# SPEC® CFP2006 Result

## Dell Inc.

PowerEdge R740 (Intel Xeon Gold 6154, 3.00 GHz)

### SPECfp®_rate2006 = Not Run

| SPECfp_rate_base2006 = 1500 |

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

### Hardware

- **CPU Name:** Intel Xeon Gold 6154  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
- **CPU MHz:** 3000  
- **FPU:** Integrated  
- **CPU(s) enabled:** 36 cores, 2 chips, 18 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:** xfs  
- **System State:** Run level 3 (multi-user)

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**Copies**

<table>
<thead>
<tr>
<th>SpecMark</th>
<th>Dell Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>72</td>
</tr>
<tr>
<td>416.gamess</td>
<td>72</td>
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<tr>
<td>433.milc</td>
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<td>434.zeusmp</td>
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<td>444.namd</td>
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SPEC CFP2006 Result

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**PowerEdge R740 (Intel Xeon Gold 6154, 3.00 GHz)**

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- **L3 Cache:** 24.75 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>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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</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
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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 Jun 23 20:45:48 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) Gold 6154 CPU @ 3.00GHz
  2 "physical id"s (chips)
  72 "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 : 18
    siblings : 36
    physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
    physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  cache size : 25344 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"
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Platform Notes (Continued)

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 Jun 23 16:11 last=5
SPEC is set to: /root/cpu2006-1.2_ic17u3
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda2 xfs 892G 9.5G 883G 2% /

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. 1.0.5 06/19/2017  
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/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  
runcase command invoked through numactl i.e.:  
umactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64

Fortran benchmarks:  
ifort -m64

Continued on next page
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**Base Compiler Invocation (Continued)**

Benchmarks using both Fortran and C:

```bash
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`

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

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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-revB.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.