SPEC® CINT2006 Result

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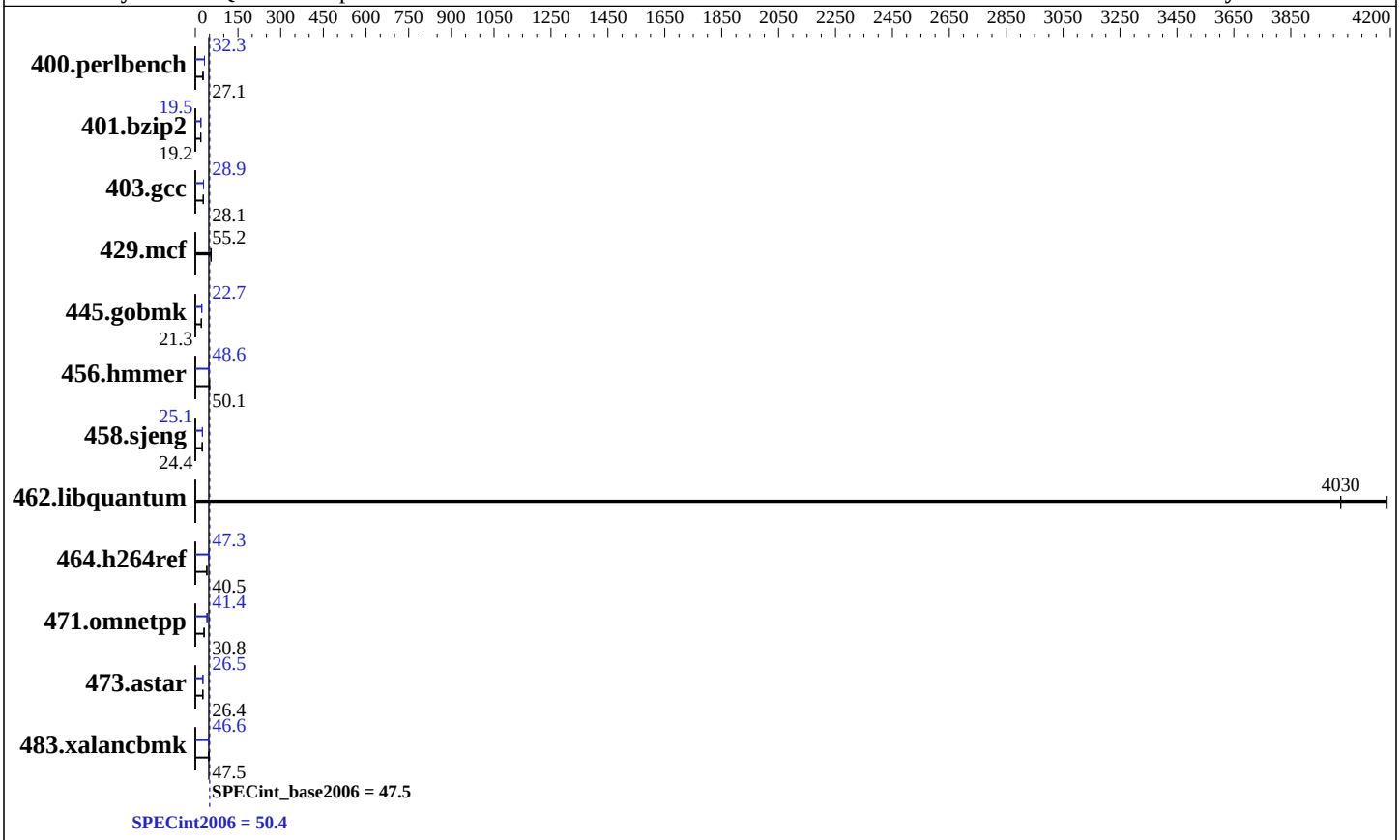
Quanta Computer Inc.
S400-X44E

SPECint®2006 = 50.4

SPECint_base2006 = 47.5

CPU2006 license: 9050
Test sponsor: Quanta Computer Inc.
Tested by: Quanta Computer Inc.

