# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Dell Inc.

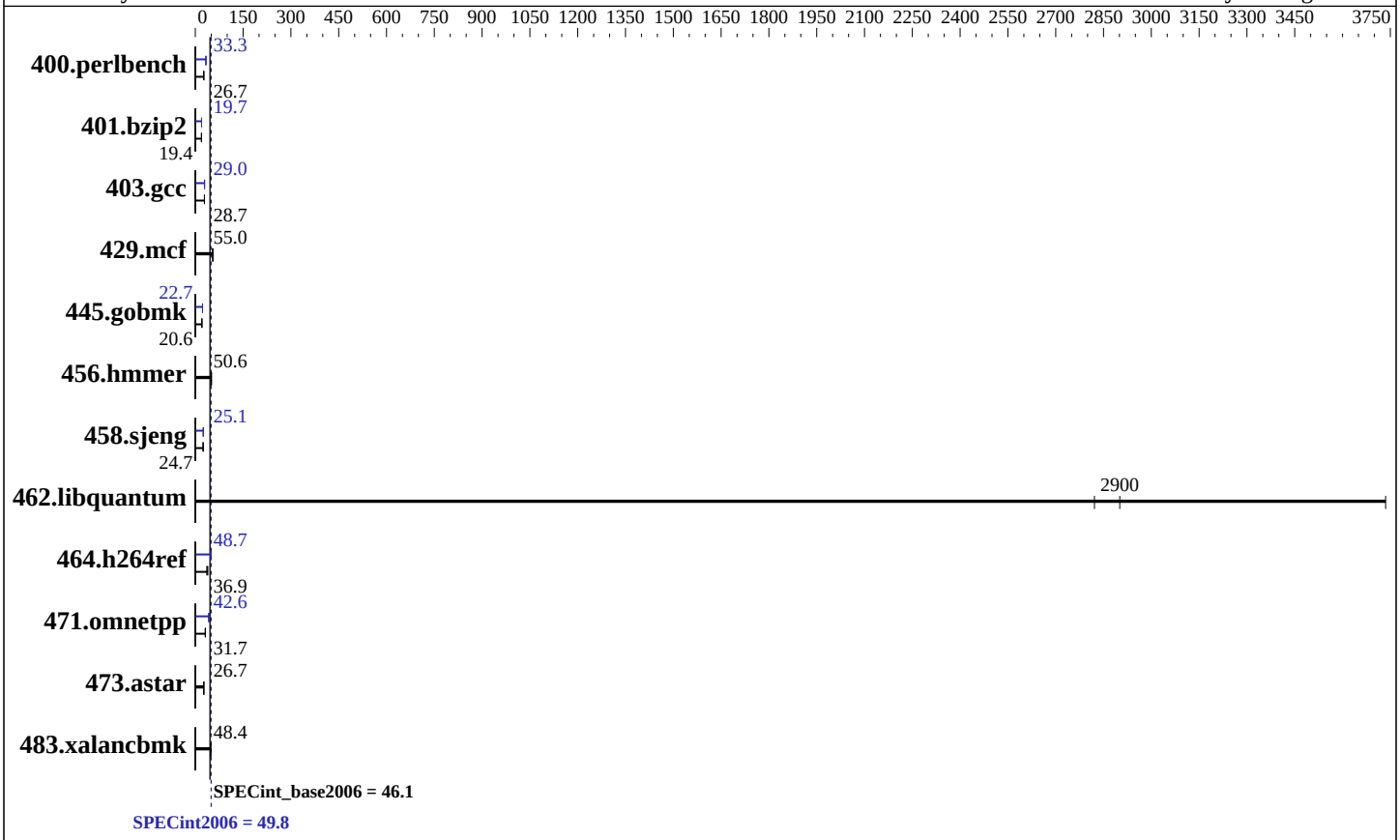
PowerEdge R820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECint®2006 = 49.8

SPECint_base2006 = 46.1

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

**Test date:** Oct-2013
**Hardware Availability:** Mar-2014
**Software Availability:** Aug-2013




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-4657L v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.90 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 48 cores, 4 chips, 12 cores/chip |
| CPU(s) orderable: | 2,4 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |
| L3 Cache: | 30 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC) |
| Disk Subsystem: | 1 x 300 GB 15000 RPM SAS |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.4 (Santiago)<br>2.6.32-358.11.1.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |
| System State: | Run level 5 (multi-user) |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V10.0 |

# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Dell Inc.

