SPEC® CINT2006 Result
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Dell Inc.

PowerEdge R730 (Intel Xeon E5-2667 v3, 3.20 GHz)

SPECint®2006 =   65.7
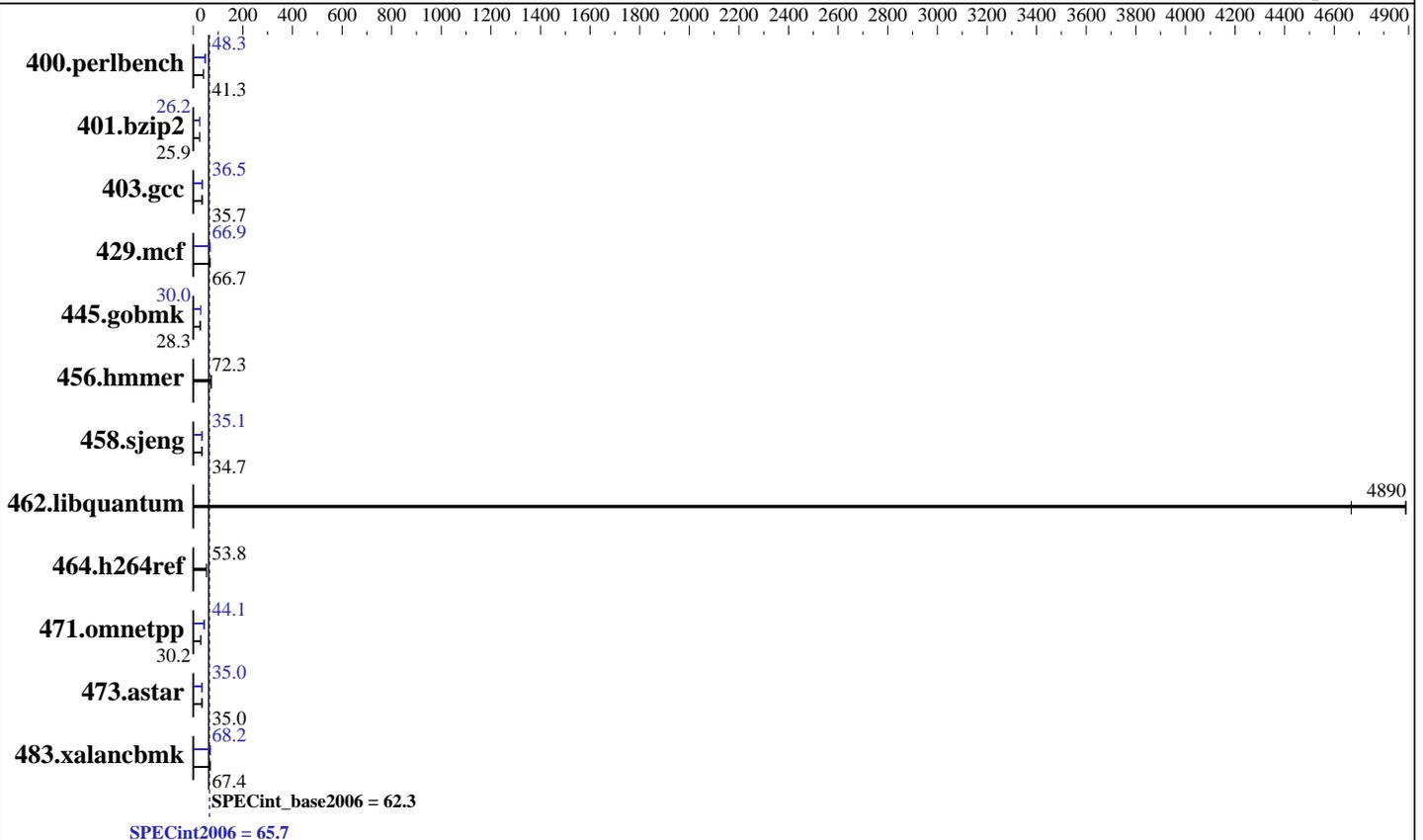
SPECint_base2006 =   62.3

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

Test date: Jun-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Results graph (values in SPEC ratio):

Benchmark	Peak	Base
400.perlbench	48.3	41.3
401.bzip2	26.2	25.9
403.gcc	36.5	35.7
429.mcf	66.9	66.7
445.gobmk	30.0	28.3
456.hmmer		72.3
458.sjeng	35.1	34.7
462.libquantum		4890
464.h264ref		53.8
471.omnetpp	44.1	30.2
473.astar	35.0	35.0
483.xalancbmk	68.2	67.4

