



SPEC® CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp®2006 = 106

SPECfp_base2006 = 101

CPU2006 license: 9017

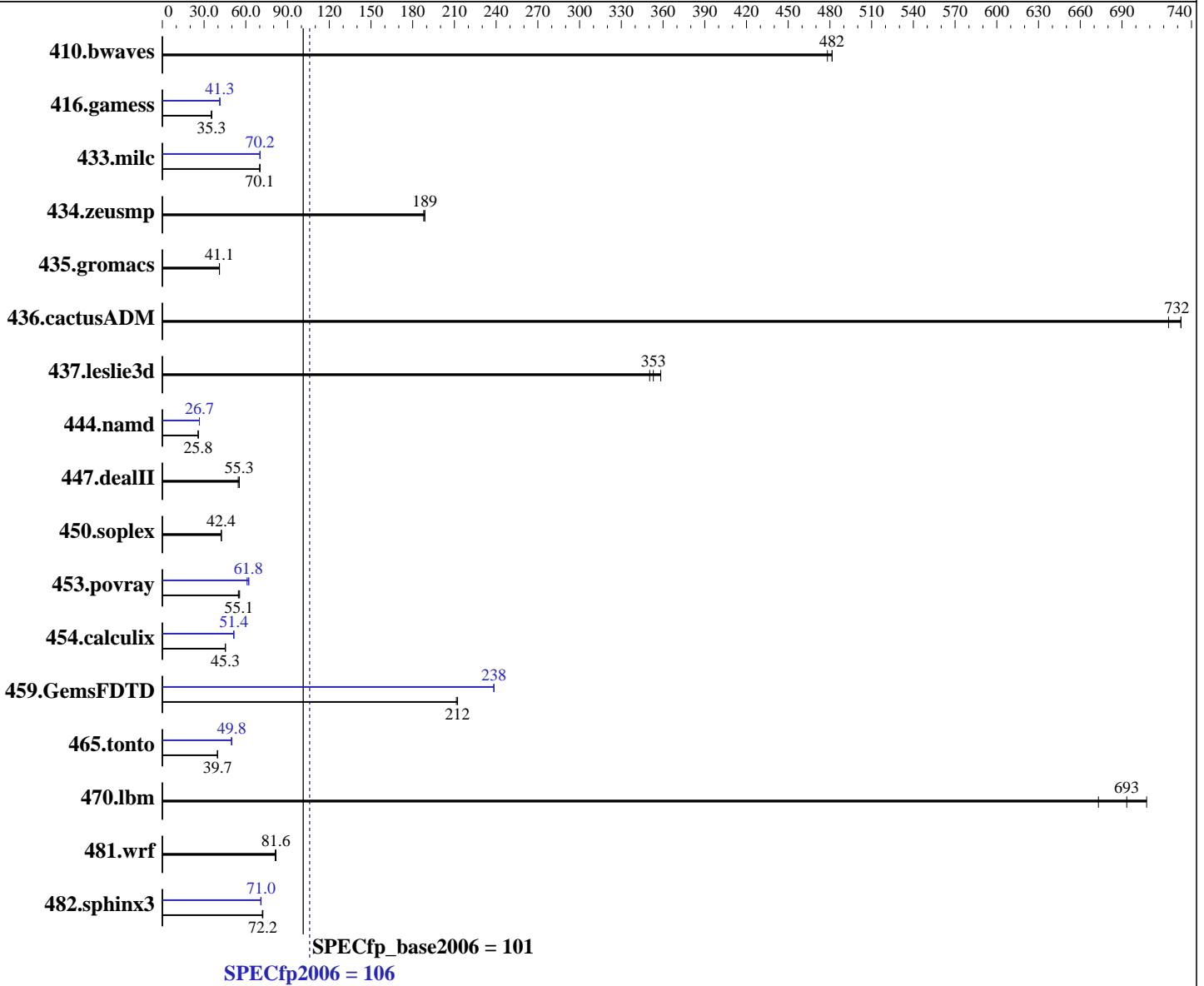
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Sep-2014

Software Availability: Jan-2014



Hardware

CPU Name: Intel Xeon E5-2685 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 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

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 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp2006 = **106**

