SPEC® CFP2006 Result
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Huawei

Huawei CH140 (Intel Xeon E5-2637 v2)

$SPECfp®\_rate2006 = 385$

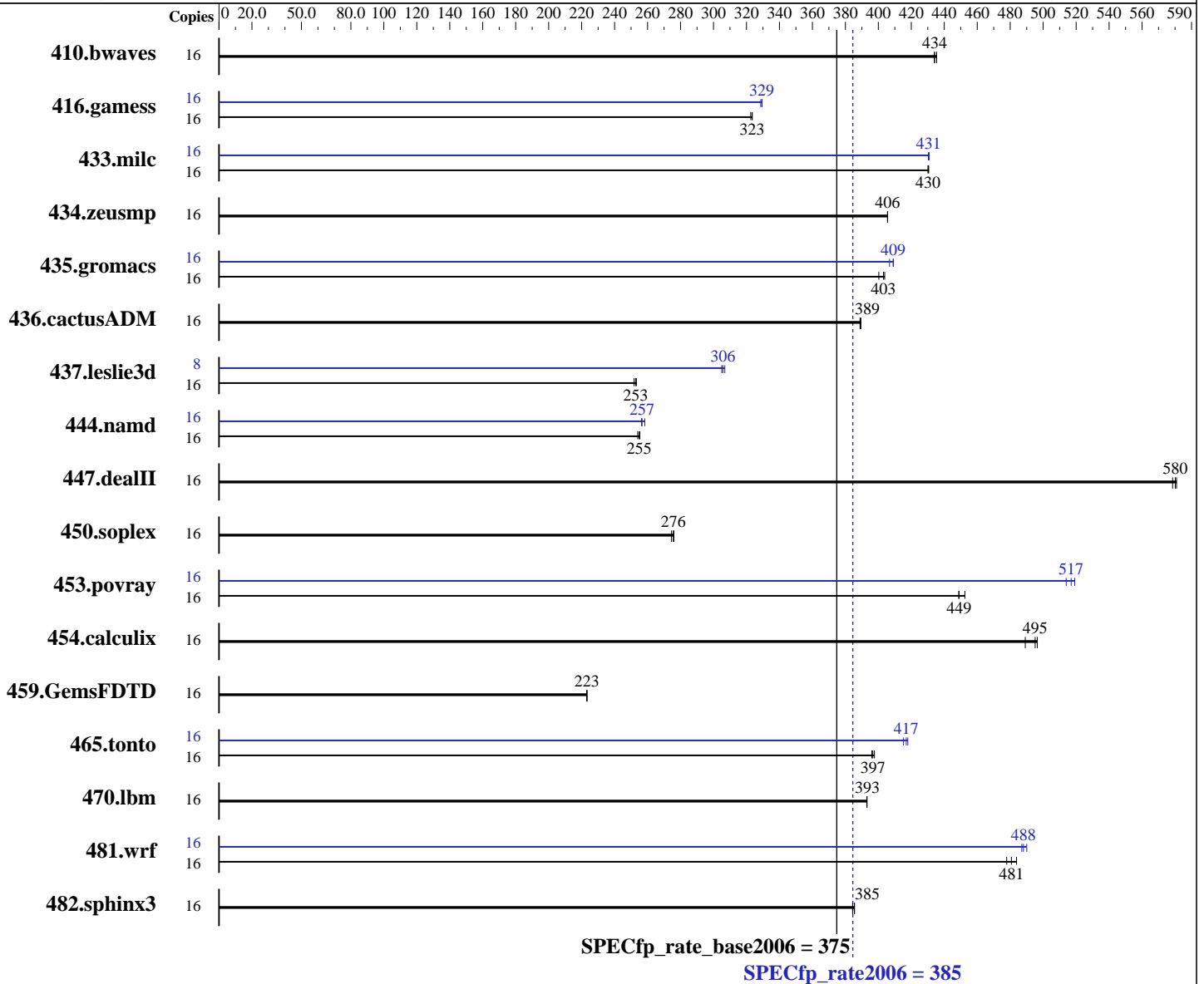$SPECfp\_rate\_base2006 = 375$

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Jun-2014

Hardware Availability: Sep-2013

Software Availability: Nov-2013

Benchmark	Copies	Result
410.bwaves	16	434
416.gamess	16	329
416.gamess	16	323
433.milc	16	431
433.milc	16	430
434.zeusmp	16	406
435.gromacs	16	409
435.gromacs	16	403
436.cactusADM	16	389
437.leslie3d	8	306
437.leslie3d	16	253
444.namd	16	257
444.namd	16	255
447.dealII	16	580
450.soplex	16	276
453.povray	16	517
453.povray	16	449
454.calculix	16	495
459.GemsFDTD	16	223
465.tonto	16	417
465.tonto	16	397
470.lbm	16	393
481.wrf	16	488
481.wrf	16	481
482.sphinx3	16	385

SPECfp_rate_base2006 = 375

SPECfp_rate2006 = 385

Hardware

CPU Name: Intel Xeon E5-2637 v2

CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz

CPU MHz: 3500

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 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: No

File System: ext3

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L3 Cache:	15 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem:	1 X 500 GB SATA 7200RPM
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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	501	434	**501**	**434**	499	435	16	501	434	**501**	**434**	499	435
416.gamess	16	**968**	**323**	968	323	971	323	16	951	329	953	329	**951**	**329**
433.milc	16	**341**	**430**	341	431	341	430	16	**341**	**431**	341	430	341	431
434.zeusmp	16	359	406	**359**	**406**	359	406	16	359	406	**359**	**406**	359	406
435.gromacs	16	283	404	285	400	**283**	**403**	16	281	407	**279**	**409**	279	409
436.cactusADM	16	491	389	492	389	**491**	**389**	16	491	389	492	389	**491**	**389**
437.leslie3d	16	597	252	**595**	**253**	594	253	8	245	307	**246**	**306**	247	305
444.namd	16	503	255	505	254	**503**	**255**	16	**500**	**257**	501	256	497	258
447.dealII	16	316	579	315	581	**316**	**580**	16	316	579	315	581	**316**	**580**
450.soplex	16	**484**	**276**	486	275	484	276	16	**484**	**276**	486	275	484	276
453.povray	16	**190**	**449**	190	449	188	453	16	164	519	166	514	**165**	**517**
454.calculix	16	**267**	**495**	266	496	270	489	16	**267**	**495**	266	496	270	489
459.GemsFDTD	16	761	223	760	223	**760**	**223**	16	761	223	760	223	**760**	**223**
465.tonto	16	398	396	396	398	**397**	**397**	16	**378**	**417**	377	418	379	415
470.lbm	16	**559**	**393**	559	393	559	393	16	**559**	**393**	559	393	559	393
481.wrf	16	**372**	**481**	374	478	369	484	16	367	487	**366**	**488**	365	490
