



SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

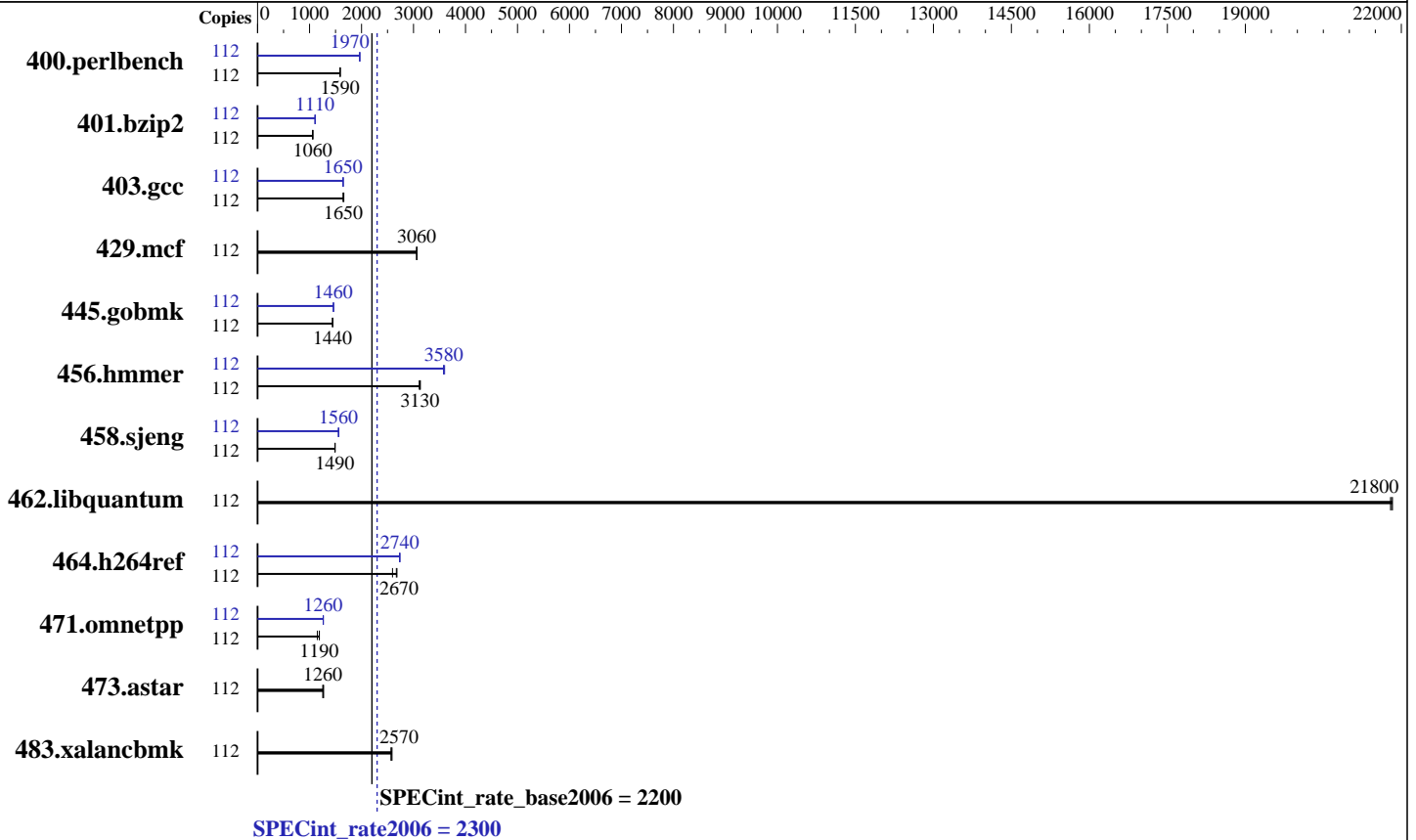
Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016



Hardware

CPU Name: Intel Xeon E5-4650 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 56 cores, 4 chips, 14 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: 35 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx8 PC4-2400T-R)
 Disk Subsystem: 1 x 800 GB SATA SSD
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default
 Compiler: C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux
 Auto Parallel: No
 File System: btrfs
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.2



