SPEC® CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

$SPECint®2006 =$ 63.2

$SPECint\_base2006 =$ 61.2

Benchmark	Peak	Base
400.perlbench	38.4	35.2
401.bzip2	21.5	21.4
403.gcc		32.3
429.mcf	56.1	55.0
445.gobmk	25.9	
456.hmmer		73.1
458.sjeng	30.5	30.2
462.libquantum		8890
464.h264ref	50.0	
471.omnetpp	48.6	40.7
473.astar		31.7
483.xalancbmk	69.4	63.6

SPECint_base2006 = 61.2
SPECint2006 = 63.2

Hardware

CPU Name:	Intel Xeon E5-4660 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 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 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 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

SPECint2006 = 63.2

SPECint_base2006 = 61.2
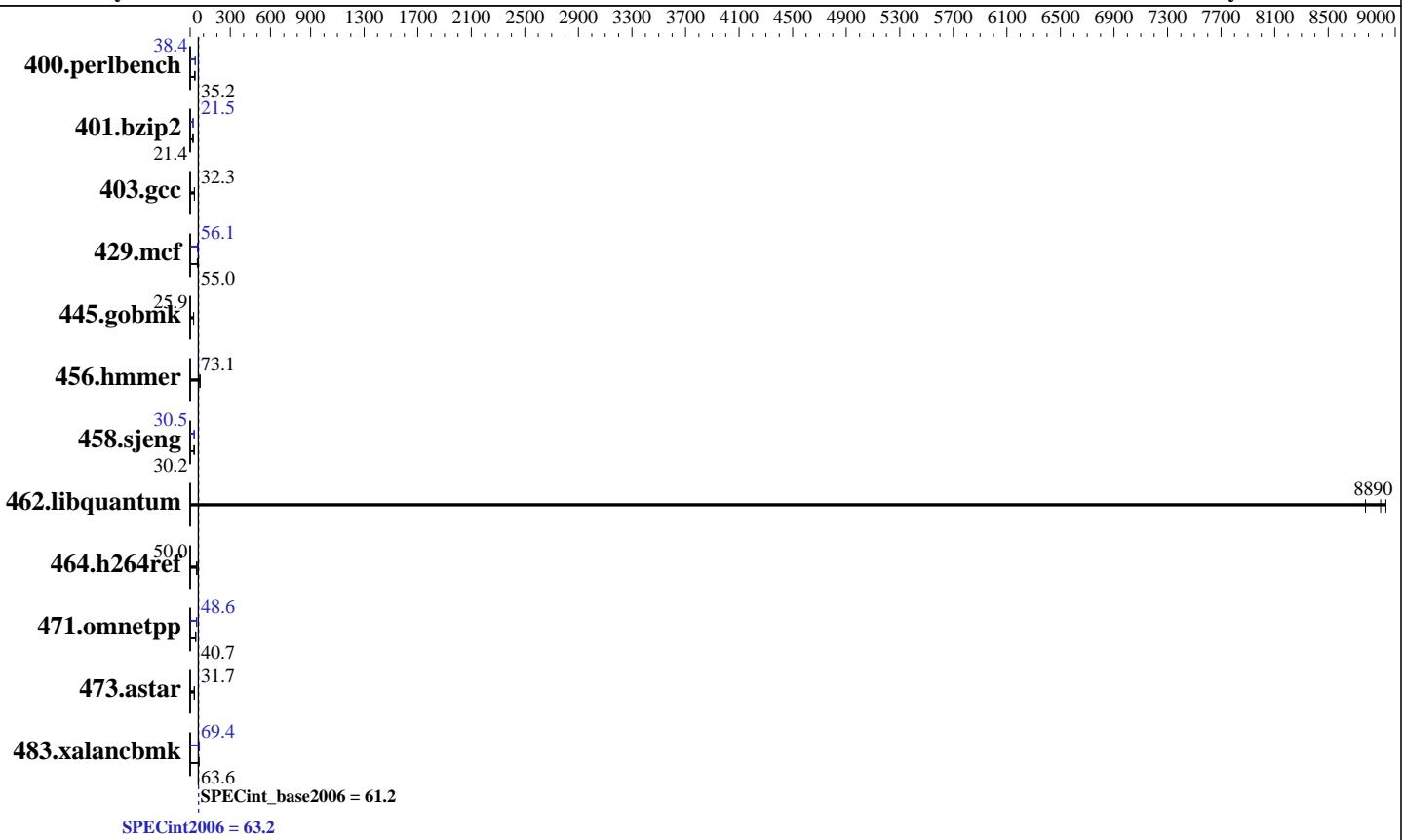
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: May-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016

Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	**278**	**35.2**	278	35.1	276	35.4	254	38.4	**255**	**38.4**	255	38.4
401.bzip2	**451**	**21.4**	449	21.5	451	21.4	449	21.5	**450**	**21.5**	450	21.5
403.gcc	**249**	**32.3**	249	32.3	247	32.6	**249**	**32.3**	249	32.3	247	32.6
429.mcf	169	53.9	**166**	**55.0**	158	57.9	161	56.7	163	56.0	**163**	**56.1**
445.gobmk	406	25.8	405	25.9	**406**	**25.9**	406	25.8	405	25.9	**406**	**25.9**
456.hmmer	128	73.1	**128**	**73.1**	127	73.4	128	73.1	**128**	**73.1**	127	73.4
458.sjeng	**401**	**30.2**	401	30.2	402	30.1	397	30.5	397	30.5	**397**	**30.5**
462.libquantum	2.36	8780	2.32	8930	**2.33**	**8890**	2.36	8780	2.32	8930	**2.33**	**8890**
464.h264ref	**443**	**50.0**	443	49.9	441	50.1	**443**	**50.0**	443	49.9	441	50.1
471.omnetpp	154	40.7	**154**	**40.7**	147	42.6	128	48.7	**129**	**48.6**	129	48.5
473.astar	**222**	**31.7**	222	31.6	221	31.8	**222**	**31.7**	222	31.6	221	31.8
483.xalancbmk	109	63.5	103	66.9	**109**	**63.6**	99.3	69.5	99.8	69.1	**99.4**	**69.4**

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 Opportunistic Snoop Broadcast
        Virtualization Technology disabled
        System Profile set to custom
        CPU Performance set to Maximum Performance
        C States set to Autonomous
        C1E disabled
        Energy Efficient Turbo disabled
        Uncore Frequency set to Dynamic
        Energy Efficiency Policy set to Performance
        Memory Patrol Scrub disabled
        Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
        $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
        running on linux-4pvp Fri May  6 11:51:34 2016

        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
```

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

$SPECint2006 =$ 63.2

$SPECint\_base2006 =$ 61.2

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

Test date: May-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016

Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-4660 v4 @ 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:       529326748 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-4pvp 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 11:38

SPEC is set to: /root/cpu2006-1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       xfs   271G   12G  260G   5% /
Additional information from dmidecode:

   Warning: Use caution when you interpret this section. The 'dmidecode' program
```

Continued on next page

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

$SPECint2006 = $ 63.2

$SPECint_base2006 = $ 61.2

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

Test date: May-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016

Platform Notes (Continued)

```
    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. 2.0.2 04/14/2016
    Memory:
    5x 002C00B3002C 18ASF2G72PDZ-2G3A1 16 GB 2 rank 2400 MHz
    19x 00AD00B300AD HMA82GR7MFR8N-UH 16 GB 2 rank 2400 MHz
    8x 00AD063200AD HMA82GR7MFR8N-UH 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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "64"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

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
```

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

SPECint2006 =   63.2

SPECint_base2006 =   61.2

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: May-2016

Hardware Availability: Jun-2016

Software Availability: Mar-2016

Base Portability Flags (Continued)

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`

Peak Compiler Invocation

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

400.perlbench: `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

C++ benchmarks (except as noted below):
`icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32`
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: `-D_FILE_OFFSET_BITS=64`

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

$SPECint2006 = $ 63.2

$SPECint_base2006 = $ 61.2

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

Test date: May-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016

Peak Portability Flags (Continued)

473.astar: `-DSPEC_CPU_LP64`
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) -opt-prefetch`
`-ansi-alias`

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

403.gcc: basepeak = yes

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

445.gobmk: basepeak = yes

456.hmmer: basepeak = yes

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`

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

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

473.astar: basepeak = yes

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

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge FC830 (Intel Xeon E5-4660 v4, 2.20 GHz)

SPECint2006 = 63.2

SPECint_base2006 = 61.2

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

Test date: May-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016

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 17:29:54 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 June 2016.