



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp[®]_rate2006 = 225

SPECfp_rate_base2006 = 219

CPU2006 license: 11

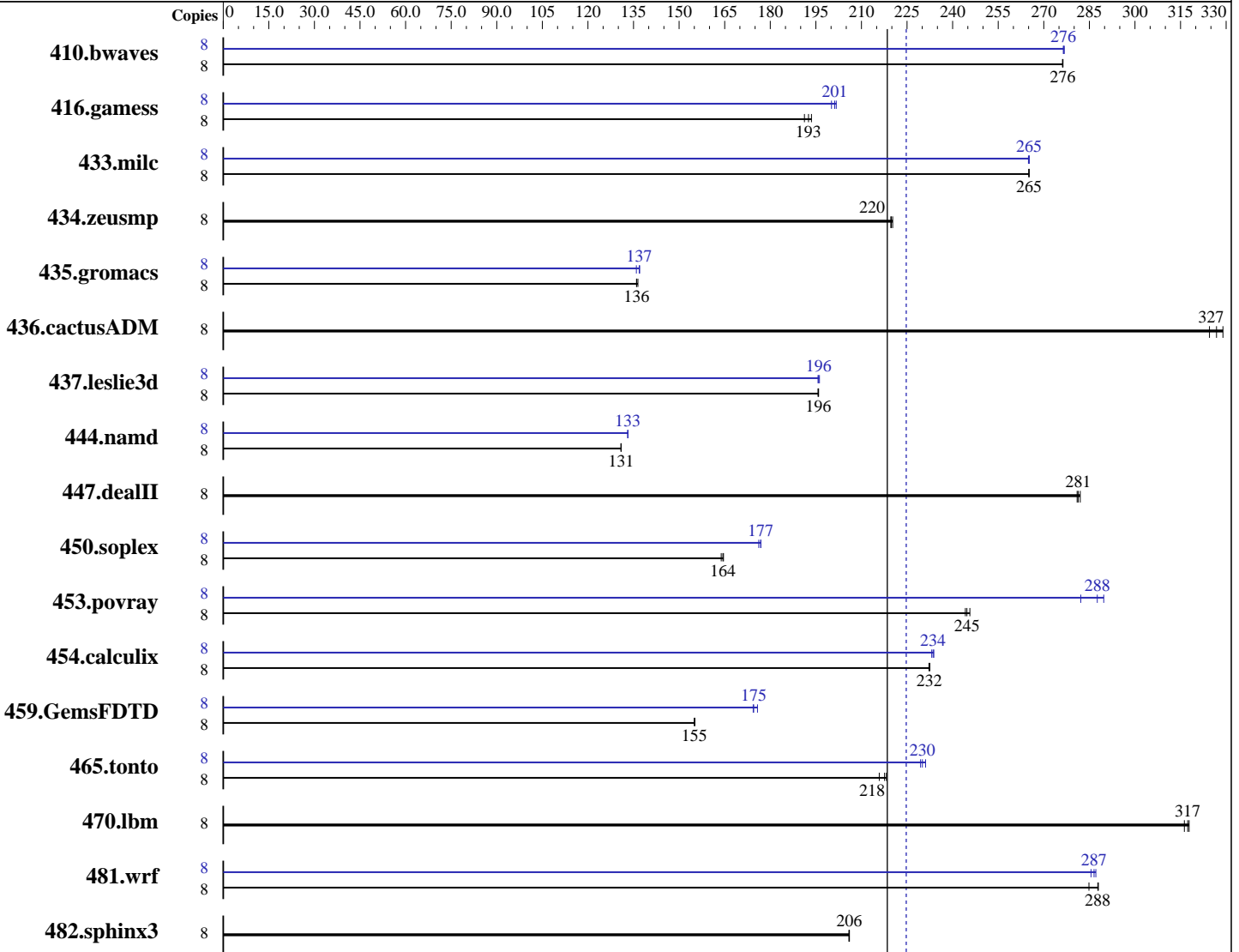
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011



