



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp[®]2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

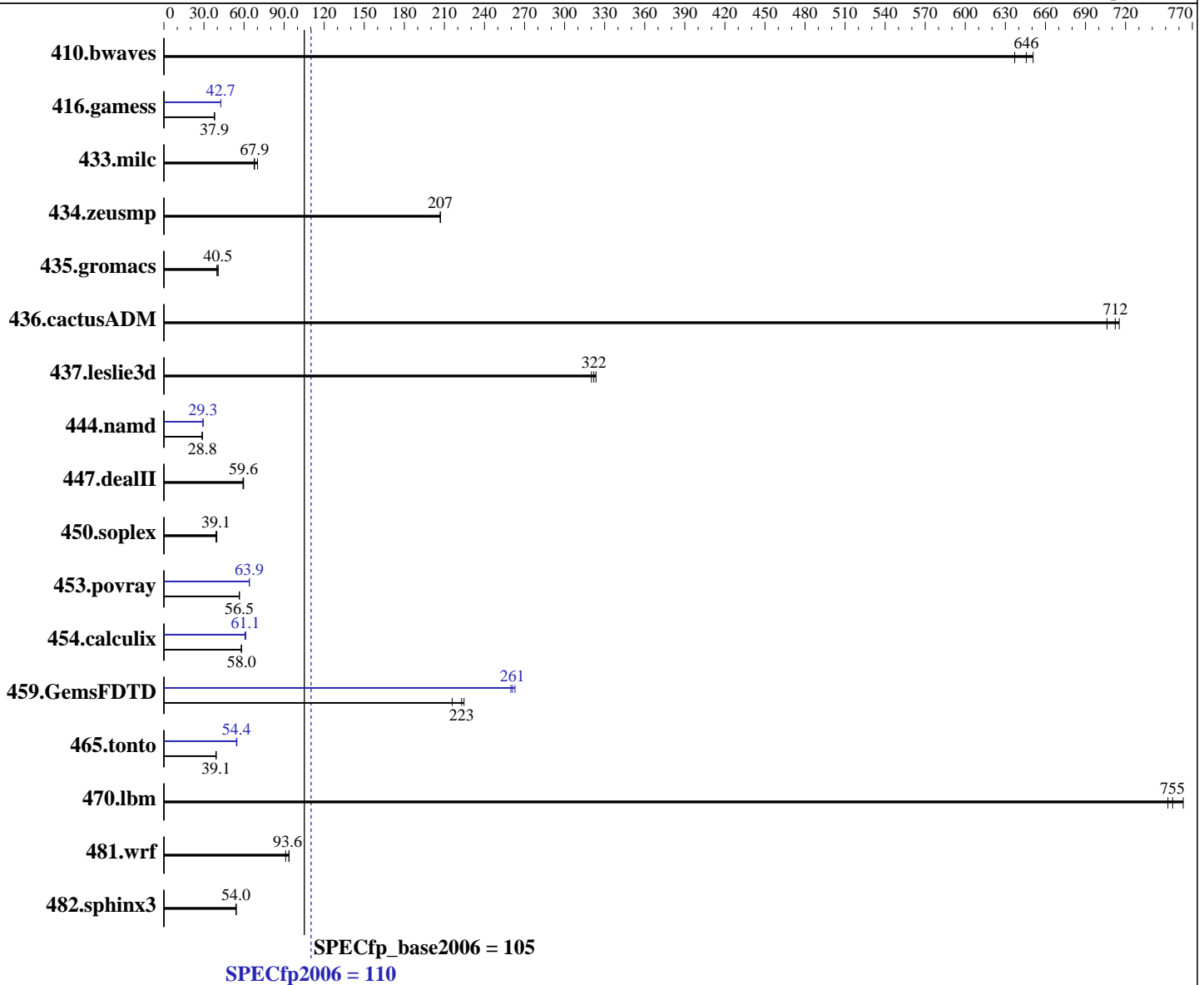
Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017



Hardware

CPU Name: Intel Xeon Silver 4109T
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core

Software

Operating System: SUSE Linux Enterprise Server 12 SP3 4.4.70-2-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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

L3 Cache: 11 MB I+D on chip per chip
 Other Cache: None
 Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R, running at 2400 MT/s)
 Disk Subsystem: 1 x 960 GB SATA SSD
 Other Hardware: None

