



# SPEC® CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

SPECint®2006 = **57.5**

SPECint\_base2006 = **55.1**

CPU2006 license: 9017

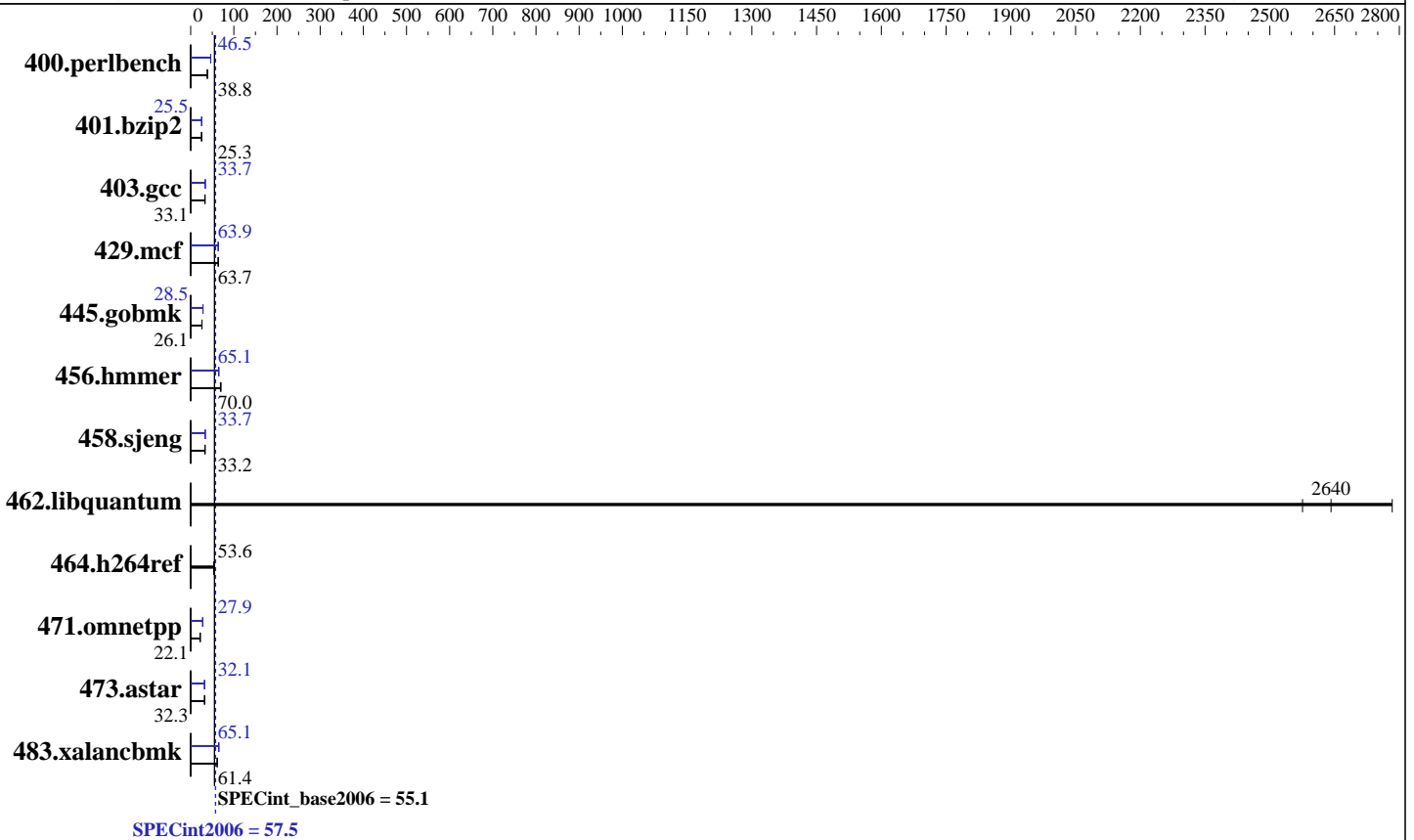
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Sep-2014

Software Availability: Jan-2014



### 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  
 CPU(s) orderable: 1,2 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 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 800 GB SATA SSD  
 Other Hardware: None

