# SPEC® CINT2006 Result

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## Dell Inc.

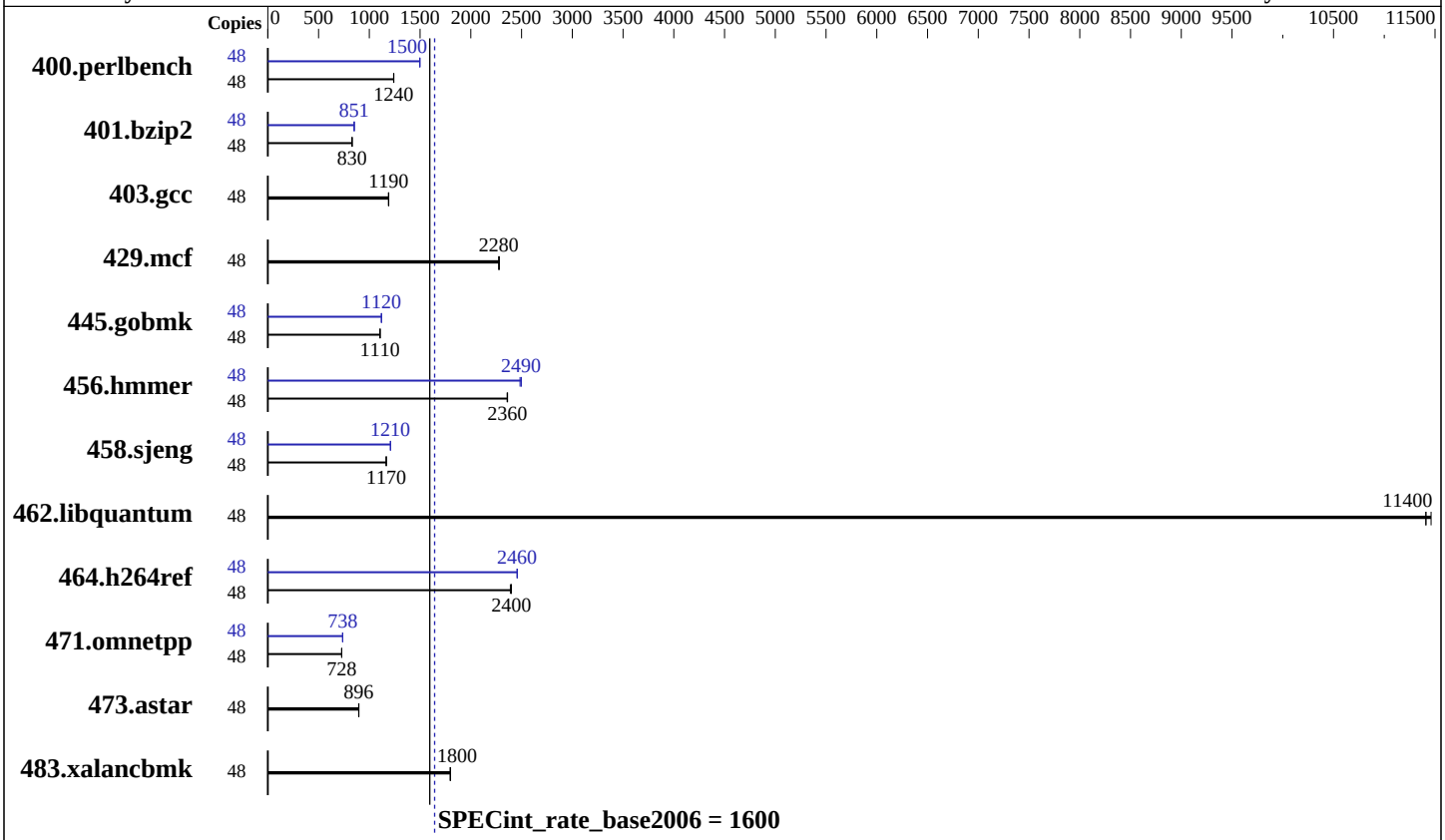
PowerEdge R920 (Intel Xeon E7-8857 v2, 3.00 GHz)

