



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

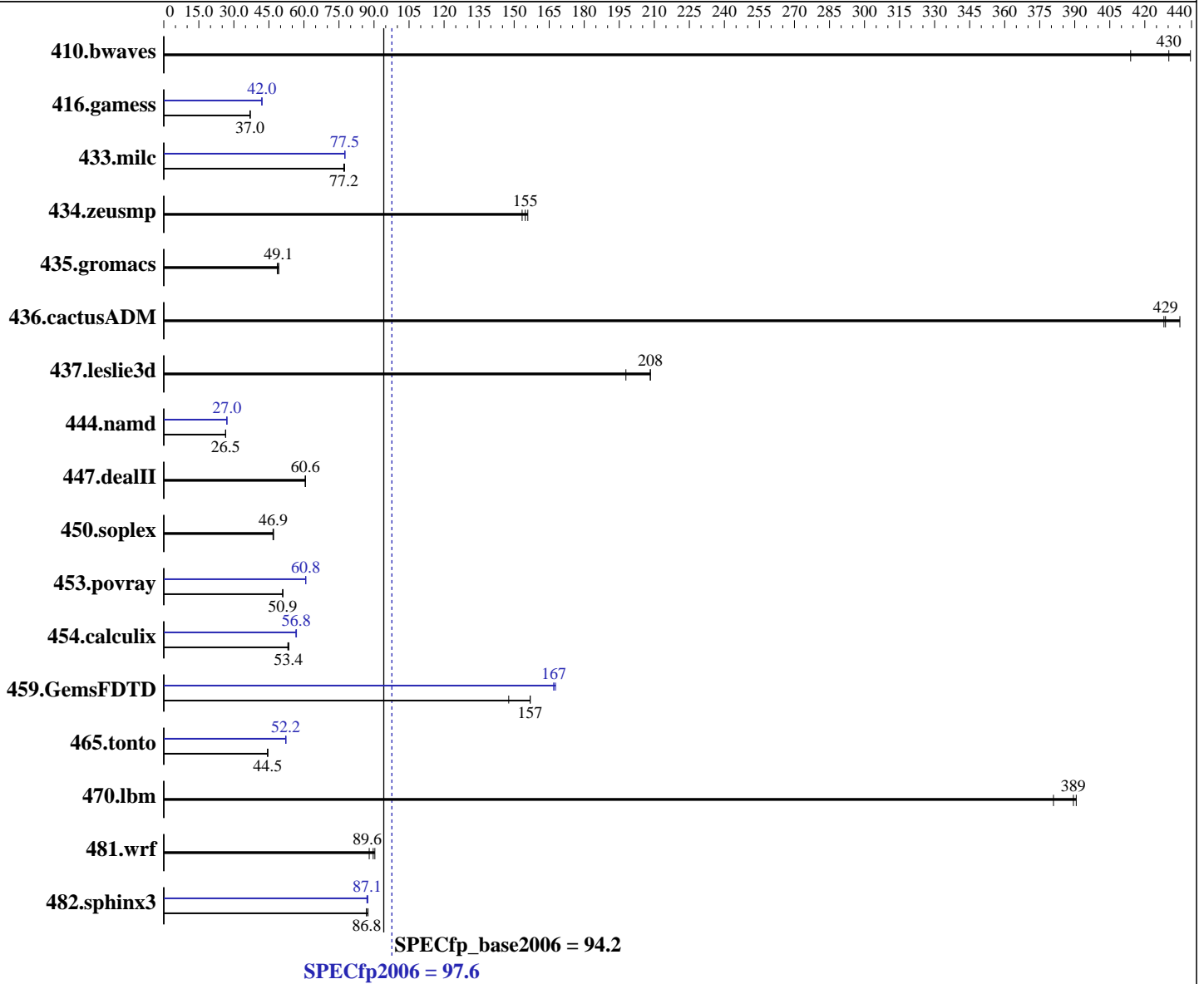
IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp[®]2006 = 97.6

SPECfp_base2006 = 94.2

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

Test date: Jan-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2637 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
 CPU MHz: 3500
 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 6.4 (Santiago)
 2.6.32-358.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 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

IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp2006 = **97.6**

SPECfp_base2006 = **94.2**

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

Test date: Jan-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 400 GB SAS SSD, RAID 0
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 | 32.8 | 414 | <u>31.6</u> | <u>430</u> | 30.9 | 440 | 32.8 | 414 | <u>31.6</u> | <u>430</u> | 30.9 | 440 |
| 416.gamess | <u>530</u> | <u>37.0</u> | 529 | 37.0 | 530 | 36.9 | 466 | 42.0 | <u>466</u> | <u>42.0</u> | 466 | 42.0 |
| 433.milc | <u>119</u> | <u>77.2</u> | 119 | 77.4 | 119 | 77.1 | 119 | 77.4 | <u>118</u> | <u>77.5</u> | 118 | 77.6 |
| 434.zeusmp | 59.3 | 153 | <u>58.8</u> | <u>155</u> | 58.4 | 156 | 59.3 | 153 | <u>58.8</u> | <u>155</u> | 58.4 | 156 |
| 435.gromacs | 147 | 48.6 | <u>145</u> | <u>49.1</u> | 145 | 49.2 | 147 | 48.6 | <u>145</u> | <u>49.1</u> | 145 | 49.2 |
| 436.cactusADM | <u>27.9</u> | <u>429</u> | 27.5 | 435 | 27.9 | 428 | <u>27.9</u> | <u>429</u> | 27.5 | 435 | 27.9 | 428 |
| 437.leslie3d | <u>45.1</u> | <u>208</u> | 47.5 | 198 | 45.1 | 208 | <u>45.1</u> | <u>208</u> | 47.5 | 198 | 45.1 | 208 |
| 444.namd | <u>303</u> | <u>26.5</u> | 303 | 26.5 | 303 | 26.5 | 297 | 27.0 | 297 | 27.0 | <u>297</u> | <u>27.0</u> |
| 447.dealII | <u>189</u> | <u>60.6</u> | 189 | 60.6 | 189 | 60.6 | <u>189</u> | <u>60.6</u> | 189 | 60.6 | 189 | 60.6 |
| 450.soplex | 178 | 46.7 | 177 | 47.0 | <u>178</u> | <u>46.9</u> | 178 | 46.7 | 177 | 47.0 | <u>178</u> | <u>46.9</u> |
| 453.povray | 104 | 51.0 | <u>104</u> | <u>50.9</u> | 105 | 50.9 | 87.5 | 60.8 | <u>87.6</u> | <u>60.8</u> | 87.6 | 60.7 |
| 454.calculix | <u>155</u> | <u>53.4</u> | 154 | 53.6 | 155 | 53.1 | 146 | 56.5 | 145 | 56.8 | <u>145</u> | <u>56.8</u> |
| 459.GemsFDTD | 71.8 | 148 | 67.6 | 157 | <u>67.6</u> | <u>157</u> | 63.3 | 168 | 63.5 | 167 | <u>63.5</u> | <u>167</u> |
| 465.tonto | <u>221</u> | <u>44.5</u> | 222 | 44.4 | 221 | 44.5 | <u>189</u> | <u>52.2</u> | 188 | 52.3 | 189 | 52.2 |
| 470.lbm | 36.1 | 381 | 35.2 | 391 | <u>35.3</u> | <u>389</u> | 36.1 | 381 | 35.2 | 391 | <u>35.3</u> | <u>389</u> |
| 481.wrf | 127 | 87.9 | <u>125</u> | <u>89.6</u> | 124 | 90.4 | 127 | 87.9 | <u>125</u> | <u>89.6</u> | 124 | 90.4 |
| 482.sphinx3 | <u>224</u> | <u>86.8</u> | 225 | 86.7 | 223 | 87.5 | 223 | 87.4 | 224 | 87.0 | <u>224</u> | <u>87.1</u> |

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 setting:
Operating Mode set to Maximum Performance
Hyper-Threading set to Disabled
Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on x3550M4 Tue Jan 14 02:42:05 2014

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

IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp2006 = 97.6

SPECfp_base2006 = 94.2

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

Test date: Jan-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

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 E5-2637 v2 @ 3.50GHz
 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 1 2 3 4
physical 1: cores 1 2 3 4
cache size : 15360 KB
```

```
From /proc/meminfo
MemTotal: 264466564 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux x3550M4 2.6.32-358.18.1.el6.x86_64 #1 SMP Fri Aug 2 17:04:38 EDT 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Jan 13 16:13
```

```
SPEC is set to: /home/SPECcpu-new
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_x3550m4-lv_home
ext4 312G 136G 161G 46% /home
```

```
Additional information from dmidecode:
BIOS IBM -[D7E133GUS-1.50]- 08/09/2013
Memory:
8x Not Specified Not Specified
16x Samsung M393B2G70QH0-CMA 16 GB 1867 MHz 2 rank
```

(End of data from sysinfo program)
"Not Specified" memory information from dmidecode indicates unused DIMM slots.



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 97.6

IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp_base2006 = 94.2

CPU2006 license: 11

Test date: Jan-2014

Test sponsor: IBM Corporation

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

General Notes

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

```
LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"
OMP_NUM_THREADS = "8"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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.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
```



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp2006 = 97.6

SPECfp_base2006 = 94.2

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

Test date: Jan-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Base Optimization Flags

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

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

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

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -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) -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp2006 = 97.6

SPECfp_base2006 = 94.2

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

Test date: Jan-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

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.dealIII: 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: basepeak = yes

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-

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-ic14.0-official-linux64.20140128.html>
<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>
<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.xml>



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3550 M4
(Intel Xeon E5-2637 v2, 3.50 GHz)

SPECfp2006 = 97.6

SPECfp_base2006 = 94.2

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

Test date: Jan-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

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 20:34:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 February 2014.