



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

SPECfp®2006 = **57.7**

SPECfp\_base2006 = **54.1**

CPU2006 license: 11

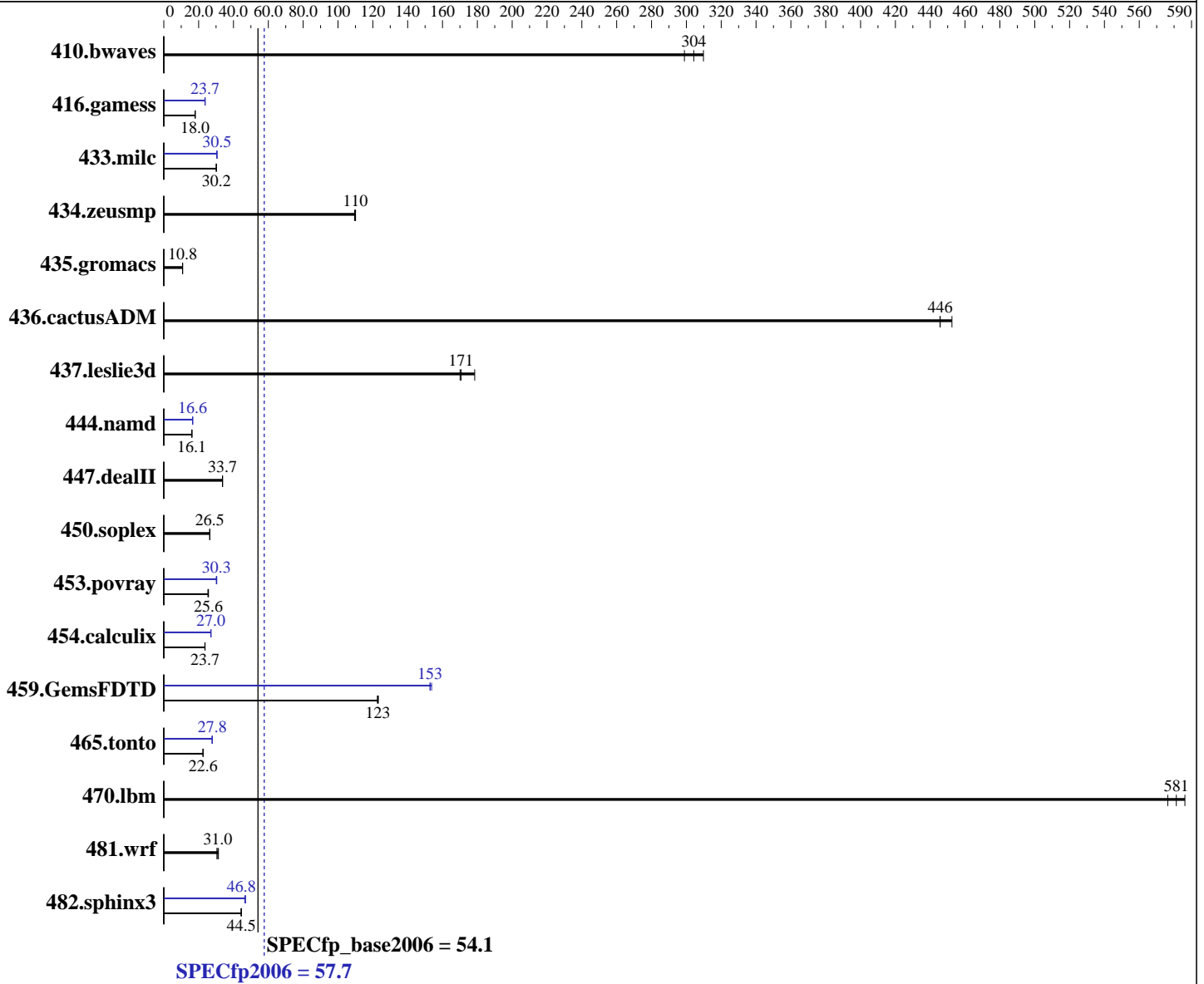
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Feb-2012

Hardware Availability: May-2011

Software Availability: Feb-2012



**Hardware**

CPU Name: Intel Xeon E7-4870  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2,3,4 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 x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

