## SPEC® CFP2006 Result

### Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8160T, 2.10 GHz)

<table>
<thead>
<tr>
<th>SPECfp®_rate2006</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>1570</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

### Hardware

- **CPU Name:** Intel Xeon Platinum 8160T
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz
- **CPU MHz:** 2100
- **FPU:** Integrated
- **CPU(s) enabled:** 48 cores, 2 chips, 24 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

### 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:** tmpfs
- **System State:** Run level 3 (multi-user)

### Copies

<table>
<thead>
<tr>
<th>Program</th>
<th>Cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>96</td>
</tr>
<tr>
<td>416.game</td>
<td>96</td>
</tr>
<tr>
<td>433.milc</td>
<td>96</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>96</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>96</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>96</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>96</td>
</tr>
<tr>
<td>444.namd</td>
<td>96</td>
</tr>
<tr>
<td>447.dealII</td>
<td>96</td>
</tr>
<tr>
<td>450.soplex</td>
<td>96</td>
</tr>
<tr>
<td>453.povray</td>
<td>96</td>
</tr>
<tr>
<td>454.calculix</td>
<td>96</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>96</td>
</tr>
<tr>
<td>465.tonto</td>
<td>96</td>
</tr>
<tr>
<td>470.lbm</td>
<td>96</td>
</tr>
<tr>
<td>481.wrf</td>
<td>96</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>96</td>
</tr>
</tbody>
</table>

### SPECfp_rate_base2006 = 1570

Continued on next page
# SPEC CFP2006 Result

## Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8160T, 2.10 GHz)

<table>
<thead>
<tr>
<th>SPECfp_rate2006 = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006 = 1570</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  

| L3 Cache: | 33 MB I+D on chip per chip  
| Other Cache: | None  
| Memory: | 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)  
| 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

<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>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>96</td>
<td>1167</td>
<td>1120</td>
<td>1168</td>
<td>1120</td>
<td>1167</td>
<td>1120</td>
<td>96</td>
<td>1167</td>
<td>1120</td>
<td>1168</td>
<td>1120</td>
</tr>
<tr>
<td>416.gamess</td>
<td>96</td>
<td>989</td>
<td>1900</td>
<td>990</td>
<td>1900</td>
<td>989</td>
<td>1900</td>
<td>96</td>
<td>989</td>
<td>1900</td>
<td>990</td>
<td>1900</td>
</tr>
<tr>
<td>433.milc</td>
<td>96</td>
<td>811</td>
<td>1090</td>
<td>811</td>
<td>1090</td>
<td>811</td>
<td>1090</td>
<td>96</td>
<td>811</td>
<td>1090</td>
<td>811</td>
<td>1090</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>96</td>
<td>476</td>
<td>1830</td>
<td>473</td>
<td>1850</td>
<td>475</td>
<td>1840</td>
<td>96</td>
<td>476</td>
<td>1830</td>
<td>473</td>
<td>1850</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>96</td>
<td>291</td>
<td>2360</td>
<td>289</td>
<td>2370</td>
<td>290</td>
<td>2370</td>
<td>96</td>
<td>291</td>
<td>2360</td>
<td>289</td>
<td>2370</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>96</td>
<td>558</td>
<td>2050</td>
<td>558</td>
<td>2050</td>
<td>558</td>
<td>2060</td>
<td>96</td>
<td>558</td>
<td>2050</td>
<td>558</td>
<td>2050</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>96</td>
<td>1113</td>
<td>810</td>
<td>1112</td>
<td>811</td>
<td>1111</td>
<td>812</td>
<td>96</td>
<td>1113</td>
<td>810</td>
<td>1112</td>
<td>811</td>
</tr>
<tr>
<td>444.namd</td>
<td>96</td>
<td>486</td>
<td>1580</td>
<td>487</td>
<td>1580</td>
<td>489</td>
<td>1570</td>
<td>96</td>
<td>486</td>
<td>1580</td>
<td>487</td>
<td>1580</td>
</tr>
<tr>
<td>447.dealII</td>
<td>96</td>
<td>375</td>
<td>2930</td>
<td>375</td>
<td>2930</td>
<td>377</td>
<td>2910</td>
<td>96</td>
<td>375</td>
<td>2930</td>
<td>375</td>
<td>2930</td>
</tr>
<tr>
<td>450.soplex</td>
<td>96</td>
<td>955</td>
<td>838</td>
<td>954</td>
<td>839</td>
<td>953</td>
<td>840</td>
<td>96</td>
<td>955</td>
<td>838</td>
<td>954</td>
<td>839</td>
</tr>
<tr>
<td>453.povray</td>
<td>96</td>
<td>195</td>
<td>2620</td>
<td>195</td>
<td>2620</td>
<td>195</td>
<td>2630</td>
<td>96</td>
<td>195</td>
<td>2620</td>
<td>195</td>
<td>2620</td>
</tr>
<tr>
<td>454.calculix</td>
<td>96</td>
<td>276</td>
<td>2870</td>
<td>276</td>
<td>2870</td>
<td>275</td>
<td>2880</td>
<td>96</td>
<td>276</td>
<td>2870</td>
<td>276</td>
<td>2870</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>96</td>
<td>1350</td>
<td>754</td>
<td>1351</td>
<td>754</td>
<td>1351</td>
<td>754</td>
<td>96</td>
<td>1350</td>
<td>754</td>
<td>1351</td>
<td>754</td>
</tr>
<tr>
<td>465.tonto</td>
<td>96</td>
<td>521</td>
<td>1810</td>
<td>524</td>
<td>1800</td>
<td>521</td>
<td>1810</td>
<td>96</td>
<td>521</td>
<td>1810</td>
<td>524</td>
<td>1800</td>
</tr>
<tr>
<td>470.lbm</td>
<td>96</td>
<td>871</td>
<td>1510</td>
<td>871</td>
<td>1510</td>
<td>871</td>
<td>1510</td>
<td>96</td>
<td>871</td>
<td>1510</td>
<td>871</td>
<td>1510</td>
</tr>
<tr>
<td>481.wrf</td>
<td>96</td>
<td>800</td>
<td>1340</td>
<td>795</td>
<td>1350</td>
<td>798</td>
<td>1340</td>
<td>96</td>
<td>800</td>
<td>1340</td>
<td>795</td>
<td>1350</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>96</td>
<td>1233</td>
<td>1520</td>
<td>1239</td>
<td>1510</td>
<td>1235</td>
<td>1510</td>
<td>96</td>
<td>1233</td>
<td>1520</td>
<td>1239</td>
<td>1510</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 Platinum 8160T, 2.10 GHz)

