



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp[®]_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

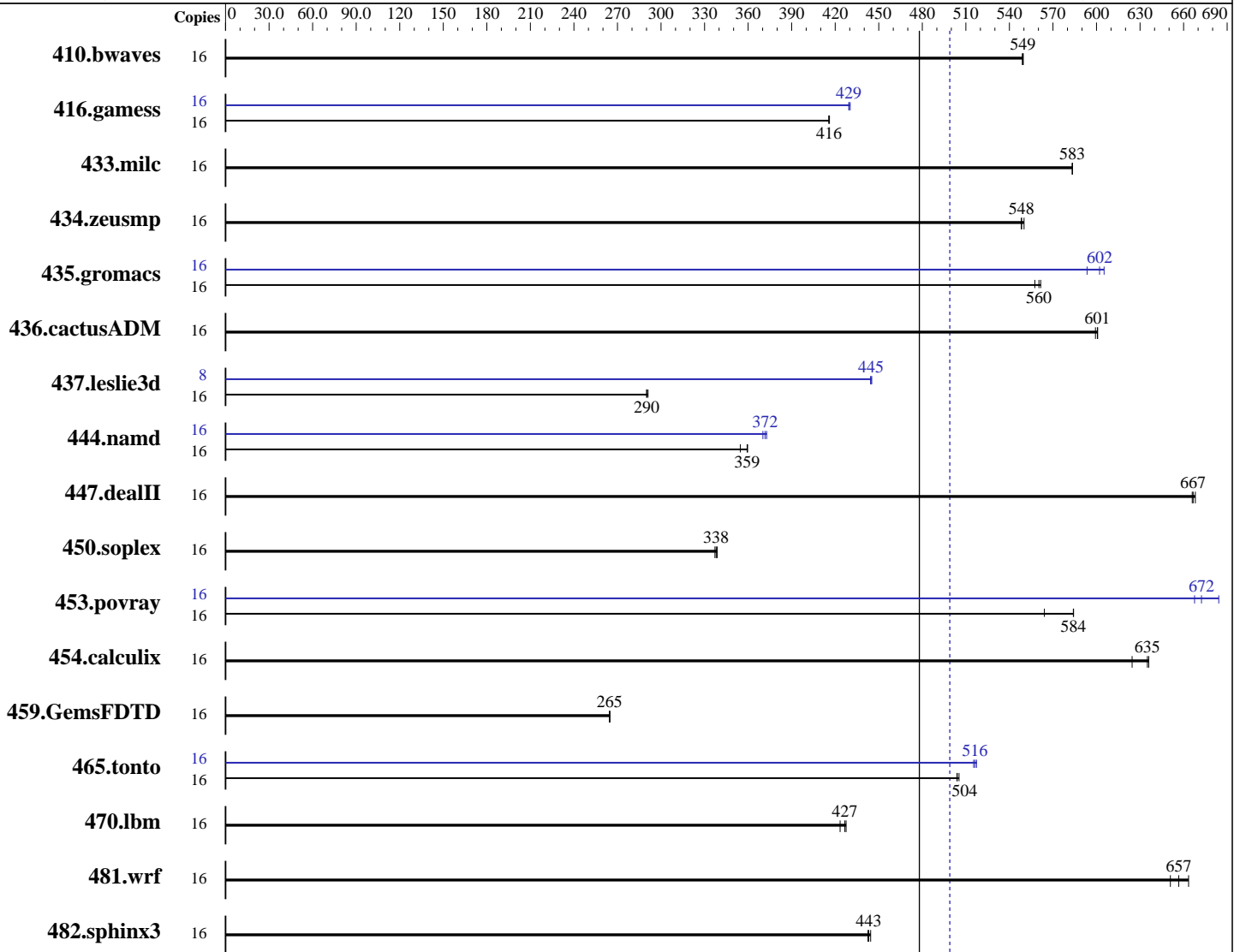
Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017