PowerEdge R820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECint2006 = 49.8

SPECint_base2006 = 46.1

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

**Test date:** Oct-2013
**Hardware Availability:** Mar-2014
**Software Availability:** Aug-2013

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | **367** | **26.7** | 367 | 26.7 | 368 | 26.6 | 294 | 33.2 | 292 | 33.5 | **293** | **33.3** |
| 401.bzip2 | 496 | 19.5 | 496 | 19.4 | **496** | **19.4** | 491 | 19.6 | 491 | 19.7 | **491** | **19.7** |
| 403.gcc | **280** | **28.7** | 280 | 28.7 | 281 | 28.7 | 278 | 29.0 | 277 | 29.0 | **277** | **29.0** |
| 429.mcf | **166** | **55.0** | 166 | 55.0 | 167 | 54.5 | **166** | **55.0** | 166 | 55.0 | 167 | 54.5 |
| 445.gobmk | 514 | 20.4 | **508** | **20.6** | 503 | 20.9 | **462** | **22.7** | 461 | 22.7 | 462 | 22.7 |
| 456.hmmer | 186 | 50.3 | **184** | **50.6** | 184 | 50.6 | 186 | 50.3 | **184** | **50.6** | 184 | 50.6 |
| 458.sjeng | 490 | 24.7 | 490 | 24.7 | **490** | **24.7** | **483** | **25.1** | 482 | 25.1 | 483 | 25.1 |
| 462.libquantum | **7.14** | **2900** | 7.34 | 2820 | 5.55 | 3740 | **7.14** | **2900** | 7.34 | 2820 | 5.55 | 3740 |
| 464.h264ref | 607 | 36.5 | **600** | **36.9** | 562 | 39.4 | **455** | **48.7** | 455 | 48.7 | 455 | 48.7 |
| 471.omnetpp | 200 | 31.2 | **197** | **31.7** | 197 | 31.7 | 146 | 42.8 | 147 | 42.4 | **147** | **42.6** |
| 473.astar | 263 | 26.6 | 262 | 26.8 | **263** | **26.7** | 263 | 26.6 | 262 | 26.8 | **263** | **26.7** |
| 483.xalancbmk | **143** | **48.4** | 143 | 48.4 | 143 | 48.4 | **143** | **48.4** | 143 | 48.4 | 143 | 48.4 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## Platform Notes

```
BIOS settings:
Virtualization Technology disabled
Execute Disable disabled
Logical Processor disabled
System Profile set to Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Thu Oct 10 16:51:22 2013

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 E5-4657L v2 @ 2.40GHz
      4 "physical id"s (chips)
      48 "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 : 12
      siblings  : 12
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
```

Continued on next page

## Platform Notes (Continued)

```
        physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
        physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
        physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
     cache size : 30720 KB

  From /proc/meminfo
     MemTotal:       529224800 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.4 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux localhost.localdomain 2.6.32-358.11.1.el6.x86_64 #1 SMP Wed May 15
     10:48:38 EDT 2013 x86_64 x86_64 x86_64 GNU/Linux

  run-level 5 Oct 10 16:09 last=5

  SPEC is set to: /root/cpu2006-1.2
     Filesystem     Type    Size  Used Avail Use% Mounted on
     /dev/sda2      ext4    176G  9.7G  157G   6% /

  Additional information from dmidecode:
    BIOS Dell Inc. 2.0.17 10/01/2013
    Memory:
     32x 00AD00B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz 2 rank

  (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"
 OMP_NUM_THREADS = "48"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RedHat EL 6.4
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
  Filesystem page cache cleared with:
  echo 1>       /proc/sys/vm/drop_caches
```

## Base Compiler Invocation

C benchmarks:
```
icc  -m64
```

C++ benchmarks:
```
icpc -m64
```

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
445.gobmk: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

## Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m64
```

Continued on next page

## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

471.omnetpp: `icpc -m32`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-opt-prefetch -ansi-alias`

401.bzip2: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div -prof-use`(pass 2) `-auto-ilp32`
`-opt-prefetch -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc`
`-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-prof-use`(pass 2)
`-ansi-alias`

456.hmmer: `basepeak = yes`

Continued on next page

## Peak Optimization Flags (Continued)

458.sjeng: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll4`

462.libquantum: `basepeak = yes`

464.h264ref: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap`

473.astar: `basepeak = yes`

483.xalancbmk: `basepeak = yes`

## Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html`
`http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml`
`http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.xml`


SPEC and SPECint 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 Thu Jul 24 23:15:25 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 April 2014.