



SPEC[®] CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp[®]2006 = 55.4

SPECfp_base2006 = 53.9

CPU2006 license: 9017

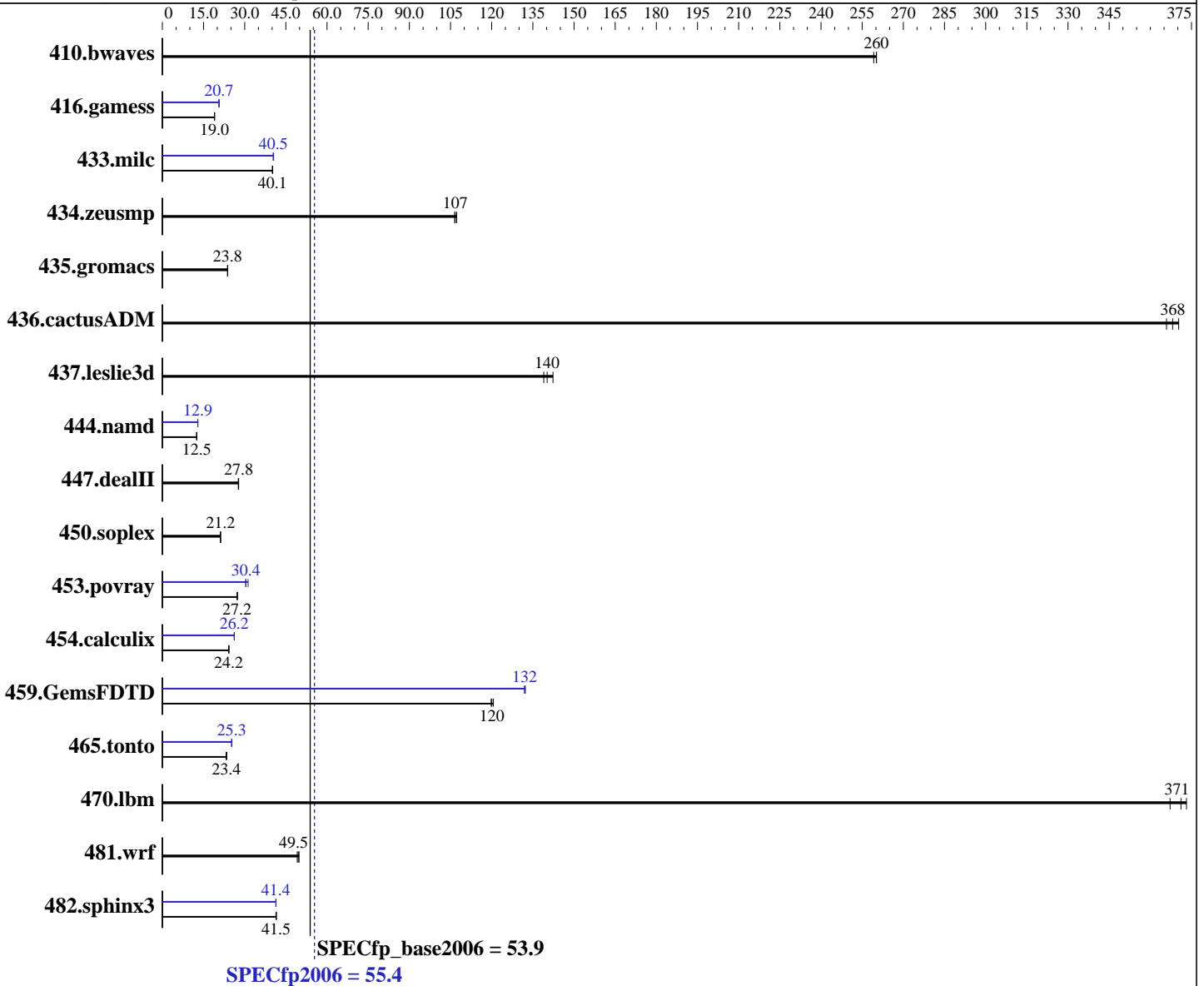
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Jan-2014



Hardware

CPU Name: Intel Xeon E5-2603 v3
 CPU Characteristics:
 CPU MHz: 1600
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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

