



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp[®]2006 = 106

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = 101

CPU2006 license: 9017

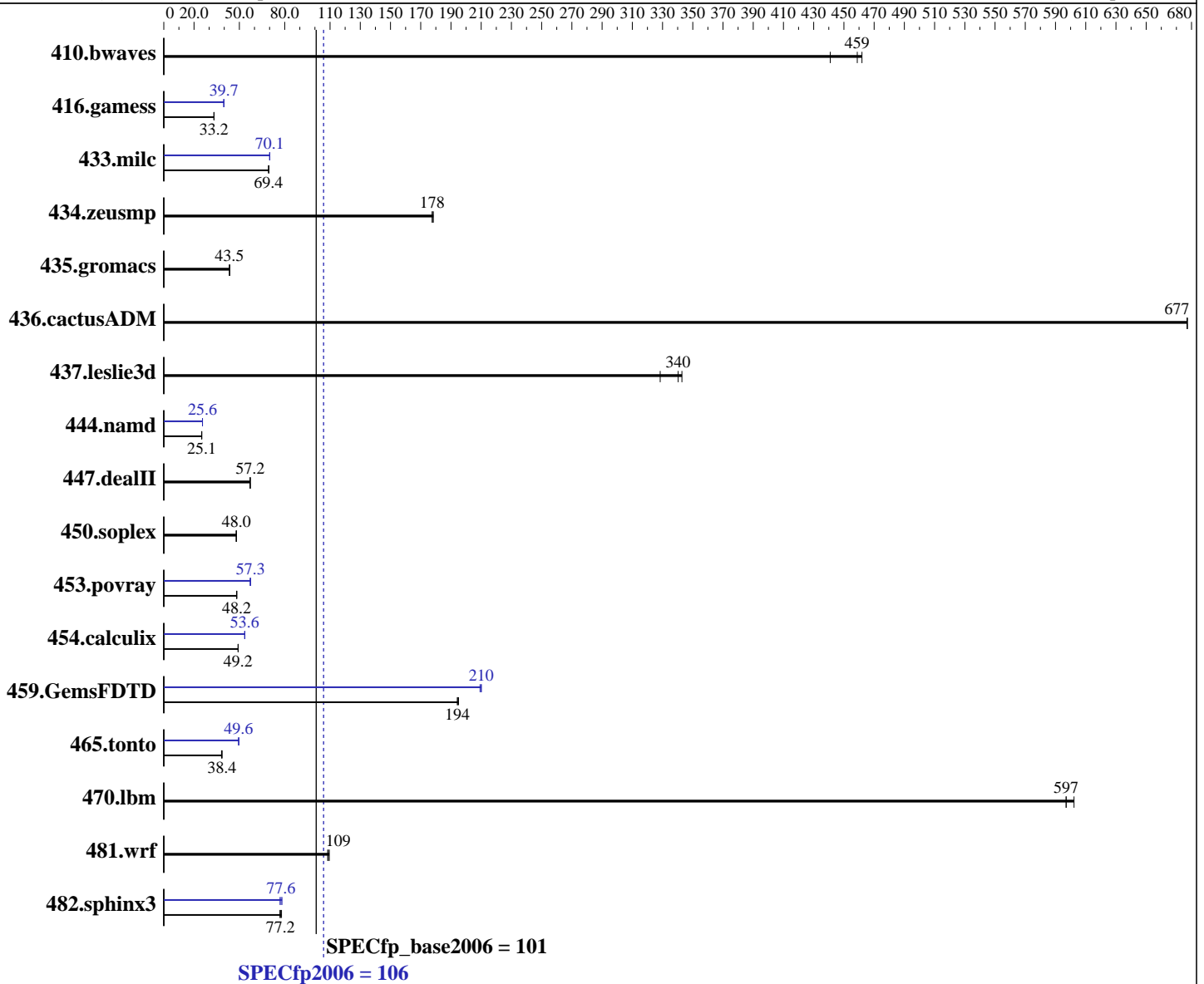
Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2680 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip
 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 6.4 (Santiago)
 2.6.32-358.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