SPECfp_base2006 = **101**

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

L3 Cache: 30 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 800 GB SATA SSD
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	28.2	482	<u>28.2</u>	<u>482</u>	28.4	478	28.2	482	<u>28.2</u>	<u>482</u>	28.4	478
416.gamess	551	35.5	<u>554</u>	<u>35.3</u>	556	35.2	<u>474</u>	<u>41.3</u>	474	41.3	473	41.4
433.milc	131	70.1	<u>131</u>	<u>70.1</u>	131	70.1	131	70.2	131	70.2	<u>131</u>	<u>70.2</u>
434.zeusmp	<u>48.2</u>	<u>189</u>	48.2	189	48.4	188	<u>48.2</u>	<u>189</u>	48.2	189	48.4	188
435.gromacs	174	41.1	174	41.0	<u>174</u>	<u>41.1</u>	174	41.1	174	41.0	<u>174</u>	<u>41.1</u>
436.cactusADM	<u>16.3</u>	<u>732</u>	16.5	724	16.3	732	<u>16.3</u>	<u>732</u>	16.5	724	16.3	732
437.leslie3d	<u>26.6</u>	<u>353</u>	26.2	358	26.8	350	<u>26.6</u>	<u>353</u>	26.2	358	26.8	350
444.namd	<u>311</u>	<u>25.8</u>	311	25.8	312	25.7	301	26.6	<u>301</u>	<u>26.7</u>	301	26.7
447.dealII	207	55.4	210	54.5	<u>207</u>	<u>55.3</u>	207	55.4	210	54.5	<u>207</u>	<u>55.3</u>
450.soplex	<u>197</u>	<u>42.4</u>	197	42.2	196	42.5	<u>197</u>	<u>42.4</u>	197	42.2	196	42.5
453.povray	95.8	55.6	<u>96.6</u>	<u>55.1</u>	97.3	54.7	<u>86.1</u>	<u>61.8</u>	87.3	60.9	85.5	62.3
454.calculix	182	45.4	<u>182</u>	<u>45.3</u>	182	45.2	<u>160</u>	<u>51.4</u>	161	51.3	160	51.4
459.GemsFDTD	50.0	212	<u>50.0</u>	<u>212</u>	50.2	211	44.5	238	<u>44.5</u>	<u>238</u>	44.5	238
465.tonto	248	39.8	249	39.6	<u>248</u>	<u>39.7</u>	197	49.9	198	49.7	<u>198</u>	<u>49.8</u>
470.lbm	19.4	708	<u>19.8</u>	<u>693</u>	20.4	673	19.4	708	<u>19.8</u>	<u>693</u>	20.4	673
481.wrf	138	81.1	<u>137</u>	<u>81.6</u>	137	81.7	138	81.1	<u>137</u>	<u>81.6</u>	137	81.7
482.sphinx3	271	71.9	<u>270</u>	<u>72.2</u>	270	72.2	276	70.7	<u>275</u>	<u>71.0</u>	274	71.0

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 configuration:
Cluster On Die set to Disabled
Early Snoop set to Disabled
Performance Profile set to Custom
ClE 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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp_base2006 = 101

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

Platform Notes (Continued)

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on RD550 Fri Nov 21 01:23:56 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 E5-2685 v3 @ 2.60GHz
 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 : 12
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      264414636 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 21 01:22
```

```
SPEC is set to: /usr/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  730G  44G  649G   7% /
```

Additional information from dmidecode:

BIOS LENOVO PB1TS110 10/06/2014

Memory:

16x 16 GB

1x Hynix Semiconductor HMA42GR7MFR4N-TF 16 GB 2133 MHz 2 rank

15x Hynix Semiconductor HMA42GR7MFR4N-TFTD 16 GB 2133 MHz 2 rank

8x NO DIMM NO DIMM

(End of data from sysinfo program)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp2006 = 106

SPECfp_base2006 = 101

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)

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,compact,1,0"

LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

OMP_NUM_THREADS = "24"

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



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 106

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp_base2006 = 101

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 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:

-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



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp2006 = 106

SPECfp_base2006 = 101

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

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: -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

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD550 (Intel Xeon E5-2685 v3, 2.60 GHz)

SPECfp2006 = 106

SPECfp_base2006 = 101

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

Peak Optimization Flags (Continued)

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/Lenovo-Platform-Settings-V1.2-RD550-revE.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-RD550-revE.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 Mon Feb 9 10:45:59 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 February 2015.