SPEC® CFP2006 Result

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Huawei

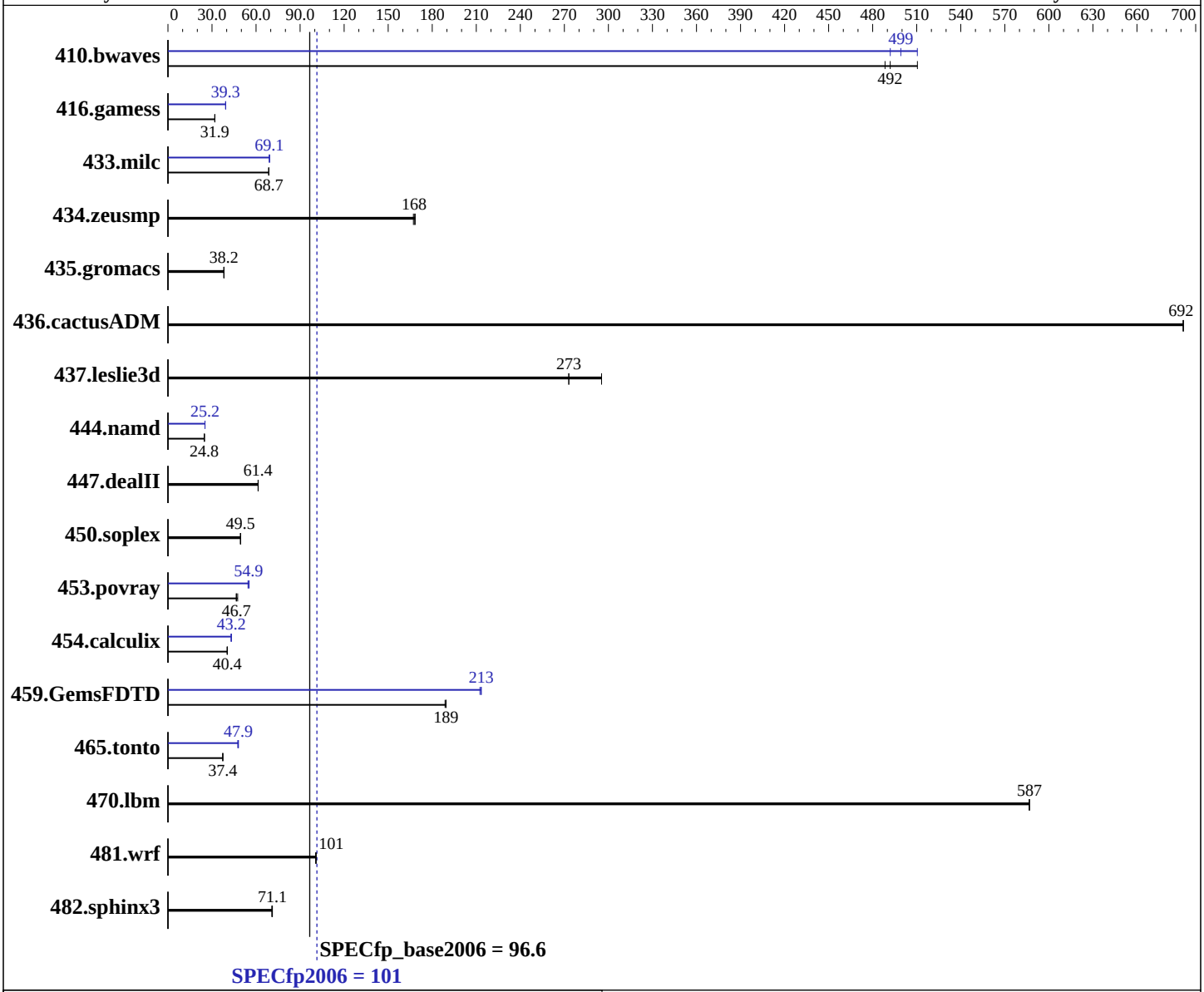
Huawei RH1288 v2 (Intel Xeon E5-2697 v2)

SPECfp®2006 = 101

SPECfp_base2006 = 96.6

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

Test date: Oct-2014
Hardware Availability: Sep-2013
Software Availability: Nov-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

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 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 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 (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 300 GB SAS, 10000 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	27.8	488	26.6	510	**27.6**	**492**	**27.2**	**499**	27.6	492	26.6	510
416.gamess	**613**	**31.9**	614	31.9	612	32.0	**498**	**39.3**	498	39.3	499	39.3
433.milc	134	68.6	134	68.7	**134**	**68.7**	**133**	**69.1**	133	69.1	133	69.2
434.zeusmp	54.4	167	54.0	168	**54.2**	**168**	54.4	167	54.0	168	**54.2**	**168**
435.gromacs	**187**	**38.2**	187	38.2	188	38.1	**187**	**38.2**	187	38.2	188	38.1
436.cactusADM	**17.3**	**692**	17.3	692	17.3	691	**17.3**	**692**	17.3	692	17.3	691
437.leslie3d	31.8	295	**34.4**	**273**	34.4	273	31.8	295	**34.4**	**273**	34.4	273
444.namd	**323**	**24.8**	323	24.8	323	24.8	318	25.2	318	25.2	**318**	**25.2**
447.dealII	186	61.5	**186**	**61.4**	186	61.4	186	61.5	**186**	**61.4**	186	61.4
450.soplex	168	49.5	169	49.3	**168**	**49.5**	168	49.5	169	49.3	**168**	**49.5**
453.povray	**114**	**46.7**	112	47.5	114	46.5	96.2	55.3	97.6	54.5	**96.9**	**54.9**
454.calculix	**204**	**40.4**	205	40.3	204	40.5	191	43.2	**191**	**43.2**	192	43.0
459.GemsFDTD	56.0	189	**56.0**	**189**	56.2	189	**49.7**	**213**	49.9	212	49.7	213
465.tonto	**263**	**37.4**	263	37.4	264	37.3	205	48.0	**205**	**47.9**	207	47.5
470.lbm	23.4	587	**23.4**	**587**	23.4	587	23.4	587	**23.4**	**587**	23.4	587
481.wrf	**111**	**101**	111	101	111	101	**111**	**101**	111	101	111	101
482.sphinx3	276	70.7	**274**	**71.1**	274	71.1	276	70.7	**274**	**71.1**	274	71.1

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 configuration:
Set Power Efficiency Mode to Custom
Baseboard Management Controller used to adjust the fan speed to 100%
Set Hyper-Threading to Disabled
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost Wed Oct 15 17:40:49 2014

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

Platform Notes (Continued)

```
      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:       264478184 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 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 Oct 13 09:28

    SPEC is set to: /spec
       Filesystem     Type  Size  Used Avail Use% Mounted on
       /dev/sda2      ext4  272G   33G  226G  13% /

    Additional information from dmidecode:
      Memory:
       4x Hynix HMT42GR7AFR4C-RD 16 GB 1867 MHz 2 rank
       12x Samsung M393B2G70DB0-CMA 16 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"
```

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General Notes (Continued)

```
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
```

Continued on next page

Base Optimization Flags (Continued)

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: basepeak = yes

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

Continued on next page

Peak Optimization Flags (Continued)

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/Intel-ic12.1-official-linux64.20120425.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-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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