SPEC® CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

$SPECint^{®}\_rate2006 = \quad 2440$

$SPECint\_rate\_base2006 = \quad 2350$
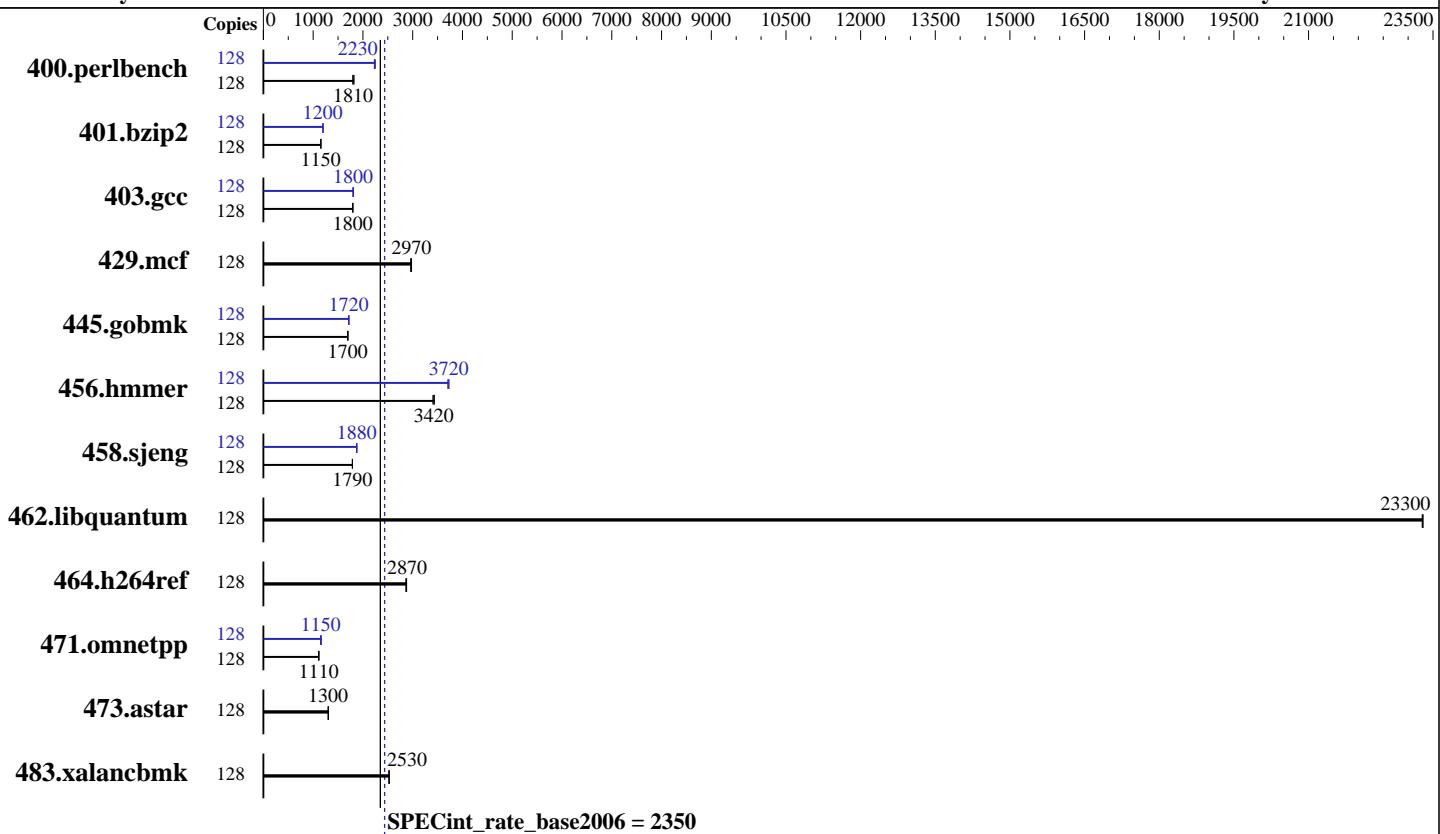
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Benchmark	Copies	Base	Peak
400.perlbench	128	1810	2230
401.bzip2	128	1150	1200
403.gcc	128	1800	1800
429.mcf	128	2970	
445.gobmk	128	1700	1720
456.hmmer	128	3420	3720
458.sjeng	128	1790	1880
462.libquantum	128	23300	
464.h264ref	128	2870	
471.omnetpp	128	1110	1150
473.astar	128	1300	
483.xalancbmk	128	2530	

