SPEC® CFP2006 Result
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Huawei

Huawei RH2288H v2 (Intel Xeon E5-2620)

$SPECfp^{®}\_rate2006 = 347$

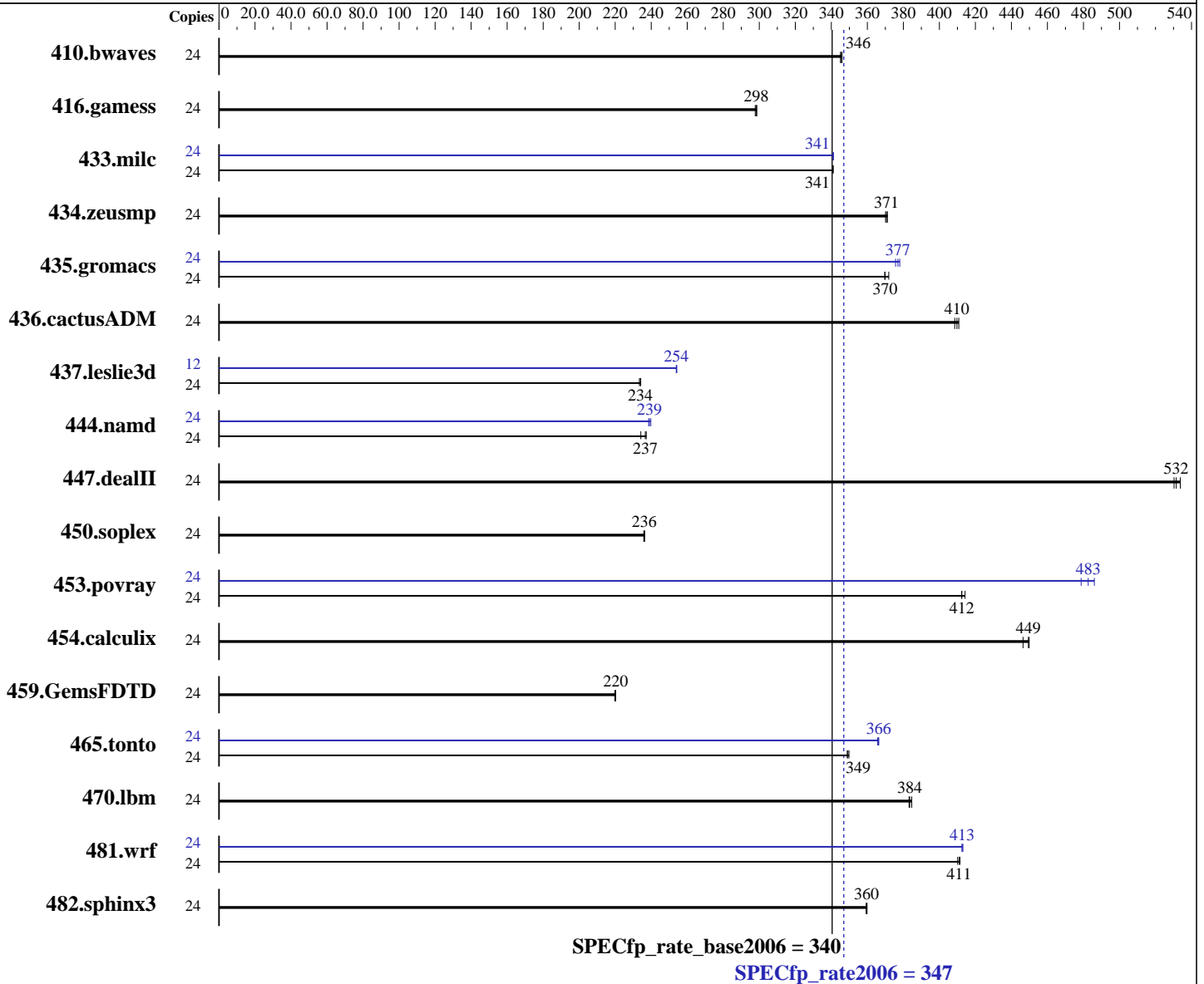$SPECfp\_rate\_base2006 = 340$

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

Test date: Jul-2014
Hardware Availability: Mar-2012
Software Availability: Nov-2013

Copies		
410.bwaves	24	346
416.gamess	24	298
433.milc	24	341
	24	341
434.zeusmp	24	371
435.gromacs	24	377
	24	370
436.cactusADM	24	410
437.leslie3d	12	254
	24	234
444.namd	24	239
	24	237
447.dealII	24	532
450.soplex	24	236
453.povray	24	483
	24	412
454.calculix	24	449
459.GemsFDTD	24	220
465.tonto	24	366
	24	349
470.lbm	24	384
481.wrf	24	413
	24	411
482.sphinx3	24	360

SPECfp_rate_base2006 = 340

SPECfp_rate2006 = 347

Hardware

CPU Name: Intel Xeon E5-2620
CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz: 2000
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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: ext4
Continued on next page

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L3 Cache:	15 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-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, 10K RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	945	345	**944**	**346**	943	346	24	945	345	**944**	**346**	943	346
416.gamess	24	1578	298	**1575**	**298**	1574	299	24	1578	298	**1575**	**298**	1574	299
433.milc	24	646	341	646	341	**646**	**341**	24	**646**	**341**	646	341	646	341
434.zeusmp	24	**589**	**371**	588	371	590	370	24	**589**	**371**	588	371	590	370
435.gromacs	24	**463**	**370**	461	372	464	370	24	453	378	**455**	**377**	456	376
436.cactusADM	24	**700**	**410**	698	411	702	409	24	**700**	**410**	698	411	702	409
437.leslie3d	24	966	233	963	234	**964**	**234**	12	444	254	444	254	**444**	**254**
444.namd	24	822	234	811	237	**813**	**237**	24	803	240	**805**	**239**	807	239
447.dealII	24	518	530	514	534	**517**	**532**	24	518	530	514	534	**517**	**532**
450.soplex	24	**848**	**236**	847	236	849	236	24	**848**	**236**	847	236	849	236
453.povray	24	**310**	**412**	310	412	308	414	24	267	479	263	486	**265**	**483**
454.calculix	24	**441**	**449**	443	446	440	450	24	**441**	**449**	443	446	440	450
459.GemsFDTD	24	1156	220	**1156**	**220**	1159	220	24	1156	220	**1156**	**220**	1159	220
465.tonto	24	675	350	677	349	**676**	**349**	24	**645**	**366**	646	366	645	366
470.lbm	24	857	385	861	383	**860**	**384**	24	857	385	861	383	**860**	**384**
481.wrf	24	**652**	**411**	652	411	654	410	24	**650**	**413**	649	413	650	413
482.sphinx3	24	1300	360	1302	359	**1301**	**360**	24	1300	360	1302	359	**1301**	**360**

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 /spec14/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Tue Jul 8 23:15:18 2014

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$SPECfp\_rate\_base2006 = 340$

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 E5-2620 0 @ 2.00GHz
      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 : 6
      siblings  : 12
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       132105680 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.localdomain 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 Jul 6 12:32

SPEC is set to: /spec14
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext4  265G  121G  131G  49% /

Additional information from dmidecode:
  BIOS Insyde Corp. OARYV378 12/29/2013
  Memory:
   16x Hynix HMT31GR7CFR4C-H9 8 GB 1333 MHz 2 rank
   8x NO DIMM NO DIMM

(End of data from sysinfo program)
```

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Huawei

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General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec14/libs/32:/spec14/libs/64:/spec14/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: basepeak = yes

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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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