SPEC® CFP2006 Result

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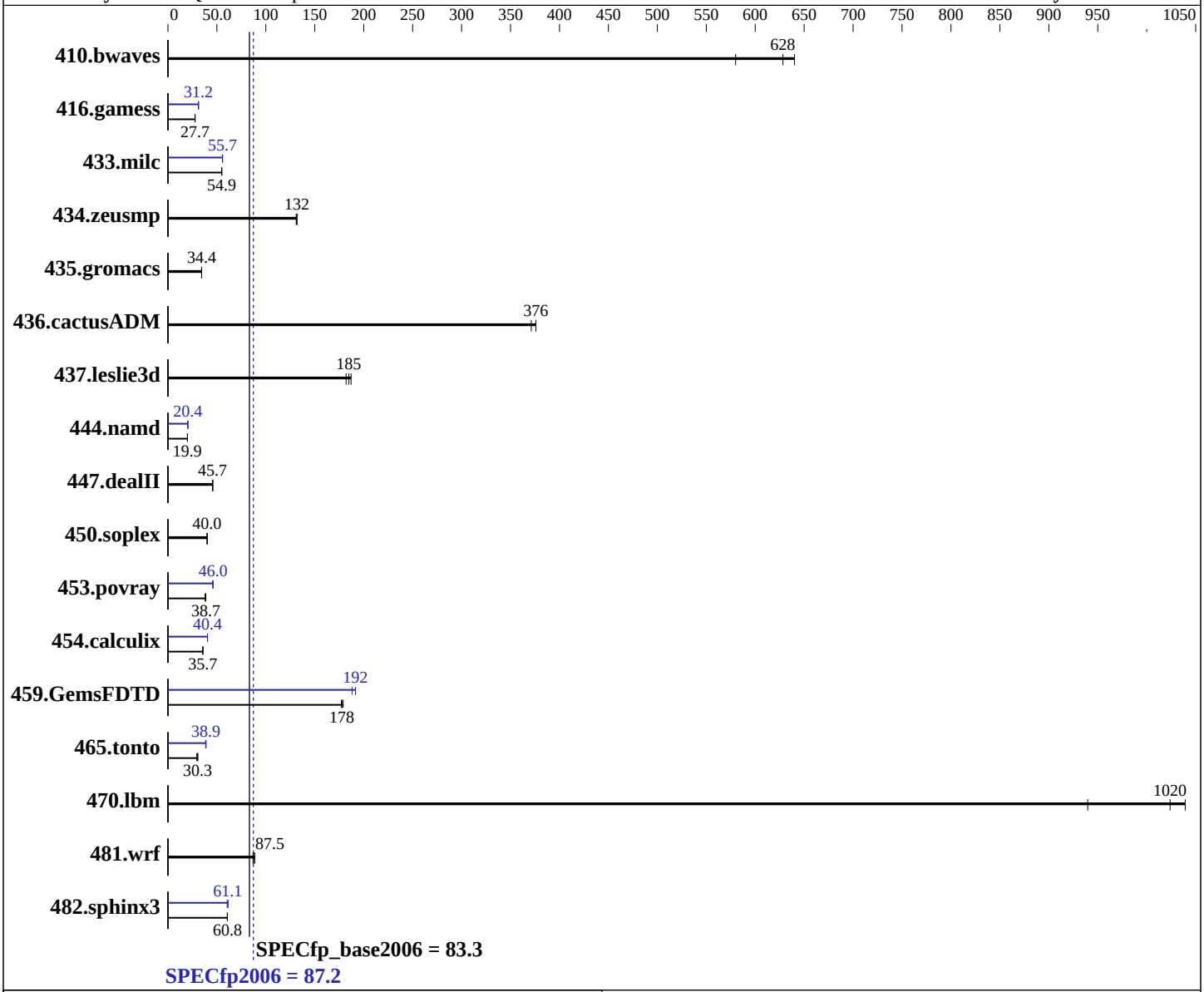
Quanta Computer Inc.
S400-X44E

SPECfp®2006 = 87.2

SPECfp_base2006 = 83.3

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

Continued on next page

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; Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4

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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

System State:	Run level 3 (multi user mode)
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**21.6**	**628**	21.2	640	23.4	580	**21.6**	**628**	21.2	640	23.4	580
416.gamess	**707**	**27.7**	707	27.7	706	27.7	628	31.2	**628**	**31.2**	628	31.2
433.milc	167	54.9	167	55.0	**167**	**54.9**	165	55.7	165	55.8	**165**	**55.7**
434.zeusmp	69.1	132	**69.1**	**132**	69.5	131	69.1	132	**69.1**	**132**	69.5	131
435.gromacs	207	34.4	208	34.4	**207**	**34.4**	207	34.4	208	34.4	**207**	**34.4**
436.cactusADM	32.2	371	**31.8**	**376**	31.8	376	32.2	371	**31.8**	**376**	31.8	376
437.leslie3d	50.3	187	**50.9**	**185**	51.7	182	50.3	187	**50.9**	**185**	51.7	182
444.namd	403	19.9	403	19.9	**403**	**19.9**	**394**	**20.4**	394	20.4	394	20.3
447.dealII	250	45.7	**250**	**45.7**	250	45.7	250	45.7	**250**	**45.7**	250	45.7
450.soplex	209	39.9	**208**	**40.0**	208	40.2	209	39.9	**208**	**40.0**	208	40.2
453.povray	137	38.7	**138**	**38.7**	140	37.9	116	46.1	**116**	**46.0**	116	45.7
454.calculix	231	35.8	**231**	**35.7**	232	35.6	**204**	**40.4**	204	40.4	204	40.4
459.GemsFDTD	**59.7**	**178**	59.9	177	59.3	179	56.4	188	55.4	192	**55.4**	**192**
465.tonto	**324**	**30.3**	323	30.5	334	29.4	**253**	**38.9**	255	38.5	253	38.9
470.lbm	**13.4**	**1020**	14.6	940	13.2	1040	**13.4**	**1020**	14.6	940	13.2	1040
481.wrf	126	88.7	**128**	**87.5**	129	86.9	126	88.7	**128**	**87.5**	129	86.9
482.sphinx3	321	60.8	**321**	**60.8**	322	60.6	322	60.5	318	61.4	**319**	**61.1**

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

```
Sysinfo program /root/speccpu_linux/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Sat Jul  5 10:45:55 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
```

Continued on next page

Platform Notes (Continued)

```
      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
      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
```

Continued on next page

Platform Notes (Continued)

```
      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,compact,1,0"
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
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

Base Portability Flags

```
    410.bwaves: -DSPEC_CPU_LP64
    416.gamess: -DSPEC_CPU_LP64
      433.milc: -DSPEC_CPU_LP64
    434.zeusmp: -DSPEC_CPU_LP64
    435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
    437.leslie3d: -DSPEC_CPU_LP64
      444.namd: -DSPEC_CPU_LP64
    447.dealII: -DSPEC_CPU_LP64
```

Continued on next page

Base Portability Flags (Continued)

450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

454.calculix: `-xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

481.wrf: `basepeak = yes`

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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For other inquiries, please contact webmaster@spec.org.

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