



SPEC[®] CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp[®]_rate2006 = Not Run

PowerEdge R740 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp_rate_base2006 = 1370

CPU2006 license: 55

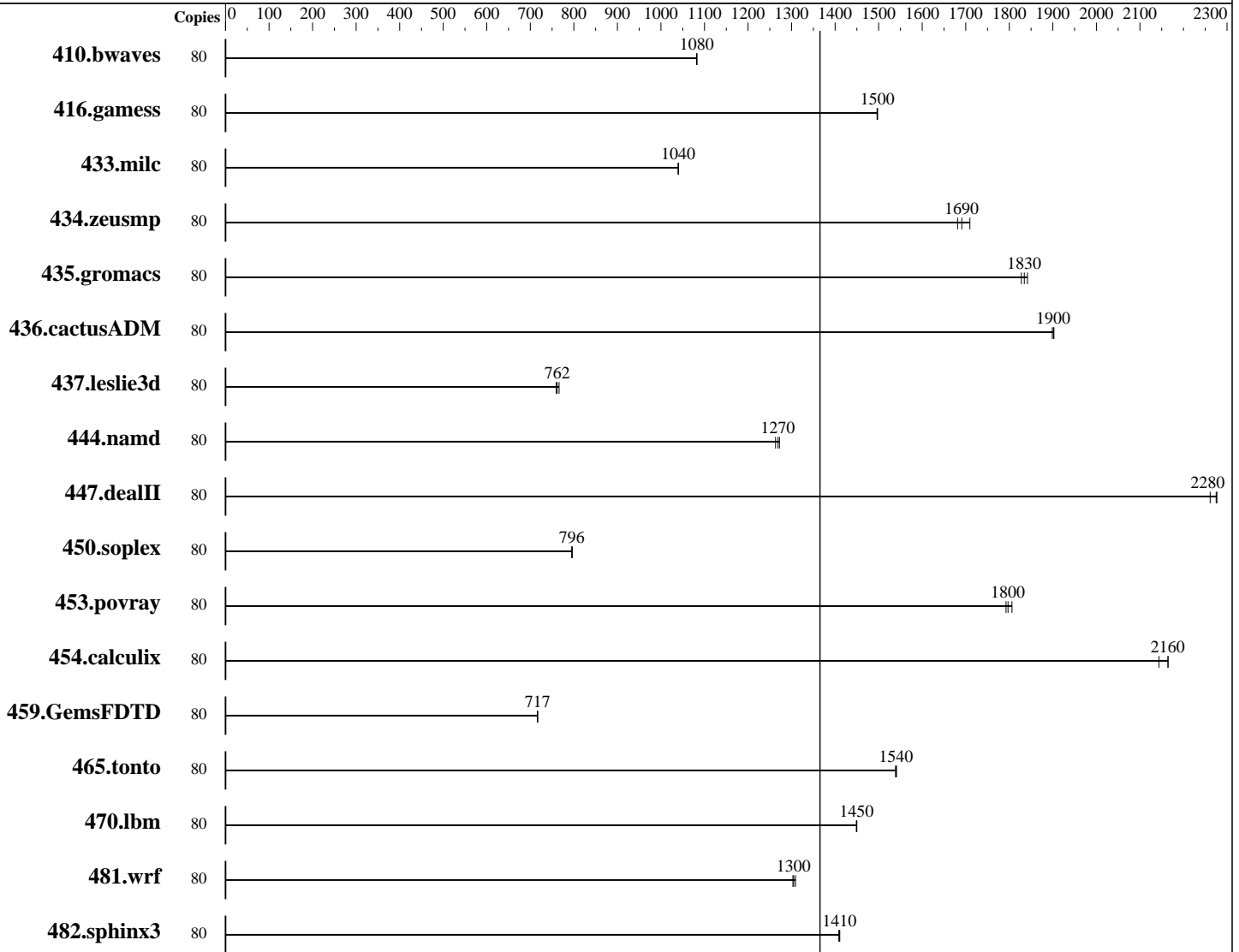
Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016



Hardware

CPU Name: Intel Xeon Gold 6138
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 40 cores, 2 chips, 20 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: Red Hat Enterprise Linux Server release 7.3 (Maipo)
 3.10.0-514.el7.x86_64
 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: No
 File System: xfs

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = Not Run

PowerEdge R740 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp_rate_base2006 = 1370

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

L3 Cache: 27.5 MB I+D on chip per chip
 Other Cache: None
 Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
 Disk Subsystem: 1 x 960 GB SATA SSD
 Other Hardware: None

System State: Run level 3 (multi-user)
 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	80	1004	1080	<u>1005</u>	<u>1080</u>	1005	1080							
416.gamess	80	1046	1500	<u>1046</u>	<u>1500</u>	1047	1500							
433.milc	80	707	1040	706	1040	<u>706</u>	<u>1040</u>							
434.zeusmp	80	433	1680	426	1710	<u>431</u>	<u>1690</u>							
435.gromacs	80	<u>311</u>	<u>1830</u>	313	1830	310	1840							
436.cactusADM	80	<u>503</u>	<u>1900</u>	502	1900	503	1900							
437.leslie3d	80	<u>987</u>	<u>762</u>	982	766	990	759							
444.namd	80	<u>506</u>	<u>1270</u>	508	1260	504	1270							
447.dealII	80	402	2280	405	2260	<u>402</u>	<u>2280</u>							
450.soplex	80	839	795	<u>839</u>	<u>796</u>	838	796							
453.povray	80	237	1790	236	1810	<u>237</u>	<u>1800</u>							
454.calculix	80	<u>305</u>	<u>2160</u>	305	2160	308	2140							
459.GemsFDTD	80	<u>1184</u>	<u>717</u>	1185	716	1184	717							
465.tonto	80	511	1540	<u>511</u>	<u>1540</u>	512	1540							
470.lbm	80	758	1450	759	1450	<u>758</u>	<u>1450</u>							
481.wrf	80	683	1310	686	1300	<u>685</u>	<u>1300</u>							
482.sphinx3	80	1107	1410	<u>1106</u>	<u>1410</u>	1105	1410							

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 = Not Run

PowerEdge R740 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp_rate_base2006 = 1370

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Platform Notes (Continued)

System Profile set to Custom
 CPU Performance set to Maximum Performance
 C States set to autonomous
 C1E 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 /cpu2006-1.2_icl17u3/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on localhost.localdomain Fri Jun 2 17:55:36 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 6138 CPU @ 2.00GHz
 2 "physical id"s (chips)
 80 "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 : 20
  siblings  : 40
  physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
cache size : 28160 KB
```

```
From /proc/meminfo
MemTotal: 394870516 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server
```

```
uname -a:
Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = Not Run

PowerEdge R740 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp_rate_base2006 = 1370

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Platform Notes (Continued)

EDT 2016 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 2 11:56

SPEC is set to: /cpu2006-1.2_ic17u3

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	838G	7.4G	831G	1%	/

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 05/16/2017

Memory:

24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)

General Notes

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

LD_LIBRARY_PATH = "/cpu2006-1.2_ic17u3/lib/ia32:/cpu2006-1.2_ic17u3/lib/intel64:/cpu2006-1.2_ic17u3/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 3 > /proc/sys/vm/drop_caches' prior to run

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



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = Not Run

PowerEdge R740 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp_rate_base2006 = 1370

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

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

```

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 CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = Not Run

PowerEdge R740 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp_rate_base2006 = 1370

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

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 Jul 12 12:12:08 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 July 2017.