SPEC® CINT2006 Result
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Dell Inc.

PowerEdge T320 (Intel Xeon E5-2420 v2, 2.20 GHz)

$SPECint^{®}2006 =$ 40.0

$SPECint\_base2006 =$ 38.0

CPU2006 license: 55

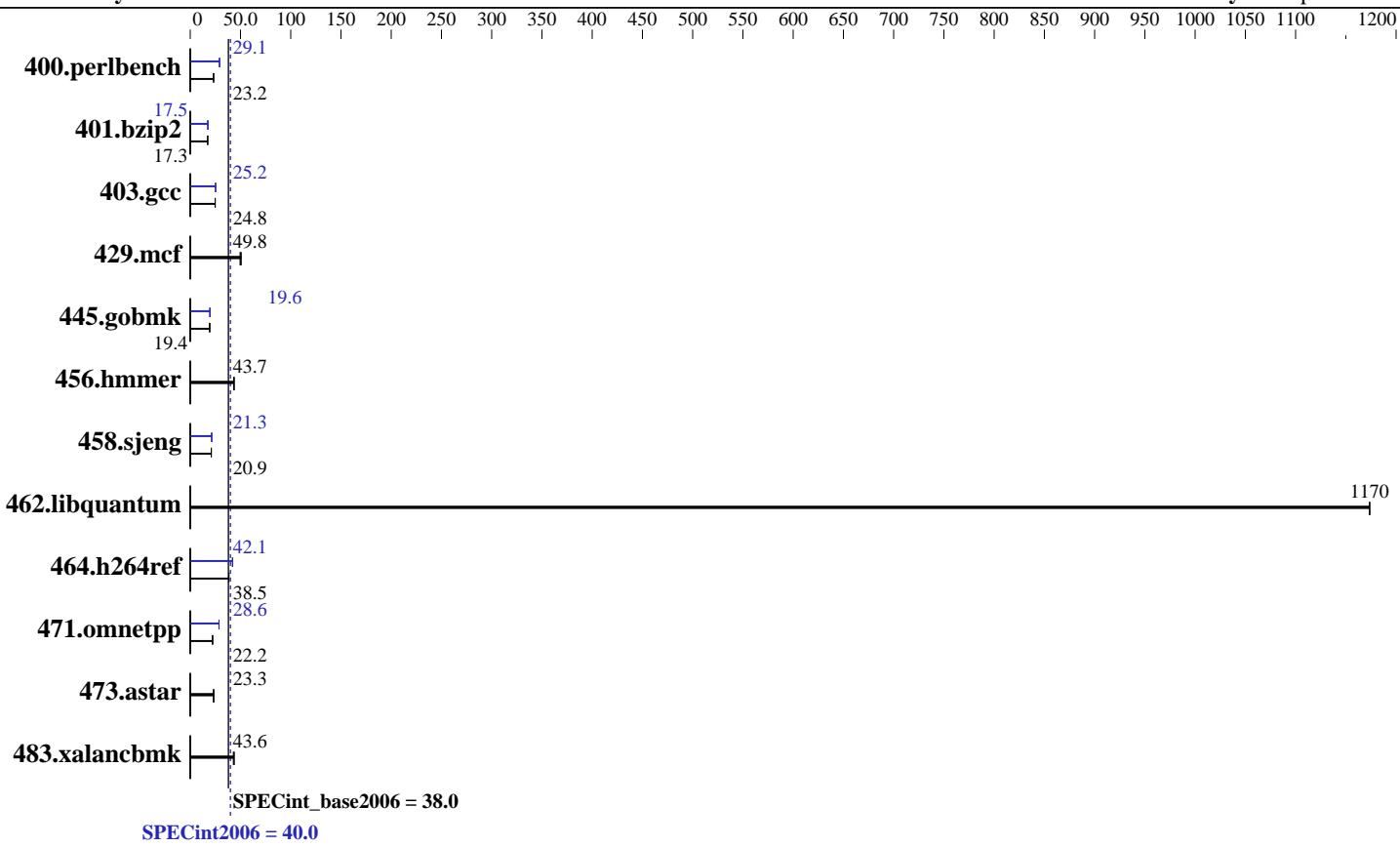**Test sponsor:** Dell Inc.

Tested by: Dell Inc.

