# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

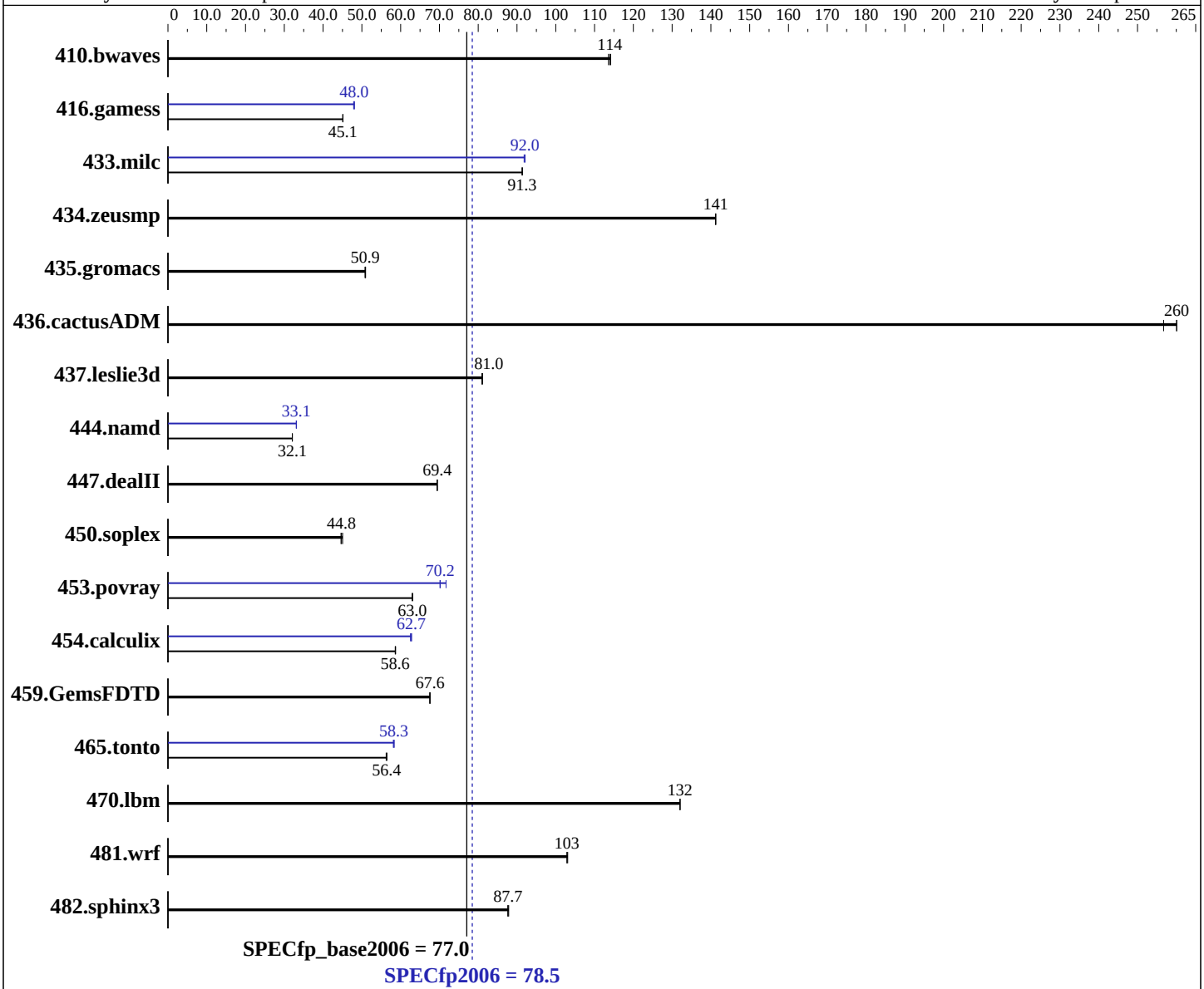
IBM System x3250 M5
(Intel Xeon E3-1281 v3, 3.70 GHz)

SPECfp®2006 = 78.5

SPECfp_base2006 = 77.0

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

**Test date:** Jun-2014
**Hardware Availability:** Jul-2014
**Software Availability:** Sep-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3-1281 v3 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 4.10 GHz |
| CPU MHz: | 3700 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 chip |
| 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)<br>2.6.32-358.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;<br>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 x3250 M5
(Intel Xeon E3-1281 v3, 3.70 GHz)

