SPEC® CFP2006 Result

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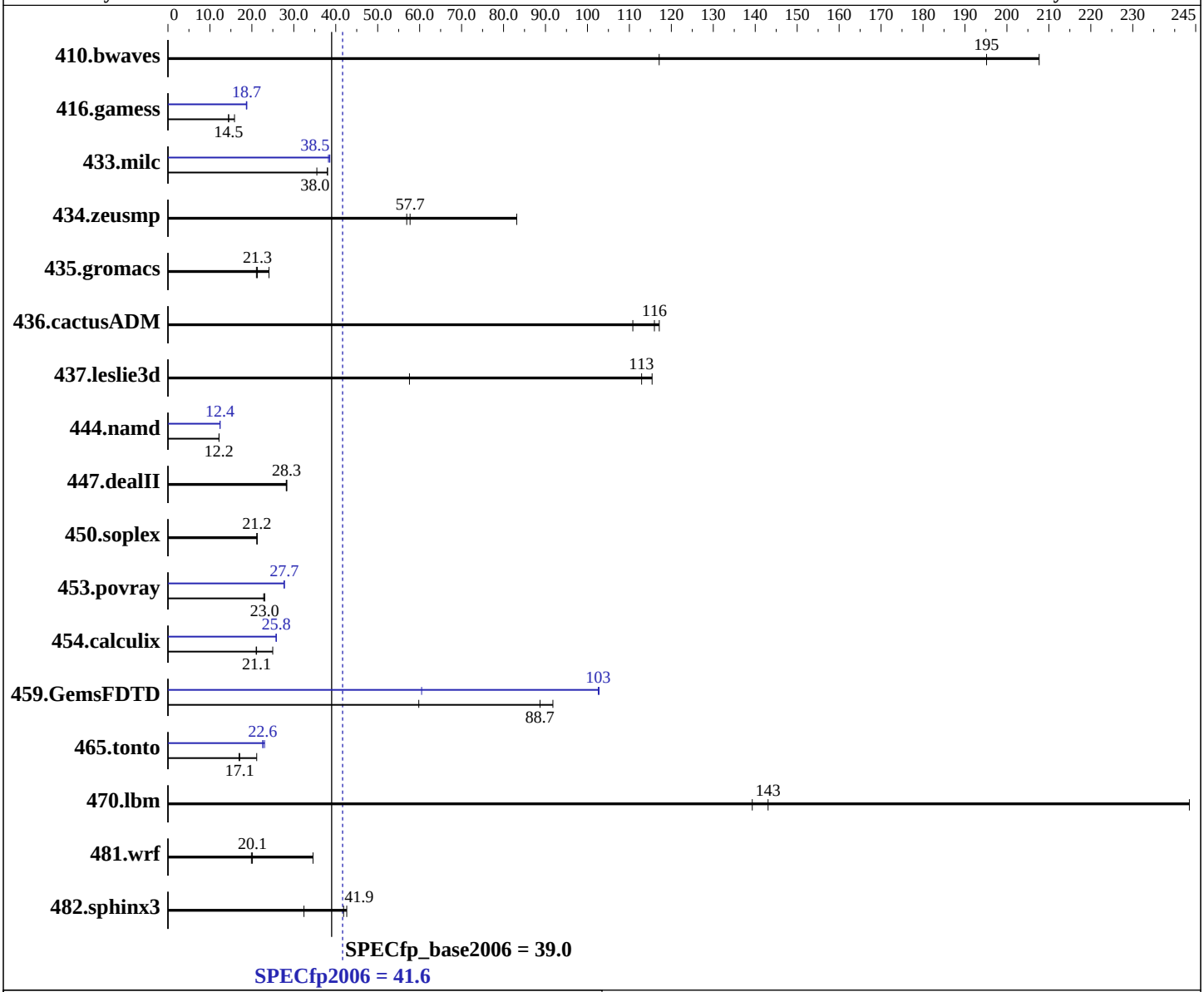
Huawei
Huawei CH221

SPECfp®2006 = 41.6

SPECfp_base2006 = 39.0

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: Apr-2014
Hardware Availability: Jan-2012
Software Availability: Nov-2013



Hardware

CPU Name:	Intel Xeon E5-2603
CPU Characteristics:	
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
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

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:	10 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-10600R-09, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 X 300 GB SAS 7200RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**69.6**	**195**	65.4	208	116	117	**69.6**	**195**	65.4	208	116	117
416.gamess	1357	14.4	1234	15.9	**1352**	**14.5**	**1045**	**18.7**	1048	18.7	1041	18.8
433.milc	259	35.5	241	38.1	**242**	**38.0**	240	38.3	**238**	**38.5**	238	38.6
434.zeusmp	**158**	**57.7**	160	56.9	109	83.1	**158**	**57.7**	160	56.9	109	83.1
435.gromacs	**335**	**21.3**	339	21.1	296	24.1	**335**	**21.3**	339	21.1	296	24.1
436.cactusADM	**103**	**116**	102	117	108	111	**103**	**116**	102	117	108	111
437.leslie3d	81.4	115	**83.2**	**113**	163	57.6	81.4	115	**83.2**	**113**	163	57.6
444.namd	**658**	**12.2**	658	12.2	659	12.2	646	12.4	**646**	**12.4**	646	12.4
447.dealII	406	28.2	404	28.3	**404**	**28.3**	406	28.2	404	28.3	**404**	**28.3**
450.soplex	392	21.3	**393**	**21.2**	393	21.2	392	21.3	**393**	**21.2**	393	21.2
453.povray	**231**	**23.0**	233	22.8	231	23.0	192	27.7	**192**	**27.7**	192	27.8
454.calculix	**391**	**21.1**	330	25.0	392	21.0	320	25.8	**320**	**25.8**	320	25.8
459.GemsFDTD	116	91.8	**120**	**88.7**	177	59.8	103	103	**103**	**103**	175	60.5
465.tonto	581	16.9	465	21.2	**575**	**17.1**	**435**	**22.6**	427	23.0	435	22.6
470.lbm	**96.0**	**143**	56.4	243	98.6	139	**96.0**	**143**	56.4	243	98.6	139
481.wrf	561	19.9	**555**	**20.1**	323	34.6	561	19.9	**555**	**20.1**	323	34.6
482.sphinx3	601	32.4	457	42.6	**465**	**41.9**	601	32.4	457	42.6	**465**	**41.9**

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 configuration:
Set Power Efficiency Mode to Performance
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on huawei Thu Apr 10 05:52:12 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
```

Continued on next page

Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2603 0 @ 1.80GHz
      2 "physical id"s (chips)
      8 "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 : 4
      siblings  : 4
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       132103760 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 huawei 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 Apr 9 18:50

SPEC is set to: /spec
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda1      ext4  193G   58G  126G  32% /

Additional information from dmidecode:
  BIOS Insyde Corp. RMIBV372 12/21/2013
  Memory:
   8x NO DIMM NO DIMM
   11x Samsung M393B1K70CH0-CH9 8 GB 1066 MHz 2 rank
   5x Samsung M393B1K70DH0-CH9 8 GB 1066 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 = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "8"
```

Continued on next page

General Notes (Continued)

```
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>
The Huawei CH221 and
the Huawei CH222 models are electronically equivalent.
The results have been measured on a Huawei CH221 model
```

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
    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: `basepeak = yes`

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

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

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/Huawei-Platform-Settings-V1.0-IVB-RevG.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/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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

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