



SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp®_rate2006 = 208

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = 201

CPU2006 license: 9017

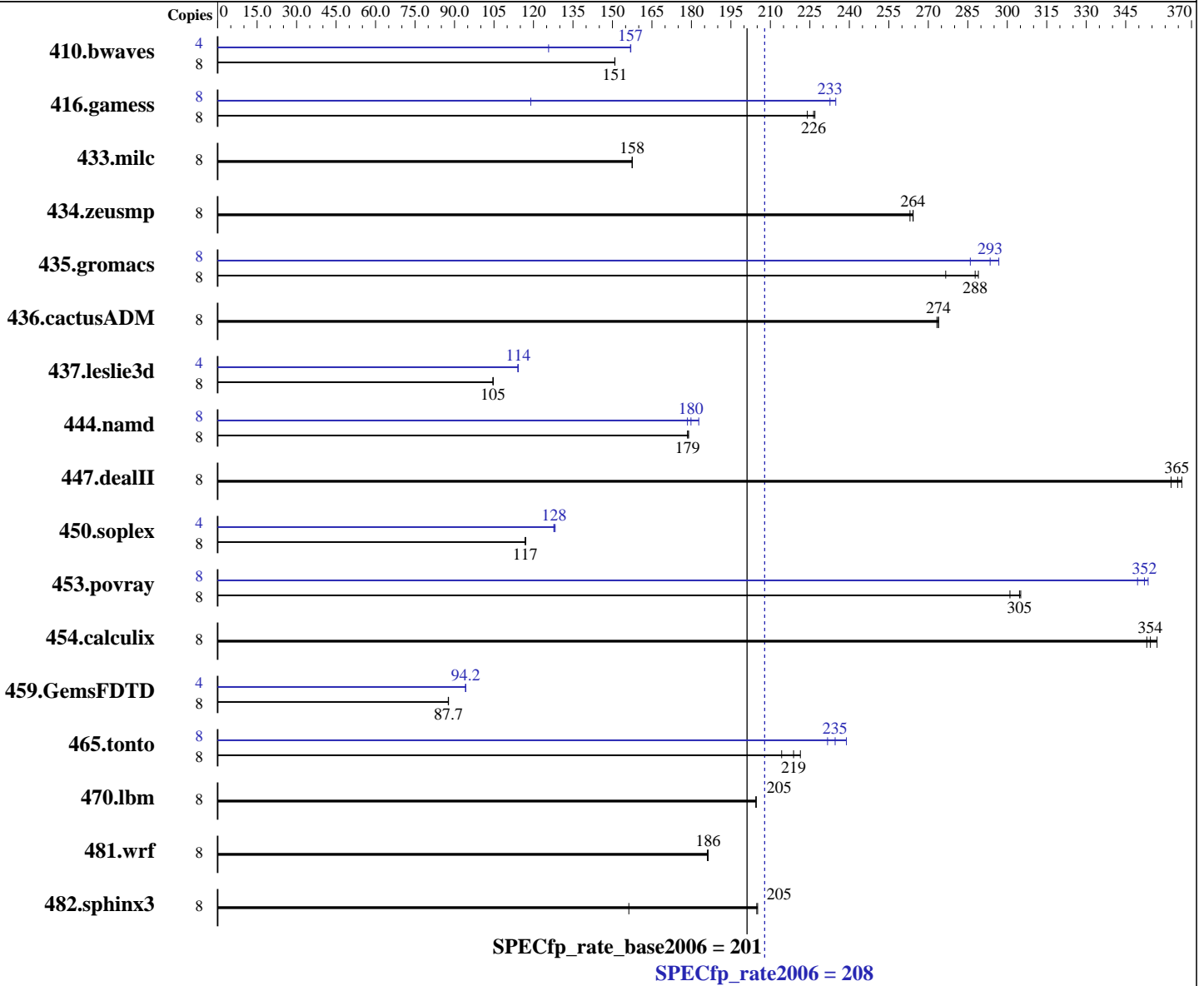
Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017



Hardware

CPU Name: Intel Xeon E3-1230 v6
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz
 CPU MHz: 3500
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 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: SUSE Linux Enterprise Server 12 SP2 (x86_64)
 Kernel 4.4.21-69-default
 Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux;
 Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
 Auto Parallel: Yes
 File System: btrfs
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp_rate2006 = **208**

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = **201**

CPU2006 license: 9017

Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (2 x 16 GB 2Rx8 PC4-2400T-E)
Disk Subsystem: 1 x 960 GB SATA SSD
Other Hardware: None

Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	720	151	<u>720</u>	<u>151</u>	721	151	4	432	126	346	157	<u>347</u>	<u>157</u>
416.gamess	8	699	224	690	227	<u>692</u>	<u>226</u>	8	1317	119	667	235	<u>673</u>	<u>233</u>
433.milc	8	<u>466</u>	<u>158</u>	466	158	466	157	8	<u>466</u>	<u>158</u>	466	158	466	157
434.zeusmp	8	275	264	<u>276</u>	<u>264</u>	277	263	8	275	264	<u>276</u>	<u>264</u>	277	263
435.gromacs	8	<u>198</u>	<u>288</u>	206	277	198	289	8	<u>195</u>	<u>293</u>	200	286	192	297
436.cactusADM	8	<u>349</u>	<u>274</u>	349	274	350	273	8	<u>349</u>	<u>274</u>	349	274	350	273
437.leslie3d	8	<u>719</u>	<u>105</u>	718	105	719	105	4	<u>329</u>	<u>114</u>	329	114	330	114
444.namd	8	359	179	359	179	<u>359</u>	<u>179</u>	8	351	183	359	178	<u>357</u>	<u>180</u>
447.dealII	8	<u>251</u>	<u>365</u>	250	366	253	362	8	<u>251</u>	<u>365</u>	250	366	253	362
450.soplex	8	570	117	571	117	<u>571</u>	<u>117</u>	4	<u>261</u>	<u>128</u>	261	128	260	128
453.povray	8	139	305	<u>140</u>	<u>305</u>	141	301	8	120	354	122	350	<u>121</u>	<u>352</u>
454.calculix	8	187	353	<u>186</u>	<u>354</u>	185	357	8	187	353	<u>186</u>	<u>354</u>	185	357
459.GemsFDTD	8	969	87.6	<u>968</u>	<u>87.7</u>	968	87.7	4	450	94.3	<u>450</u>	<u>94.2</u>	451	94.2
465.tonto	8	356	221	367	214	<u>360</u>	<u>219</u>	8	<u>336</u>	<u>235</u>	330	239	340	232
470.lbm	8	537	205	<u>537</u>	<u>205</u>	537	205	8	537	205	<u>537</u>	<u>205</u>	537	205
481.wrf	8	<u>480</u>	<u>186</u>	480	186	480	186	8	<u>480</u>	<u>186</u>	480	186	480	186
482.sphinx3	8	760	205	<u>761</u>	<u>205</u>	998	156	8	760	205	<u>761</u>	<u>205</u>	998	156

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

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

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

Platform Notes

Sysinfo program /home/cpu2006-1.2-ic17.0u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on TS460 Sun Jul 30 17:12:07 2017

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp_rate2006 = 208

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = 201

CPU2006 license: 9017

Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Platform Notes (Continued)

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 E3-1230 v6 @ 3.50GHz
 1 "physical id"s (chips)
 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       : 8
physical 0:    : cores 0 1 2 3
cache size     : 8192 KB
```

From /proc/meminfo

```
MemTotal:      32888948 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

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

```
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
```

os-release:

```
NAME="SLES"
VERSION="12-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

uname -a:

```
Linux TS460 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jul 30 04:42

SPEC is set to: /home/cpu2006-1.2-ic17.0u3

```
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2        btrfs    895G   21G  874G   3% /home
```

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp_rate2006 = 208

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = 201

CPU2006 license: 9017

Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends Inc. TB1TS223 03/16/2017

Memory:

2x Micron 18ASF2G72AZ-2G3B1 16 GB 2 rank 2400 MHz

2x Not Specified Not Specified

(End of data from sysinfo program)

General Notes

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

LD_LIBRARY_PATH = "/home/cpu2006-1.2-ic17.0u3/lib/ia32:/home/cpu2006-1.2-ic17.0u3/lib/intel64:/home/cpu2006-1.2-ic17.0u3/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.2

Transparent Huge Pages enabled by default

Filesystem page cache cleared with:

shell invocation of 'sync; echo 0 > /proc/sys/vm/drop_caches' prior to run

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp_rate2006 = 208

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = 201

CPU2006 license: 9017

Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Base Portability Flags (Continued)

```

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
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 -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

```

Peak Compiler Invocation

C benchmarks:

```

icc -m64

```

C++ benchmarks (except as noted below):

```

icpc -m64

```

```

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

```

Fortran benchmarks:

```

ifort -m64

```

Benchmarks using both Fortran and C:

```

icc -m64 ifort -m64

```



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp_rate2006 = 208

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = 201

CPU2006 license: 9017

Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Peak 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.lelie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 447.dealII: -DSPEC_CPU_LP64
 450.soplex: -D_FILE_OFFSET_BITS=64
 453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64 -nofor_main
 459.GemsFDTD: -DSPEC_CPU_LP64
 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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -fno-alias -auto-ilp32
 -qopt-mem-layout-trans=3

447.dealII: basepeak = yes

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -qopt-malloc-options=3
 -qopt-mem-layout-trans=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -unroll4 -qopt-mem-layout-trans=3

Fortran benchmarks:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECfp_rate2006 = 208

Lenovo ThinkServer TS460
(3.50 GHz, Intel Xeon E3-1230 v6)

SPECfp_rate_base2006 = 201

CPU2006 license: 9017

Test date: Jul-2017

Test sponsor: Lenovo Global Technology

Hardware Availability: Jun-2017

Tested by: Lenovo Global Technology

Software Availability: Apr-2017

Peak Optimization Flags (Continued)

410.bwaves: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: Same as 410.bwaves

459.GemsFDTD: Same as 410.bwaves

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4 -auto -inline-calloc
-qopt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -qopt-prefetch -auto-ilp32
-qopt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic17.0-official-linux64-revF.html>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-KBL-revC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-KBL-revC.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 Wed Aug 23 13:37:36 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 23 August 2017.