SPECint_rate_base2006 = 2350

SPECint_rate2006 = 2440

Hardware

CPU Name: Intel Xeon E7-8860 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 64 cores, 4 chips, 16 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: 40 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem: 2 x 200 GB SAS6 SSD, RAID0
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

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

SPECint_rate2006 =   2440

SPECint_rate_base2006 = 2350

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	128	686	1820	697	1800	**692**	**1810**	128	561	2230	**560**	**2230**	556	2250
401.bzip2	128	1069	1160	1071	1150	**1070**	**1150**	128	**1032**	**1200**	1030	1200	1032	1200
403.gcc	128	573	1800	574	1790	**574**	**1800**	128	**572**	**1800**	569	1810	573	1800
429.mcf	128	**393**	**2970**	394	2960	392	2980	128	**393**	**2970**	394	2960	392	2980
445.gobmk	128	**791**	**1700**	792	1700	791	1700	128	**782**	**1720**	781	1720	783	1710
456.hmmer	128	351	3410	348	3440	**349**	**3420**	128	322	3710	**321**	**3720**	320	3730
458.sjeng	128	**866**	**1790**	866	1790	865	1790	128	826	1870	825	1880	**825**	**1880**
462.libquantum	128	**114**	**23300**	114	23300	114	23300	128	**114**	**23300**	114	23300	114	23300
464.h264ref	128	989	2860	**987**	**2870**	984	2880	128	989	2860	**987**	**2870**	984	2880
471.omnetpp	128	**719**	**1110**	719	1110	717	1120	128	694	1150	**694**	**1150**	687	1160
473.astar	128	689	1300	**689**	**1300**	689	1300	128	689	1300	**689**	**1300**	689	1300
483.xalancbmk	128	**350**	**2530**	350	2530	350	2530	128	**350**	**2530**	350	2530	350	2530

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
    System Profile set to Custom
    CPU Power Management set to Maximum Performance
    Memory Frequency set to Maximum Performance
    Turbo Boost enabled
    Energy Efficient Turbo disabled
    C1E disabled
    C States disabled
    Collaborative CPU Performance Control disabled
    Memory Patrol Scrub disabled
    Memory Refresh Rate set to 1x
    Uncore Frequency set to Maximum
    Energy Efficient Policy set to Performance
    Monitor/MWait enabled

    Sysinfo program

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

SPECint_rate2006 =   2440

SPECint_rate_base2006 = 2350

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Platform Notes (Continued)

```
/root/Desktop/Performance/ic15.0_Aug29_2014/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-w3lk Fri Apr 10 15:40:38 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 E7-8860 v3 @ 2.20GHz
      4 "physical id"s (chips)
      128 "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 : 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:       529207312 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-w3lk 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
   (9879bd4) x86_64 x86_64 x86_64 GNU/Linux
```

Continued on next page

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

SPECint_rate2006 =   2440

SPECint_rate_base2006 = 2350

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Platform Notes (Continued)

```
run-level 3 Apr 10 15:40 last=5

SPEC is set to: /root/Desktop/Performance/ic15.0_Aug29_2014
   Filesystem     Type   Size  Used Avail Use% Mounted on
   /dev/sda3      ext4   364G   11G  353G   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. 1.0.1 [MRC_096] 03/27/2015
  Memory:
  32x 00AD00B300AD Not Specified 16 GB 2 rank 2133 MHz, configured at 1600 MHz
  64x 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/Desktop/Performance/ic15.0_Aug29_2014/libs/32:/root/Desktop/Performance/ic15.0_Aug29_2014/libs/64:/root/Desktop/Performance/ic15.0_Aug29_2014/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
```

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

SPECint_rate2006 =   2440

SPECint_rate_base2006 = 2350

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

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`

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

SPECint_rate2006 =   2440

SPECint_rate_base2006 = 2350

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

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: 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

Dell Inc.

PowerEdge R930 (Intel Xeon E7-8860 v3, 2.20 GHz)

SPECint_rate2006 = 2440

SPECint_rate_base2006 = 2350

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

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
```

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 May 5 15:15:26 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 May 2015.