### PowerEdge R630 (Intel Xeon E5-2643 v4, 3.40 GHz)

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

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<th>Benchmark</th>
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**SPECf®_rate2006 = 617**  
**SPECf_rate_base2006 = 605**  

**Continued on next page**
Dell Inc. PowerEdge R630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate2006 = 617
SPECfp_rate_base2006 = 605

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

L3 Cache: 20 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 500 GB 7200 RPM SAS
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit

Results Table

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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 Opportunistic Snoop Broadcast
Virtualization Technology disabled

Continued on next page
Dell Inc.

PowerEdge R630 (Intel Xeon E5-2643 v4, 3.40 GHz)

**SPECfp_rate2006 = 617**

**SPECfp_rate_base2006 = 605**

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

---

**Platform Notes (Continued)**

System Profile set to Custom  
CPU Power Management set to Hardware P States  
Energy Efficient Turbo disabled  
C1E disabled  
C States set to Autonomous  
Memory Patrol Scrub disabled  
Energy Efficiency set to Balanced Performance  
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1  
runtime on localhost.localdomain Thu Mar 3 16:39:20 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 E5-2643 v4 @ 3.40GHz  
2 "physical id"s (chips)  
24 "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 : 6  
siblings : 12  
physical 0: cores 0 1 2 3 6 7  
physical 1: cores 0 1 2 3 6 7  
cache size : 20480 KB

From `/proc/meminfo`

MemTotal: 528281568 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

run-level 3 Mar 3 09:14
Dell Inc.  

PowerEdge R630 (Intel Xeon E5-2643 v4, 3.40 GHz)  

SPECfp_rate2006 = 617  
SPECfp_rate_base2006 = 605

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

Test date: Mar-2016  
Hardware Availability: Mar-2016  
Software Availability: Mar-2016

Platform Notes (Continued)

SPEC is set to: /root/cpu2006-1.2  
Filesystem     Type  Size  Used Avail Use% Mounted on  
/dev/sda2      xfs   256G   10G  247G   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 SMIOS" standard.

BIOS Dell Inc. 2.0.1 02/12/2016  
Memory:  
16x 00AD063200AD HMA84GR7MFR4N-UH 32 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"

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  
runcspec command invoked through numactl i.e.:  
uactl --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 R630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate2006 = 617
SPECfp_rate_base2006 = 605

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.
Test date: Mar-2016
Hardware Availability: Mar-2016
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Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.games: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmpi: -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

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge R630 (Intel Xeon E5-2643 v4, 3.40 GHz)

SPECfp_rate2006 = 617
SPECfp_rate_base2006 = 605

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

Test date: Mar-2016
Hardware Availability: Mar-2016
Software Availability: Mar-2016

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

```plaintext
icc  -m64 ifort -m64
```

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

- 433.milc: basepeak = yes
- 470.lbm: basepeak = yes
- 482.sphinx3: basepeak = yes

C++ benchmarks:

- 444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
  -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
  -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
  -prof-use(pass 2) -fno-alias -auto-ilp32
- 447.dealII: basepeak = yes
- 450.soplex: basepeak = yes
- 453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
  -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
  -par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
  -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

- 410.bwaves: basepeak = yes
- 416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
  -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
  -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
  -inline-level=0 -scalar-rep-
- 434.zeusmp: basepeak = yes
- 437.leslie3d: basepeak = yes

Continued on next page
SPEC CFP2006 Result

Dell Inc.

PowerEdge R630 (Intel Xeon E5-2643 v4, 3.40 GHz)

**SPECfp_rate2006 = 617**

**SPECfp_rate_base2006 = 605**

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

**Peak Optimization Flags (Continued)**

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.xml

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
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Originally published on 5 April 2016.