# SPEC® CFP2006 Result

## Dell Inc.

**PowerEdge R930 (Intel Xeon E7-8894 v4, 2.40 GHz)**

<table>
<thead>
<tr>
<th>SPECfp_rate_base2006 = 2440</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU2006 license:</strong> 55</td>
</tr>
<tr>
<td><strong>Test sponsor:</strong> Dell Inc.</td>
</tr>
<tr>
<td><strong>Tested by:</strong> Dell Inc.</td>
</tr>
<tr>
<td><strong>Test date:</strong> Jan-2017</td>
</tr>
<tr>
<td><strong>Hardware Availability:</strong> Jan-2017</td>
</tr>
<tr>
<td><strong>Software Availability:</strong> Sep-2016</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECfp_rate_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>410._bwaves</td>
<td>192</td>
</tr>
<tr>
<td>416._gamess</td>
<td>192</td>
</tr>
<tr>
<td>433._mkl</td>
<td>192</td>
</tr>
<tr>
<td>434._zeusmp</td>
<td>192</td>
</tr>
<tr>
<td>435._gromacs</td>
<td>192</td>
</tr>
<tr>
<td>436._cactusADM</td>
<td>192</td>
</tr>
<tr>
<td>437._leslie3d</td>
<td>192</td>
</tr>
<tr>
<td>444._namd</td>
<td>192</td>
</tr>
<tr>
<td>447._dealII</td>
<td>192</td>
</tr>
<tr>
<td>450._soplex</td>
<td>192</td>
</tr>
<tr>
<td>453._povray</td>
<td>192</td>
</tr>
<tr>
<td>454._calculix</td>
<td>192</td>
</tr>
<tr>
<td>459._GemsFDTD</td>
<td>192</td>
</tr>
<tr>
<td>465._tonto</td>
<td>192</td>
</tr>
<tr>
<td>470._lbm</td>
<td>192</td>
</tr>
<tr>
<td>481._wrf</td>
<td>192</td>
</tr>
<tr>
<td>482._sphinx3</td>
<td>192</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon E7-8894 v4</td>
</tr>
<tr>
<td><strong>CPU Characteristics:</strong> Intel Turbo Boost Technology up to 3.40 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong> 2400</td>
</tr>
<tr>
<td><strong>FPU:</strong> Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong> 96 cores, 4 chips, 24 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong> 2,4 chip</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong> 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong> 256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating System:</strong> SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default</td>
</tr>
<tr>
<td><strong>Compiler:</strong> C/C+: Version 17.0.0.098 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.0.098 of Intel Fortran Compiler for Linux</td>
</tr>
<tr>
<td><strong>Auto Parallel:</strong> No</td>
</tr>
<tr>
<td><strong>File System:</strong> xfs</td>
</tr>
<tr>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

---

**Continued on next page**
SPEC CFP2006 Result

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8894 v4, 2.40 GHz)

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

L3 Cache: 60 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133T-R, running at 1600 MHz)
Disk Subsystem: 1 x 480 GB SATA SSD
Other Hardware: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copies</td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
<td>Ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>410.bwaves</td>
<td>192</td>
<td>1643</td>
<td>1590</td>
<td>1645</td>
<td>1590</td>
<td>1644</td>
<td>1590</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>192</td>
<td>1029</td>
<td>3650</td>
<td>1036</td>
<td>3630</td>
<td>1033</td>
<td>3640</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>192</td>
<td>1186</td>
<td>1490</td>
<td>1185</td>
<td>1490</td>
<td>1186</td>
<td>1490</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>192</td>
<td>672</td>
<td>2600</td>
<td>666</td>
<td>2620</td>
<td>667</td>
<td>2620</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>192</td>
<td>314</td>
<td>4370</td>
<td>313</td>
<td>4380</td>
<td>314</td>
<td>4370</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>192</td>
<td>791</td>
<td>2900</td>
<td>795</td>
<td>2890</td>
<td>793</td>
<td>2890</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>192</td>
<td>1624</td>
<td>1110</td>
<td>1623</td>
<td>1110</td>
<td>1635</td>
<td>1100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>192</td>
<td>496</td>
<td>3110</td>
<td>495</td>
<td>3110</td>
<td>496</td>
<td>3110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>192</td>
<td>423</td>
<td>5190</td>
<td>419</td>
<td>5240</td>
<td>428</td>
<td>5130</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>192</td>
<td>1335</td>
<td>1200</td>
<td>1337</td>
<td>1200</td>
<td>1337</td>
<td>1200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>192</td>
<td>220</td>
<td>4650</td>
<td>217</td>
<td>4700</td>
<td>217</td>
<td>4700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>192</td>
<td>300</td>
<td>5270</td>
<td>300</td>
<td>5290</td>
<td>300</td>
<td>5280</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>192</td>
<td>654</td>
<td>2890</td>
<td>652</td>
<td>2900</td>
<td>651</td>
<td>2900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>192</td>
<td>1252</td>
<td>2110</td>
<td>1252</td>
<td>2110</td>
<td>1252</td>
<td>2110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>192</td>
<td>1137</td>
<td>1890</td>
<td>1133</td>
<td>1890</td>
<td>1134</td>
<td>1890</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>192</td>
<td>1762</td>
<td>2120</td>
<td>1763</td>
<td>2120</td>
<td>1757</td>
<td>2130</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 R930 (Intel Xeon E7-8894 v4, 2.40 GHz)  

**SPEC CFP2006 Result**

**SPECfp_rate2006** =  **Not Run**  
**SPECfp_rate_base2006** =  **2440**

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

---

**Platform Notes (Continued)**

System Profile set to Custom
CPU Performance 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 Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-lbo5 Sun Jan  8 18:18:13 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) CPU E7-8894 v4 @ 2.40GHz  
  4 "physical id"s (chips)
  192 "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 : 24
  - siblings : 48
  - physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  - physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  - physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  - physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
- cache size : 30720 KB

From /proc/meminfo

- MemTotal: 529059184 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:

Continued on next page
SPEC CFP2006 Result

Dell Inc.
PowerEdge R930 (Intel Xeon E7-8894 v4, 2.40 GHz)

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 2440

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

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

Platform Notes (Continued)

NAME="SLES"
VERSION="12-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 8 11:27

SPEC is set to: /root/cpu2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 439G 14G 426G 4% /

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. 2.2.0 09/29/2016
Memory:
32x 00AD00B300AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1600 MHz
64x 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/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/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:
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

Continued on next page
Dell Inc.

PowerEdge R930 (Intel Xeon E7-8894 v4, 2.40 GHz)

SPEC CFP2006 Result

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 2440

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

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

Base Compiler Invocation (Continued)

C++ benchmarks:
   icpc -m64

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.leshe3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64 -nofor_main
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
<table>
<thead>
<tr>
<th>Spec CPU2006 Result</th>
<th>Dell Inc.</th>
<th>SPECfp_rate2006 = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerEdge R930 (Intel Xeon E7-8894 v4, 2.40 GHz)</td>
<td>Dell Inc.</td>
<td>SPECfp_rate_base2006 = 2440</td>
</tr>
<tr>
<td>CPU2006 license: 55</td>
<td>Dell Inc.</td>
<td>Test date: Jan-2017</td>
</tr>
<tr>
<td>Test sponsor: Dell Inc.</td>
<td>Hardware Availability: Jan-2017</td>
<td></td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2016</td>
<td></td>
</tr>
</tbody>
</table>

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.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.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 Tue Feb 7 17:00:09 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 February 2017.