SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

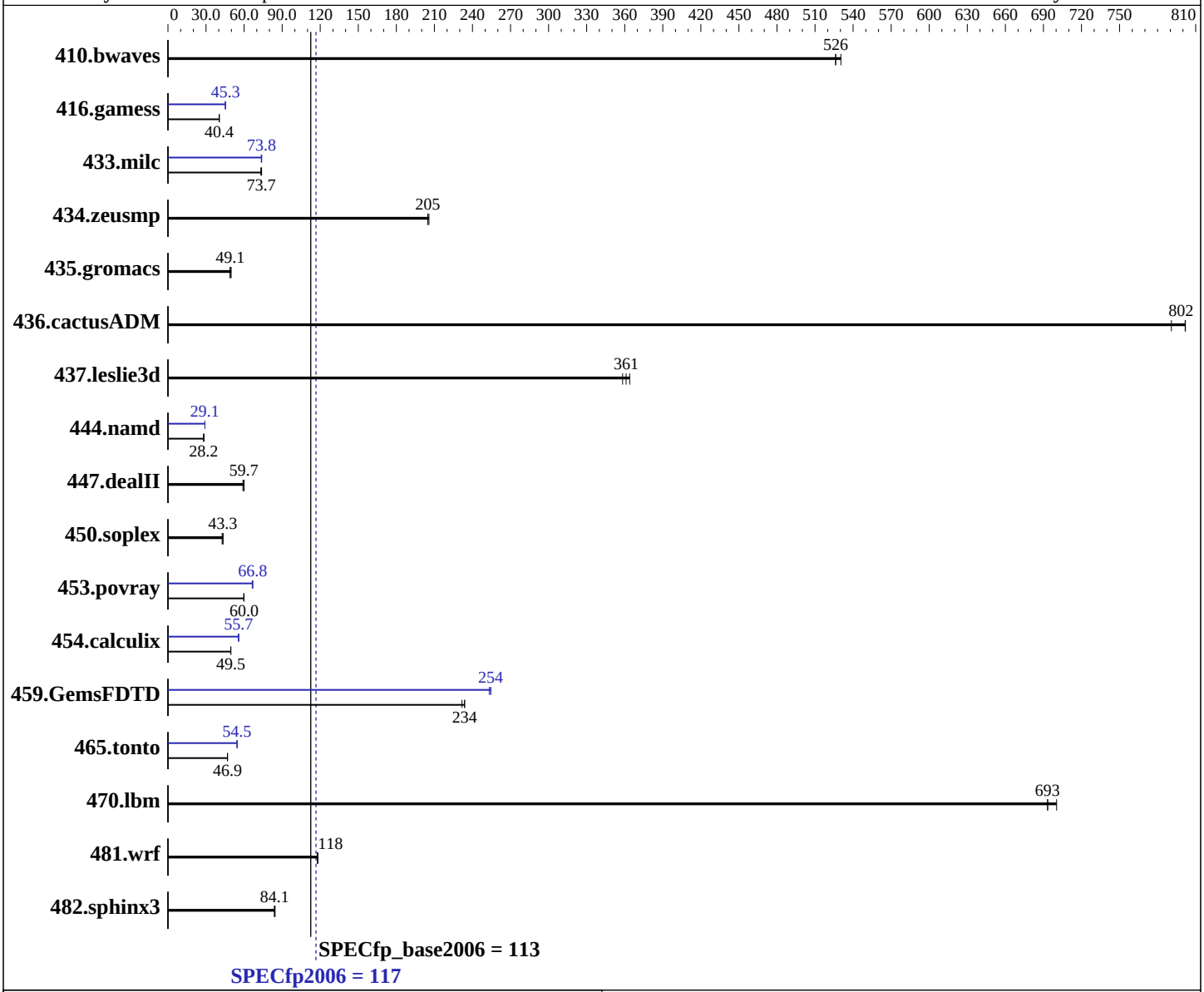
IBM Corporation
IBM NeXtScale nx360 M5

SPECfp®2006 = 117

SPECfp_base2006 = 113

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

Test date: Sep-2014
Hardware Availability: Nov-2014
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E5-2667 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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 6.5 (Santiago) 2.6.32-431.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 NeXtScale nx360 M5

