Dell Inc.

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

**SPEC® CFP2006 Result**

**SPECfp®_rate2006 = Not Run**

**SPECfp_rate_base2006 = 920**

---

**Hardware**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>48</td>
<td>810</td>
</tr>
<tr>
<td>416.gamess</td>
<td>48</td>
<td>844</td>
</tr>
<tr>
<td>433.milc</td>
<td>48</td>
<td>846</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>48</td>
<td>1140</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>48</td>
<td>1230</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>48</td>
<td>1230</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>48</td>
<td>610</td>
</tr>
<tr>
<td>444.namd</td>
<td>48</td>
<td>691</td>
</tr>
<tr>
<td>447.dealII</td>
<td>48</td>
<td>1370</td>
</tr>
<tr>
<td>450.soplex</td>
<td>48</td>
<td>603</td>
</tr>
<tr>
<td>453.povray</td>
<td>48</td>
<td>1230</td>
</tr>
<tr>
<td>454.calculix</td>
<td>48</td>
<td>1320</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>48</td>
<td>567</td>
</tr>
<tr>
<td>465.tonto</td>
<td>48</td>
<td>935</td>
</tr>
<tr>
<td>470.lbm</td>
<td>48</td>
<td>1130</td>
</tr>
<tr>
<td>481.wrf</td>
<td>48</td>
<td>837</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>48</td>
<td>1000</td>
</tr>
</tbody>
</table>

---

**Software**

<table>
<thead>
<tr>
<th>Operating System</th>
<th>SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>No</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

---

**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  

---

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

---

Copyright © 2006-2017 Standard Performance Evaluation Corporation

info@spec.org  
http://www.spec.org/
## Results Table

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

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
Dell Inc.

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

**SPEC CFP2006 Result**

**SPECfp_rate2006** = Not Run

**SPECfp_rate_base2006** = 920

<table>
<thead>
<tr>
<th>CPU2006 license: 55</th>
<th>Test date: Sep-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Dell Inc.</td>
<td>Hardware Availability: Sep-2017</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Nov-2016</td>
</tr>
</tbody>
</table>

---

**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 sponsor: Dell Inc.
Tested by: Dell Inc.

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

Platform Notes (Continued)

uname -a:
      (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%  /

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 SMIBIOS" 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 sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Sep-2017
Hardware Availability: Sep-2017
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
435.zeusmp: -DSPEC_CPU_LP64
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

**Dell Inc.**

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

<table>
<thead>
<tr>
<th><strong>SPECfp_rate2006</strong></th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPECfp_rate_base2006</strong></td>
<td>920</td>
</tr>
</tbody>
</table>

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

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


---

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.  
Originally published on 3 October 2017.