Test date: Jul-2014
Hardware Availability: Jul-2014
Software Availability: Jul-2014



Hardware

CPU Name:	Intel Xeon E5-4657L v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	48 cores, 4 chips, 12 cores/chip, 2 threads/core
CPU(s) orderable:	1,2,3,4 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:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (32 x 8 GB 1Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	690 GB add more disk info here
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5 (Santiago) 2.6.32-431.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 mode)
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	360	27.1	**360**	**27.1**	360	27.2	**302**	**32.3**	303	32.2	302	32.3
401.bzip2	**502**	**19.2**	502	19.2	502	19.2	495	19.5	**495**	**19.5**	495	19.5
403.gcc	286	28.2	**286**	**28.1**	287	28.1	279	28.9	**279**	**28.9**	279	28.9
429.mcf	164	55.5	167	54.7	**165**	**55.2**	164	55.5	167	54.7	**165**	**55.2**
445.gobmk	**493**	**21.3**	493	21.3	493	21.3	**463**	**22.7**	463	22.7	462	22.7
456.hmmer	**186**	**50.1**	186	50.3	190	49.0	191	48.8	194	48.0	**192**	**48.6**
458.sjeng	496	24.4	**496**	**24.4**	496	24.4	483	25.1	483	25.1	**483**	**25.1**
462.libquantum	4.95	4190	**5.15**	**4030**	5.15	4030	4.95	4190	**5.15**	**4030**	5.15	4030
464.h264ref	546	40.6	548	40.4	**547**	**40.5**	468	47.3	**468**	**47.3**	469	47.2
471.omnetpp	**203**	**30.8**	203	30.9	203	30.8	152	41.2	**151**	**41.4**	150	41.7
473.astar	**266**	**26.4**	267	26.3	265	26.5	**264**	**26.5**	266	26.4	264	26.6
483.xalancbmk	**145**	**47.5**	145	47.5	146	47.4	148	46.5	148	46.6	**148**	**46.6**

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

```
Sysinfo program /root/speccpu_linux/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Sun Jul  6 05:42:49 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 E5-4657L v2 @ 2.40GHz
      4 "physical id"s (chips)
      96 "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 : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
```

Continued on next page

Platform Notes (Continued)

```
        physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
        physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
     cache size : 30720 KB

  From /proc/meminfo
     MemTotal:       264494508 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.5 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux localhost.localdomain 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54
     EST 2013 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Jul 4 15:28

  SPEC is set to: /root/speccpu_linux
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda2      ext4  690G   15G  640G   3% /

  Additional information from dmidecode:
    BIOS American Megatrends Inc. S4E_4A06 06/27/2014
    Memory:
     1x ChannelA_Dimm2_Manufacturer ChannelA_Dimm2_PartNum
     1x ChannelB_Dimm2_Manufacturer ChannelB_Dimm2_PartNum
     1x ChannelC_Dimm2_Manufacturer ChannelC_Dimm2_PartNum
     1x ChannelD_Dimm2_Manufacturer ChannelD_Dimm2_PartNum
     1x ChannelE_Dimm2_Manufacturer ChannelE_Dimm2_PartNum
     1x ChannelF_Dimm2_Manufacturer ChannelF_Dimm2_PartNum
     1x ChannelG_Dimm2_Manufacturer ChannelG_Dimm2_PartNum
     1x ChannelH_Dimm2_Manufacturer ChannelH_Dimm2_PartNum
     1x ChannelJ_Dimm2_Manufacturer ChannelJ_Dimm2_PartNum
     1x ChannelK_Dimm2_Manufacturer ChannelK_Dimm2_PartNum
     1x ChannelL_Dimm2_Manufacturer ChannelL_Dimm2_PartNum
     1x ChannelM_Dimm2_Manufacturer ChannelM_Dimm2_PartNum
     1x ChannelN_Dimm2_Manufacturer ChannelN_Dimm2_PartNum
     1x ChannelP_Dimm2_Manufacturer ChannelP_Dimm2_PartNum
     1x ChannelR_Dimm2_Manufacturer ChannelR_Dimm2_PartNum
     1x ChannelT_Dimm2_Manufacturer ChannelT_Dimm2_PartNum
     32x Samsung M393B1G70QH0-CMA 8 GB 1866 MHz 1 rank

  (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/speccpu_linux/libs/32:/root/speccpu_linux/libs/64:/root/speccpu_linux/sh"
OMP_NUM_THREADS = "48"

 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
 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:
```
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xAVX -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`

464.h264ref: `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`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-xAVX`(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: `-xAVX`(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`

Continued on next page

Peak Optimization Flags (Continued)

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

429.mcf: basepeak = yes

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

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xAVX -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-linux64.20140128.html
http://www.spec.org/cpu2006/flags/Quanta-Computer-Inc-Platform-Settings-V1.0.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/Quanta-Computer-Inc-Platform-Settings-V1.0.xml

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