SPECint®_rate2006 = 1640

SPECint_rate_base2006 = 1600

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

**Test date:** Jan-2014
**Hardware Availability:** Mar-2014
**Software Availability:** Mar-2014




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E7-8857 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.60 GHz |
| CPU MHz: | 3000 |
| 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: | 1 TB (64 x 16 GB 2Rx4 PC3L-12800R-11, ECC) |
| Disk Subsystem: | 1 x 400 GB SAS6 SSD |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64) 3.0.76-0.11-default |
| Compiler: | C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux |
| Auto Parallel: | No |
| File System: | ext2 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V10.0 |

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## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 48 | 378 | 1240 | 378 | 1240 | **378** | **1240** | 48 | 313 | 1500 | 313 | 1500 | **313** | **1500** |
| 401.bzip2 | 48 | **558** | **830** | 557 | 831 | 559 | 829 | 48 | **544** | **851** | 545 | 850 | 543 | 852 |
| 403.gcc | 48 | 324 | 1190 | 325 | 1190 | **325** | **1190** | 48 | 324 | 1190 | 325 | 1190 | **325** | **1190** |
| 429.mcf | 48 | 192 | 2280 | 192 | 2270 | **192** | **2280** | 48 | 192 | 2280 | 192 | 2270 | **192** | **2280** |
| 445.gobmk | 48 | **455** | **1110** | 455 | 1110 | 455 | 1110 | 48 | 450 | 1120 | 450 | 1120 | **450** | **1120** |
| 456.hmmer | 48 | 190 | 2360 | 190 | 2360 | **190** | **2360** | 48 | 179 | 2500 | 180 | 2480 | **180** | **2490** |
| 458.sjeng | 48 | **498** | **1170** | 498 | 1170 | 498 | 1170 | 48 | 481 | 1210 | **480** | **1210** | 480 | 1210 |
| 462.libquantum | 48 | 86.8 | 11500 | 87.2 | 11400 | **87.2** | **11400** | 48 | 86.8 | 11500 | 87.2 | 11400 | **87.2** | **11400** |
| 464.h264ref | 48 | 445 | 2390 | 443 | 2400 | **443** | **2400** | 48 | 432 | 2460 | 433 | 2460 | **432** | **2460** |
| 471.omnetpp | 48 | 412 | 728 | **412** | **728** | 413 | 727 | 48 | 406 | 738 | **406** | **738** | 408 | 736 |
| 473.astar | 48 | 375 | 898 | 376 | 895 | **376** | **896** | 48 | 375 | 898 | 376 | 895 | **376** | **896** |
| 483.xalancbmk | 48 | 184 | 1800 | 184 | 1800 | **184** | **1800** | 48 | 184 | 1800 | 184 | 1800 | **184** | **1800** |

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:
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Custom
Memory Patrol Scrub set to disabled
 Sysinfo program
 /root/Desktop/Performance/ic14.0_Oct17_2013/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on slesperf2 Thu Jan 30 20:13:32 2014

 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 E7-8857 v2 @ 3.00GHz
       4 "physical id"s (chips)
```

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## Platform Notes (Continued)

```
      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
      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:       1058789108 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux slesperf2 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
   (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 30 20:11 last=S

SPEC is set to: /root/Desktop/Performance/ic14.0_Oct17_2013
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      ext2  365G  190G  174G  53% /

Additional information from dmidecode:
  BIOS Dell Inc. 1.0.0 12/16/2013
  Memory:
   47x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
   11x 00CE04B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
   6x 00CE04B300CE M393B2G70CB0-YK0 16 GB 1333 MHz

(End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/Desktop/Performance/ic14.0_Oct17_2013/libs/32:/root/Desktop/Performance/ic14.0_Oct17_2013/libs/64:/root/Desktop/Performance/ic14.0_Oct17_2013/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
```

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## General Notes (Continued)

```
memory using RedHat EL 6.4
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  -m32
```

C++ benchmarks:
```
icpc -m32
```

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/sh -lsmartheap
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m32
```

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## Peak Compiler Invocation (Continued)

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -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)
-auto-ilp32

401.bzip2: -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 -auto-ilp32 -ansi-alias

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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 -auto-ilp32

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## Peak Optimization Flags (Continued)

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) -ansi-alias -opt-ra-region-strategy=block -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


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

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