



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

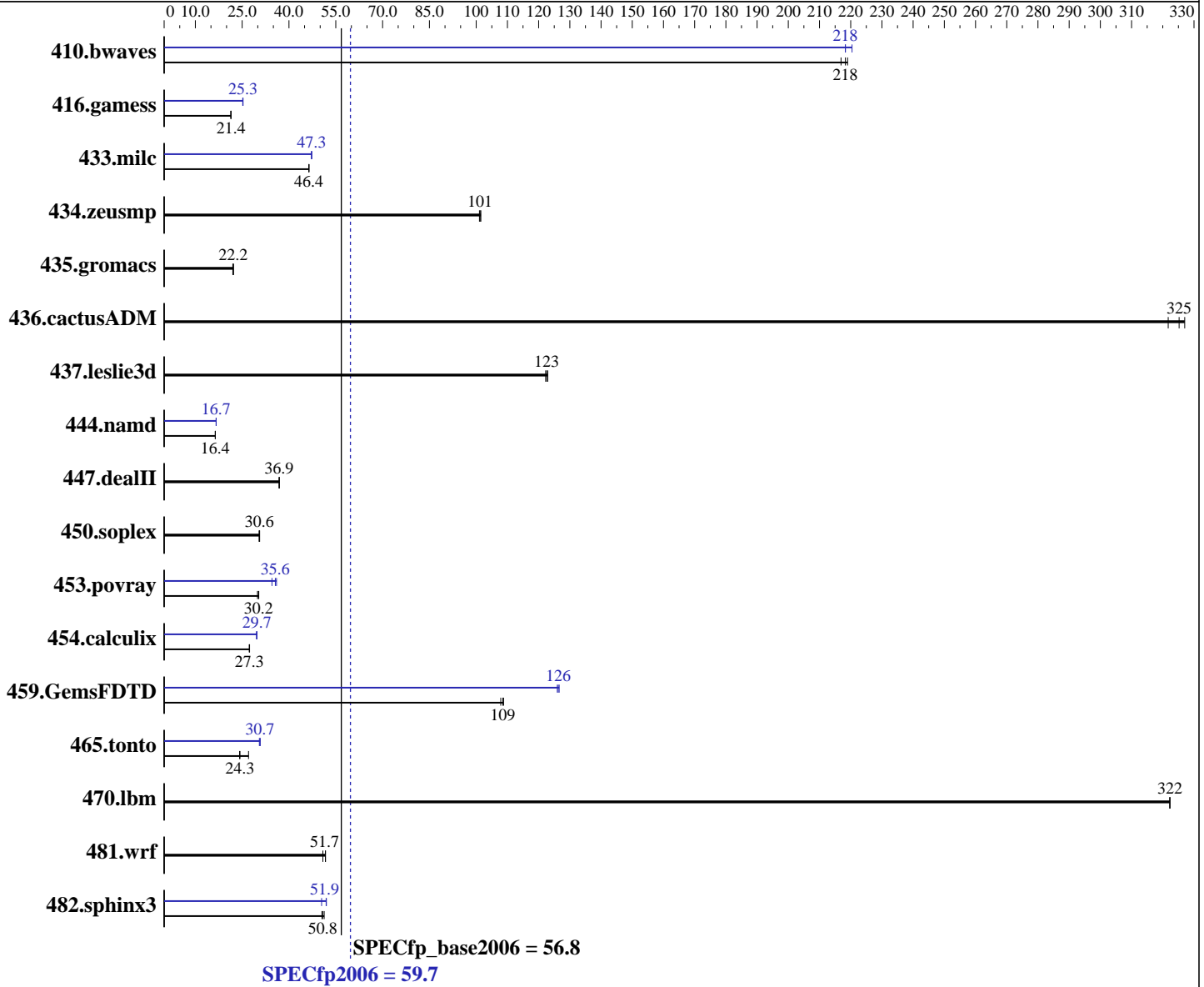
IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp®2006 = **59.7**

