SPEC® CFP2006 Result

Huawei

Huawei RH2288 V3 (Intel Xeon E5-2650L v3)

$SPECfp^{®}2006 =$ 51.1

$SPECfp\_base2006 =$ 47.1

CPU2006 license: 3175	**Test date:** Aug-2014
Test sponsor: Huawei	**Hardware Availability:** Sep-2014
Tested by: Huawei	**Software Availability:** Nov-2013

Result graph showing per-benchmark scores:
- 410.bwaves: 208
- 416.gamess: 23.3 / 20.5
- 433.milc: 42.9 / 42.8
- 434.zeusmp: 94.2
- 435.gromacs: 22.2
- 436.cactusADM: 227
- 437.leslie3d: 84.5
- 444.namd: 14.5 / 14.1
- 447.dealII: 31.0
- 450.soplex: 26.0
- 453.povray: 33.9 / 30.6
- 454.calculix: 28.9 / 18.3
- 459.GemsFDTD: 99.3 / 96.5
- 465.tonto: 28.2 / 15.6
- 470.lbm: 254
- 481.wrf: 52.1
- 482.sphinx3: 30.9 / 29.6

SPECfp_base2006 = 47.1
SPECfp2006 = 51.1
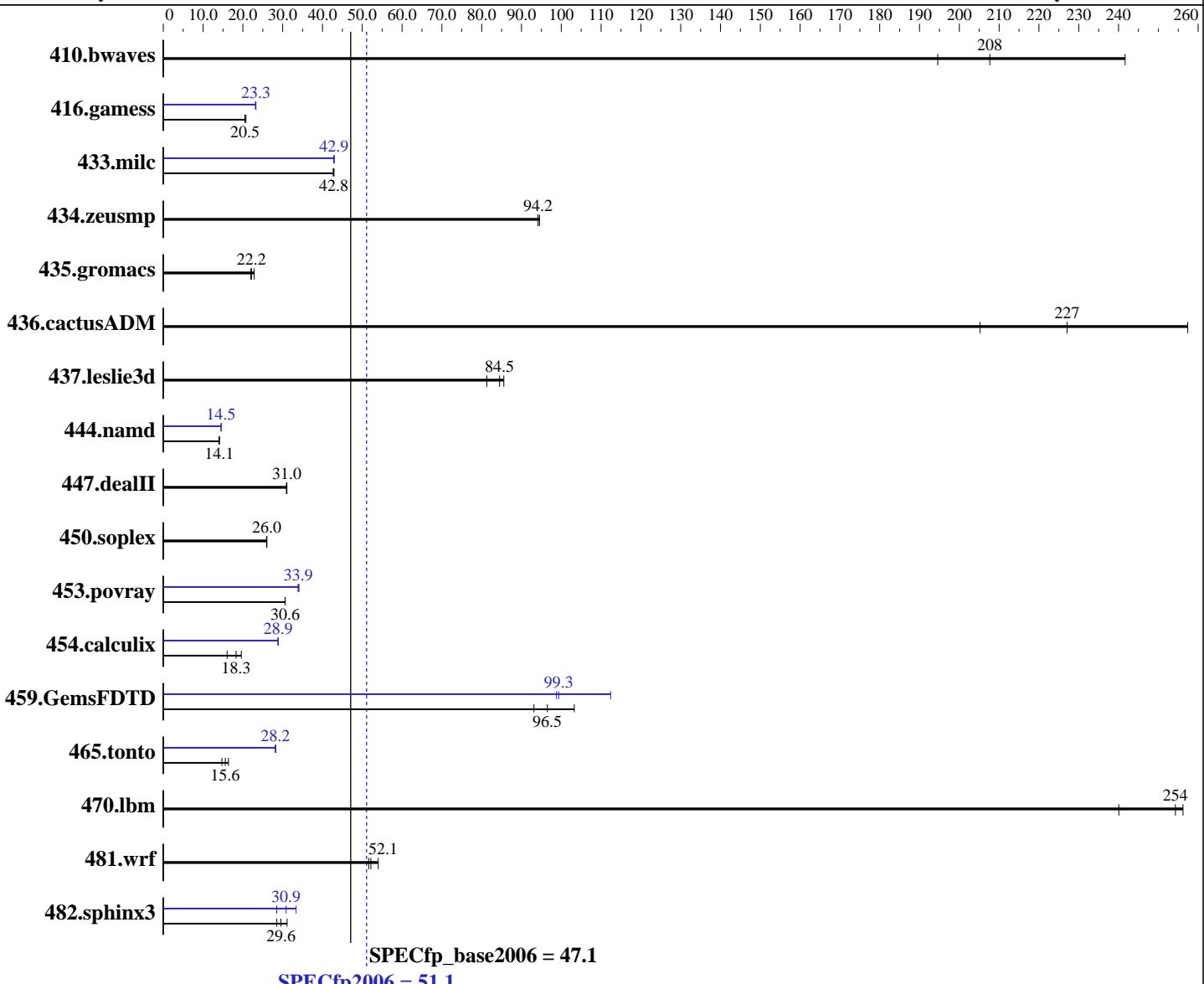
Hardware