SPECfp2006 = **55.4**

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp_base2006 = **53.9**

CPU2006 license: 9017

Test date: Oct-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2014

Tested by: Lenovo Group Limited

Software Availability: Jan-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 1600 MHz)
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	<u>52.2</u>	<u>260</u>	52.2	260	52.4	259	<u>52.2</u>	<u>260</u>	52.2	260	52.4	259
416.gamess	1029	19.0	1031	19.0	<u>1030</u>	<u>19.0</u>	946	20.7	<u>947</u>	<u>20.7</u>	951	20.6
433.milc	228	40.2	<u>229</u>	<u>40.1</u>	229	40.1	<u>228</u>	<u>40.3</u>	<u>227</u>	<u>40.5</u>	226	40.5
434.zeusmp	<u>85.2</u>	<u>107</u>	85.4	107	84.8	107	<u>85.2</u>	<u>107</u>	85.4	107	84.8	107
435.gromacs	300	23.8	<u>300</u>	<u>23.8</u>	301	23.7	<u>300</u>	<u>23.8</u>	<u>300</u>	<u>23.8</u>	301	23.7
436.cactusADM	<u>32.5</u>	<u>368</u>	32.3	370	32.7	366	<u>32.5</u>	<u>368</u>	32.3	370	32.7	366
437.leslie3d	67.6	139	66.0	142	<u>67.0</u>	<u>140</u>	<u>67.6</u>	139	66.0	142	<u>67.0</u>	<u>140</u>
444.namd	<u>641</u>	<u>12.5</u>	641	12.5	641	12.5	621	12.9	<u>621</u>	<u>12.9</u>	621	12.9
447.dealII	<u>412</u>	<u>27.8</u>	414	27.7	412	27.8	<u>412</u>	<u>27.8</u>	414	27.7	412	27.8
450.soplex	394	21.2	<u>394</u>	<u>21.2</u>	394	21.2	<u>394</u>	<u>21.2</u>	<u>394</u>	<u>21.2</u>	394	21.2
453.povray	<u>195</u>	<u>27.2</u>	194	27.4	195	27.2	<u>170</u>	<u>31.2</u>	<u>175</u>	<u>30.4</u>	175	30.3
454.calculix	340	24.2	341	24.2	<u>341</u>	<u>24.2</u>	<u>315</u>	<u>26.2</u>	315	26.2	315	26.2
459.GemsFDTD	88.0	121	88.6	120	<u>88.4</u>	<u>120</u>	<u>80.4</u>	132	<u>80.4</u>	<u>132</u>	80.2	132
465.tonto	420	23.4	<u>420</u>	<u>23.4</u>	423	23.3	<u>390</u>	<u>25.3</u>	390	25.2	389	25.3
470.lbm	<u>37.0</u>	<u>371</u>	36.8	373	37.4	367	<u>37.0</u>	<u>371</u>	36.8	373	37.4	367
481.wrf	224	49.8	<u>226</u>	<u>49.5</u>	227	49.2	<u>224</u>	<u>49.8</u>	<u>226</u>	<u>49.5</u>	227	49.2
482.sphinx3	469	41.5	<u>470</u>	<u>41.5</u>	470	41.4	<u>471</u>	<u>41.4</u>	470	41.4	471	41.4

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
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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECfp2006 = 55.4

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp_base2006 = 53.9

CPU2006 license: 9017

Test date: Oct-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Sep-2014

Tested by: Lenovo Group Limited

Software Availability: Jan-2014

Platform Notes (Continued)

Sysinfo program /usr/cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on TD350 Tue Oct 28 02:00:42 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 E5-2603 v3 @ 1.60GHz
2 "physical id"s (chips)
12 "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 : 6
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: 264416164 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 TD350 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 Oct 28 02:00

SPEC is set to: /usr/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext4 730G 13G 680G 2% /

Additional information from dmidecode:
BIOS LENOVO TB5TS110 10/06/2014
Memory:
16x 16 GB
16x Samsung M393A2G40DB0-CPB 16 GB 1600 MHz 2 rank

(End of data from sysinfo program)
TD350 support 4 channels and 8 DIMMs per processor, total 8 channels and
Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp2006 = 55.4

SPECfp_base2006 = 53.9

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Jan-2014

Platform Notes (Continued)

16 DIMMs. All 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 = "12"

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
 465.tonto: -DSPEC_CPU_LP64

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp2006 = 55.4

SPECfp_base2006 = 53.9

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Jan-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

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp2006 = 55.4

SPECfp_base2006 = 53.9

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Jan-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

Lenovo ThinkServer TD350 (Intel Xeon E5-2603 v3, 1.60 GHz)

SPECfp2006 = 55.4

SPECfp_base2006 = 53.9

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Jan-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-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 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 Feb 10 18:34:22 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 February 2015.