SPEC® CFP2006 Result

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Huawei

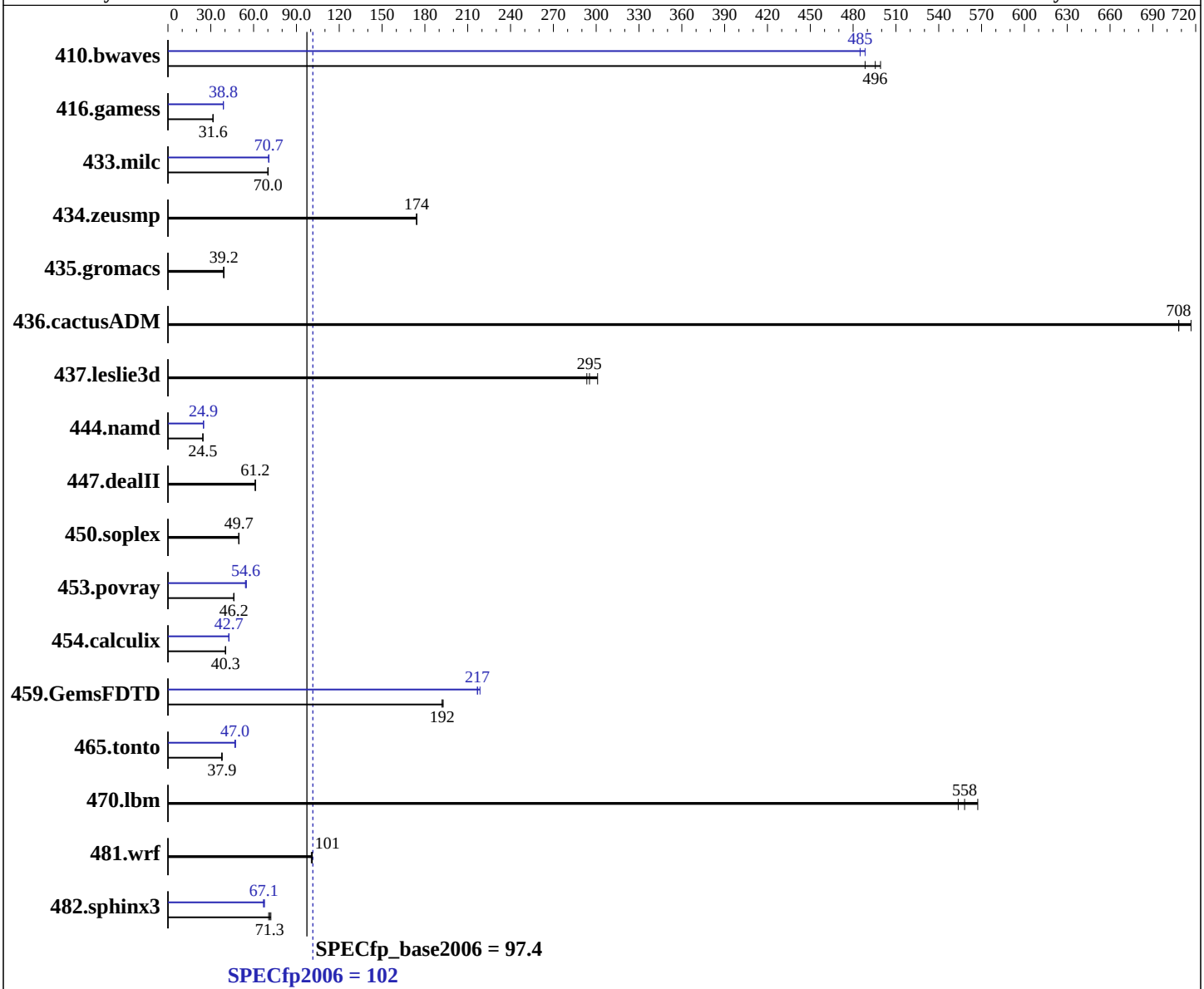
Huawei RH2288H v2 (Intel Xeon E5-2697 v2)

SPECfp®2006 = 102

SPECfp_base2006 = 97.4

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

Test date: Aug-2013
Hardware Availability: Sep-2013
Software Availability: Feb-2013



