SPEC® CFP2006 Result

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Huawei

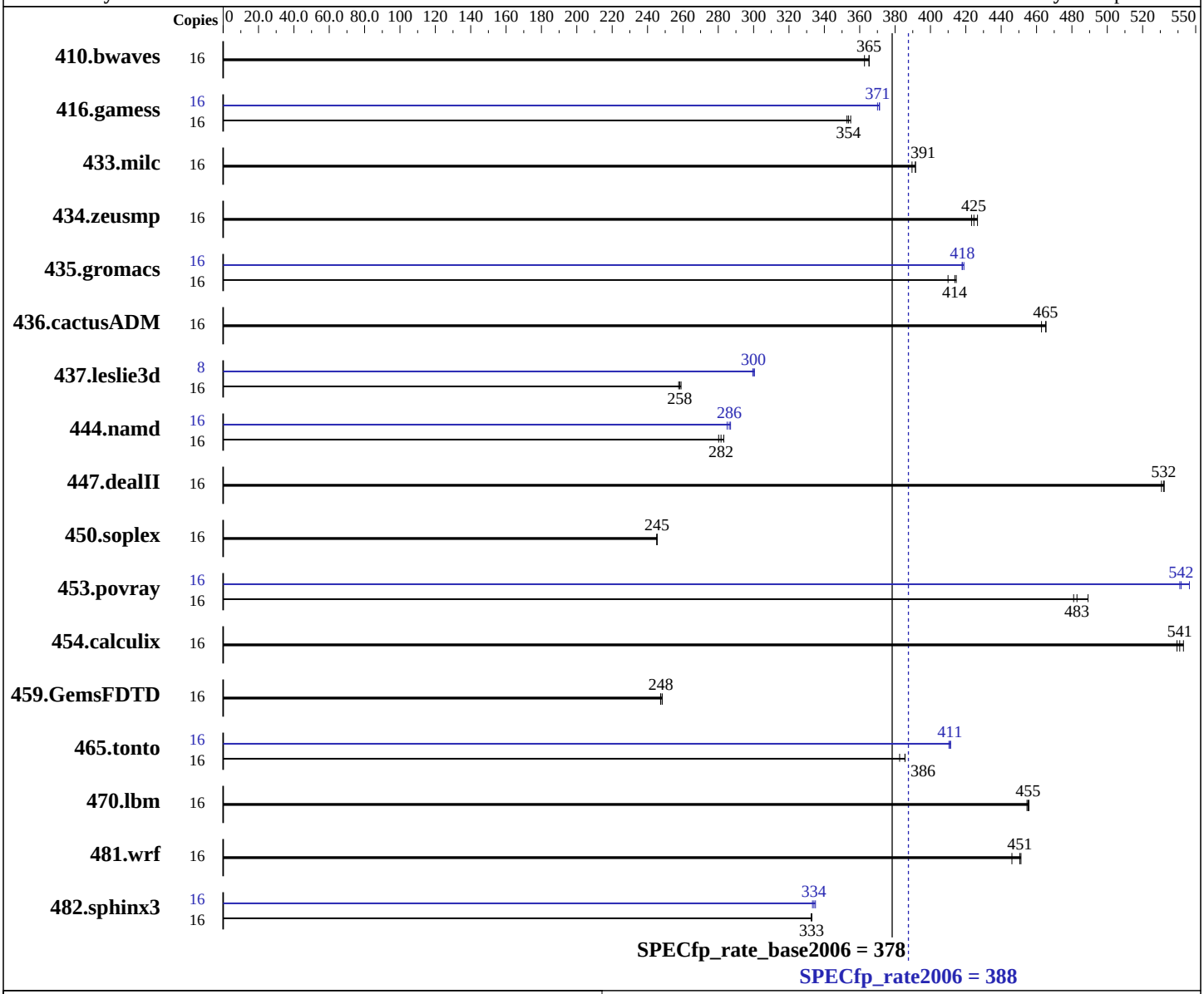
Huawei RH1288 V3 (Intel Xeon E5-2623 v3)

SPECfp®_rate2006 = 388

SPECfp_rate_base2006 = 378

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

Test date: Jan-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014



Hardware

CPU Name:	Intel Xeon E5-2623 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
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 7.0 (Maipo) 3.10.0-123.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	xfs

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L3 Cache: 10 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	595	365	**595**	**365**	600	363	16	595	365	**595**	**365**	600	363
416.gamess	16	**886**	**354**	883	355	888	353	16	**844**	**371**	847	370	844	371
433.milc	16	375	392	**375**	**391**	377	390	16	375	392	**375**	**391**	377	390
434.zeusmp	16	344	423	**343**	**425**	341	427	16	344	423	**343**	**425**	341	427
435.gromacs	16	**276**	**414**	279	410	276	415	16	273	418	**273**	**418**	273	419
436.cactusADM	16	411	465	**411**	**465**	413	463	16	411	465	**411**	**465**	413	463
437.leslie3d	16	**582**	**258**	581	259	584	258	8	250	300	**251**	**300**	251	300
444.namd	16	**456**	**282**	453	283	458	280	16	450	285	**448**	**286**	447	287
447.dealII	16	345	531	**344**	**532**	344	532	16	345	531	**344**	**532**	344	532
450.soplex	16	**544**	**245**	544	245	544	245	16	**544**	**245**	544	245	544	245
453.povray	16	**176**	**483**	174	489	177	481	16	157	541	156	546	**157**	**542**
454.calculix	16	245	539	**244**	**541**	243	543	16	245	539	**244**	**541**	243	543
459.GemsFDTD	16	683	248	**686**	**248**	686	247	16	683	248	**686**	**248**	686	247
465.tonto	16	412	383	408	386	**408**	**386**	16	384	410	**383**	**411**	383	411
470.lbm	16	482	456	484	455	**483**	**455**	16	482	456	484	455	**483**	**455**
481.wrf	16	**397**	**451**	396	451	401	446	16	**397**	**451**	396	451	401	446
482.sphinx3	16	937	333	**937**	**333**	938	333	16	**933**	**334**	936	333	931	335

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to ES
```

Continued on next page

Platform Notes (Continued)

```
Set Patrol Scrub to Disable
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Mon Jan 19 09:48:28 2015

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 E5-2623 v3 @ 3.00GHz
      2 "physical id"s (chips)
      16 "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  : 8
      physical 0: cores 0 1 2 3
      physical 1: cores 0 1 2 3
   cache size : 10240 KB

From /proc/meminfo
   MemTotal:       263579376 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.0 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.0"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
   EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 18 05:43

SPEC is set to: /spec
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   445G  126G  319G  29% /
Additional information from dmidecode:
```

Continued on next page

Platform Notes (Continued)

```
      Warning: Use caution when you interpret this section. The 'dmidecode' program
      reads system data which is "intended to allow hardware to be accurately
      determined", but the intent may not be met, as there are frequent changes to
      hardware, firmware, and the "DMTF SMBIOS" standard.

    BIOS Insyde Corp. 1.23 11/19/2014
    Memory:
     4x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1867 MHz
     4x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1867 MHz
     4x Samsung M393A2G40DB0-CPB 16 GB 1 rank 2133 MHz, configured at 1867 MHz
     4x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1867 MHz

  (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"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 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`

Continued on next page

Base Portability Flags (Continued)

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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Continued on next page

Peak Compiler Invocation (Continued)

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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3 -unroll2

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Continued on next page

Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-HASWELL-V1.4.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-HASWELL-V1.4.xml

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Feb 10 18:30:39 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 February 2015.