



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp®2006 = 65.4

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = 62.2

CPU2006 license: 11

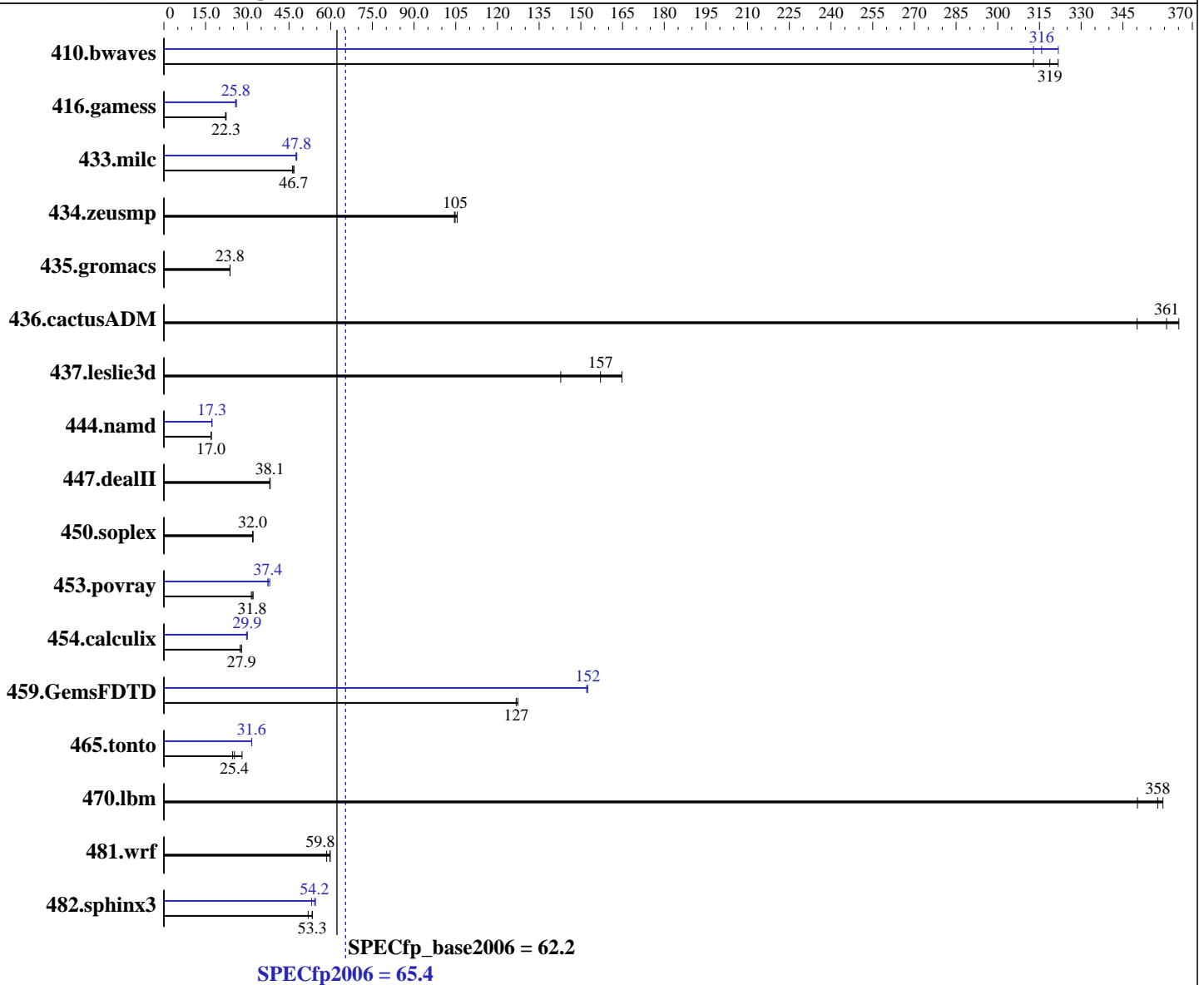
Test date: Mar-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011



Hardware

CPU Name: Intel Xeon E5-2620
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 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 6.1 (Santiago)
 2.6.32-131.0.15.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: Yes
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = **65.4**

