SPEC® CINT2006 Result
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Dell Inc.

PowerEdge R920 (Intel Xeon E7-8891 v2, 3.20 GHz)

$SPECint^{®}2006 =$ 63.8

$SPECint\_base2006 =$ 59.5
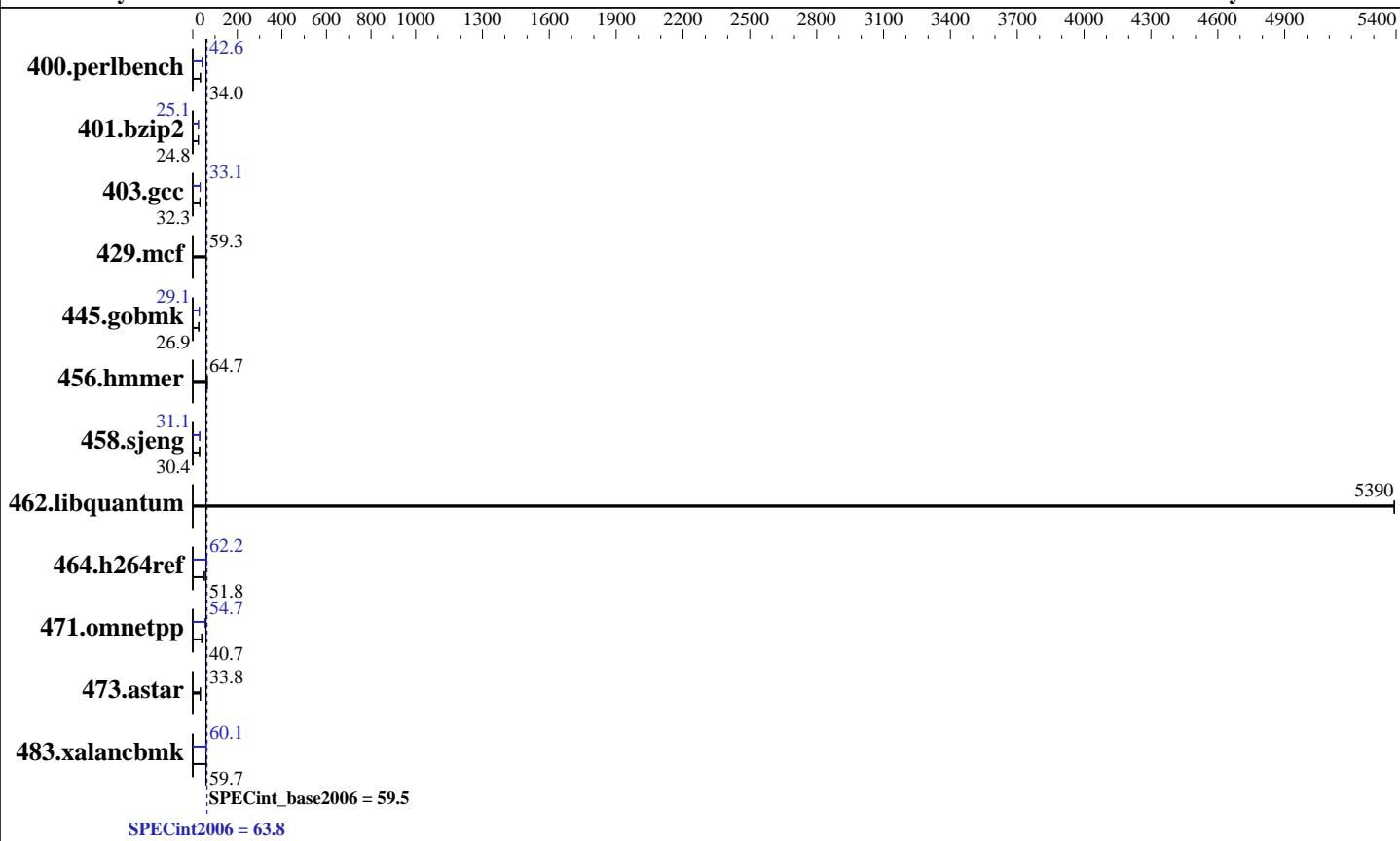
CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Feb-2014

Hardware Availability: Mar-2014

Software Availability: Mar-2014

Benchmark results:

Benchmark	Peak	Base
400.perlbench	42.6	34.0
401.bzip2	25.1	24.8
403.gcc	33.1	32.3
429.mcf		59.3
445.gobmk	29.1	26.9
456.hmmer		64.7
458.sjeng	31.1	30.4
462.libquantum		5390
464.h264ref	62.2	51.8
471.omnetpp	54.7	40.7
473.astar		33.8
483.xalancbmk	60.1	59.7

SPECint_base2006 = 59.5

SPECint2006 = 63.8

Hardware

CPU Name: Intel Xeon E7-8891 v2

CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz

CPU MHz: 3200

FPU: Integrated

CPU(s) enabled: 40 cores, 4 chips, 10 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: 37.5 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: 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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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	287	34.0	288	33.9	**288**	**34.0**	229	42.6	230	42.5	**230**	**42.6**
401.bzip2	389	24.8	**389**	**24.8**	389	24.8	**385**	**25.1**	385	25.1	385	25.1
403.gcc	249	32.4	**249**	**32.3**	250	32.2	**243**	**33.1**	243	33.2	243	33.1
429.mcf	154	59.2	154	59.3	**154**	**59.3**	154	59.2	154	59.3	**154**	**59.3**
445.gobmk	390	26.9	**390**	**26.9**	390	26.9	**360**	**29.1**	360	29.1	361	29.1
456.hmmer	144	64.7	**144**	**64.7**	145	64.5	144	64.7	**144**	**64.7**	145	64.5
458.sjeng	**398**	**30.4**	398	30.4	398	30.4	389	31.1	389	31.1	**389**	**31.1**
462.libquantum	3.84	5390	**3.84**	**5390**	3.84	5390	3.84	5390	**3.84**	**5390**	3.84	5390
464.h264ref	**428**	**51.8**	427	51.8	428	51.8	**356**	**62.2**	355	62.3	356	62.2
471.omnetpp	153	40.9	**154**	**40.7**	156	40.2	114	54.7	**114**	**54.7**	114	54.6
473.astar	**208**	**33.8**	208	33.7	207	33.8	**208**	**33.8**	208	33.7	207	33.8
483.xalancbmk	**116**	**59.7**	115	59.9	116	59.5	115	60.2	115	60.1	**115**	**60.1**

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 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 slesperf3 Wed Feb 5 15:26:26 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 E7-8891 v2 @ 3.20GHz
           4 "physical id"s (chips)
           40 "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 : 10

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Platform Notes (Continued)

```
      siblings  : 10
      physical 0: cores 2 3 4 5 6 7 8 10 11 12
      physical 1: cores 2 3 4 5 6 7 8 10 11 12
      physical 2: cores 2 3 4 5 6 7 8 10 11 12
      physical 3: cores 2 3 4 5 6 7 8 10 11 12
    cache size : 38400 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 slesperf3 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 5 07:22 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  234G  130G  65% /

  Additional information from dmidecode:
    BIOS Dell Inc. 1.0.4 01/27/2014
    Memory:
     31x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
     19x 00CE00B300CE M393B2G70CB0-YK0 16 GB 1333 MHz
      8x 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:
KMP_AFFINITY = "granularity=fine,scatter"
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"
OMP_NUM_THREADS = "40"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
```

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General Notes (Continued)

```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
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
```

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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

        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

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Peak Optimization Flags (Continued)

456.hmmer: basepeak = yes

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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