SPEC® CINT2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4820 v2, 2.00 GHz)

$SPECint^{®}\_rate2006 =$ 991

$SPECint\_rate\_base2006 =$ 957

CPU2006 license:	55	**Test date:**	Sep-2014
Test sponsor:	Dell Inc.	**Hardware Availability:**	Mar-2014
Tested by:	Dell Inc.	**Software Availability:**	May-2014

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Hardware

CPU Name:	Intel Xeon E7-4820 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	32 cores, 4 chips, 8 cores/chip, 2 threads/core
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:	16 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (64 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
Disk Subsystem:	1 x 400 GB SAS SSD 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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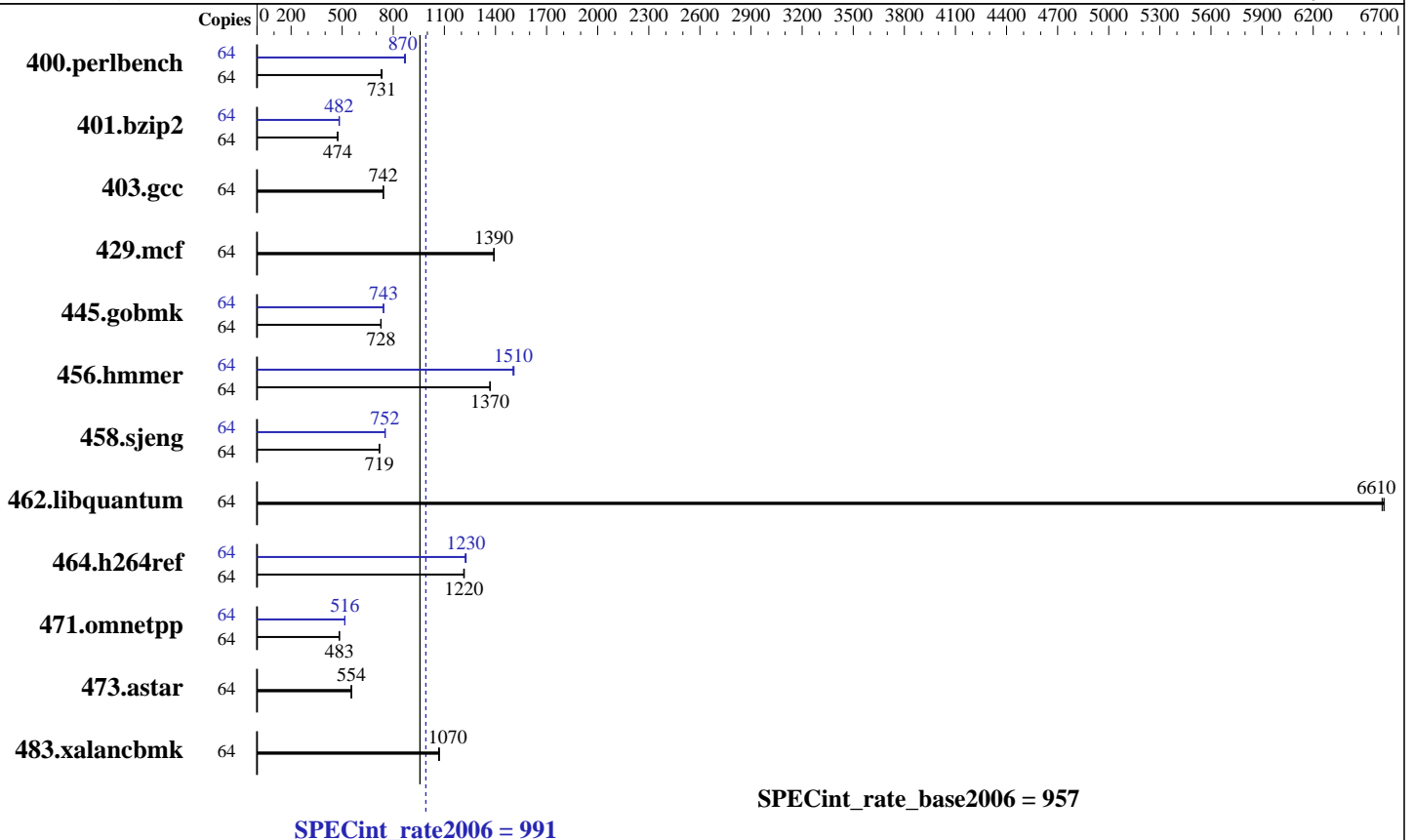
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Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	64	852	734	**855**	**731**	858	729	64	**719**	**870**	717	872	723	865
401.bzip2	64	1307	473	1303	474	**1303**	**474**	64	**1280**	**482**	1276	484	1282	482
403.gcc	64	694	742	**694**	**742**	696	740	64	694	742	**694**	**742**	696	740
429.mcf	64	420	1390	419	1390	**419**	**1390**	64	420	1390	419	1390	**419**	**1390**
445.gobmk	64	924	726	**923**	**728**	921	729	64	903	743	906	741	**903**	**743**
456.hmmer	64	437	1370	**437**	**1370**	436	1370	64	**397**	**1510**	397	1500	396	1510
458.sjeng	64	1077	719	1078	718	**1077**	**719**	64	1031	751	**1030**	**752**	1028	753
462.libquantum	64	201	6600	**201**	**6610**	200	6620	64	201	6600	**201**	**6610**	200	6620
464.h264ref	64	**1165**	**1220**	1164	1220	1167	1210	64	1154	1230	**1155**	**1230**	1159	1220
471.omnetpp	64	**827**	**483**	827	484	828	483	64	**776**	**516**	777	515	775	516
473.astar	64	813	553	**811**	**554**	809	555	64	813	553	**811**	**554**	809	555
483.xalancbmk	64	**414**	**1070**	412	1070	414	1070	64	**414**	**1070**	412	1070	414	1070

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
    CPU Power Management set to Maximum Performance
    C1E set to disabled
    C States set to 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 slesperf3 Tue Sep 9 19:14:28 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

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-4820 v2 @ 2.00GHz
      4 "physical id"s (chips)
      64 "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  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
      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 : 16384 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 Sep 9 20:09 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  255G  109G  71% /

Additional information from dmidecode:
  BIOS Dell Inc. 1.2.2 05/05/2014
  Memory:
  64x 00CE00B300CE M393B2G70BH0-YK0 16 GB 1066 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"

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General Notes (Continued)

```
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  -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-revC.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.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-revC.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.xml

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

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