SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4116T, 2.10 GHz)

$SPECfp^®\_rate2006 =$ Not Run

$SPECfp\_rate\_base2006 =$ 920
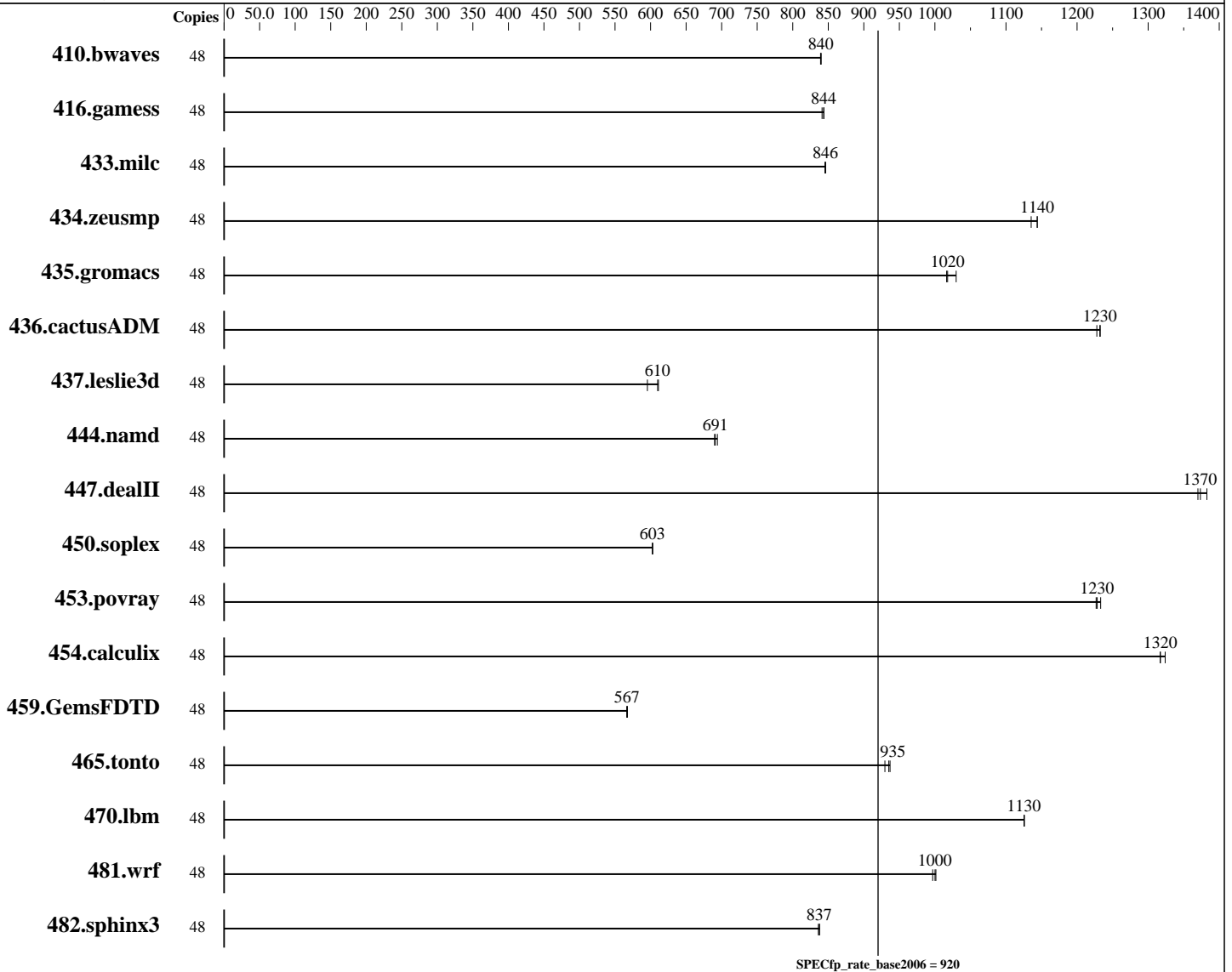
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Sep-2017
Hardware Availability: Sep-2017
Software Availability: Nov-2016

