SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

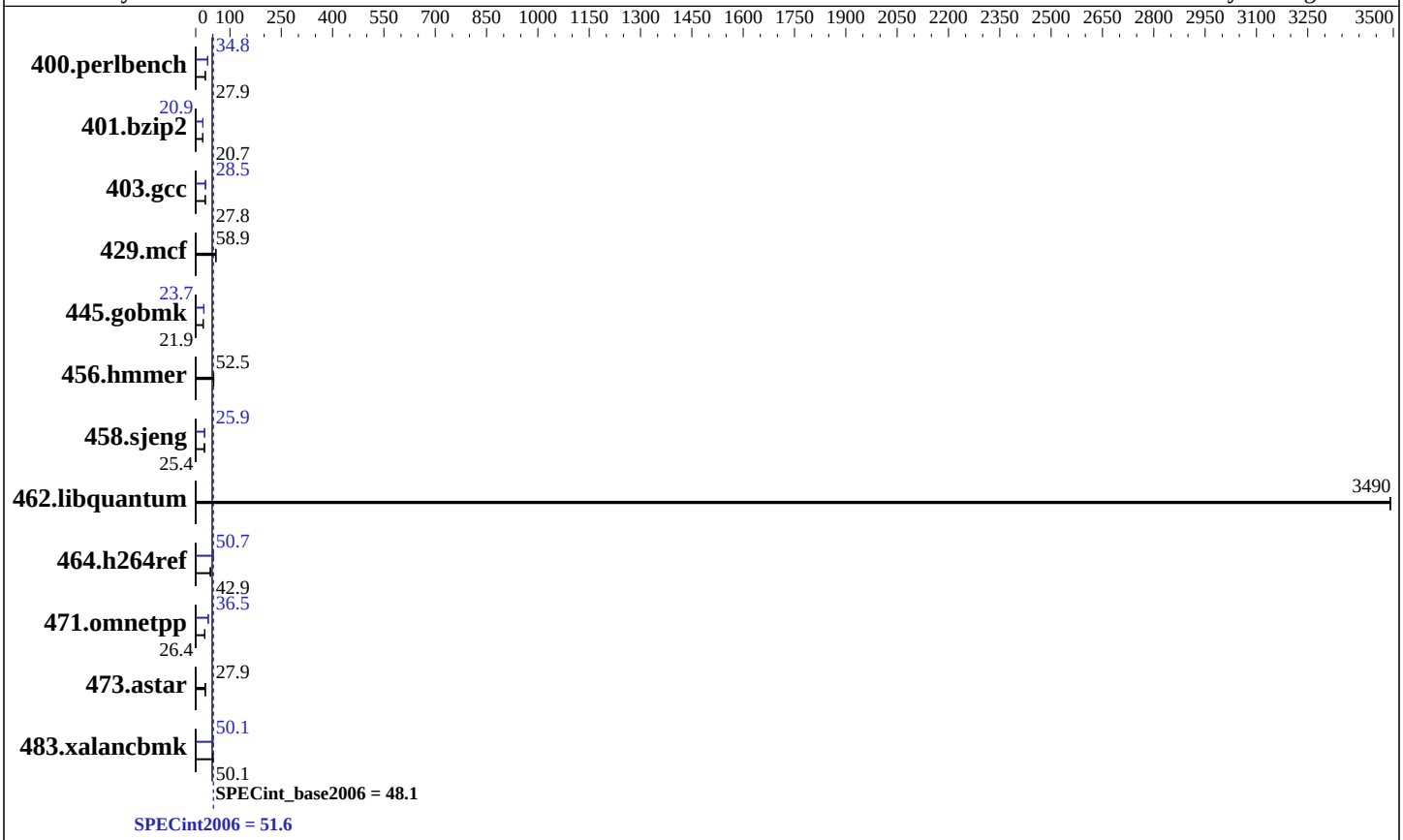
PowerEdge R820 (Intel Xeon E5-4620 v2, 2.60 GHz)

SPECint®2006 = 51.6

SPECint_base2006 = 48.1

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 E5-4620 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 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:	20 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 200 GB SAS 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:	Yes
File System:	ext2
System State:	Run level 3 (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 E5-4620 v2, 2.60 GHz)

SPECint2006 = 51.6

SPECint_base2006 = 48.1

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	350	27.9	349	28.0	**350**	**27.9**	**281**	**34.8**	280	34.9	281	34.8
401.bzip2	466	20.7	**466**	**20.7**	466	20.7	462	20.9	**461**	**20.9**	461	20.9
403.gcc	288	27.9	**289**	**27.8**	290	27.8	**283**	**28.5**	283	28.5	283	28.5
429.mcf	155	58.9	**155**	**58.9**	155	58.8	155	58.9	**155**	**58.9**	155	58.8
445.gobmk	479	21.9	480	21.8	**479**	**21.9**	**442**	**23.7**	442	23.7	442	23.7
456.hmmer	**178**	**52.5**	177	52.7	178	52.5	**178**	**52.5**	177	52.7	178	52.5
458.sjeng	475	25.5	476	25.4	**476**	**25.4**	466	25.9	467	25.9	**467**	**25.9**
462.libquantum	**5.93**	**3490**	5.94	3490	5.93	3490	**5.93**	**3490**	5.94	3490	5.93	3490
464.h264ref	**516**	**42.9**	516	42.9	516	42.9	436	50.7	**437**	**50.7**	437	50.6
471.omnetpp	**237**	**26.4**	236	26.5	237	26.3	171	36.6	172	36.4	**171**	**36.5**
473.astar	251	28.0	**251**	**27.9**	252	27.9	251	28.0	**251**	**27.9**	252	27.9
483.xalancbmk	138	49.9	136	50.8	**138**	**50.1**	**138**	**50.1**	137	50.3	138	50.1

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.ic13/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on linux Mon Oct 14 11:21:49 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 E5-4620 v2 @ 2.60GHz
       4 "physical id"s (chips)
       32 "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 : 8
       siblings  : 8
       physical 0: cores 0 1 2 3 4 5 6 7
```

Continued on next page

Platform Notes (Continued)

```
        physical 1: cores 0 1 2 3 4 5 6 7
        physical 2: cores 0 1 2 3 4 5 6 7
        physical 3: cores 0 1 2 3 4 5 6 7
     cache size : 20480 KB

  From /proc/meminfo
     MemTotal:       529392212 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 linux 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 Oct 14 10:36 last=S

  SPEC is set to: /root/cpu2006.1.2.ic13
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda2      ext2  175G   12G  163G   7% /

  Additional information from dmidecode:
    BIOS Dell Inc. 2.0.17 10/01/2013
    Memory:
     32x 00AD00B300AD HMT42GR7AFR4C-RD 16 GB 1600 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.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"
 OMP_NUM_THREADS = "32"

  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/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
```

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 -m32

473.astar: icpc -m64

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_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: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap`

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 22:40:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 April 2014.