SPECfp2006 = 78.5

SPECfp_base2006 = 77.0

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

**Test date:** Jun-2014
**Hardware Availability:** Jul-2014
**Software Availability:** Sep-2013

| | |
|---|---|
| L3 Cache: | 8 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 16 GB (4 x 4 GB 2Rx8 PC3-12800E-11, ECC) |
| Disk Subsystem: | 1 x 250 GB 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 | 120 | 114 | 119 | 114 | **119** | **114** | 120 | 114 | 119 | 114 | **119** | **114** |
| 416.gamess | **434** | **45.1** | 434 | 45.1 | 435 | 45.1 | **408** | **48.0** | 407 | 48.1 | 409 | 47.9 |
| 433.milc | 101 | 91.3 | **101** | **91.3** | 100 | 91.4 | 99.7 | 92.1 | **99.8** | **92.0** | 100 | 91.8 |
| 434.zeusmp | **64.4** | **141** | 64.4 | 141 | 64.4 | 141 | **64.4** | **141** | 64.4 | 141 | 64.4 | 141 |
| 435.gromacs | 140 | 51.0 | **140** | **50.9** | 141 | 50.8 | 140 | 51.0 | **140** | **50.9** | 141 | 50.8 |
| 436.cactusADM | 45.9 | 260 | 46.5 | 257 | **45.9** | **260** | 45.9 | 260 | 46.5 | 257 | **45.9** | **260** |
| 437.leslie3d | **116** | **81.0** | 116 | 81.1 | 116 | 81.0 | **116** | **81.0** | 116 | 81.1 | 116 | 81.0 |
| 444.namd | **250** | **32.1** | 250 | 32.1 | 250 | 32.1 | 242 | 33.1 | **242** | **33.1** | 242 | 33.1 |
| 447.dealII | 165 | 69.5 | 165 | 69.4 | **165** | **69.4** | 165 | 69.5 | 165 | 69.4 | **165** | **69.4** |
| 450.soplex | 185 | 45.0 | **186** | **44.8** | 187 | 44.6 | 185 | 45.0 | **186** | **44.8** | 187 | 44.6 |
| 453.povray | **84.4** | **63.0** | 84.3 | 63.1 | 84.5 | 63.0 | 74.2 | 71.7 | 75.9 | 70.1 | **75.8** | **70.2** |
| 454.calculix | 141 | 58.7 | 141 | 58.6 | **141** | **58.6** | 132 | 62.5 | 131 | 62.8 | **131** | **62.7** |
| 459.GemsFDTD | 157 | 67.5 | 157 | 67.6 | **157** | **67.6** | 157 | 67.5 | 157 | 67.6 | **157** | **67.6** |
| 465.tonto | 174 | 56.5 | **175** | **56.4** | 175 | 56.3 | 169 | 58.3 | **169** | **58.3** | 169 | 58.1 |
| 470.lbm | 104 | 132 | 104 | 132 | **104** | **132** | 104 | 132 | 104 | 132 | **104** | **132** |
| 481.wrf | **109** | **103** | 109 | 103 | 108 | 103 | **109** | **103** | 109 | 103 | 108 | 103 |
| 482.sphinx3 | **222** | **87.7** | 222 | 87.6 | 222 | 87.9 | **222** | **87.7** | 222 | 87.6 | 222 | 87.9 |

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

```
BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /root/SPECCpu2014jan16/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Mon Jun 23 19:17:54 2014

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
```

Continued on next page

## Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E3-1281 v3 @ 3.70GHz
      1 "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  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       16298904 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 localhost.localdomain 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41
   EST 2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 23 14:44

SPEC is set to: /root/SPECCpu2014jan16
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/VolGroup-lv_root
                  ext4    221G   32G  179G  15% /

Additional information from dmidecode:
  BIOS IBM -[JUE113JUS-1.03]- 06/17/2014
  Memory:
   4x Micron 18KSF51272AZ-1G6K1 4 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/SPECCpu2014jan16/libs/32:/root/SPECCpu2014jan16/libs/64:/root/SPECCpu2014jan16/sh"
OMP_NUM_THREADS = "4"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
```

Continued on next page

## General Notes (Continued)

```
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

## Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

Continued on next page

## Base Optimization Flags (Continued)

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

Fortran benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -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: `-xCORE-AVX2`(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: `basepeak = yes`

C++ benchmarks:

444.namd: `-xCORE-AVX2`(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`

Continued on next page

# Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(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: -xCORE-AVX2(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: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2 -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-HSW-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-HSW-A.xml

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 Fri Jul 25 01:06:47 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 July 2014.