SPECfp2006 = 117

SPECfp_base2006 = 113

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

Test date: Sep-2014
Hardware Availability: Nov-2014
Software Availability: Nov-2013

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
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	25.8	526	25.6	530	**25.8**	**526**	25.8	526	25.6	530	**25.8**	**526**
416.gamess	484	40.4	**485**	**40.4**	485	40.4	434	45.2	**432**	**45.3**	431	45.4
433.milc	124	73.8	**125**	**73.7**	125	73.2	125	73.5	**124**	**73.8**	124	73.8
434.zeusmp	**44.4**	**205**	44.4	205	44.2	206	**44.4**	**205**	44.4	205	44.2	206
435.gromacs	146	49.0	**146**	**49.1**	143	49.8	146	49.0	**146**	**49.1**	143	49.8
436.cactusADM	15.1	791	**14.9**	**802**	14.9	802	15.1	791	**14.9**	**802**	14.9	802
437.leslie3d	25.8	364	**26.0**	**361**	26.2	358	25.8	364	**26.0**	**361**	26.2	358
444.namd	**284**	**28.2**	284	28.2	284	28.2	275	29.1	**275**	**29.1**	275	29.2
447.dealII	191	60.0	**191**	**59.7**	194	59.1	191	60.0	**191**	**59.7**	194	59.1
450.soplex	195	42.7	**193**	**43.3**	192	43.4	195	42.7	**193**	**43.3**	192	43.4
453.povray	**88.7**	**60.0**	89.1	59.7	88.7	60.0	79.6	66.8	80.1	66.4	**79.6**	**66.8**
454.calculix	167	49.5	**167**	**49.5**	166	49.6	148	55.6	148	55.7	**148**	**55.7**
459.GemsFDTD	**45.4**	**234**	45.8	232	45.4	234	41.9	253	**41.7**	**254**	41.7	254
465.tonto	210	46.9	**210**	**46.9**	210	47.0	**181**	**54.5**	181	54.5	181	54.4
470.lbm	19.8	693	19.6	700	**19.8**	**693**	19.8	693	19.6	700	**19.8**	**693**
481.wrf	**94.6**	**118**	94.6	118	94.8	118	**94.6**	**118**	94.6	118	94.8	118
482.sphinx3	232	83.8	**232**	**84.1**	231	84.4	232	83.8	**232**	**84.1**	231	84.4

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

```
Sysinfo program /root/SPECCpu2013Oct17/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on wilykat2 Tue Sep  2 11:08:09 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

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2667 v3 @ 3.20GHz
```

Continued on next page

Platform Notes (Continued)

```
        2 "physical id"s (chips)
        32 "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 : 8
        siblings  : 16
        physical 0: cores 0 1 2 3 4 5 6 7
        physical 1: cores 0 1 2 3 4 5 6 7
     cache size : 20480 KB

  From /proc/meminfo
     MemTotal:       264282968 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.5 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux wilykat2 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
     x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Sep 2 10:57

  SPEC is set to: /root/SPECCpu2013Oct17
     Filesystem                     Type  Size  Used Avail Use% Mounted on
     /dev/mapper/vg_wilykat2-lv_root ext4  225G   20G  194G  10% /

  Additional information from dmidecode:
    BIOS IBM -[THE101W-1.00]- 08/27/2014
    Memory:
     1x   1 GB
     14x   16 GB
     14x Micron 36ASF2G72PZ-2G1A2 16 GB 2133 MHz 2 rank
     1x Micron A.A.A.A.A.A.A.A 1 GB   8 rank
     1x NO DIMM Unknown

  (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/SPECCpu2013Oct17/libs/32:/root/SPECCpu2013Oct17/libs/64:/root/SPECCpu2013Oct17/sh"
OMP_NUM_THREADS = "16"
```

Continued on next page

General Notes (Continued)

```
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
```

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:

Continued on next page

Peak Optimization Flags (Continued)

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

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: -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 -opt-prefetch -parallel

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-B.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-B.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 Tue Oct 14 10:51:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 October 2014.