SPEC® CINT2006 Result

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Dell Inc.

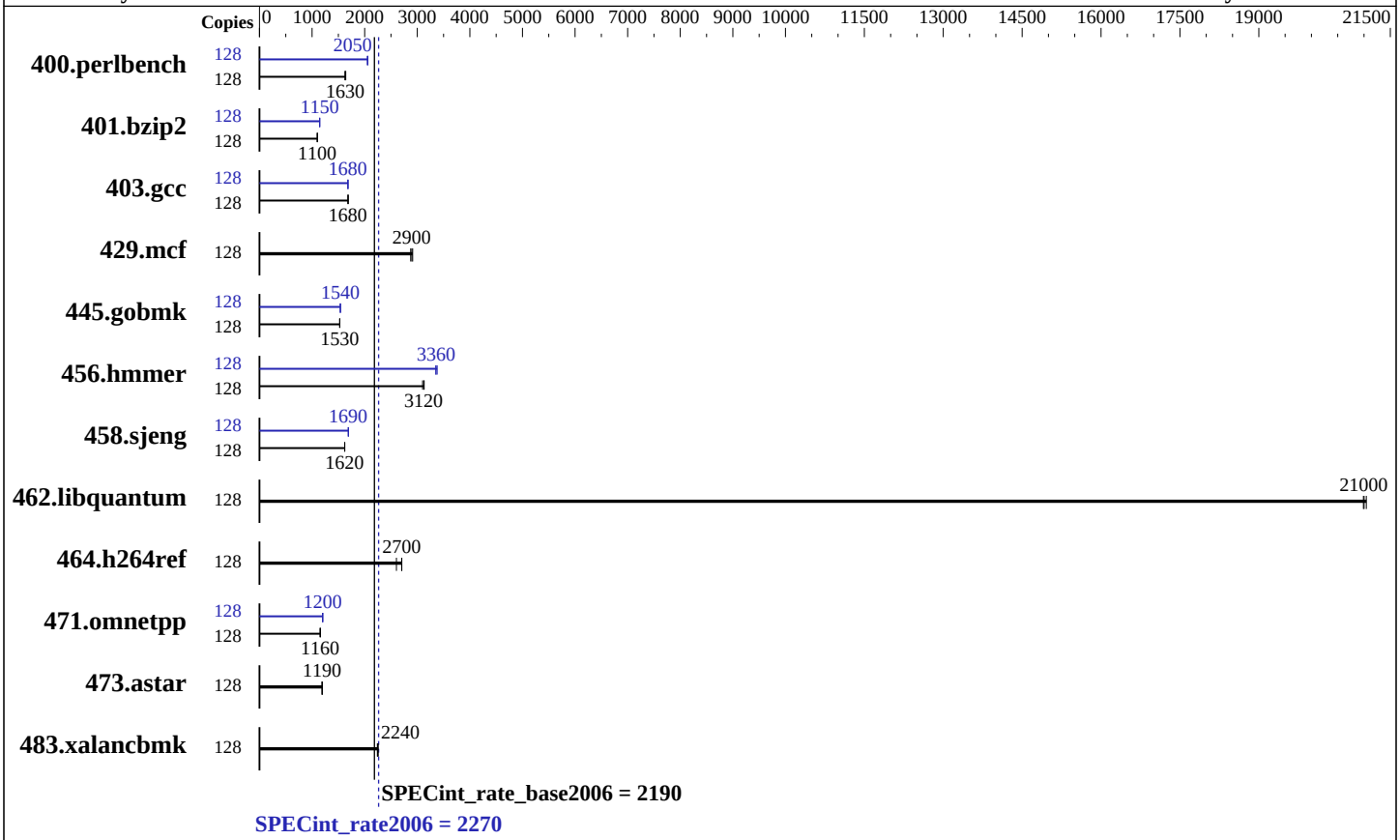
PowerEdge M830 (Intel Xeon E5-4667 v3, 2.00 GHz)

SPECint®_rate2006 = 2270

SPECint_rate_base2006 = 2190

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

Test date: Jan-2015
Hardware Availability: Jun-2015
Software Availability: Jun-2015