SPECfp_rate_base2006 = 219

SPECfp_rate2006 = 225

Hardware

CPU Name: Intel Xeon E5-2609
 CPU Characteristics:
 CPU MHz: 2400
 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp_rate2006 = **225**

SPECfp_rate_base2006 = **219**

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011

L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	394	276	393	276	394	276	8	393	277	393	276	393	276
416.gamess	8	819	191	809	194	813	193	8	783	200	777	202	779	201
433.milc	8	277	265	277	265	277	265	8	277	265	277	265	277	265
434.zeusmp	8	331	220	331	220	330	220	8	331	220	331	220	330	220
435.gromacs	8	419	136	420	136	420	136	8	417	137	417	137	420	136
436.cactusADM	8	291	329	293	327	295	325	8	291	329	293	327	295	325
437.leslie3d	8	384	196	384	196	384	196	8	383	196	384	196	384	196
444.namd	8	490	131	490	131	490	131	8	482	133	482	133	482	133
447.dealII	8	326	281	325	281	325	282	8	326	281	325	281	325	282
450.soplex	8	406	164	405	165	407	164	8	377	177	379	176	377	177
453.povray	8	174	244	173	246	174	245	8	147	290	148	288	151	282
454.calculix	8	284	232	284	232	284	233	8	283	234	282	234	283	233
459.GemsFDTD	8	548	155	547	155	547	155	8	487	174	486	175	483	176
465.tonto	8	361	218	362	218	365	216	8	341	231	343	229	342	230
470.lbm	8	346	318	346	317	348	316	8	346	318	346	317	348	316
481.wrf	8	314	285	311	288	310	288	8	312	287	311	287	313	286
482.sphinx3	8	757	206	757	206	757	206	8	757	206	757	206	757	206

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Zone reclaim mode enabled with:
echo 1 > /proc/sys/vm/zone_reclaim_mode



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp_rate2006 = 225

SPECfp_rate_base2006 = 219

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

Test date: Jun-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011

Platform Notes

BIOS Settings:

Operating Mode set to Maximum Performance
Sysinfo program /root/SPECcpu-v1.2/Docs/sysinfo
\$Rev: 6775 \$ \$Date:: 2011-08-16 # \$ 8787f7622badcf24e01c368b1db4377c
running on tianden Fri Jun 8 00:33:22 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see: <http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E5-2609 0 @ 2.40GHz
 2 "physical id"s (chips)
 8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores    : 4
  siblings     : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
cache size     : 10240 KB
```

```
From /proc/meminfo
MemTotal:      132096584 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.2 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux tianden 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13 EST 2011 x86_64
x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jun 7 15:36
```

```
SPEC is set to: /root/SPECcpu-v1.2
Filesystem      Type      Size Used Avail Use% Mounted on
/dev/mapper/vg_tianden-lv_root
ext4            145G    61G   78G  44% /
```

(End of data from sysinfo program)



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 225

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp_rate_base2006 = 219

CPU2006 license: 11

Test date: Jun-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Dec-2011

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/libs/64"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp_rate2006 = 225

SPECfp_rate_base2006 = 219

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

Test date: Jun-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011

Base Optimization Flags

C benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3`

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3`

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3`

Peak Compiler Invocation

C benchmarks:

`icc -m64`

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`
465.tonto: `-DSPEC_CPU_LP64`

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp_rate2006 = 225

SPECfp_rate_base2006 = 219

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2012

Hardware Availability: Mar-2012

Software Availability: Dec-2011

Peak Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

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
-opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x iDataPlex dx360 M4 (Intel Xeon E5-2609)

SPECfp_rate2006 = 225

SPECfp_rate_base2006 = 219

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

Test date: Jun-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-static -auto-ilp32 -opt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

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/IBM-Platform-Flags-V1.2-SNB-C.html>

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/IBM-Platform-Flags-V1.2-SNB-C.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 v1.2.
Report generated on Thu Jul 24 10:18:23 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 25 July 2012.