SPECint_base2006 = 62.3
SPECint2006 = 65.7

Hardware

CPU Name: Intel Xeon E5-2667 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 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: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 300 GB 15000 RPM SAS
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: Yes
File System: ext2
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	236	41.4	**237**	**41.3**	237	41.2	**202**	**48.3**	202	48.5	202	48.3
401.bzip2	**373**	**25.9**	373	25.9	373	25.9	369	26.2	**368**	**26.2**	368	26.2
403.gcc	225	35.7	227	35.4	**225**	**35.7**	222	36.3	221	36.5	**221**	**36.5**
429.mcf	137	66.8	**137**	**66.7**	137	66.6	137	66.8	136	66.9	**136**	**66.9**
445.gobmk	371	28.3	370	28.3	**371**	**28.3**	**350**	**30.0**	350	30.0	350	30.0
456.hmmer	129	72.4	130	71.9	**129**	**72.3**	129	72.4	130	71.9	**129**	**72.3**
458.sjeng	348	34.7	**348**	**34.7**	348	34.7	345	35.1	**345**	**35.1**	345	35.1
462.libquantum	**4.24**	**4890**	4.24	4890	4.44	4670	**4.24**	**4890**	4.24	4890	4.44	4670
464.h264ref	**411**	**53.8**	410	53.9	414	53.4	**411**	**53.8**	410	53.9	414	53.4
471.omnetpp	207	30.2	**207**	**30.2**	206	30.4	141	44.2	142	43.9	**142**	**44.1**
473.astar	200	35.0	201	35.0	**200**	**35.0**	200	35.0	201	34.9	**201**	**35.0**
483.xalancbmk	102	67.4	**102**	**67.4**	102	67.3	101	68.2	101	68.1	**101**	**68.2**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

```
BIOS settings:
Snoop Mode set to Home Snoop
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Thu Jun 19 12:23:23 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 E5-2667 v3 @ 3.20GHz
      2 "physical id"s (chips)
      32 "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 : 8
         siblings  : 16
         physical 0: cores 0 1 2 3 4 5 6 7
         physical 1: cores 0 1 2 3 4 5 6 7
      cache size : 20480 KB

   From /proc/meminfo
      MemTotal:       264572220 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 linux 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 Jun 19 12:19 last=S

   SPEC is set to: /root/cpu2006-1.2
      Filesystem      Type  Size  Used Avail Use% Mounted on
      /dev/sda2       ext2  267G  8.8G  257G   4% /

   Additional information from dmidecode:
     BIOS Dell Inc. 0.3.24 06/12/2014
     Memory:
      1x 00AD00B300AD HMA42GR7MFR4N-TFTD 16 GB 2133 MHz
      8x 00AD063200AD HMA42GR7MFR4N-TFT1 16 GB 2133 MHz
      7x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2133 MHz
      8x 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"
 OMP_NUM_THREADS = "16"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RedHat EL 6.4
  Transparent Huge Pages enabled with:
```

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General Notes (Continued)

```
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 -m64

C++ benchmarks:
        icpc -m64

Base Portability Flags

      400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
         401.bzip2: -DSPEC_CPU_LP64
           403.gcc: -DSPEC_CPU_LP64
           429.mcf: -DSPEC_CPU_LP64
        445.gobmk: -DSPEC_CPU_LP64
        456.hmmer: -DSPEC_CPU_LP64
         458.sjeng: -DSPEC_CPU_LP64
      462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
        464.h264ref: -DSPEC_CPU_LP64
        471.omnetpp: -DSPEC_CPU_LP64
          473.astar: -DSPEC_CPU_LP64
      483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
        -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
        -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
        -Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

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Peak Compiler Invocation

C benchmarks (except as noted below):
       `icc -m64`

    400.perlbench: `icc -m32`

     445.gobmk: `icc -m32`

C++ benchmarks (except as noted below):
       `icpc -m32`

     473.astar: `icpc -m64`

Peak Portability Flags

    400.perlbench: `-DSPEC_CPU_LINUX_IA32`
      401.bzip2: `-DSPEC_CPU_LP64`
       403.gcc: `-DSPEC_CPU_LP64`
       429.mcf: `-DSPEC_CPU_LP64`
     456.hmmer: `-DSPEC_CPU_LP64`
      458.sjeng: `-DSPEC_CPU_LP64`
   462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
    464.h264ref: `-DSPEC_CPU_LP64`
      473.astar: `-DSPEC_CPU_LP64`
  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)`
             `-opt-prefetch -ansi-alias`

      401.bzip2: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
             `-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32`
             `-opt-prefetch -ansi-alias`

       403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc`
             `-opt-malloc-options=3 -auto-ilp32`

       429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel`
             `-opt-prefetch -auto-p32`

     445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
             `-ansi-alias`

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Peak Optimization Flags (Continued)

456.hmmer: basepeak = yes

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

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)
-opt-ra-region-strategy=block   -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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-revC.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.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-revC.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.xml

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

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