SPECfp_rate_base2006 = 478

SPECfp_rate2006 = 499

Hardware

CPU Name: Intel Xeon Gold 5122
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3600
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 12 SP2
 4.4.16-56-default
 Compiler: C/C++: Version 17.0.1.132 of Intel C/C++
 Compiler for Linux;
 Fortran: Version 17.0.1.132 of Intel Fortran
 Compiler for Linux
 Auto Parallel: Yes
 File System: xfs
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017

L3 Cache: 16.5 MB I+D on chip per chip
Other Cache: None
Memory: 384 GB (12 x 32 GB 2Rx8 PC4-2666V-R)
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	16	396	549	396	549	396	550	16	396	549	396	549	396	550
416.gamess	16	753	416	754	416	754	416	16	728	430	730	429	730	429
433.milc	16	252	583	252	583	252	583	16	252	583	252	583	252	583
434.zeusmp	16	265	550	266	548	266	548	16	265	550	266	548	266	548
435.gromacs	16	205	558	203	562	204	560	16	189	605	190	602	192	594
436.cactusADM	16	319	599	318	601	318	601	16	319	599	318	601	318	601
437.leslie3d	16	517	291	518	290	518	290	8	169	445	169	444	169	445
444.namd	16	362	355	357	359	357	360	16	345	372	347	370	344	373
447.dealII	16	275	666	275	667	274	668	16	275	666	275	667	274	668
450.soplex	16	396	337	395	338	394	339	16	396	337	395	338	394	339
453.povray	16	151	564	146	584	146	584	16	127	672	124	684	128	668
454.calculix	16	208	635	208	636	211	625	16	208	635	208	636	211	625
459.GemsFDTD	16	642	265	642	265	641	265	16	642	265	642	265	641	265
465.tonto	16	312	505	312	504	312	504	16	304	517	305	516	306	515
470.lbm	16	514	428	519	423	515	427	16	514	428	519	423	515	427
481.wrf	16	272	657	269	663	275	651	16	272	657	269	663	275	651
482.sphinx3	16	702	444	704	443	705	443	16	702	444	704	443	705	443

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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

BIOS settings:
Sub NUMA Cluster enabled
Virtualization Technology disabled

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017

Platform Notes (Continued)

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
 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/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on linux-mlw4 Thu Feb 16 16:31:09 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) Gold 5122 CPU @ 3.60GHz
 2 "physical id"s (chips)
 16 "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 2 3 4 10
  physical 1: cores 1 5 9 13
cache size : 16896 KB
```

```
From /proc/meminfo
MemTotal:      394868184 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"
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017

Platform Notes (Continued)

CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

```
Linux linux-mlw4 4.4.16-56-default #1 SMP Mon Aug 8 14:24:26 UTC 2016
(5b281a8) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Feb 15 11:05

SPEC is set to: /root/cpu2006-1.2

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3        xfs   929G   46G  884G   5% /
```

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. 0.4.1 02/07/2017

Memory:

```
4x 002C00B3002C 36ASF4G72PZ-2G6D1 32 GB 2 rank 2666 MHz
8x 00AD063200AD HMA84GR7AFR4N-VK 32 GB 2 rank 2666 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:

LD_LIBRARY_PATH = "/root/cpu2006-1.2/lib/ia32:/root/cpu2006-1.2/lib/intel64:/root/cpu2006-1.2/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:

```
echo 1> /proc/sys/vm/drop_caches
```

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
```

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

Dell Inc.

SPECfp_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017

Base Compiler Invocation (Continued)

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
 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-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-qopt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:

icc -m64

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017

Peak Compiler Invocation (Continued)

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:

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-AVX512(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: basepeak = yes

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(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:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(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-

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 499

PowerEdge C6420 (Intel Xeon Gold 5122, 3.60 GHz)

SPECfp_rate_base2006 = 478

CPU2006 license: 55

Test date: Feb-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Jul-2017

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(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-AVX512(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/Dell-Platform-Flags-PowerEdge14G-revB.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-revB.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 Jul 25 15:53:39 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 25 July 2017.