482.sphinx3	16	809	386	**809**	**385**	811	384	16	809	386	**809**	**385**	811	384

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

Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost Thu Jun 12 20:50:18 2014

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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 E5-2637 v2 @ 3.50GHz
      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 1 2 3 4
      physical 1: cores 1 2 3 4
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       132114848 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 Jun 12 11:43

SPEC is set to: /spec
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext3  455G  132G  301G  31% /

Additional information from dmidecode:
  BIOS Insyde Corp. OARYV388 04/23/2014
  Memory:
   8x Samsung M393B2G70BH0-CMA 16 GB 1866 MHz 2 rank

(End of data from sysinfo program)
```

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Test sponsor: Huawei	**Hardware Availability:**	Sep-2013
Tested by: Huawei	**Software Availability:**	Nov-2013

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 i7-860 CPU + 8GB
 memory using RedHat EL 6.4
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_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
    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
```

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Base Optimization Flags

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

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

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

Benchmarks using both Fortran and C:
```
-xAVX -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
```

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) -opt-mem-layout-trans=3(pass 2)
          -prof-use(pass 2) -auto-ilp32
```

```
470.lbm: basepeak = yes
```

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Peak Optimization Flags (Continued)

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) -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: `-xAVX(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: `-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: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch`

  459.GemsFDTD: basepeak = yes

    465.tonto: `-xAVX(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: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -auto-ilp32`

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

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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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