Hardware

CPU Name:	Intel Xeon E5-4667 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	64 cores, 4 chips, 16 cores/chip, 2 threads/core
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:	40 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 400 GB 7200 RPM SATA
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 3.12.28-4-default
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	ext4
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	128	769	1630	762	1640	**767**	**1630**	128	609	2050	607	2060	**609**	**2050**
401.bzip2	128	1122	1100	**1122**	**1100**	1124	1100	128	1078	1150	**1078**	**1150**	1081	1140
403.gcc	128	611	1690	**612**	**1680**	612	1680	128	612	1680	613	1680	**613**	**1680**
429.mcf	128	**403**	**2900**	406	2870	401	2910	128	**403**	**2900**	406	2870	401	2910
445.gobmk	128	880	1530	879	1530	**880**	**1530**	128	**873**	**1540**	873	1540	873	1540
456.hmmer	128	**382**	**3120**	385	3100	381	3130	128	353	3380	**356**	**3360**	356	3350
458.sjeng	128	955	1620	956	1620	**956**	**1620**	128	**917**	**1690**	917	1690	916	1690
462.libquantum	128	126	21000	**126**	**21000**	126	21000	128	126	21000	**126**	**21000**	126	21000
464.h264ref	128	**1048**	**2700**	1047	2710	1088	2600	128	**1048**	**2700**	1047	2710	1088	2600
471.omnetpp	128	691	1160	**692**	**1160**	694	1150	128	**665**	**1200**	665	1200	667	1200
473.astar	128	**754**	**1190**	753	1190	755	1190	128	**754**	**1190**	753	1190	755	1190
483.xalancbmk	128	391	2260	394	2240	**393**	**2240**	128	391	2260	394	2240	**393**	**2240**

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 Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-4bm6 Fri Jan 30 10:13:43 2015

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 E5-4667 v3 @ 2.00GHz
      4 "physical id"s (chips)
      128 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
```

Continued on next page

Platform Notes (Continued)

```
      following excerpts from /proc/cpuinfo might not be reliable.  Use with
      caution.)
         cpu cores : 16
         siblings  : 32
         physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
         physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
      cache size : 40960 KB

   From /proc/meminfo
      MemTotal:       529334380 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 12

   From /etc/*release* /etc/*version*
      SuSE-release:
         SUSE Linux Enterprise Server 12 (x86_64)
         VERSION = 12
         PATCHLEVEL = 0
         # This file is deprecated and will be removed in a future service pack or
         release.
         # Please check /etc/os-release for details about this release.
      os-release:
         NAME="SLES"
         VERSION="12"
         VERSION_ID="12"
         PRETTY_NAME="SUSE Linux Enterprise Server 12"
         ID="sles"
         ANSI_COLOR="0;32"
         CPE_NAME="cpe:/o:suse:sles:12"

   uname -a:
      Linux linux-4bm6 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
      (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Jan 30 10:07

   SPEC is set to: /root/cpu2006-1.2
      Filesystem     Type  Size  Used Avail Use% Mounted on
      /dev/sda2      ext4  359G  8.6G  350G   3% /
   Additional information from dmidecode:

      Warning: Use caution when you interpret this section. The 'dmidecode' program
      reads system data which is "intended to allow hardware to be accurately
      determined", but the intent may not be met, as there are frequent changes to
      hardware, firmware, and the "DMTF SMBIOS" standard.

     BIOS Dell Inc. 0.3.8 12/18/2014
```

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Platform Notes (Continued)

```
    Memory:
     32x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
     16x Not Specified Not Specified

  (End of data from sysinfo program)
```

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"

  Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
  memory using RedHat EL 7.0
  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 -L/opt/intel/composer_xe_2015/lib/ia32
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -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 -L/opt/intel/composer_xe_2015/lib/ia32`

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
`icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

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: `-xCORE-AVX2`(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: `-xCORE-AVX2`(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: `-xCORE-AVX2 -ipo -O3 -no-prec-div`

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Peak Optimization Flags (Continued)

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.20150421.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.20150421.xml

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For other inquiries, please contact webmaster@spec.org.

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