SPEC® CINT2006 Result

Dell Inc.

PowerEdge M820 (Intel Xeon E5-4603 v2, 2.20 GHz)

SPECint®2006 = 35.8

SPECint_base2006 = 34.0

Graph scale: 0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2300

- 400.perlbench: 25.4 / 20.2
- 401.bzip2: 15.4 / 15.2
- 403.gcc: 20.2 / 19.8
- 429.mcf: 43.3
- 445.gobmk: 17.1 / 16.6
- 456.hmmer: 38.5 / 38.0
- 458.sjeng: 18.7 / 18.3
- 462.libquantum: 1960
- 464.h264ref: 37.1 / 33.6
- 471.omnetpp: 20.3 / 16.8
- 473.astar: 19.9
- 483.xalancbmk: 36.2 / 35.9

SPECint_base2006 = 34.0
SPECint2006 = 35.8

Hardware

CPU Name:	Intel Xeon E5-4603 v2
CPU Characteristics:	
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip
CPU(s) orderable:	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:	10 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 1TB 7200 RPM Near-Line SAS
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) 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

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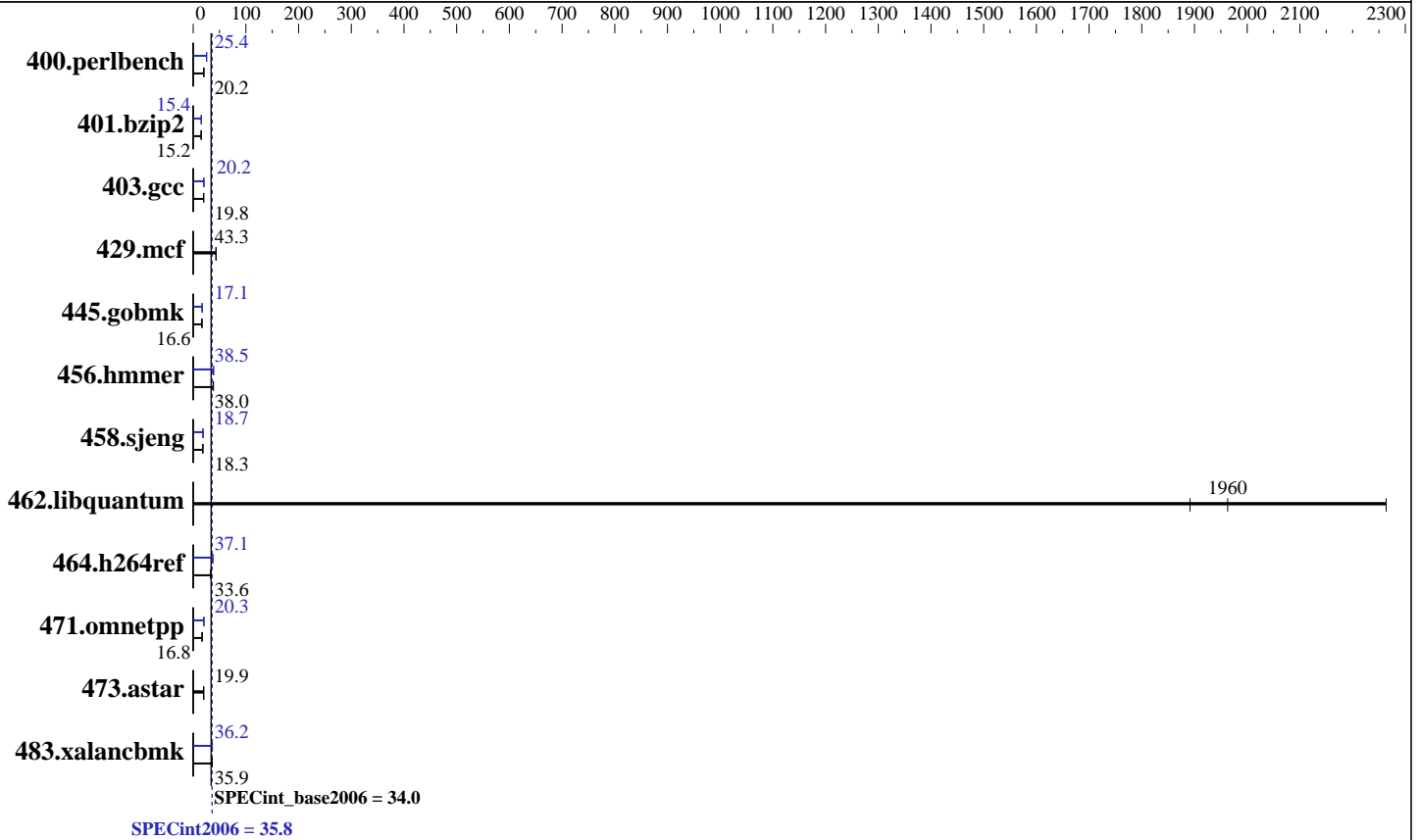
CPU2006 license: 55	**Test date:** Feb-2014
Test sponsor: Dell Inc.	**Hardware Availability:** Mar-2014
Tested by: Dell Inc.	**Software Availability:** Aug-2013

Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	483	20.2	**483**	**20.2**	484	20.2	**385**	**25.4**	384	25.4	385	25.4
401.bzip2	**635**	**15.2**	635	15.2	635	15.2	628	15.4	**628**	**15.4**	627	15.4
403.gcc	**406**	**19.8**	404	19.9	406	19.8	398	20.2	**398**	**20.2**	398	20.2
429.mcf	**211**	**43.3**	211	43.3	210	43.5	**211**	**43.3**	211	43.3	210	43.5
445.gobmk	**634**	**16.6**	632	16.6	635	16.5	**614**	**17.1**	614	17.1	614	17.1
456.hmmer	**245**	**38.0**	242	38.5	247	37.8	242	38.5	242	38.6	**242**	**38.5**
458.sjeng	662	18.3	660	18.3	**661**	**18.3**	**648**	**18.7**	648	18.7	648	18.7
462.libquantum	**10.6**	**1960**	9.15	2260	11.0	1890	**10.6**	**1960**	9.15	2260	11.0	1890
464.h264ref	658	33.6	660	33.5	**659**	**33.6**	**597**	**37.1**	597	37.1	595	37.2
471.omnetpp	**371**	**16.8**	371	16.8	372	16.8	**308**	**20.3**	308	20.3	309	20.2
473.astar	353	19.9	**353**	**19.9**	353	19.9	353	19.9	**353**	**19.9**	353	19.9
483.xalancbmk	192	35.9	196	35.1	**192**	**35.9**	190	36.2	189	36.5	**190**	**36.2**

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

```
Virtualization Technology disabled
Execute Disable disabled
Logical Processor enabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost enabled
C1E enabled
C States enabled
Monitor/Mwait enabled
Memory Patrol Scrub set to disabled
Memory Refresh Rate set to 1x
Memory Operating Voltage set to Auto
Collaborative CPU Performance Control disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Wed Feb 26 01:40:43 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
```

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

Test date: Feb-2014
Hardware Availability: Mar-2014
Software Availability: Aug-2013

Platform Notes (Continued)

```
    model name : Intel(R) Xeon(R) CPU E5-4603 v2 @ 2.20GHz
       4 "physical id"s (chips)
       16 "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 : 4
       siblings  : 4
       physical 0: cores 0 1 2 3
       physical 1: cores 0 1 2 3
       physical 2: cores 0 1 2 3
       physical 3: cores 0 1 2 3
    cache size : 10240 KB

 From /proc/meminfo
    MemTotal:      529392220 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 Feb 26 01:39 last=S

 SPEC is set to: /root/cpu2006-1.2
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda2       ext2  909G  7.8G  900G   1% /

 Additional information from dmidecode:
   BIOS Dell Inc. 2.0.24 01/21/2014
   Memory:
    8x 002C04B3002C 36JSF2G72PZ-1G9E1 16 GB 1333 MHz
    21x 00CE00B300CE M393B2G70DB0-CMA 16 GB 1333 MHz
    3x 00CE04B300CE M393B2G70DB0-CMA 16 GB 1333 MHz

 (End of data from sysinfo program)
```

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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 = "16"

 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
 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
```

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CPU2006 license: 55		**Test date:**	Feb-2014
Test sponsor:	Dell Inc.	**Hardware Availability:**	Mar-2014
Tested by:	Dell Inc.	**Software Availability:**	Aug-2013

Base Other Flags

C benchmarks:

      403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

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

    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`

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Peak Optimization Flags (Continued)

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: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32 -ansi-alias`

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

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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