Test date: Nov-2013

Hardware Availability: Jan-2014

Software Availability: Sep-2013

Benchmark	Value
400.perlbench	29.1 / 23.2
401.bzip2	17.5 / 17.3
403.gcc	25.2 / 24.8
429.mcf	49.8
445.gobmk	19.6 / 19.4
456.hmmer	43.7
458.sjeng	21.3 / 20.9
462.libquantum	1170
464.h264ref	42.1 / 38.5
471.omnetpp	28.6 / 22.2
473.astar	23.3
483.xalancbmk	43.6

SPECint_base2006 = 38.0

SPECint2006 = 40.0

Hardware

CPU Name: Intel Xeon E5-2420 v2

CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz

CPU MHz: 2200

FPU: Integrated

CPU(s) enabled: 6 cores, 1 chip, 6 cores/chip

CPU(s) orderable: 1 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: 15 MB I+D on chip per chip

Other Cache: None

Memory: 96 GB (6 x 16 GB 2Rx4 PC3L-12800R-11, ECC)

Disk Subsystem: 300 GB 15000 RPM SAS

Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4
2.6.32-358.el6.x86_64

Compiler: C/C++: Version 14.0.0.080 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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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	421	23.2	**420**	**23.2**	420	23.3	336	29.1	**335**	**29.1**	335	29.1
401.bzip2	556	17.3	**556**	**17.3**	556	17.4	552	17.5	551	17.5	**551**	**17.5**
403.gcc	324	24.8	325	24.8	**324**	**24.8**	**319**	**25.2**	319	25.2	320	25.2
429.mcf	183	49.7	**183**	**49.8**	180	50.8	183	49.7	**183**	**49.8**	180	50.8
445.gobmk	542	19.4	**542**	**19.4**	542	19.4	535	19.6	536	19.6	**536**	**19.6**
456.hmmer	**214**	**43.7**	213	43.7	216	43.2	**214**	**43.7**	213	43.7	216	43.2
458.sjeng	**578**	**20.9**	578	20.9	578	20.9	567	21.3	567	21.3	**567**	**21.3**
462.libquantum	**17.7**	**1170**	17.7	1170	17.7	1170	**17.7**	**1170**	17.7	1170	17.7	1170
464.h264ref	**575**	**38.5**	576	38.4	575	38.5	526	42.0	525	42.1	**526**	**42.1**
471.omnetpp	**281**	**22.2**	281	22.2	281	22.3	219	28.6	**219**	**28.6**	218	28.7
473.astar	303	23.2	300	23.4	**302**	**23.3**	303	23.2	300	23.4	**302**	**23.3**
483.xalancbmk	158	43.7	161	42.9	**158**	**43.6**	158	43.7	161	42.9	**158**	**43.6**

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

Operating System Notes

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

Platform Notes

```
BIOS settings:
Virtualization Technology disabled
Execute Disable disabled
Logical Processor disabled
System Profile set to Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on root Sat Nov  2 07:58:39 2013

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 E5-2420 v2 @ 2.20GHz
      1 "physical id"s (chips)
      6 "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 : 6
      siblings  : 6
      physical 0: cores 0 1 2 3 4 5
```

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Platform Notes (Continued)

```
      cache size : 15360 KB

   From /proc/meminfo
      MemTotal:        98991332 kB
      HugePages_Total:        0
      Hugepagesize:        2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.4 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux root 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64
      x86_64 x86_64 GNU/Linux

   run-level 3 Nov 2 07:57

   SPEC is set to: /root/cpu2006-1.2
      Filesystem     Type     Size  Used Avail Use% Mounted on
      /dev/sda2      ext4     271G  9.5G  248G   4% /

   Additional information from dmidecode:
     BIOS Dell Inc. 2.0.21 09/23/2013
     Memory:
      6x 00AD00B300AD HMT42GR7MFR4A-PB 16 GB 1600 MHz 2 rank

   (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 = "6"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
```

Base Compiler Invocation

C benchmarks:
```
      icc  -m64
```

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Base Compiler Invocation (Continued)

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:
    -xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
    -xSSE4.2 -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

    445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

    464.h264ref: `icc -m32`

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

    471.omnetpp: `icpc -m32`

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`
        473.astar: `-DSPEC_CPU_LP64`
    483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

    400.perlbench: `-xSSE4.2`(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: `-xSSE4.2`(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: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc`
            `-opt-malloc-options=3 -auto-ilp32`

         429.mcf: basepeak = yes

       445.gobmk: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-prof-use`(pass 2)
            `-ansi-alias`

      456.hmmer: basepeak = yes

       458.sjeng: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
            `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2)
            `-unroll4`

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-xSSE4.2`(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: 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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml

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

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