



SPEC[®] CINT2006 Result

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Dell Inc.

SPECint[®]_rate2006 = 1420

PowerEdge FC830 (Intel Xeon E5-4620 v3, 2.00 GHz)

SPECint_rate_base2006 = 1360

CPU2006 license: 55

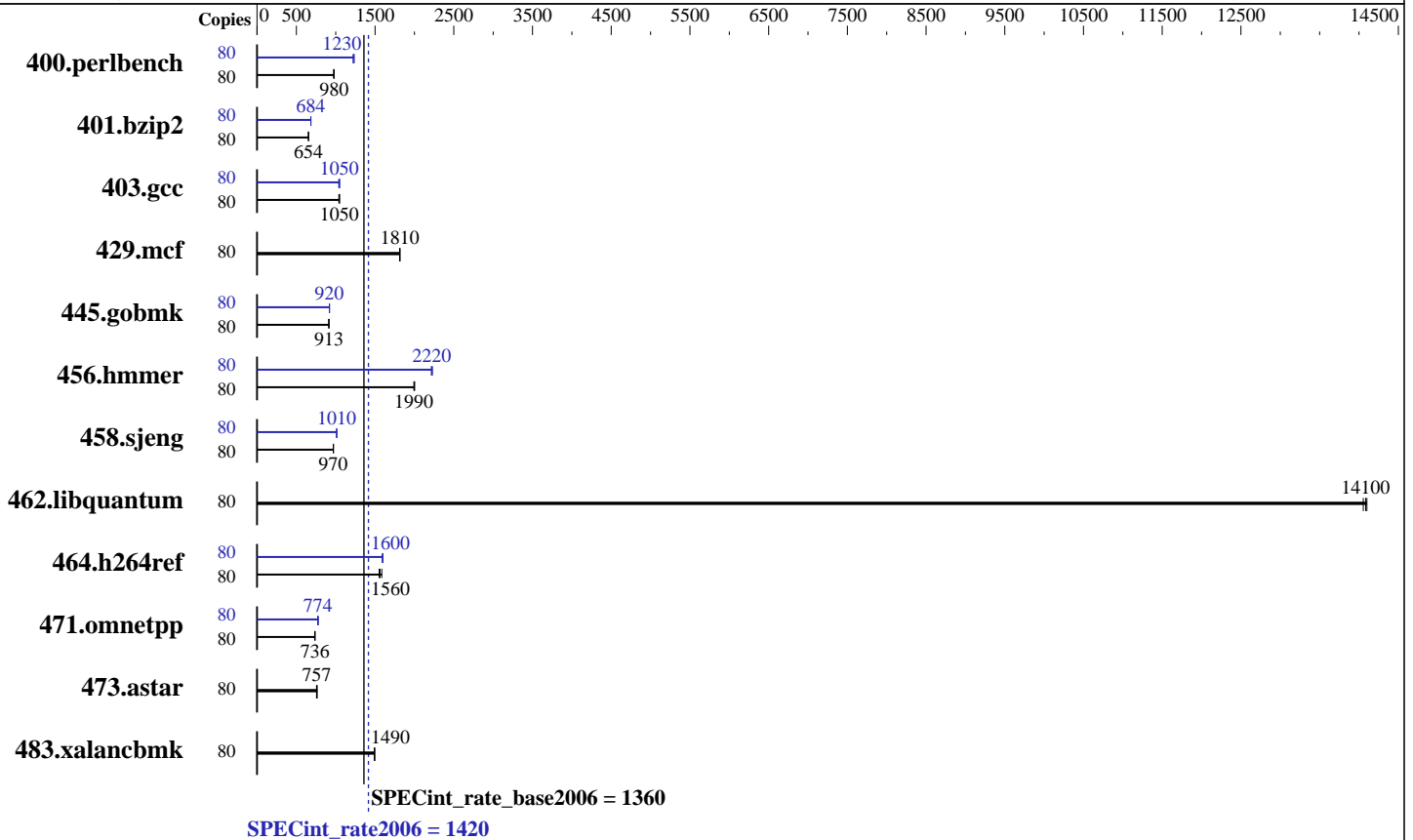
Test date: Feb-2015

Test sponsor: Dell Inc.

Hardware Availability: Jun-2015

Tested by: Dell Inc.

Software Availability: Jun-2015



Hardware

CPU Name: Intel Xeon E5-4620 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 2.60 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 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: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
 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	80	797	981	798	980	804	972	80	633	1240	640	1220	638	1230
401.bzip2	80	1182	653	1180	654	1178	655	80	1129	684	1128	684	1128	684
403.gcc	80	615	1050	615	1050	619	1040	80	616	1050	613	1050	620	1040
429.mcf	80	401	1820	403	1810	402	1810	80	401	1820	403	1810	402	1810
445.gobmk	80	919	913	920	912	919	914	80	912	920	912	920	912	920
456.hammer	80	374	1990	374	1990	373	2000	80	335	2230	336	2220	337	2220
458.sjeng	80	999	969	997	971	998	970	80	957	1010	957	1010	956	1010
462.libquantum	80	118	14100	118	14100	118	14100	80	118	14100	118	14100	118	14100
464.h264ref	80	1141	1550	1117	1590	1133	1560	80	1106	1600	1108	1600	1113	1590
471.omnetpp	80	679	736	680	736	680	735	80	647	773	646	774	643	778
473.astar	80	742	757	734	765	742	757	80	742	757	734	765	742	757
483.xalancbmk	80	370	1490	369	1490	369	1490	80	370	1490	369	1490	369	1490

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:

Snoop Mode set to Early Snoop

Virtualization Technology 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-k8qh Wed Feb 11 10:16:39 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 E5-4620 v3 @ 2.00GHz

4 "physical id"s (chips)

80 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The

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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```

cpu cores : 10
siblings  : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
physical 2: cores 0 1 2 3 4 8 9 10 11 12
physical 3: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB

```

From /proc/meminfo

```

MemTotal:      529334376 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-k8qh 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 Feb 11 10:15

SPEC is set to: /root/cpu2006-1.2

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  267G  8.7G  257G   4% /

```

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. 0.4.0 01/08/2015

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Platform Notes (Continued)

Memory:

4x 002C00B3002C 36ASF2G72PZ-2G1A1 16 GB 2 rank 2133 MHz, configured at 1867 MHz
 1x 00AD00B300AD HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz, configured at 1867 MHz
 14x 00AD063200AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 1867 MHz
 5x 00AD063200AD HMA42GR7MFR4N-TFT1 16 GB 2 rank 2133 MHz, configured at 1867 MHz
 8x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 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



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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



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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

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: -xCORE-AVX2(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: -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



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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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