



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp<sup>®</sup>2006 = **99.7**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

SPECfp\_base2006 = **94.5**

CPU2006 license: 9017

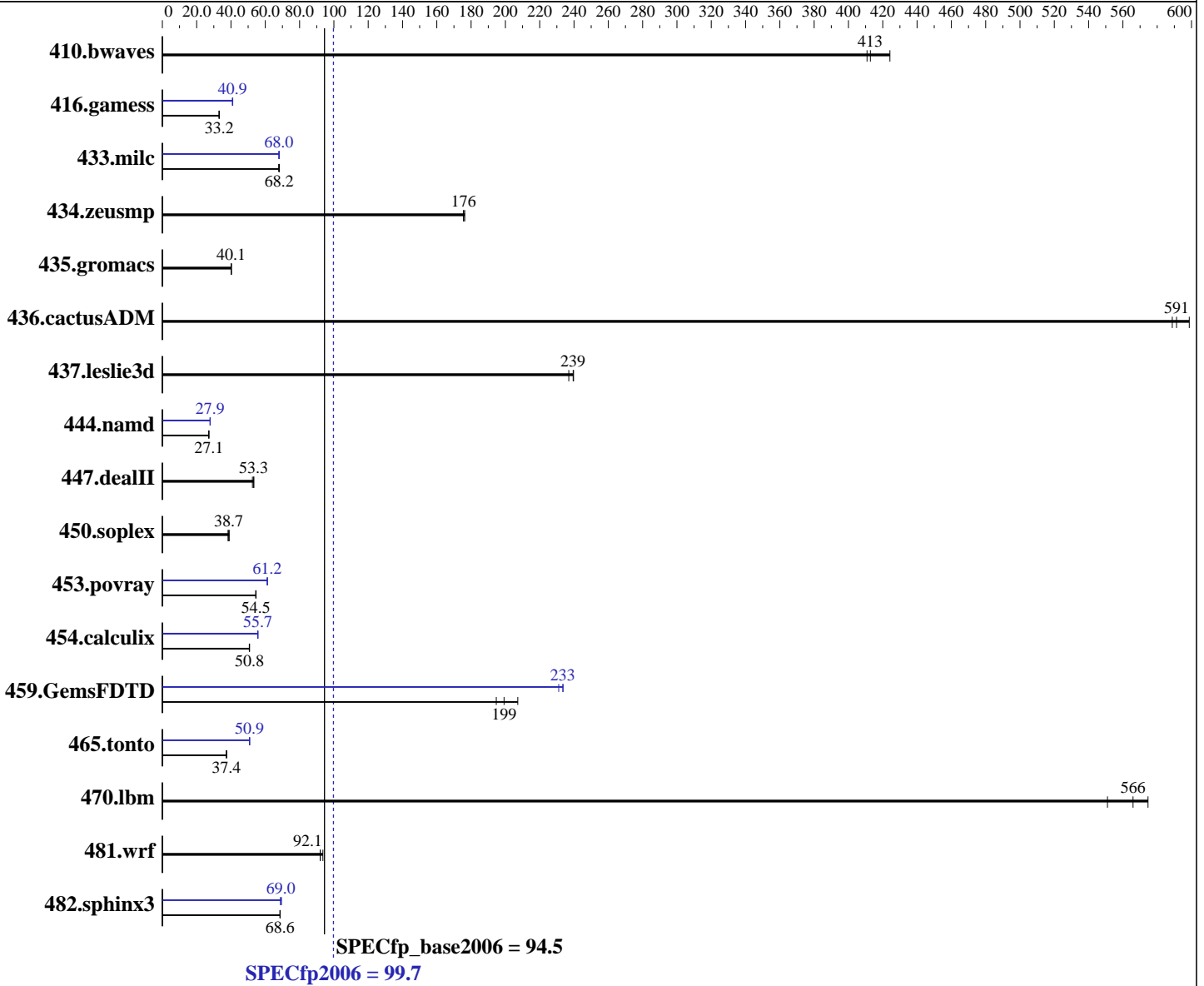
Test date: Aug-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014



Hardware	
CPU Name:	Intel Xeon E5-2620 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz:	2400
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:	Red Hat Enterprise Linux Server release 7.0 (Maipo)
Compiler:	3.10.0-123.el7.x86_64 C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp2006 = **99.7**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

