SPEC® CFP2006 Result

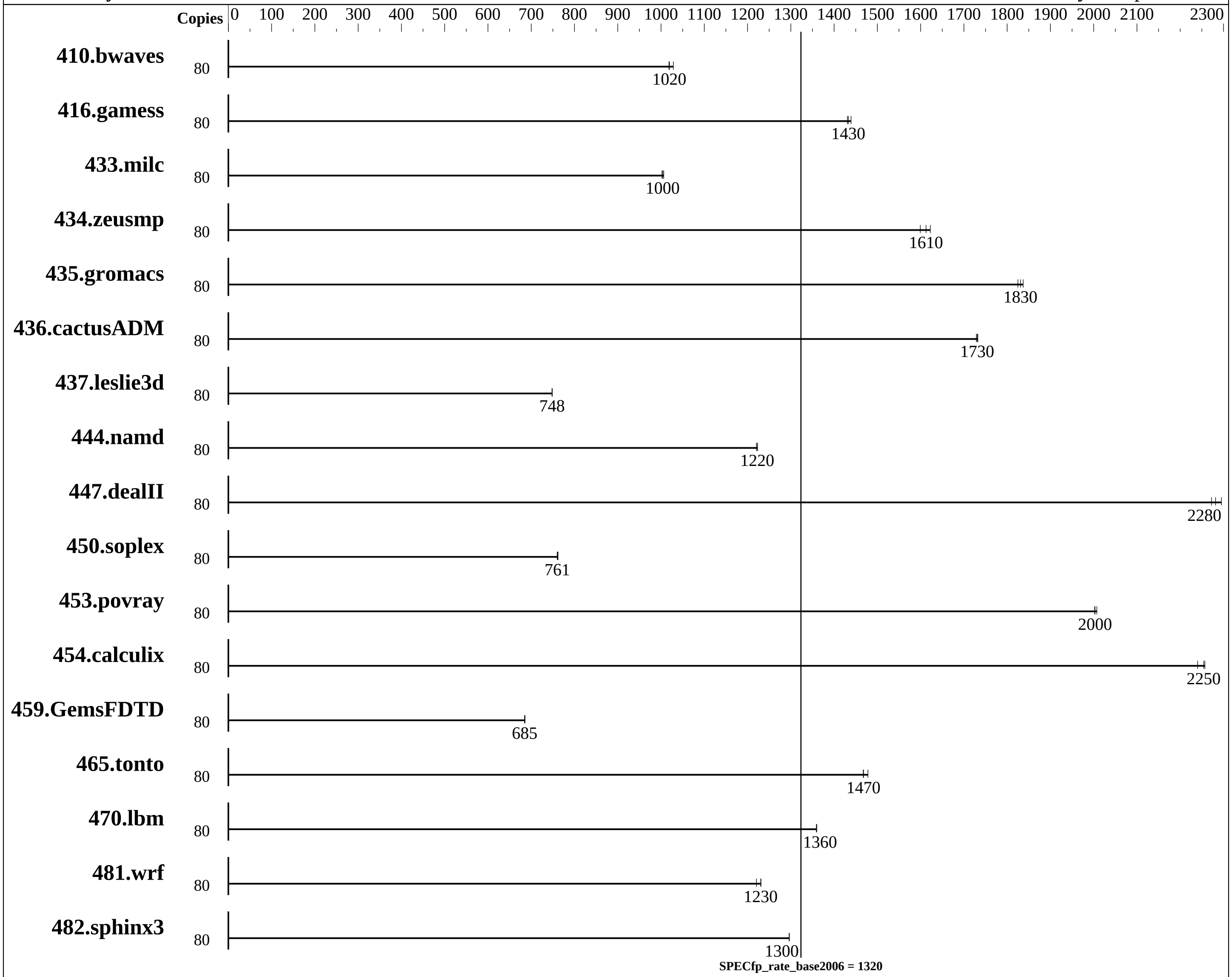
Dell Inc.

PowerEdge R540 (Intel Xeon Gold 6138, 2.00 GHz)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 1320

CPU2006 license:	55	**Test date:**	Aug-2017
Test sponsor:	Dell Inc.	**Hardware Availability:**	Sep-2017
Tested by:	Dell Inc.	**Software Availability:**	Apr-2017



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:	SUSE Linux Enterprise Server 12 SP2 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:	No
File System:	xfs
System State:	Run level 3 (multi-user)

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L3 Cache:	27.5 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)	Other Software:	None
Disk Subsystem:	1 x 1 TB SATA 7200 RPM		
Other Hardware:	None		

Results Table

	Base							Peak						
Benchmark	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Copies**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	80	1068	1020	1057	1030	**1066**	**1020**							
416.gamess	80	**1093**	**1430**	1088	1440	1095	1430							
433.milc	80	730	1010	733	1000	**731**	**1000**							
434.zeusmp	80	455	1600	**451**	**1610**	449	1620							
435.gromacs	80	311	1840	313	1820	**312**	**1830**							
436.cactusADM	80	**552**	**1730**	552	1730	553	1730							
437.leslie3d	80	1005	748	1005	749	**1005**	**748**							
444.namd	80	526	1220	525	1220	**525**	**1220**							
447.dealII	80	**401**	**2280**	403	2270	399	2300							
450.soplex	80	**877**	**761**	878	760	876	762							
453.povray	80	**212**	**2000**	212	2010	213	2000							
454.calculix	80	**293**	**2250**	292	2260	295	2240							
459.GemsFDTD	80	**1239**	**685**	1238	686	1240	685							
465.tonto	80	536	1470	**536**	**1470**	533	1480							
470.lbm	80	808	1360	809	1360	**809**	**1360**							
481.wrf	80	726	1230	**726**	**1230**	732	1220							
482.sphinx3	80	1203	1300	1202	1300	**1203**	**1300**							

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:
Virtualization Technology disabled
System Profile set to Custom
```

Continued on next page

Platform Notes (Continued)

```
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 /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-28u4 Thu Aug 31 07:15:36 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:       196687084 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 12 SP2

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"
```

Continued on next page

Platform Notes (Continued)

```
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
   Linux linux-28u4 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 Aug 31 01:10

SPEC is set to: /root/cpu2006-1.2_ic17u3
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   927G  9.1G  918G   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 08/10/2017
  Memory:
   8x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 MHz
   4x 002C0632002C 18ASF2G72PDZ-2G6D1 16 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_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/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
```

Continued on next page

Base Compiler Invocation (Continued)

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
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
```

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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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