SPECfp2006 = **57.7**

SPECfp\_base2006 = **54.1**

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Feb-2012

Hardware Availability: May-2011

Software Availability: Feb-2012

L3 Cache: 30 MB I+D on chip per chip  
Other Cache: None  
Memory: 512 GB (64 x 8 GB 4Rx8 PC3L-8500R-7, ECC)  
Disk Subsystem: 1 x 300 GB SAS, 10000 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	43.9	310	45.5	299	<b>44.7</b>	<b>304</b>	43.9	310	45.5	299	<b>44.7</b>	<b>304</b>
416.gamess	1089	18.0	<b>1088</b>	<b>18.0</b>	1087	18.0	826	23.7	<b>826</b>	<b>23.7</b>	826	23.7
433.milc	304	30.2	305	30.1	<b>304</b>	<b>30.2</b>	301	30.5	<b>301</b>	<b>30.5</b>	301	30.5
434.zeusmp	<b>82.7</b>	<b>110</b>	83.1	110	82.7	110	<b>82.7</b>	<b>110</b>	83.1	110	82.7	110
435.gromacs	<b>663</b>	<b>10.8</b>	660	10.8	663	10.8	<b>663</b>	<b>10.8</b>	660	10.8	663	10.8
436.cactusADM	26.8	446	<b>26.8</b>	<b>446</b>	26.4	452	26.8	446	<b>26.8</b>	<b>446</b>	26.4	452
437.leslie3d	52.7	178	55.3	170	<b>55.1</b>	<b>171</b>	52.7	178	55.3	170	<b>55.1</b>	<b>171</b>
444.namd	498	16.1	<b>497</b>	<b>16.1</b>	497	16.1	485	16.6	484	16.6	<b>484</b>	<b>16.6</b>
447.dealII	339	33.7	<b>339</b>	<b>33.7</b>	340	33.7	339	33.7	<b>339</b>	<b>33.7</b>	340	33.7
450.soplex	317	26.3	<b>315</b>	<b>26.5</b>	315	26.5	317	26.3	<b>315</b>	<b>26.5</b>	315	26.5
453.povray	210	25.3	<b>208</b>	<b>25.6</b>	208	25.6	175	30.4	<b>176</b>	<b>30.3</b>	177	30.1
454.calculix	350	23.6	348	23.7	<b>349</b>	<b>23.7</b>	305	27.0	305	27.1	<b>305</b>	<b>27.0</b>
459.GemsFDTD	<b>86.3</b>	<b>123</b>	86.1	123	86.5	123	69.0	154	69.4	153	<b>69.4</b>	<b>153</b>
465.tonto	437	22.5	<b>436</b>	<b>22.6</b>	436	22.6	355	27.7	<b>354</b>	<b>27.8</b>	353	27.8
470.lbm	23.8	576	<b>23.6</b>	<b>581</b>	23.4	586	23.8	576	<b>23.6</b>	<b>581</b>	23.4	586
481.wrf	356	31.4	366	30.5	<b>360</b>	<b>31.0</b>	356	31.4	366	30.5	<b>360</b>	<b>31.0</b>
482.sphinx3	437	44.6	440	44.3	<b>438</b>	<b>44.5</b>	419	46.5	<b>416</b>	<b>46.8</b>	416	46.9

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"

## Platform Notes

Turbo Boost Power Optimization set to Traditional in BIOS  
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6800  
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
running on ghidorah-pete Tue Feb 14 10:19:53 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

SPECfp2006 = 57.7

SPECfp\_base2006 = 54.1

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

Test date: Feb-2012  
Hardware Availability: May-2011  
Software Availability: Feb-2012

### Platform Notes (Continued)

```
model name : Intel(R) Xeon(R) CPU E7- 4870 @ 2.40GHz
 4 "physical id"s (chips)
 80 "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 : 10
  siblings  : 20
  physical 0: cores 0 1 2 8 9 16 17 18 24 25
  physical 1: cores 0 1 2 8 9 16 17 18 24 25
  physical 2: cores 0 1 2 8 9 16 17 18 24 25
  physical 3: cores 0 1 2 8 9 16 17 18 24 25
cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      529211640 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 ghidorah-pete 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 Feb 13 16:57
```

```
SPEC is set to: /cpu2006.1.2
Filesystem      Type      Size Used Avail Use% Mounted on
/dev/mapper/vg_ghidorahpete-lv_root
                ext4      264G 160G  91G  64% /
```

```
Additional information from dmidecode:
Memory:
64x Hynix HMT31GR7BFR8A-G7 8 GB 1067 MHz 4 rank
```

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,scatter"  
LD\_LIBRARY\_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"  
OMP\_NUM\_THREADS = "40"

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**IBM Corporation**

IBM System x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

**SPECfp2006 = 57.7**

**SPECfp\_base2006 = 54.1**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Feb-2012

**Hardware Availability:** May-2011

**Software Availability:** Feb-2012

## General Notes (Continued)

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:

-xSSE4.2 -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 x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

**SPECfp2006 = 57.7**

**SPECfp\_base2006 = 54.1**

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Feb-2012

**Hardware Availability:** May-2011

**Software Availability:** Feb-2012

## Base Optimization Flags (Continued)

C++ benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

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:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

SPECfp2006 = 57.7

SPECfp\_base2006 = 54.1

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Feb-2012

Hardware Availability: May-2011

Software Availability: Feb-2012

## Peak Optimization Flags (Continued)

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

447.dealIII: 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

### 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

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

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-WSM-A.20120328.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-WSM-A.20120328.xml>



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

IBM System x3850 X5 (Intel Xeon E7-4870, 2.40 GHz)

SPECfp2006 = 57.7

SPECfp\_base2006 = 54.1

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

**Test date:** Feb-2012  
**Hardware Availability:** May-2011  
**Software Availability:** Feb-2012

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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 02:40:52 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 27 March 2012.