SPECfp\_base2006 = **94.5**

CPU2006 license: 9017

Test date: Aug-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

L3 Cache: 15 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)  
Disk Subsystem: 1 x 1000 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	33.1	411	<b>32.9</b>	<b>413</b>	32.0	424	33.1	411	<b>32.9</b>	<b>413</b>	32.0	424
416.gamess	590	33.2	593	33.0	<b>590</b>	<b>33.2</b>	<b>479</b>	<b>40.9</b>	480	40.8	477	41.1
433.milc	134	68.3	135	67.8	<b>135</b>	<b>68.2</b>	135	68.2	135	67.9	<b>135</b>	<b>68.0</b>
434.zeusmp	51.8	176	51.6	176	<b>51.8</b>	<b>176</b>	51.8	176	51.6	176	<b>51.8</b>	<b>176</b>
435.gromacs	<b>178</b>	<b>40.1</b>	177	40.3	178	40.1	<b>178</b>	<b>40.1</b>	177	40.3	178	40.1
436.cactusADM	20.0	599	<b>20.2</b>	<b>591</b>	20.3	589	20.0	599	<b>20.2</b>	<b>591</b>	20.3	589
437.leslie3d	<b>39.3</b>	<b>239</b>	39.2	240	39.7	237	<b>39.3</b>	<b>239</b>	39.2	240	39.7	237
444.namd	<b>296</b>	<b>27.1</b>	296	27.1	296	27.1	288	27.9	288	27.8	<b>288</b>	<b>27.9</b>
447.dealII	218	52.5	215	53.3	<b>215</b>	<b>53.3</b>	218	52.5	215	53.3	<b>215</b>	<b>53.3</b>
450.soplex	<b>216</b>	<b>38.7</b>	214	39.0	218	38.3	<b>216</b>	<b>38.7</b>	214	39.0	218	38.3
453.povray	97.7	54.5	<b>97.6</b>	<b>54.5</b>	97.3	54.7	<b>86.9</b>	<b>61.2</b>	86.9	61.2	87.0	61.1
454.calculix	162	50.8	<b>162</b>	<b>50.8</b>	163	50.7	<b>148</b>	<b>55.7</b>	148	55.7	148	55.6
459.GemsFDTD	51.2	207	<b>53.3</b>	<b>199</b>	54.5	195	<b>45.5</b>	<b>233</b>	45.9	231	45.4	234
465.tonto	264	37.3	<b>263</b>	<b>37.4</b>	263	37.4	193	50.9	194	50.8	<b>194</b>	<b>50.9</b>
470.lbm	<b>24.3</b>	<b>566</b>	23.9	575	24.9	551	<b>24.3</b>	<b>566</b>	23.9	575	24.9	551
481.wrf	<b>121</b>	<b>92.1</b>	119	93.6	121	92.0	<b>121</b>	<b>92.1</b>	119	93.6	121	92.0
482.sphinx3	<b>284</b>	<b>68.6</b>	284	68.6	284	68.7	<b>283</b>	<b>68.9</b>	281	69.4	<b>282</b>	<b>69.0</b>

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 "Efficiency-Favor Performance"  
Memory runs at the CPU max supported speed (1866 MHz)  
Sysinfo program /home/SPEC/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on wilykat.labs.lenovo.com Thu Aug 13 08:03:44 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

**SPECfp2006 = 99.7**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

**SPECfp\_base2006 = 94.5**

**CPU2006 license:** 9017

**Test date:** Aug-2015

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

### Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

```

model name      : Intel(R) Xeon(R) CPU E5-2620 v3 @ 2.40GHz
 2 "physical id"s (chips)
 24 "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     : 6
  siblings      : 12
  physical 0:   cores 0 1 2 3 4 5
  physical 1:   cores 0 1 2 3 4 5
cache size     : 15360 KB

```

From /proc/meminfo

```

MemTotal:      263586900 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

From /etc/\*release\* /etc/\*version\*

```

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

```

uname -a:

```

Linux wilykat.labs.lenovo.com 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

```

SPEC is set to: /home/SPEC

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs  927G  48G  879G   6% /

```

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 -[THE106CUS-1.11]- 02/16/2015

Memory:

```

7x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECfp2006 = 99.7

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

SPECfp\_base2006 = 94.5

CPU2006 license: 9017

Test date: Aug-2015

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

## Platform Notes (Continued)

9x Hynix HMA42GR7MFR4N-TFT1 16 GB 2 rank 2133 MHz

(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 = "/home/SPEC/libs/32:/home/SPEC/libs/64:/home/SPEC/sh"

OMP\_NUM\_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECfp2006 = 99.7**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

**SPECfp\_base2006 = 94.5**

**CPU2006 license:** 9017

**Test date:** Aug-2015

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

## Base Portability Flags (Continued)

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

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:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

**SPECfp2006 = 99.7**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

**SPECfp\_base2006 = 94.5**

**CPU2006 license:** 9017

**Test date:** Aug-2015

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

## Peak Optimization Flags (Continued)

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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

### 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

447.dealIII: 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECfp2006 = 99.7**

Lenovo NeXtScale nx360 M5  
(Intel Xeon E5-2620 v3, 2.40 GHz)

**SPECfp\_base2006 = 94.5**

**CPU2006 license:** 9017

**Test date:** Aug-2015

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Sep-2014

## Peak Optimization Flags (Continued)

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-ic15.0-official-linux64.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-ic15.0-official-linux64.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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Sep 8 22:40:44 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 8 September 2015.