## SPEC® CFP2006 Result

### Dell Inc.

PowerEdge R730xd (Intel Xeon E5-2683 v4, 2.10 GHz)

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**SPECfp®_rate2006 = Not Run**

**SPECfp_rate_base2006 = 935**

**Test date:** Aug-2016  
**Hardware Availability:** Jun-2016  
**Software Availability:** Mar-2016

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### Hardware

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<thead>
<tr>
<th>Test Program</th>
<th>Copies</th>
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<tr>
<td>416.gamess</td>
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<tr>
<td>482.sphinx3</td>
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<td>892</td>
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</tbody>
</table>

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**CPU Name:** Intel Xeon E5-2683 v4  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.00 GHz  
**CPU MHz:** 2100  
**FPU:** Integrated  
**CPU(s) enabled:** 32 cores, 2 chips, 16 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

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### Software

**Operating System:** Red Hat Enterprise Linux Server release 7.2 (Maipo)  
**Compiler:** C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.2.181 of Intel Fortran Studio XE for Linux  
**Auto Parallel:** No  
**File System:** xfs

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Continued on next page
### Dell Inc.

**PowerEdge R730xd (Intel Xeon E5-2683 v4, 2.10 GHz)**

<table>
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</tr>
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</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 R730xd (Intel Xeon E5-2683 v4, 2.10 GHz)

SPECfp_rate2006 =  Not Run
SPECfp_rate_base2006 = 935

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

Platform Notes (Continued)

System Profile set to custom
CPU Performance set to Hardware P States
C States set to Autonomous
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 localhost.localdomain Mon Aug 15 07:08:10 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 E5-2683 v4 @ 2.10GHz
  2 "physical id"s (chips)
  64 "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 : 16
siblings : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 20480 KB

From /proc/meminfo
MemTotal: 264040056 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.2 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VERSION_ID="7.2"
  PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
  ANSI_COLOR="0;31"
  CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)

uname -a:
Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

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Dell Inc. PowerEdge R730xd (Intel Xeon E5-2683 v4, 2.10 GHz)

**SPECfp_rate2006 = Not Run**

**SPECfp_rate_base2006 = 935**

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

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### Platform Notes (Continued)

run-level 3 Aug 15 05:40

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 179G 8.4G 170G 5% /

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. 2.1.7 06/16/2016
Memory:
15x 00AD063200AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz
1x 00CE0B300CE M393A2K43BB1-CRC 16 GB 2 rank 2400 MHz
8x 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/sh"
The Dell PowerEdge R730 and the PowerEdge R730xd models are electronically equivalent.
The results have been measured on a Dell PowerEdge R730xd model.
Binaries compiled on a system with 1x Intel Core i7-4790K CPU + 32GB memory using RedHat EL 7.2 glibc 2.17
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
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc -m64 ifort -m64
```
Dell Inc.

PowerEdge R730xd (Intel Xeon E5-2683 v4, 2.10 GHz)

**SPEC CFP2006 Result**

SPECfp_rate2006 = Not Run

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**CPU2006 license:** 55
**Test sponsor:** Dell Inc.
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**Hardware Availability:** Jun-2016
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### 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 -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

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:

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PowerEdge R730xd (Intel Xeon E5-2683 v4, 2.10 GHz)  

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CPU2006 license: 55

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Tested with SPEC CPU2006 v1.2.
Originally published on 1 November 2016.