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

IBM Corporation

IBM System x3650 M3 (Intel Xeon X5690)

$SPECfp^{®}2006 =$ 63.2

$SPECfp\_base2006 =$ 59.2

CPU2006 license:	11	**Test date:**	Mar-2011
Test sponsor:	IBM Corporation	**Hardware Availability:**	Feb-2011
Tested by:	IBM Corporation	**Software Availability:**	Jan-2011

0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 300

Benchmark	Value
410.bwaves	174
416.gamess	31.0 / 25.7
433.milc	57.0 / 55.8
434.zeusmp	95.7
435.gromacs	26.1 / 24.6
436.cactusADM	272
437.leslie3d	102
444.namd	22.2 / 21.8
447.dealII	44.7
450.soplex	35.3
453.povray	43.7 / 34.4
454.calculix	37.1 / 32.9
459.GemsFDTD	94.1 / 88.5
465.tonto	37.2 / 27.7
470.lbm	293
481.wrf	51.1
482.sphinx3	64.6 / 58.9

SPECfp_base2006 = 59.2

SPECfp2006 = 63.2

Hardware

CPU Name:	Intel Xeon X5690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz:	3467
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:	SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
Compiler:	Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0 Version 12.0 Update 3
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3650 M3 (Intel Xeon X5690)

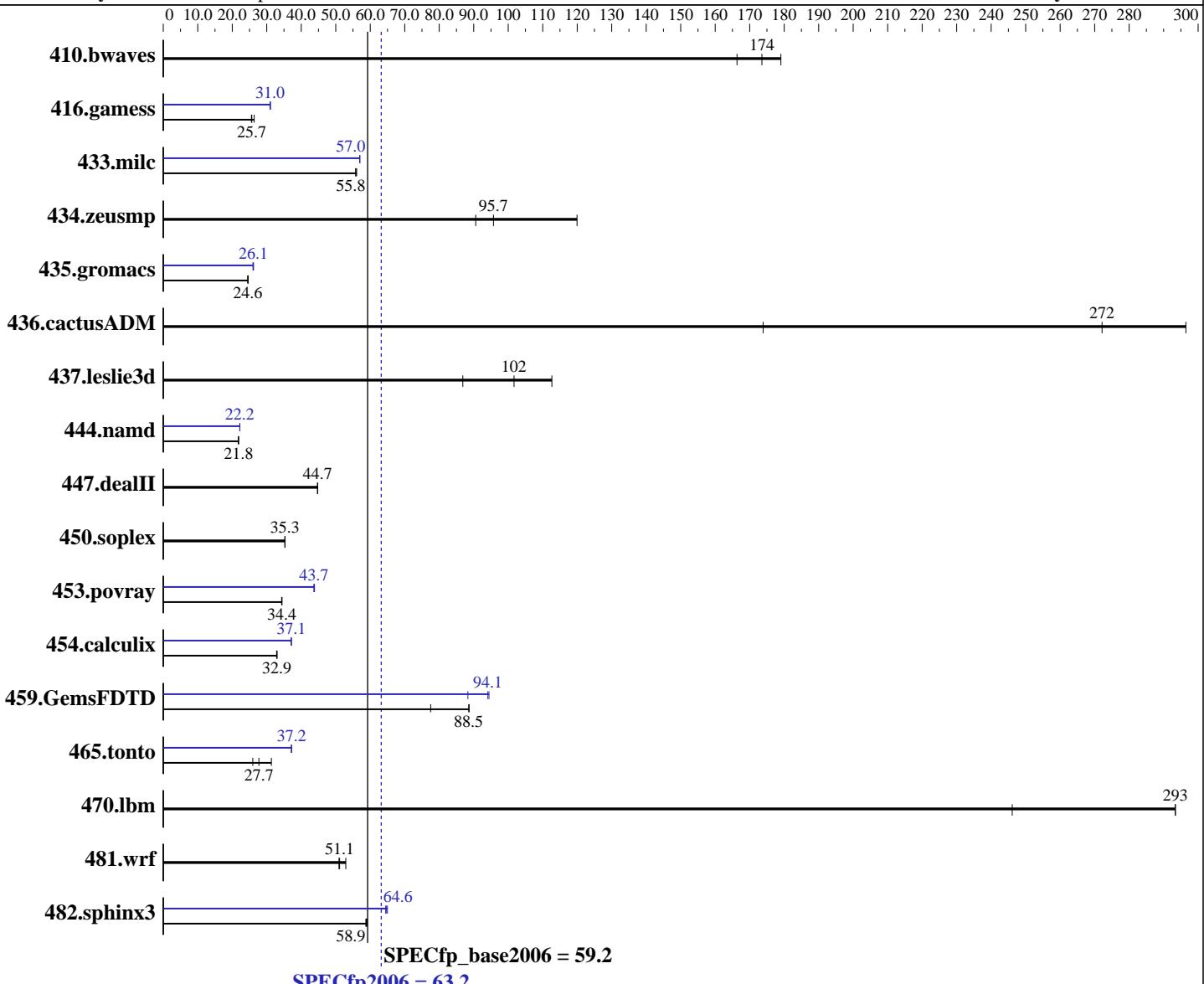|	
SPECfp2006 =	63.2
SPECfp_base2006 =	59.2