Benchmark	Copies	Result
410.bwaves	48	840
416.gamess	48	844
433.milc	48	846
434.zeusmp	48	1140
435.gromacs	48	1020
436.cactusADM	48	1230
437.leslie3d	48	610
444.namd	48	691
447.dealII	48	1370
450.soplex	48	603
453.povray	48	1230
454.calculix	48	1320
459.GemsFDTD	48	567
465.tonto	48	935
470.lbm	48	1130
481.wrf	48	1000
482.sphinx3	48	837

SPECfp_rate_base2006 = 920

Hardware

CPU Name:	Intel Xeon Silver 4116T
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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)

Continued on next page

SPEC CFP2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4116T, 2.10 GHz)

$SPECfp_rate2006 = $ **Not Run**

$SPECfp_rate_base2006 = $ **920**

CPU2006 license: 55	**Test date:** Sep-2017
Test sponsor: Dell Inc.	**Hardware Availability:** Sep-2017
Tested by: Dell Inc.	**Software Availability:** Nov-2016

L3 Cache:	16.5 MB I+D on chip per chip	Base Pointers:	32/64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2400 MHz)	Other Software:	None
Disk Subsystem:	1 x 960 GB SATA SSD		
Other Hardware:	None		

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	777	840	**777**	**840**	777	839							
416.gamess	48	1114	844	**1114**	**844**	1117	841							
433.milc	48	521	845	521	846	**521**	**846**							
434.zeusmp	48	385	1140	382	1140	**382**	**1140**							
435.gromacs	48	**337**	**1020**	337	1020	333	1030							
436.cactusADM	48	465	1230	467	1230	**466**	**1230**							
437.leslie3d	48	758	596	738	611	**740**	**610**							
444.namd	48	555	694	558	690	**557**	**691**							
447.dealII	48	401	1370	397	1380	**400**	**1370**							
450.soplex	48	664	603	**664**	**603**	664	603							
453.povray	48	**208**	**1230**	207	1230	208	1230							
454.calculix	48	299	1320	301	1320	**301**	**1320**							
459.GemsFDTD	48	898	567	**898**	**567**	899	567							
465.tonto	48	**505**	**935**	508	930	504	937							
470.lbm	48	586	1130	**586**	**1130**	586	1130							
481.wrf	48	538	997	535	1000	**536**	**1000**							
482.sphinx3	48	**1117**	**837**	1117	838	1119	836							

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

Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4116T, 2.10 GHz)

SPECfp_rate2006 =   Not Run

SPECfp_rate_base2006 =   920

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Sep-2017
Hardware Availability: Sep-2017
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 /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
    Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
    running on linux-wwko Fri Sep 15 16:24:00 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 4116T CPU @ 2.10GHz
          2 "physical id"s (chips)
          48 "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 : 12
          siblings  : 24
          physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
          physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
       cache size : 16896 KB

    From /proc/meminfo
       MemTotal:      394867840 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"
```

Continued on next page

Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4116T, 2.10 GHz)

$SPECfp_rate2006 = $ **Not Run**

$SPECfp_rate_base2006 = $ **920**

CPU2006 license: 55		**Test date:**	Sep-2017
Test sponsor: Dell Inc.		**Hardware Availability:**	Sep-2017
Tested by: Dell Inc.		**Software Availability:**	Nov-2016

Platform Notes (Continued)

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

  uname -a:
     Linux linux-wwko 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 Sep 15 10:34

  SPEC is set to: /root/cpu2006-1.2_ic17u3
     Filesystem      Type  Size  Used Avail Use% Mounted on
     /dev/sda2       xfs   892G   38G  855G   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. 1.0.7 07/01/2017
   Memory:
    24x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666 MHz, configured at 2400
    MHz

  (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

Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4116T, 2.10 GHz)

SPECfp_rate2006 =   Not Run

SPECfp_rate_base2006 =   920

CPU2006 license: 55		**Test date:**	Sep-2017
Test sponsor: Dell Inc.		**Hardware Availability:**	Sep-2017
Tested by: Dell Inc.		**Software Availability:**	Nov-2016

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
```

SPEC CFP2006 Result
Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4116T, 2.10 GHz)

SPECfp_rate2006 =   Not Run

SPECfp_rate_base2006 =   920

CPU2006 license: 55		**Test date:**	Sep-2017
Test sponsor: Dell Inc.		**Hardware Availability:**	Sep-2017
Tested by: Dell Inc.		**Software Availability:**	Nov-2016

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 Oct 4 12:38:20 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 October 2017.