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016

Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	112	689	1590	<u>689</u>	<u>1590</u>	689	1590	112	<u>557</u>	<u>1970</u>	556	1970	557	1960
401.bzip2	112	1022	1060	<u>1017</u>	<u>1060</u>	1015	1070	112	<u>976</u>	<u>1110</u>	978	1100	975	1110
403.gcc	112	543	1660	548	1650	<u>546</u>	<u>1650</u>	112	547	1650	548	1640	<u>548</u>	<u>1650</u>
429.mcf	112	<u>333</u>	<u>3060</u>	334	3060	333	3060	112	<u>333</u>	<u>3060</u>	334	3060	333	3060
445.gobmk	112	813	1450	814	1440	<u>814</u>	<u>1440</u>	112	805	1460	804	1460	<u>805</u>	<u>1460</u>
456.hammer	112	<u>334</u>	<u>3130</u>	336	3110	334	3130	112	<u>292</u>	<u>3580</u>	290	3600	292	3580
458.sjeng	112	909	1490	910	1490	<u>910</u>	<u>1490</u>	112	869	1560	871	1560	<u>870</u>	<u>1560</u>
462.libquantum	112	106	21800	<u>106</u>	<u>21800</u>	106	21800	112	106	21800	<u>106</u>	<u>21800</u>	106	21800
464.h264ref	112	<u>928</u>	<u>2670</u>	955	2600	924	2680	112	907	2730	<u>906</u>	<u>2740</u>	905	2740
471.omnetpp	112	609	1150	589	1190	<u>589</u>	<u>1190</u>	112	555	1260	<u>553</u>	<u>1260</u>	553	1270
473.astar	112	619	1270	<u>624</u>	<u>1260</u>	626	1260	112	619	1270	<u>624</u>	<u>1260</u>	626	1260
483.xalancbmk	112	299	2590	301	2570	<u>300</u>	<u>2570</u>	112	299	2590	301	2570	<u>300</u>	<u>2570</u>

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 Cluster on Die
 Virtualization Technology disabled
 System Profile set to custom
 CPU Performance set to Hardware P States
 C States set to Autonomous
 C1E disabled
 Energy Efficient Turbo disabled
 Uncore Frequency set to Dynamic
 Energy Efficiency Policy set to Balanced Performance
 Memory Patrol Scrub disabled
 Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on linux-9j5l Fri May 6 14:23:52 2016

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016

Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-4650 v4 @ 2.20GHz

4 "physical id"s (chips)

112 "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 : 14

siblings : 28

physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

cache size : 17920 KB

From /proc/meminfo

MemTotal: 529325756 kB

HugePages_Total: 0

Hugepagesize: 2048 kB

/usr/bin/lsb_release -d

SUSE Linux Enterprise Server 12 SP1

From /etc/*release* /etc/*version*

SuSE-release:

SUSE Linux Enterprise Server 12 (x86_64)

VERSION = 12

PATCHLEVEL = 1

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-SP1"

VERSION_ID="12.1"

PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"

ID="sles"

ANSI_COLOR="0;32"

CPE_NAME="cpe:/o:suse:sles:12:sp1"

uname -a:

Linux linux-9j5l 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015

(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 6 14:23

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on

/dev/sda2 xfs 225G 8.8G 217G 4% /

Additional information from dmidecode:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016

Platform Notes (Continued)

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. 2.0.1 03/31/2016

Memory:

16x 00AD00B300AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz

16x 00CE00B300CE M393A2K43BB1-CRC 16 GB 2 rank 2400 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 Intel Core i7-4790K CPU + 32GB memory using RedHat EL 7.2 glibc 2.17

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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Base Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32

401.bzip2: -D_FILE_OFFSET_BITS=64

403.gcc: -D_FILE_OFFSET_BITS=64

429.mcf: -D_FILE_OFFSET_BITS=64

445.gobmk: -D_FILE_OFFSET_BITS=64

456.hmmer: -D_FILE_OFFSET_BITS=64

458.sjeng: -D_FILE_OFFSET_BITS=64

462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016

Base Portability Flags (Continued)

464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.aster: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016

Peak Portability Flags (Continued)

```

403.gcc: -D_FILE_OFFSET_BITS=64
429.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.aster: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

```

Peak Optimization Flags

C benchmarks:

```

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
               -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
               -par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
           -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
           -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
           -prof-use(pass 2) -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
           -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
           -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
           -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
            -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
            -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
            -ansi-alias

```

C++ benchmarks:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

SPECint_rate2006 = 2300

PowerEdge M830 (Intel Xeon E5-4650 v4, 2.20 GHz)

SPECint_rate_base2006 = 2200

CPU2006 license: 55

Test date: May-2016

Test sponsor: Dell Inc.

Hardware Availability: Jun-2016

Tested by: Dell Inc.

Software Availability: Mar-2016

Peak Optimization Flags (Continued)

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.

Report generated on Tue Jun 28 17:30:16 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 28 June 2016.