SPEC® CINT2006 Result
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Dell Inc.

PowerEdge R920 (Intel Xeon E7-8880L v2, 2.20 GHz)

SPECint®2006 =   49.7

SPECint_base2006 =   46.5
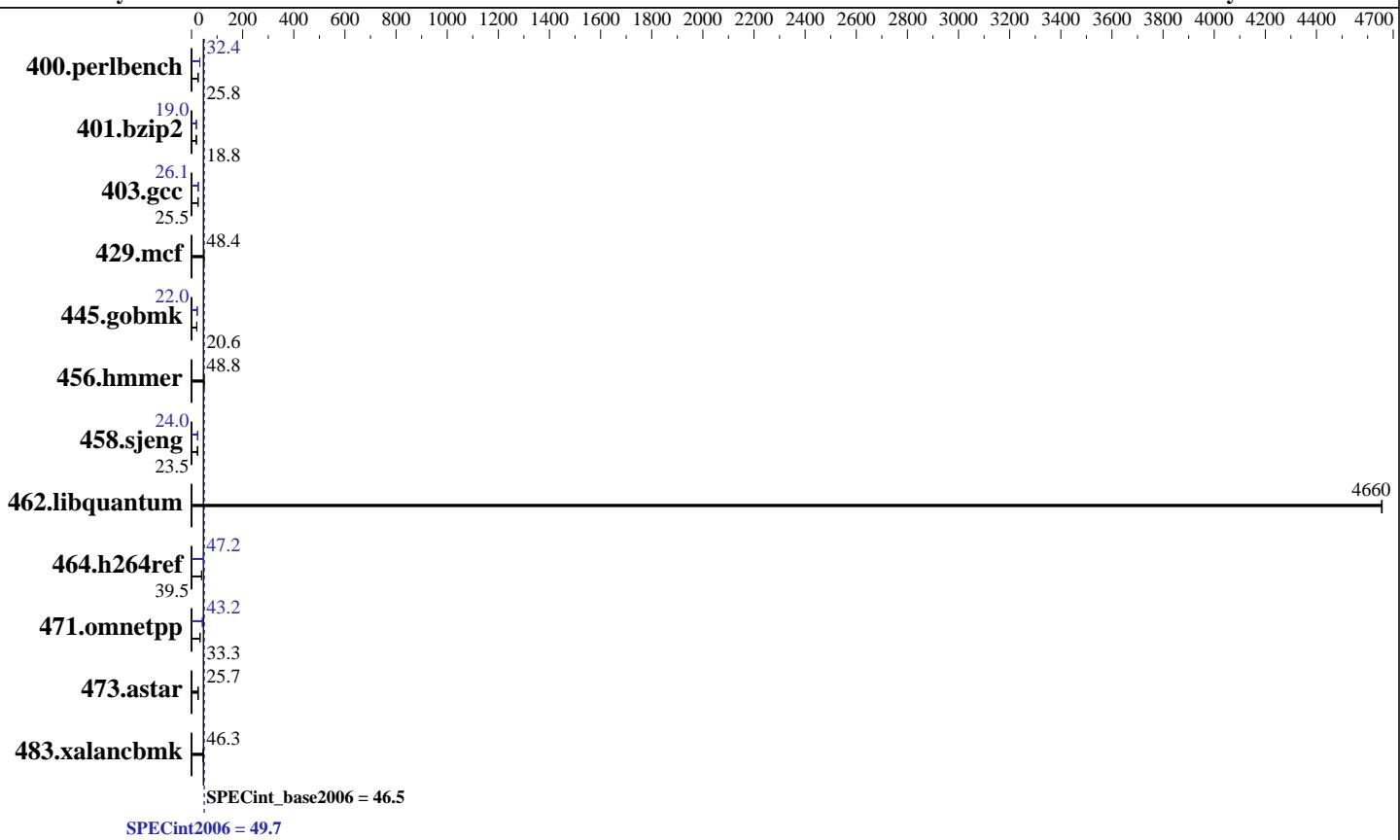
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

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

Benchmark	Result
400.perlbench	32.4 / 25.8
401.bzip2	19.0 / 18.8
403.gcc	26.1 / 25.5
429.mcf	48.4
445.gobmk	22.0 / 20.6
456.hmmer	48.8
458.sjeng	24.0 / 23.5
462.libquantum	4660
464.h264ref	47.2 / 39.5
471.omnetpp	43.2 / 33.3
473.astar	25.7
483.xalancbmk	46.3

SPECint_base2006 = 46.5

SPECint2006 = 49.7

Hardware

CPU Name: Intel Xeon E7-8880L v2
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 60 cores, 4 chips, 15 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 (58 x 16 GB 2Rx4 PC3L-12800R-11 + 6 x 16 GB 2Rx4 PC3-14900R-13, 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	379	25.8	379	25.7	**379**	**25.8**	301	32.4	302	32.4	**302**	**32.4**
401.bzip2	**513**	**18.8**	513	18.8	513	18.8	507	19.0	**507**	**19.0**	507	19.0
403.gcc	**316**	**25.5**	317	25.4	315	25.5	**308**	**26.1**	308	26.1	308	26.1
429.mcf	188	48.4	**188**	**48.4**	188	48.5	188	48.4	**188**	**48.4**	188	48.5
445.gobmk	**508**	**20.6**	508	20.6	509	20.6	476	22.0	**476**	**22.0**	476	22.0
456.hmmer	190	49.0	192	48.6	**191**	**48.8**	190	49.0	192	48.6	**191**	**48.8**
458.sjeng	**516**	**23.5**	516	23.5	516	23.4	505	24.0	**505**	**24.0**	505	23.9
462.libquantum	**4.45**	**4660**	4.45	4650	4.45	4660	**4.45**	**4660**	4.45	4650	4.45	4660
464.h264ref	**560**	**39.5**	561	39.4	558	39.6	469	47.2	**469**	**47.2**	470	47.1
471.omnetpp	191	32.8	**188**	**33.3**	187	33.3	149	42.1	**145**	**43.2**	144	43.4
473.astar	273	25.7	273	25.7	**273**	**25.7**	273	25.7	273	25.7	**273**	**25.7**
483.xalancbmk	**149**	**46.3**	149	46.4	149	46.3	**149**	**46.3**	149	46.4	149	46.3

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
    System Profile set to Custom
    Logical Processor disabled
    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 Sat Jan 25 15:05:38 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 E7-8880L v2 @ 2.20GHz
           4 "physical id"s (chips)
           60 "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 : 15
```

Continued on next page

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Platform Notes (Continued)

```
    siblings  : 15
    physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
    physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
    physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
    physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
  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 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 25 14:47 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:
   41x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1333 MHz
   6x 00CE00B300CE M393B2G70CB0-CMA 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)
Regarding the sysinfo display about the memory installed, although the information
is accurate, two different types of DIMMs were used in the configuration and it may
not be easy to immediately tell the difference.  The following has been provided to
help make the situation more clear.
   DIMMs with â€œM393B2G70BH0-YK0â€• in the name are 16 GB PC3L-12800R-11 DIMMs
   DIMMs with â€œM393B2G70CB0-CMAâ€• in the name are 16 GB PC3-14900R-13 DIMMs
```

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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 = "60"

 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
 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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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 -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`

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

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