## Lenovo Group Limited

**Lenovo NeXtScale nx360 M5**  
(Intel Xeon E5-2623 v3, 3.00 GHz)

### SPECfp®2006 = 98.6

<table>
<thead>
<tr>
<th>Test Sponsor: Lenovo Group Limited</th>
<th>Test Date: Apr-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by: Lenovo Group Limited</td>
<td>Hardware Availability: Nov-2014</td>
</tr>
<tr>
<td>CPU2006 license: 9017</td>
<td>Software Availability: Sep-2014</td>
</tr>
</tbody>
</table>

### SPECfp_base2006 = 95.4

<table>
<thead>
<tr>
<th>Software Availability:</th>
<th>Hardware Availability:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep-2014</td>
<td>Nov-2014</td>
</tr>
</tbody>
</table>

### Hardware

**CPU Name:** Intel Xeon E5-2623 v3  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.50 GHz  
**CPU MHz:** 3000  
**FPU:** Integrated  
**CPU(s) enabled:** 8 cores, 2 chips, 4 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

### Software

**Operating System:** Red Hat Enterprise Linux Server release 7.0 (Maipo)  
**Compiler:** 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

---

**Graph Showing SPEC Results**

- **SPECfp2006 = 95.4**
- **SPECfp_base2006 = 95.4**

---

**Graph Showing SPEC Results**

- **SPECfp2006 = 98.6**

---

Continued on next page
Lenovo Group Limited

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2623 v3, 3.00 GHz)

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

L3 Cache: 10 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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Base</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>39.9</td>
<td>340</td>
<td>39.4</td>
<td>345</td>
<td>39.2</td>
<td>347</td>
</tr>
<tr>
<td>416.gamess</td>
<td>490</td>
<td>40.0</td>
<td>486</td>
<td>40.2</td>
<td>486</td>
<td>40.3</td>
</tr>
<tr>
<td>433.milc</td>
<td>132</td>
<td>69.4</td>
<td>134</td>
<td>68.4</td>
<td>133</td>
<td>69.0</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>52.9</td>
<td>172</td>
<td>53.7</td>
<td>169</td>
<td>53.4</td>
<td>171</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>146</td>
<td>48.8</td>
<td>146</td>
<td>48.8</td>
<td>146</td>
<td>48.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>248</td>
<td>481</td>
<td>250</td>
<td>479</td>
<td>247</td>
<td>483</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>43.4</td>
<td>217</td>
<td>42.0</td>
<td>224</td>
<td>42.4</td>
<td>222</td>
</tr>
<tr>
<td>444.namd</td>
<td>271</td>
<td>29.6</td>
<td>271</td>
<td>29.6</td>
<td>271</td>
<td>29.6</td>
</tr>
<tr>
<td>447.dealII</td>
<td>200</td>
<td>57.1</td>
<td>201</td>
<td>57.0</td>
<td>200</td>
<td>57.2</td>
</tr>
<tr>
<td>450.soplex</td>
<td>236</td>
<td>35.3</td>
<td>236</td>
<td>35.4</td>
<td>237</td>
<td>35.2</td>
</tr>
<tr>
<td>453.povray</td>
<td>89.2</td>
<td>59.7</td>
<td>89.1</td>
<td>59.7</td>
<td>87.8</td>
<td>60.6</td>
</tr>
<tr>
<td>454.caculix</td>
<td>149</td>
<td>55.4</td>
<td>149</td>
<td>55.6</td>
<td>149</td>
<td>55.5</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>62.6</td>
<td>170</td>
<td>62.8</td>
<td>169</td>
<td>62.8</td>
<td>169</td>
</tr>
<tr>
<td>465.tonto</td>
<td>217</td>
<td>45.4</td>
<td>218</td>
<td>45.2</td>
<td>215</td>
<td>45.7</td>
</tr>
<tr>
<td>470.lbm</td>
<td>30.2</td>
<td>455</td>
<td>30.4</td>
<td>452</td>
<td>30.5</td>
<td>451</td>
</tr>
<tr>
<td>481.wrf</td>
<td>118</td>
<td>94.8</td>
<td>118</td>
<td>94.7</td>
<td>118</td>
<td>94.8</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>242</td>
<td>80.7</td>
<td>241</td>
<td>81.0</td>
<td>248</td>
<td>78.7</td>
</tr>
</tbody>
</table>

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"
Sysinfo program /home/SPEC/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on wilykat-2.labs.lenovo.com Thu Apr 30 09:44:25 2015

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
Lenovo Group Limited

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2623 v3, 3.00 GHz)

SPECfp2006 = 98.6
SPECfp_base2006 = 95.4

Platform Notes (Continued)

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2623 v3 @ 3.00GHz
  2 "physical id"s (chips)
  16 "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
  physical 1: cores 0 1 2 3
  cache size : 10240 KB

From /proc/meminfo
  MemTotal:       263587828 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="7.0.0"
    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-2.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   11G  916G   2% /

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 SMI BIOS" standard.

BIOS IBM -[THE106CUS-1.11]- 02/16/2015
Memory:
  10x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz
  6x Hynix HMA42GR7MFR4N-TFT1 16 GB 2 rank 2133 MHz

Continued on next page
Lenovo Group Limited

Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2623 v3, 3.00 GHz)

SPECfp2006 = 98.6
SPECfp_base2006 = 95.4

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Apr-2015
Hardware Availability: Nov-2014
Software Availability: Sep-2014

Platform Notes (Continued)

(End of data from sysinfo program)
System memory running at the CPU supported max DIMM speed (1866 MHz)

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 = "8"

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
Lenovo Group Limited
Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2623 v3, 3.00 GHz)

SPECfp2006 = 98.6
SPECfp_base2006 = 95.4

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Test date: Apr-2015
Tested by: Lenovo Group Limited
Hardware Availability: Nov-2014
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
Lenovo Group Limited
Lenovo NeXtScale nx360 M5
(Intel Xeon E5-2623 v3, 3.00 GHz)

SPECfp2006 = 98.6
SPECfp_base2006 = 95.4

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited
Test date: Apr-2015
Hardware Availability: Nov-2014
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.dealII: basepeak = yes

450.soplex: basepeak = yes

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

**Lenovo Group Limited**  
**Lenovo NeXtScale nx360 M5**  
(Intel Xeon E5-2623 v3, 3.00 GHz)

| SPECfp 2006 = | 98.6 |
| SPECfp_base 2006 = | 95.4 |

**CPU2006 license:** 9017  
**Test sponsor:** Lenovo Group Limited  
**Tested by:** Lenovo Group Limited  
**Test date:** Apr-2015  
**Hardware Availability:** Nov-2014  
**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/Intel-ic15.0-official-linux64.html)
- [http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-B.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/Intel-ic15.0-official-linux64.xml)
- [http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-B.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 May 19 18:12:51 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 19 May 2015.