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1570

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/ram_cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-wwko Wed Sep 6 17:14:49 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) Platinum 8160T CPU @ 2.10GHz
  2 "physical id"s (chips)
  96 "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
  cache size : 33792 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"

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge R740 (Intel Xeon Platinum 8160T, 2.10 GHz)

SPECfp_rate2006 = Not Run
SPECfp_rate_base2006 = 1570

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

Platform Notes (Continued)

VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
(9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 6 11:33

SPEC is set to: /root/ram_cpu2006
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 200G 3.9G 197G 2% /root/ram_cpu2006

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

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/ram_cpu2006/lib/ia32:/root/ram_cpu2006/lib/intel64:/root/ram_cpu2006/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 Platinum 8160T, 2.10 GHz)**

| SPECfp_rate2006 = | Not Run |
| SPECfp_rate_base2006 = | 1570 |

**CPU2006 license:** 55

**Test sponsor:** Dell Inc.

**CPU2006 license:** 55

**Test sponsor:** 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**

- For 410.bwaves: `-DSPEC_CPU_LP64`
- For 416.gamess: `-DSPEC_CPU_LP64`
- For 433.milc: `-DSPEC_CPU_LP64`
- For 435.gromacs: `-DSPEC_CPU_LP64` `-nofor_main`
- For 436.cactusADM: `-DSPEC_CPU_LP64` `-nofor_main`
- For 437.leslie3d: `-DSPEC_CPU_LP64`
- For 444.namd: `-DSPEC_CPU_LP64`
- For 447.dealII: `-DSPEC_CPU_LP64`
- For 450.soplex: `-DSPEC_CPU_LP64`
- For 453.povray: `-DSPEC_CPU_LP64`
- For 454.calculix: `-DSPEC_CPU_LP64` `-nofor_main`
- For 459.GemsFDTD: `-DSPEC_CPU_LP64`
- For 465.tonto: `-DSPEC_CPU_LP64`
- For 470.lbm: `-DSPEC_CPU_LP64`
- For 481.wrf: `-DSPEC_CPU_LP64` `-DSPEC_CPU_CASE_FLAG` `-DSPEC_CPU_LINUX`
- For 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 Platinum 8160T, 2.10 GHz)

<table>
<thead>
<tr>
<th>SPECfp_rate2006</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_rate_base2006</td>
<td>1570</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test date:</th>
<th>Sep-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Sep-2017</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Nov-2016</td>
</tr>
</tbody>
</table>

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.