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = **62.2**

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011

L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
 Disk Subsystem: 1 x 1 TB SAS, 7200 RPM
 Other Hardware: None

System State: Run level 3 (add definition here)
 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	42.2	322	43.4	313	42.6	319	43.4	313	42.2	322	43.0	316
416.gamess	883	22.2	875	22.4	876	22.3	758	25.8	750	26.1	758	25.8
433.milc	198	46.3	196	46.8	197	46.7	192	47.8	192	47.8	193	47.5
434.zeusmp	86.9	105	86.3	106	87.1	105	86.9	105	86.3	106	87.1	105
435.gromacs	300	23.8	300	23.8	300	23.8	300	23.8	300	23.8	300	23.8
436.cactusADM	33.1	361	34.1	350	32.7	365	33.1	361	34.1	350	32.7	365
437.leslie3d	65.8	143	59.8	157	57.0	165	65.8	143	59.8	157	57.0	165
444.namd	472	17.0	472	17.0	472	17.0	464	17.3	465	17.3	464	17.3
447.dealII	299	38.2	300	38.1	300	38.1	299	38.2	300	38.1	300	38.1
450.soplex	261	32.0	260	32.0	261	32.0	261	32.0	260	32.0	261	32.0
453.povray	168	31.8	166	32.1	169	31.4	142	37.4	142	37.4	140	38.1
454.calculix	301	27.4	295	27.9	295	27.9	275	30.0	278	29.7	275	29.9
459.GemsFDTD	83.7	127	83.7	127	83.3	127	69.6	152	69.8	152	69.6	152
465.tonto	398	24.7	388	25.4	350	28.1	312	31.6	311	31.6	312	31.6
470.lbm	39.2	350	38.4	358	38.2	359	39.2	350	38.4	358	38.2	359
481.wrf	191	58.6	187	59.8	187	59.8	191	58.6	187	59.8	187	59.8
482.sphinx3	376	51.9	365	53.4	365	53.3	359	54.2	367	53.1	357	54.5

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"
 Zone reclaim mode enabled with:
 echo 1 > /proc/sys/vm/zone_reclaim_mode

Platform Notes

BIOS Settings:
 Operating Mode set to Maximum Performance
 Sysinfo program /root/SPECcpu-v1.2/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on x3650M4 Wed Mar 21 11:31:15 2012

This section contains SUT (System Under Test) info as seen by

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 65.4

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = 62.2

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011

Platform Notes (Continued)

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 E5-2620 0 @ 2.00GHz
 2 "physical id"s (chips)
 24 "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      : 6
siblings       : 12
physical 0:    cores 0 1 2 3 4 5
physical 1:    cores 0 1 2 3 4 5
cache size     : 15360 KB

```

```

From /proc/meminfo
MemTotal:      132114184 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux x3650M4 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10 15:42:40 EDT 2011
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Mar 19 11:40

```

SPEC is set to: /root/SPECcpu-v1.2
Filesystem      Type      Size Used Avail Use% Mounted on
/dev/mapper/vg_x3650m4-lv_root
ext4            790G    55G  695G   8% /

```

Additional information from dmidecode:

```

Memory:
16x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

```

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

KMP_AFFINITY = "granularity=fine,compact,1,0"

LD_LIBRARY_PATH = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/libs/64"

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 65.4

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = 62.2

CPU2006 license: 11

Test date: Mar-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011

General Notes (Continued)

OMP_NUM_THREADS = "12"

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

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:

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 65.4

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = 62.2

CPU2006 license: 11

Test date: Mar-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011

Base Optimization Flags (Continued)

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: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel`

C++ benchmarks:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 65.4

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = 62.2

CPU2006 license: 11

Test date: Mar-2012

Test sponsor: IBM Corporation

Hardware Availability: Mar-2012

Tested by: IBM Corporation

Software Availability: Oct-2011

Peak Optimization Flags (Continued)

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/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 CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 65.4

IBM System x3650 M4 (Intel Xeon E5-2620)

SPECfp_base2006 = 62.2

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Oct-2011

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 07:07:32 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 April 2012.