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	21.0	646	21.3	637	20.9	651	21.0	646	21.3	637	20.9	651
416.gamess	517	37.8	517	37.9	517	37.9	459	42.6	459	42.7	459	42.7
433.milc	131	70.1	136	67.5	135	67.9	131	70.1	136	67.5	135	67.9
434.zeusmp	44.0	207	44.0	207	44.0	207	44.0	207	44.0	207	44.0	207
435.gromacs	176	40.5	176	40.5	180	39.6	176	40.5	176	40.5	180	39.6
436.cactusADM	16.8	712	16.7	715	16.9	706	16.8	712	16.7	715	16.9	706
437.leslie3d	29.2	322	29.4	320	29.1	324	29.2	322	29.4	320	29.1	324
444.namd	280	28.7	279	28.8	279	28.8	274	29.3	274	29.3	274	29.3
447.dealII	192	59.6	193	59.2	192	59.6	192	59.6	193	59.2	192	59.6
450.soplex	210	39.7	213	39.1	214	39.1	210	39.7	213	39.1	214	39.1
453.povray	94.2	56.5	94.1	56.5	94.2	56.5	83.1	64.0	83.2	63.9	83.2	63.9
454.calculix	142	58.0	142	58.1	142	58.0	134	61.4	135	61.1	136	60.7
459.GemsFDTD	47.2	225	49.2	216	47.6	223	40.7	261	40.4	263	40.8	260
465.tonto	252	39.1	253	38.9	251	39.2	180	54.7	181	54.4	181	54.4
470.lbm	18.0	763	18.3	752	18.2	755	18.0	763	18.3	752	18.2	755
481.wrf	119	93.7	123	91.2	119	93.6	119	93.7	123	91.2	119	93.6
482.sphinx3	359	54.2	362	53.9	361	54.0	359	54.2	362	53.9	361	54.0

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 settings:
 Sub NUMA Cluster disabled
 Virtualization Technology disabled
 System Profile set to Custom
 CPU Performance set to Maximum Performance
 C States set to Autonomous
 C1E disabled
 Energy Efficient Turbo disabled
 Uncore Frequency set to Dynamic

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

Platform Notes (Continued)

Energy Efficiency Policy set to Performance
 Memory Patrol Scrub disabled
 Logical Processor enabled
 CPU Interconnect Bus Link Power Management disabled
 PCI ASPM L1 Link Power Management disabled
 Sysinfo program /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on linux-ejwa Sun Aug 27 15:59:56 2017

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) Silver 4109T CPU @ 2.00GHz
 2 "physical id"s (chips)
 32 "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 : 8
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
cache size : 11264 KB
```

```
From /proc/meminfo
MemTotal:      196682072 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

```
From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 3
  # 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-SP3"
  VERSION_ID="12.3"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
Linux linux-ejwa 4.4.70-2-default #1 SMP Wed Jun 7 15:12:06 UTC 2017
(4502c76) x86_64 x86_64 x86_64 GNU/Linux
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

Platform Notes (Continued)

run-level 3 Aug 26 06:33

SPEC is set to: /root/cpu2006-1.2_ic17u3

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	btrfs	855G	8.6G	845G	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 SMBIOS" standard.

BIOS Dell Inc. 1.0.0 08/10/2017

Memory:

9x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 MHz, configured at 2400 MHz

3x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz, configured at 2400 MHz

4x Not Specified Not Specified

(End of data from sysinfo program)

General Notes

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

KMP_AFFINITY = "granularity=fine,compact,1,0"

LD_LIBRARY_PATH = "/root/cpu2006-1.2_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"

OMP_NUM_THREADS = "16"

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 3 > /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



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

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.deallI: -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
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 -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

```

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

```



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

Peak Portability Flags

Same as Base Portability Flags

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

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

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: basepeak = yes

459.GemsFDTD: -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
-qopt-prefetch -parallel

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) -inline-calloc -qopt-malloc-options=3
-auto -unroll4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 110

PowerEdge M640 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECfp_base2006 = 105

CPU2006 license: 55

Test date: Aug-2017

Test sponsor: Dell Inc.

Hardware Availability: Sep-2017

Tested by: Dell Inc.

Software Availability: Sep-2017

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

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/Dell-Platform-Flags-PowerEdge14G-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/Dell-Platform-Flags-PowerEdge14G-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 Sep 20 11:02:27 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 19 September 2017.