SPEC® CINT2006 Result
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Dell Inc.

PowerEdge FC430 (Intel Xeon E5-2660 v3, 2.60 GHz)

$SPECint^{®}2006 =$ 60.6

$SPECint\_base2006 =$ 58.0

CPU2006 license: 55	**Test date:** Jan-2015
Test sponsor: Dell Inc.	**Hardware Availability:** Apr-2015
Tested by: Dell Inc.	**Software Availability:** Apr-2015

0 200 400 600 800 1000 1300 1600 1900 2200 2500 2800 3100 3400 3700 4000 4300 4600 4900 5200 5700

- **400.perlbench** 43.8 / 38.6
- **401.bzip2** 23.5 / 23.3
- **403.gcc** 32.6
- **429.mcf** 58.2
- **445.gobmk** 27.3 / 27.3
- **456.hmmer** 65.0
- **458.sjeng** 32.5 / 32.4
- **462.libquantum** 5580
- **464.h264ref** 47.4
- **471.omnetpp** 42.6
- **473.astar** 29.5 / 32.0
- **483.xalancbmk** 31.7 / 60.7 / 59.7

SPECint_base2006 = 58.0

SPECint2006 = 60.6

Hardware

CPU Name:	Intel Xeon E5-2660 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 200 GB SSD 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:	Yes
File System:	ext4
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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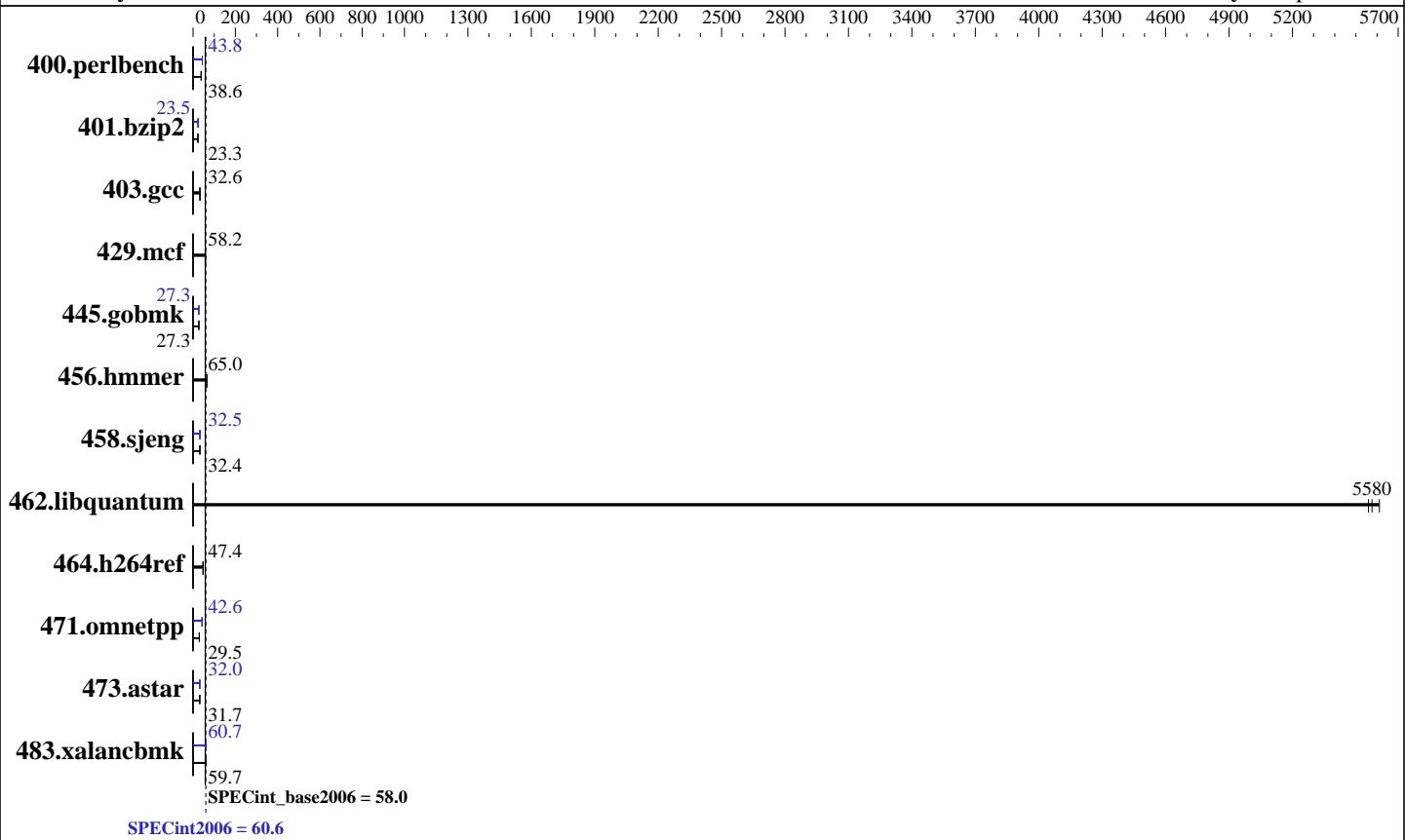
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Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	255	38.3	**253**	**38.6**	252	38.7	**223**	**43.8**	223	43.8	222	43.9
401.bzip2	415	23.3	413	23.3	**414**	**23.3**	**410**	**23.5**	410	23.5	410	23.5
403.gcc	247	32.6	**247**	**32.6**	247	32.5	**247**	32.6	247	**32.6**	247	32.5
429.mcf	159	57.3	**157**	**58.2**	154	59.0	159	57.3	**157**	**58.2**	154	59.0
445.gobmk	384	27.3	**384**	**27.3**	385	27.3	385	27.3	384	27.3	**385**	**27.3**
456.hmmer	**144**	**65.0**	144	64.9	144	65.0	**144**	**65.0**	144	64.9	144	65.0
458.sjeng	374	32.4	**374**	**32.4**	374	32.3	373	32.4	**373**	**32.5**	373	32.5
462.libquantum	3.73	5560	3.69	5610	**3.72**	**5580**	3.73	5560	3.69	5610	**3.72**	**5580**
464.h264ref	468	47.2	467	47.4	**467**	**47.4**	468	47.2	467	47.4	**467**	**47.4**
471.omnetpp	210	29.7	**212**	**29.5**	212	29.5	147	42.5	**147**	**42.6**	146	42.8
473.astar	222	31.6	**222**	**31.7**	221	31.8	**220**	**32.0**	219	32.0	221	31.7
483.xalancbmk	117	59.2	114	60.5	**116**	**59.7**	114	60.6	**114**	**60.7**	113	61.2

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
    System Profile set to Custom
    Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on linux-8qjr Wed Jan 21 12:58:08 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 E5-2660 v3 @ 2.60GHz
          2 "physical id"s (chips)
          40 "processors"
       cores, siblings (Caution: counting these is hw and system dependent.  The
       following excerpts from /proc/cpuinfo might not be reliable.  Use with
       caution.)
```

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Platform Notes (Continued)

```
     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
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:       132187004 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-8qjr 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 Jan 21 11:52

SPEC is set to: /root/cpu2006-1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext4  176G  8.6G  166G   5% /
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
   Memory:
   8x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
```

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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 = "20"

 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
```

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
```

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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/composer_xe_2015/lib/ia32`

> 445.gobmk: `icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

C++ benchmarks (except as noted below):
> `icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

> 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`

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Peak Optimization Flags (Continued)

403.gcc: basepeak = yes

429.mcf: basepeak = yes

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

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-ic15.0-official-linux64.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-ic15.0-official-linux64.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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