558**	919	559	64	895	574	898	571	**897**	**572**
447.dealII	64	**735**	**997**	735	996	729	1010	64	**732**	**1000**	737	993	730	1000
450.soplex	64	**1465**	**364**	1465	364	1466	364	64	1388	385	**1387**	**385**	1385	385
453.povray	64	430	792	423	804	**426**	**800**	64	**354**	**961**	354	961	358	951
454.calculix	64	743	711	**737**	**716**	735	718	64	743	711	**737**	**716**	735	718
459.GemsFDTD	64	2437	279	2415	281	**2435**	**279**	64	2378	286	**2383**	**285**	2384	285
465.tonto	64	928	679	936	673	**931**	**677**	64	875	720	**879**	**716**	883	713
470.lbm	64	3464	254	3465	254	**3465**	**254**	32	1648	267	1651	266	**1650**	**267**
481.wrf	64	1299	550	**1298**	**551**	1293	553	64	1299	550	**1298**	**551**	1293	553
482.sphinx3	64	2291	544	**2292**	**544**	2292	544	64	**2152**	**580**	2149	580	2153	579

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

```
   echo 1 > /proc/sys/vm/zone_reclaim_mode
```

Platform Notes

```
   Turbo Boost set to Traditional
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM BladeCenter HX5 (Intel Xeon X7560)

SPECfp_rate2006 = 533

SPECfp_rate_base2006 = 517

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

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

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM BladeCenter HX5 (Intel Xeon X7560)

SPECfp_rate2006 = 533

SPECfp_rate_base2006 = 517

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

Base Optimization Flags (Continued)

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

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

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
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM BladeCenter HX5 (Intel Xeon X7560)

$\text{SPECfp\_rate2006} = \quad 533$

$\text{SPECfp\_rate\_base2006} = \quad 517$

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

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

> 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: basepeak = yes

> 434.zeusmp: basepeak = yes

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

> 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

> 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:

IBM Corporation

IBM BladeCenter HX5 (Intel Xeon X7560)

$\text{SPECfp\_rate2006} = \quad 533$

$\text{SPECfp\_rate\_base2006} = \quad 517$

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

Peak Optimization Flags (Continued)

```
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
```

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.20100603.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.20100603.xml

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 Wed Jul 23 11:53:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 August 2010.