SPEC® CFP2006 Result

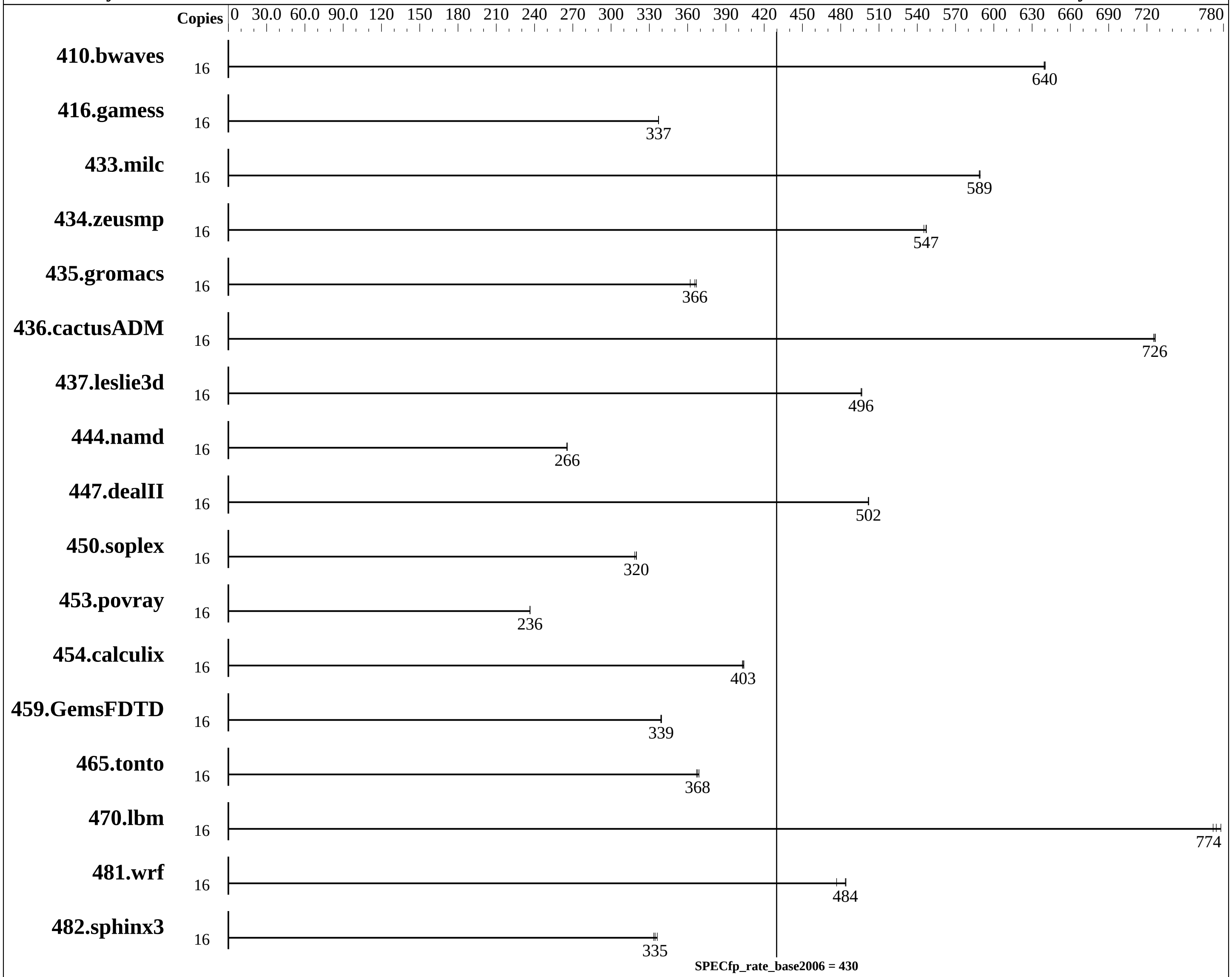
Dell Inc.

PowerEdge R740 (Intel Xeon Bronze 3106, 1.70 GHz)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 430

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 Bronze 3106
CPU Characteristics:	
CPU MHz:	1700
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
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:	11 MB I+D on chip per chip
Other Cache:	None
Memory:	384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2133 MT/s)
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

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	**340**	**640**	340	639	340	640							
416.gamess	16	929	337	**929**	**337**	929	337							
433.milc	16	250	589	**249**	**589**	249	589							
434.zeusmp	16	**266**	**547**	267	545	266	547							
435.gromacs	16	316	362	**312**	**366**	311	367							
436.cactusADM	16	**263**	**726**	264	725	263	727							
437.leslie3d	16	**303**	**496**	303	496	303	497							
444.namd	16	484	265	**483**	**266**	483	266							
447.dealII	16	365	502	**365**	**502**	365	502							
450.soplex	16	**417**	**320**	417	320	419	319							
453.povray	16	**360**	**236**	360	236	360	236							
454.calculix	16	327	404	328	403	**327**	**403**							
459.GemsFDTD	16	500	340	**500**	**339**	501	339							
465.tonto	16	**428**	**368**	427	369	429	367							
470.lbm	16	283	778	**284**	**774**	285	772							
481.wrf	16	375	477	369	484	**370**	**484**							
482.sphinx3	16	927	336	935	333	**932**	**335**							

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
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /home/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-bgfp Fri Jun  9 22:37:25 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) Bronze 3106 CPU @ 1.70GHz
      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 : 8
      siblings  : 8
      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:       394732548 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"
      ANSI_COLOR="0;32"
```

Continued on next page

Platform Notes (Continued)

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

  uname -a:
     Linux linux-bgfp 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 Jun 9 15:16

  SPEC is set to: /home/cpu2006-1.2_ic17u3
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda4      xfs   405G  8.9G  396G   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
     determined", but the intent may not be met, as there are frequent changes to
     hardware, firmware, and the "DMTF SMBIOS" standard.

    BIOS Dell Inc. 1.0.3 05/30/2017
    Memory:
     24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz, configured at 2133
     MHz

  (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_ic17u3/lib/ia32:/home/cpu2006-1.2_ic17u3/lib/intel64:/home/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
```

Continued on next page

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

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

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

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