Hardware

CPU Name:	Intel Xeon E5-2697 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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

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Software

Operating System:	Red Hat Enterprise Linux Server release 6.4 (Santiago) 2.6.32-358.14.1.el6.x86_64
Compiler:	C/C++: Version 13.0.1.117 of Intel C++ Studio XE for Linux; Fortran: Version 13.0.1.117 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: 128 GB (16 x 8 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 300 GB SAS, 10K RPM
Other Hardware: None

System State: Run level 3 (multi-user)
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	27.2	499	27.8	488	**27.4**	**496**	**28.0**	**485**	28.0	485	27.8	488
416.gamess	620	31.6	620	31.6	**620**	**31.6**	**504**	**38.8**	504	38.8	504	38.8
433.milc	**131**	**70.0**	131	70.0	131	70.3	**130**	**70.7**	130	70.5	130	70.7
434.zeusmp	**52.2**	**174**	52.2	174	52.2	174	**52.2**	**174**	52.2	174	52.2	174
435.gromacs	**182**	**39.2**	182	39.3	184	38.9	**182**	**39.2**	182	39.3	184	38.9
436.cactusADM	16.9	708	16.7	717	**16.9**	**708**	16.9	708	16.7	717	**16.9**	**708**
437.leslie3d	**31.8**	**295**	31.2	301	32.0	293	**31.8**	**295**	31.2	301	32.0	293
444.namd	328	24.5	328	24.5	**328**	**24.5**	**322**	**24.9**	322	24.9	322	24.9
447.dealII	187	61.2	187	61.2	**187**	**61.2**	187	61.2	187	61.2	**187**	**61.2**
450.soplex	168	49.7	168	49.7	**168**	**49.7**	168	49.7	168	49.7	**168**	**49.7**
453.povray	**115**	**46.2**	115	46.3	116	46.0	**97.4**	**54.6**	98.0	54.3	96.8	54.9
454.calculix	204	40.4	205	40.3	**205**	**40.3**	193	42.7	**193**	**42.7**	193	42.8
459.GemsFDTD	**55.2**	**192**	55.0	193	55.2	192	48.9	217	**48.9**	**217**	48.5	219
465.tonto	259	37.9	262	37.6	**260**	**37.9**	**210**	**47.0**	210	46.9	208	47.4
470.lbm	**24.6**	**558**	24.2	567	24.8	554	**24.6**	**558**	24.2	567	24.8	554
481.wrf	110	101	**111**	**101**	111	100	110	101	**111**	**101**	111	100
482.sphinx3	270	72.1	276	70.5	**273**	**71.3**	288	67.7	291	67.0	**290**	**67.1**

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

```
BIOS Configurations:
VT Support set to Disabled
Memory Power Saving set to Disabled
ISOCH set to Disabled
C3 and C6 set to Enabled
HT Support set to Disabled
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on RH64-spec Sat Aug 31 16:09:47 2013
```

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Platform Notes (Continued)

```
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 E5-2697 v2 @ 2.70GHz
      2 "physical id"s (chips)
      24 "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  : 12
      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
   cache size : 30720 KB

From /proc/meminfo
   MemTotal:       132103952 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 RH64-spec 2.6.32-358.14.1.el6.x86_64 #1 SMP Tue Jul 16 23:51:20 UTC
   2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 31 02:41

SPEC is set to: /spec
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/sda2      ext4    289G   42G  233G  16% /

Additional information from dmidecode:
  Memory:
   6x Samsung M393B1K70CH0-CH9 8 GB 1867 MHz 2 rank
   10x Samsung M393B1K70DH0-CH9 8 GB 1867 MHz 2 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,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "24"

 Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory
 using RHEL 6.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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 -static -parallel -opt-prefetch
-ansi-alias
```

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

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

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -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) -static -auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

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

Continued on next page

Peak Optimization Flags (Continued)

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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel -static

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- -static

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/Huawei-Platform-Settings-revG.20131009.html
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revG.20131009.xml
http://www.spec.org/cpu2006/flags/Intel-ic13-official-linux64.xml

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