Lenovo Group Limited

SPECfp2006 = **106**

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = **101**

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

L3 Cache: 25 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 1 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	30.8	441	<u>29.6</u>	<u>459</u>	29.4	462	30.8	441	<u>29.6</u>	<u>459</u>	29.4	462
416.gamess	589	33.2	<u>590</u>	<u>33.2</u>	590	33.2	493	39.7	492	39.8	<u>493</u>	<u>39.7</u>
433.milc	132	69.6	132	69.3	<u>132</u>	<u>69.4</u>	<u>131</u>	<u>70.1</u>	131	70.1	131	70.0
434.zeusmp	51.0	178	51.2	178	<u>51.2</u>	<u>178</u>	51.0	178	51.2	178	<u>51.2</u>	<u>178</u>
435.gromacs	164	43.6	<u>164</u>	<u>43.5</u>	164	43.5	164	43.6	<u>164</u>	<u>43.5</u>	164	43.5
436.cactusADM	<u>17.6</u>	<u>677</u>	17.6	677	17.6	677	<u>17.6</u>	<u>677</u>	17.6	677	17.6	677
437.leslie3d	27.4	343	28.6	328	<u>27.6</u>	<u>340</u>	27.4	343	28.6	328	<u>27.6</u>	<u>340</u>
444.namd	320	25.1	<u>320</u>	<u>25.1</u>	320	25.1	313	25.6	<u>313</u>	<u>25.6</u>	313	25.6
447.dealII	<u>200</u>	<u>57.2</u>	201	57.1	200	57.2	<u>200</u>	<u>57.2</u>	201	57.1	200	57.2
450.soplex	174	47.9	174	48.1	<u>174</u>	<u>48.0</u>	174	47.9	174	48.1	<u>174</u>	<u>48.0</u>
453.povray	<u>110</u>	<u>48.2</u>	111	48.1	110	48.4	<u>92.8</u>	<u>57.3</u>	93.1	57.1	92.7	57.4
454.calculix	168	49.2	<u>168</u>	<u>49.2</u>	168	49.2	<u>154</u>	<u>53.6</u>	154	53.6	154	53.6
459.GemsFDTD	54.4	195	54.6	194	<u>54.6</u>	<u>194</u>	50.7	209	<u>50.5</u>	<u>210</u>	50.5	210
465.tonto	255	38.5	258	38.2	<u>256</u>	<u>38.4</u>	<u>199</u>	<u>49.6</u>	199	49.5	198	49.6
470.lbm	<u>23.0</u>	<u>597</u>	22.8	602	23.0	597	<u>23.0</u>	<u>597</u>	22.8	602	23.0	597
481.wrf	<u>103</u>	<u>109</u>	103	108	102	109	<u>103</u>	<u>109</u>	103	108	102	109
482.sphinx3	254	76.8	250	77.9	<u>252</u>	<u>77.2</u>	253	76.9	249	78.2	<u>251</u>	<u>77.6</u>

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
Intel Idle Driver disabled with the following Linux kernel parameter in /etc/grub.conf:
intel_idle.max_cstate=0
```

Platform Notes

```
BIOS setting:
Operating Mode set to Maximum Performance
Hyper-Threading set to Disable
Sysinfo program /home/SPECcpu-20140116-ic14.0/config/sysinfo.rev6874
$Rev: 6874 $ $Date:: 2013-11-20 #$ 654bd3fcf53b06faef0efe54ed011998
running on x3500M4 Fri Nov 21 17:06:58 2014
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = 101

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

Platform Notes (Continued)

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 E5-2680 v2 @ 2.80GHz
 2 "physical id"s (chips)
 20 "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       : 10
  physical 0:    : cores 0 1 2 3 4 8 9 10 11 12
  physical 1:    : cores 0 1 2 3 4 8 9 10 11 12
cache size      : 25600 KB

```

```

From /proc/meminfo
MemTotal:        264655944 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 x3500M4 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 Nov 21 06:23

```

SPEC is set to: /home/SPECcpu-20140116-ic14.0
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/mapper/vg_intelcrb-lv_home
ext4            863G     40G    779G   5% /home

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS IBM -[Y5E139ZUS-1.70]- 06/25/2014

Memory:

8x Not Specified Not Specified
16x Samsung M393B2G70QH0-CMA 16 GB 2 rank 1866 MHz, configured at 1867 MHz

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = 101

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

KMP_AFFINITY = "granularity=fine,compact,0,1"

LD_LIBRARY_PATH = "/home/SPECcpu-20140116-ic14.0/libs/32:/home/SPECcpu-20140116-ic14.0/libs/64:/home/SPECcpu-20140116-ic14.0/sh"

OMP_NUM_THREADS = "20"

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = 101

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

Base Portability Flags (Continued)

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 -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -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:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = 101

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

Peak Optimization Flags (Continued)

433.milc: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

C++ benchmarks:

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: basepeak = yes

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-

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo System x3500 M4
(Intel Xeon E5-2680 v2, 2.80 GHz)

SPECfp_base2006 = 101

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

Peak Optimization Flags (Continued)

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-IVB-C.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-IVB-C.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 Dec 30 16:13:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 30 December 2014.