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

Test date: Mar-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011

L3 Cache:	12 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	None
Memory:	96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)		
Disk Subsystem:	1 x 146 GB SAS, 15000 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	81.7	166	**78.3**	**174**	75.9	179	81.7	166	**78.3**	**174**	75.9	179
416.gamess	**763**	**25.7**	743	26.4	766	25.6	632	31.0	630	31.1	**632**	**31.0**
433.milc	165	55.8	**164**	**55.8**	164	56.1	161	57.0	161	56.9	**161**	**57.0**
434.zeusmp	75.9	120	100	90.6	**95.1**	**95.7**	75.9	120	100	90.6	**95.1**	**95.7**
435.gromacs	290	24.6	**291**	**24.6**	292	24.5	**273**	**26.1**	275	26.0	273	26.2
436.cactusADM	68.7	174	**43.9**	**272**	40.3	296	68.7	174	**43.9**	**272**	40.3	296
437.leslie3d	108	86.8	83.4	113	**92.4**	**102**	108	86.8	83.4	113	**92.4**	**102**
444.namd	368	21.8	368	21.8	**368**	**21.8**	**361**	**22.2**	362	22.2	361	22.2
447.dealII	256	44.8	256	44.7	**256**	**44.7**	256	44.8	256	44.7	**256**	**44.7**
450.soplex	236	35.3	237	35.3	**236**	**35.3**	236	35.3	237	35.3	**236**	**35.3**
453.povray	**155**	**34.4**	154	34.4	155	34.3	**122**	**43.7**	122	43.7	121	43.8
454.calculix	**250**	**32.9**	251	32.9	250	33.0	**222**	**37.1**	222	37.1	222	37.1
459.GemsFDTD	**120**	**88.5**	120	88.7	137	77.5	112	94.4	**113**	**94.1**	120	88.3
465.tonto	**355**	**27.7**	314	31.3	379	26.0	265	37.2	265	37.2	**265**	**37.2**
470.lbm	46.8	293	55.8	246	**46.8**	**293**	46.8	293	55.8	246	**46.8**	**293**
481.wrf	211	52.9	**219**	**51.1**	219	50.9	211	52.9	**219**	**51.1**	219	50.9
482.sphinx3	330	59.0	332	58.7	**331**	**58.9**	302	64.5	**302**	**64.6**	300	65.0

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
Turbo Mode enabled in BIOS
Turbo Boost set to Traditional in BIOS
Power C-State enabled in BIOS
Data Reuse disabled in BIOS
Demand Scrub disabled in BIOS
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3650 M3 (Intel Xeon X5690)

$SPECfp2006 = $ 63.2

$SPECfp_base2006 = $ 59.2

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

Test date: Mar-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011

General Notes

```
OMP_NUM_THREADS set to number of cores
Binaries compiled on RHEL5.5
```

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 -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3650 M3 (Intel Xeon X5690)

$SPECfp2006 =$ 63.2

$SPECfp\_base2006 =$ 59.2

CPU2006 license: 11		**Test date:**	Mar-2011
Test sponsor:	IBM Corporation	**Hardware Availability:**	Feb-2011
Tested by:	IBM Corporation	**Software Availability:**	Jan-2011

Base Optimization Flags (Continued)

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

Benchmarks using both Fortran and C:
```
-xSSE4.2 -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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
          -parallel
```

C++ benchmarks:

```
444.namd: -xSSE4.2(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
```

SPEC CFP2006 Result

IBM Corporation

IBM System x3650 M3 (Intel Xeon X5690)

$SPECfp2006 =$ 63.2

$SPECfp\_base2006 =$ 59.2

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

Test date: Mar-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011

Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(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: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xSSE4.2(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
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(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

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -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-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.xml

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3650 M3 (Intel Xeon X5690)

$SPECfp2006 = 63.2$

$SPECfp\_base2006 = 59.2$

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 15:46:13 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 March 2011.