## SPEC® CFP2006 Result

### Dell Inc.

PowerEdge R630 (Intel Xeon E5-2699A v4, 2.40 GHz)  

<table>
<thead>
<tr>
<th>SPECfp®_rate2006</th>
<th>Not Run</th>
<th>SPECfp_rate_base2006</th>
<th>1090</th>
</tr>
</thead>
</table>

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

### Hardware

**CPU Name:** Intel Xeon E5-2699A v4  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz  
**CPU MHz:** 2400  
**FPU:** Integrated  
**CPU(s) enabled:** 44 cores, 2 chips, 22 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:** 256 KB I+D on chip per core

### Software

**Operating System:** SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default  
**Compiler:**  
C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;  
Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
**Auto Parallel:** No  
**File System:** xfs  
**System State:** Run level 3 (multi-user)
Dell Inc.

PowerEdge R630 (Intel Xeon E5-2699A v4, 2.40 GHz)

SPEC CFP2006 Result

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1090

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Sep-2016
Hardware Availability: Oct-2016
Software Availability: Jun-2016

L3 Cache: 55 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 120 GB SATA SSD
Other Hardware: None
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

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>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>88</td>
<td>1905</td>
<td></td>
<td>628</td>
<td></td>
<td>1752</td>
<td></td>
<td>682</td>
<td></td>
<td>1743</td>
<td></td>
<td>686</td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>88</td>
<td>1032</td>
<td>1670</td>
<td>1026</td>
<td>1680</td>
<td>1032</td>
<td>1670</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>88</td>
<td>1298</td>
<td>622</td>
<td>1236</td>
<td>654</td>
<td>1231</td>
<td>656</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>88</td>
<td>725</td>
<td>1100</td>
<td>691</td>
<td>1160</td>
<td>692</td>
<td>1160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>88</td>
<td>889</td>
<td>1180</td>
<td>826</td>
<td>1270</td>
<td>824</td>
<td>1280</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>88</td>
<td>1871</td>
<td>442</td>
<td>1769</td>
<td>468</td>
<td>1755</td>
<td>471</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>88</td>
<td>476</td>
<td>1480</td>
<td>476</td>
<td>1480</td>
<td>481</td>
<td>1470</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>88</td>
<td>404</td>
<td>2490</td>
<td>401</td>
<td>2510</td>
<td>395</td>
<td>2550</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>88</td>
<td>1413</td>
<td>519</td>
<td>1405</td>
<td>522</td>
<td>1407</td>
<td>522</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>88</td>
<td>217</td>
<td>2160</td>
<td>217</td>
<td>2160</td>
<td>215</td>
<td>2180</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>88</td>
<td>298</td>
<td>2430</td>
<td>297</td>
<td>2450</td>
<td>299</td>
<td>2430</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>88</td>
<td>2162</td>
<td>432</td>
<td>2081</td>
<td>449</td>
<td>2094</td>
<td>446</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>88</td>
<td>658</td>
<td>1320</td>
<td>656</td>
<td>1320</td>
<td>667</td>
<td>1300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>88</td>
<td>1377</td>
<td>878</td>
<td>1353</td>
<td>894</td>
<td>1362</td>
<td>888</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>88</td>
<td>1196</td>
<td>822</td>
<td>1194</td>
<td>823</td>
<td>1202</td>
<td>818</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>88</td>
<td>1828</td>
<td>939</td>
<td>1829</td>
<td>938</td>
<td>1822</td>
<td>941</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:
Snoop Mode set to Cluster on Die
Virtualization Technology disabled

Continued on next page
Dell Inc.
PowerEdge R630 (Intel Xeon E5-2699A v4, 2.40 GHz)  

<table>
<thead>
<tr>
<th>SPECfp_rate2006 =</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006 =</td>
<td>1090</td>
</tr>
</tbody>
</table>

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Test date: Sep-2016  
Tested by: Dell Inc.  
Hardware Availability: Oct-2016  
Software Availability: Jun-2016

Platform Notes (Continued)

- System Profile set to Custom
- CPU Power Management set to Maximum Performance
- C States set to Disabled
- C1E disabled
- Energy Efficient Turbo disabled
- Uncore Frequency set to Dynamic
- Energy Efficiency Policy set to Balanced Performance
- Memory Patrol Scrub disabled
- Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
- $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
- running on linux-b0uv Tue Sep 13 11:44:55 2016

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) CPU E5-2699A v4 @ 2.40GHz
  - 2 "physical id"s (chips)
  - 88 "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 : 22
    - siblings : 44
    - physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
    - physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
  - cache size : 28160 KB

From /proc/meminfo
  - MemTotal: 529332888 kB
  - HugePages_Total: 0
  - Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  - SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*
  - SuSE-release:
    - SUSE Linux Enterprise Server 12 (x86_64)
    - VERSION = 12
    - PATCHLEVEL = 1
    - # 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-SP1"
    - VERSION_ID="12.1"
    - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"

Continued on next page
Dell Inc.  

PowerEdge R630 (Intel Xeon E5-2699A v4, 2.40 GHz)  

**SPEC CFP2006 Result**  

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

**SPECfp_rate2006 = Not Run**  

**SPECfp_rate_base2006 = 1090**

---

**Platform Notes (Continued)**

```plaintext
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"
```

```
uname -a:
    Linux linux-b0uv 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
          (8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

```
runtime 3 Sep 13 11:41
SPEC is set to: /root/cpu2006-1.2
```

```
Filesystem      Type Size  Used Avail Use% Mounted on
/dev/sda2        xfs  110G  7.7G  103G   8% /
```

**General Notes**

Environment variables set by runspec before the start of the run:
```
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
```

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:
```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

Filesystem page cache cleared with:
```
echo 1>       /proc/sys/vm/drop_caches
```

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
SPEC CFP2006 Result

Dell Inc.

PowerEdge R630 (Intel Xeon E5-2699A v4, 2.40 GHz)

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1090

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

Test date: Sep-2016
Hardware Availability: Oct-2016
Software Availability: Jun-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.games: -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 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
### Dell Inc. SPEC CFP2006 Result

**PowerEdge R630 (Intel Xeon E5-2699A v4, 2.40 GHz)**

<table>
<thead>
<tr>
<th>SPECfp_rate2006</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>1090</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test date:** Sep-2016  
**Hardware Availability:** Oct-2016  
**Software Availability:** Jun-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 24 October 2016.