SPEC® CINT2006 Result

Dell Inc.

PowerEdge R920 (Intel Xeon E7-4870 v2, 2.30 GHz)

$SPECint^{®}\_rate2006 =$ 2060

$SPECint\_rate\_base2006 =$ 2010

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

SPECint_rate_base2006 = 2010

SPECint_rate2006 = 2060

Benchmark	Copies	Base	Peak
400.perlbench	120 / 120	1610	1900
401.bzip2	120 / 120	1000	1020
403.gcc	120 / 120	1500	1500
429.mcf	120	2730	
445.gobmk	120 / 120	1590	1630
456.hmmer	120 / 120	2890	2980
458.sjeng	120 / 120	1570	1640
462.libquantum	120	14300	
464.h264ref	120	2740	
471.omnetpp	120 / 120	955	998
473.astar	120	1110	
483.xalancbmk	120	2120	
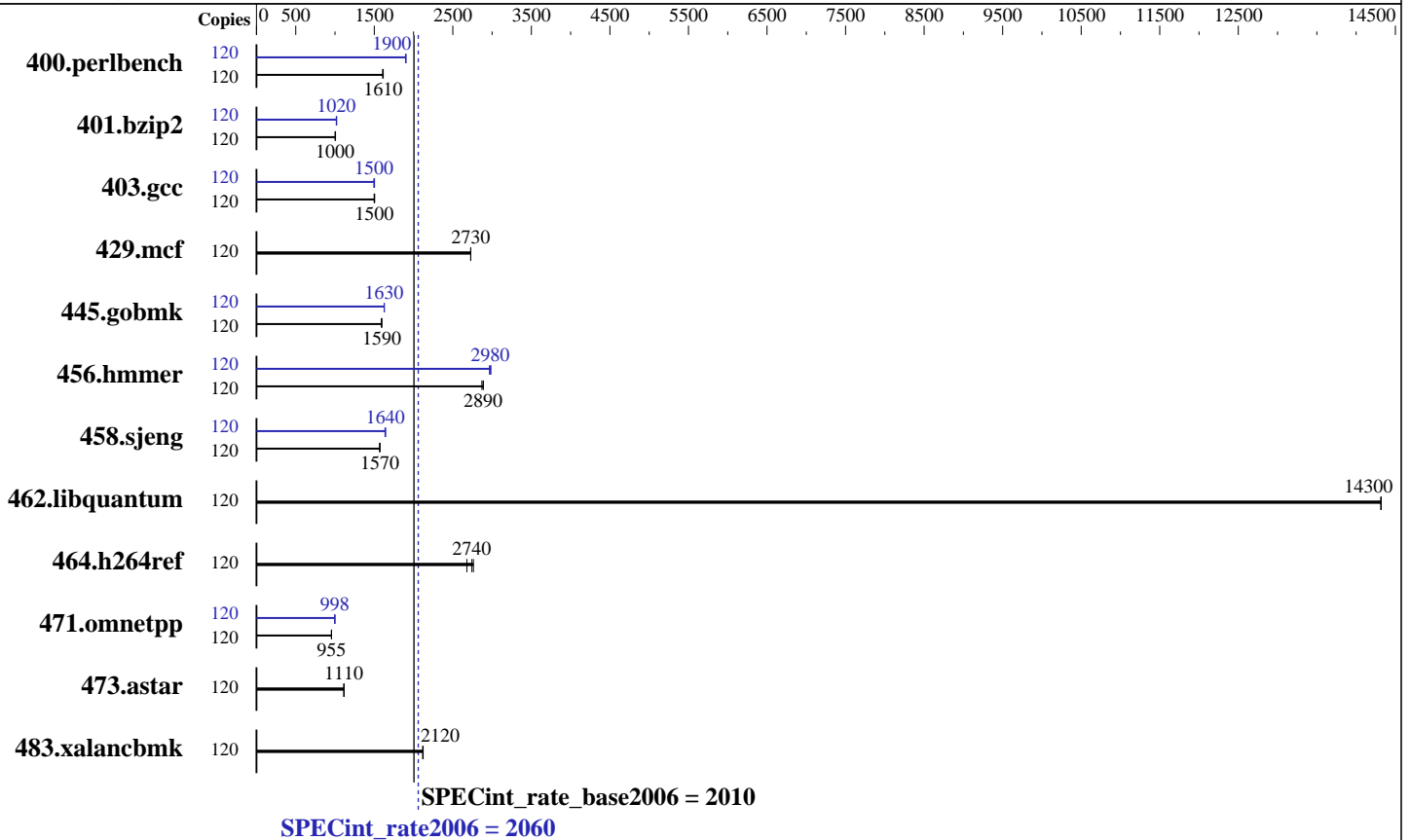
Hardware

CPU Name:	Intel Xeon E7-4870 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	60 cores, 4 chips, 15 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:	30 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:	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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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	120	730	1610	**727**	**1610**	726	1610	120	**616**	**1900**	616	1900	618	1900
401.bzip2	120	1156	1000	**1155**	**1000**	1151	1010	120	**1136**	**1020**	1135	1020	1140	1020
403.gcc	120	**644**	**1500**	642	1510	644	1500	120	**645**	**1500**	643	1500	646	1500
429.mcf	120	**401**	**2730**	401	2730	401	2730	120	**401**	**2730**	401	2730	401	2730
445.gobmk	120	791	1590	789	1590	**789**	**1590**	120	**774**	**1630**	774	1630	774	1630
456.hmmer	120	**388**	**2890**	388	2890	390	2870	120	375	2980	**376**	**2980**	377	2970
458.sjeng	120	**925**	**1570**	925	1570	924	1570	120	887	1640	**884**	**1640**	883	1640
462.libquantum	120	174	14300	**174**	**14300**	174	14300	120	174	14300	**174**	**14300**	174	14300
464.h264ref	120	961	2760	**968**	**2740**	991	2680	120	961	2760	**968**	**2740**	991	2680
471.omnetpp	120	**786**	**955**	785	956	786	954	120	752	998	752	997	**752**	**998**
473.astar	120	756	1110	**756**	**1110**	757	1110	120	756	1110	**756**	**1110**	757	1110
483.xalancbmk	120	390	2120	391	2120	**391**	**2120**	120	390	2120	391	2120	**391**	**2120**

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
      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 Mon Feb 10 03:00:38 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 E7-4870 v2 @ 2.30GHz
            4 "physical id"s (chips)

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Platform Notes (Continued)

```
    120 "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
    siblings  : 30
    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 : 30720 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 Feb 10 02:52 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. 1.0.4 01/27/2014
  Memory:
  47x 00CE00B300CE M393B2G70BH0-YK0 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)
```

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"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

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General Notes (Continued)

```
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: `-xSSE4.2 -ipo -O3 -no-prec-div`

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: basepeak = yes

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-linux64.20140128.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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