SPECfp_base2006 = **56.8**

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

Test date: Sep-2012
Hardware Availability: Aug-2012
Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2420
CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz: 1900
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 6.2 (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: Yes
File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp2006 = **59.7**

SPECfp_base2006 = **56.8**

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

Test date: Sep-2012
Hardware Availability: Aug-2012
Software Availability: Dec-2011

L3 Cache: 15 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem: 1 x 2 TB SATA, 7200 RPM
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	62.1	219	62.7	217	62.3	218	62.3	218	61.7	220	62.3	218
416.gamess	914	21.4	914	21.4	916	21.4	775	25.3	775	25.3	777	25.2
433.milc	198	46.4	198	46.4	198	46.4	194	47.2	194	47.3	194	47.3
434.zeusmp	89.7	101	89.9	101	90.1	101	89.7	101	89.9	101	90.1	101
435.gromacs	324	22.0	322	22.2	322	22.2	324	22.0	322	22.2	322	22.2
436.cactusADM	36.7	325	36.5	327	37.1	322	36.7	325	36.5	327	37.1	322
437.leslie3d	76.7	123	76.5	123	76.9	122	76.7	123	76.5	123	76.9	122
444.namd	489	16.4	489	16.4	489	16.4	481	16.7	481	16.7	482	16.7
447.dealII	311	36.8	310	36.9	310	36.9	311	36.8	310	36.9	310	36.9
450.soplex	273	30.6	272	30.6	274	30.4	273	30.6	272	30.6	274	30.4
453.povray	176	30.2	178	29.9	175	30.3	154	34.6	149	35.6	148	36.0
454.calculix	301	27.4	302	27.3	302	27.3	278	29.7	277	29.7	279	29.6
459.GemsFDTD	97.7	109	97.6	109	98.4	108	83.8	127	84.2	126	84.0	126
465.tonto	407	24.2	405	24.3	364	27.0	320	30.7	323	30.5	320	30.8
470.lbm	42.6	322	42.6	322	42.6	322	42.6	322	42.6	322	42.6	322
481.wrf	220	50.9	216	51.7	216	51.7	220	50.9	216	51.7	216	51.7
482.sphinx3	384	50.8	385	50.6	380	51.3	386	50.5	375	52.0	375	51.9

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
Sysinfo program /home/SPECcpul.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on YungAn Sat Sep 29 15:02:47 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 = 59.7

IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp_base2006 = 56.8

CPU2006 license: 11

Test date: Sep-2012

Test sponsor: IBM Corporation

Hardware Availability: Aug-2012

Tested by: IBM Corporation

Software Availability: Dec-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 E5-2420 0 @ 1.90GHz
 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:      99043976 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 YungAn 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 Sep 28 22:47
```

```
SPEC is set to: /home/SPECcpul.2
Filesystem      Type      Size Used Avail Use% Mounted on
/dev/mapper/vg_yungan-lv_home
ext4            1.7T    65G  1.6T   5% /home
```

Additional information from dmidecode:

```
Memory:
12x 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 = "/home/SPECcpul.2/libs/32:/home/SPECcpul.2/libs/64"

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp2006 = 59.7

SPECfp_base2006 = 56.8

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

Test date: Sep-2012
Hardware Availability: Aug-2012
Software Availability: Dec-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

IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp2006 = 59.7

SPECfp_base2006 = 56.8

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Sep-2012

Hardware Availability: Aug-2012

Software Availability: Dec-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 = 59.7

IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp_base2006 = 56.8

CPU2006 license: 11

Test date: Sep-2012

Test sponsor: IBM Corporation

Hardware Availability: Aug-2012

Tested by: IBM Corporation

Software Availability: Dec-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-linux64.20120425.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-linux64.20120425.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

IBM System x3300 M4
(Intel Xeon E5-2420, 1.90 GHz)

SPECfp2006 = 59.7

SPECfp_base2006 = 56.8

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

Test date: Sep-2012
Hardware Availability: Aug-2012
Software Availability: Dec-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 13:36:57 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 23 October 2012.