### 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  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

SPECint2006 = **57.5**

SPECint\_base2006 = **55.1**

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Sep-2014

Software Availability: Jan-2014

## Results Table

| Benchmark      | Base       |             |             |             |            |             | Peak       |             |             |             |            |             |
|----------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|
|                | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       |
| 400.perlbench  | 251        | 38.9        | 254         | 38.4        | <u>252</u> | <u>38.8</u> | 210        | 46.5        | <u>210</u>  | <u>46.5</u> | 210        | 46.5        |
| 401.bzip2      | <u>381</u> | <u>25.3</u> | 381         | 25.3        | 381        | 25.3        | <u>378</u> | <u>25.5</u> | 378         | 25.5        | 379        | 25.5        |
| 403.gcc        | 243        | 33.1        | <u>243</u>  | <u>33.1</u> | 242        | 33.2        | <u>239</u> | <u>33.7</u> | 238         | 33.8        | 239        | 33.7        |
| 429.mcf        | 143        | 63.6        | <u>143</u>  | <u>63.7</u> | 142        | 64.1        | <u>143</u> | <u>63.9</u> | 142         | 64.2        | 144        | 63.5        |
| 445.gobmk      | 402        | 26.1        | 402         | 26.1        | <u>402</u> | <u>26.1</u> | 368        | 28.5        | <u>368</u>  | <u>28.5</u> | 369        | 28.4        |
| 456.hammer     | <u>133</u> | <u>70.0</u> | 135         | 68.9        | 133        | 70.0        | <u>143</u> | <u>65.1</u> | 143         | 65.2        | 144        | 64.8        |
| 458.sjeng      | 364        | 33.3        | 365         | 33.2        | <u>364</u> | <u>33.2</u> | 359        | 33.7        | 359         | 33.7        | <u>359</u> | <u>33.7</u> |
| 462.libquantum | 8.04       | 2580        | <u>7.84</u> | <u>2640</u> | 7.44       | 2780        | 8.04       | 2580        | <u>7.84</u> | <u>2640</u> | 7.44       | 2780        |
| 464.h264ref    | 413        | 53.6        | <u>413</u>  | <u>53.6</u> | 413        | 53.5        | 413        | 53.6        | <u>413</u>  | <u>53.6</u> | 413        | 53.5        |
| 471.omnetpp    | 283        | 22.1        | 284         | 22.0        | <u>283</u> | <u>22.1</u> | 224        | 27.9        | 226         | 27.7        | <u>224</u> | <u>27.9</u> |
| 473.astar      | <u>217</u> | <u>32.3</u> | 217         | 32.3        | 218        | 32.2        | 217        | 32.3        | 219         | 32.0        | <u>219</u> | <u>32.1</u> |
| 483.xalancbmk  | 112        | 61.4        | 112         | 61.5        | <u>112</u> | <u>61.4</u> | 106        | 65.1        | <u>106</u>  | <u>65.1</u> | 106        | 65.2        |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The config file option 'submit' was used.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS configuration:

Hyper-Threading set to Disabled

Performance Profile set to Custom

C1E Support set to Disabled

Core C3 set to Disabled

Core C6 set to Disabled

Thermal Profile set to High Fan Speed

Memory Power Savings set to Disabled

Sysinfo program /usr/cpu2006/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191

running on RD550 Thu Nov 13 17:50:53 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 E5-2623 v3 @ 3.00GHz

2 "physical id"s (chips)

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 2



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

SPECint2006 = 57.5

SPECint\_base2006 = 55.1

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Sep-2014

Software Availability: Jan-2014

### Platform Notes (Continued)

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  : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB
```

From /proc/meminfo

```
MemTotal:      264416764 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 RD550 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 Nov 13 17:50

SPEC is set to: /usr/cpu2006

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext4  730G   36G  657G   6% /
```

Additional information from dmidecode:

BIOS LENOVO PB1TS110 10/06/2014

Memory:

```
16x 16 GB
8x NO DIMM NO DIMM
16x Samsung M393A2G40DB0-CPB 16 GB 1866 MHz 2 rank
```

(End of data from sysinfo program)

RD550 support 4 channels and 12 DIMMs per processor, total 8 channels and 24 DIMMs. 16 DIMM slots installed with 16 GB DIMM for this run.

### General Notes

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

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

OMP\_NUM\_THREADS = "8"

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECint2006 = **57.5**

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

SPECint\_base2006 = **55.1**

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2014

Tested by: Lenovo Group Limited

Software Availability: Jan-2014

### 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

### Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

### Base Optimization Flags

C benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
  
C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh -lsmarthheap64

### Base Other Flags

C benchmarks:

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECint2006 = 57.5**

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

**SPECint\_base2006 = 55.1**

**CPU2006 license:** 9017

**Test date:** Nov-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Sep-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Jan-2014

## Base Other Flags (Continued)

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32

445.gobmk: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

**SPECint2006 = 57.5**

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

**SPECint\_base2006 = 55.1**

**CPU2006 license:** 9017

**Test date:** Nov-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Sep-2014

**Tested by:** Lenovo Group Limited

**Software Availability:** Jan-2014

## Peak Optimization Flags (Continued)

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel  
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-ra-region-strategy=block -ansi-alias  
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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/Lenovo-Platform-Settings-V1.2-HSW-revA.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/Lenovo-Platform-Settings-V1.2-HSW-revA.xml>



# SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2623 v3, 3.00 GHz)

**SPECint2006 = 57.5**

**SPECint\_base2006 = 55.1**

**CPU2006 license:** 9017

**Test sponsor:** Lenovo Group Limited

**Tested by:** Lenovo Group Limited

**Test date:** Nov-2014

**Hardware Availability:** Sep-2014

**Software Availability:** Jan-2014

SPEC and SPECint 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 Feb 10 18:33:37 2015 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 10 February 2015.