CPU Name:	Intel Xeon E5-2650L v3
CPU Characteristics:	Intel Turbo Boost Technology up to 2.50 GHz
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 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:	Yes
File System:	ext4

Continued on next page

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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 PC4-2133P-R)
Disk Subsystem:	1 x 256 GB SATA, SSD
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	**65.4**	**208**	69.8	195	56.2	242	**65.4**	**208**	69.8	195	56.2	242
416.gamess	943	20.8	**953**	**20.5**	954	20.5	**841**	**23.3**	841	23.3	846	23.1
433.milc	215	42.7	**214**	**42.8**	214	42.9	215	42.8	**214**	**42.9**	214	42.9
434.zeusmp	96.7	94.2	96.3	94.5	**96.6**	**94.2**	96.7	94.2	96.3	94.5	**96.6**	**94.2**
435.gromacs	324	22.0	312	22.9	**322**	**22.2**	324	22.0	312	22.9	**322**	**22.2**
436.cactusADM	58.2	205	46.4	257	**52.6**	**227**	58.2	205	46.4	257	**52.6**	**227**
437.leslie3d	110	85.6	**111**	**84.5**	116	81.3	110	85.6	**111**	**84.5**	116	81.3
444.namd	570	14.1	570	14.1	**570**	**14.1**	552	14.5	**552**	**14.5**	552	14.5
447.dealII	**369**	**31.0**	368	31.1	370	30.9	**369**	**31.0**	368	31.1	370	30.9
450.soplex	**321**	**26.0**	321	25.9	321	26.0	**321**	**26.0**	321	25.9	321	26.0
453.povray	**174**	**30.6**	174	30.6	174	30.6	157	33.9	156	34.1	**157**	**33.9**
454.calculix	**451**	**18.3**	514	16.0	421	19.6	286	28.8	286	28.9	**286**	**28.9**
459.GemsFDTD	103	103	**110**	**96.5**	114	93.1	**107**	**99.3**	107	98.8	94.4	112
465.tonto	668	14.7	**631**	**15.6**	601	16.4	350	28.1	**349**	**28.2**	348	28.3
470.lbm	53.6	256	57.2	240	**54.0**	**254**	53.6	256	57.2	240	**54.0**	**254**
481.wrf	216	51.6	207	54.0	**214**	**52.1**	216	51.6	207	54.0	**214**	**52.1**
482.sphinx3	**659**	**29.6**	626	31.1	683	28.5	584	33.4	**631**	**30.9**	684	28.5

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
Set Snoop Mode to HS
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on xjt Wed Aug  6 16:19:44 2014

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

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Platform Notes (Continued)

```
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo

   From /proc/cpuinfo
      model name : Intel(R) Xeon(R) CPU E5-2650L v3 @ 1.80GHz
         2 "physical id"s (chips)
         48 "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  : 24
         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:       131924508 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 xjt 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 Aug 5 11:32

   SPEC is set to: /spec
      Filesystem      Type  Size  Used Avail Use% Mounted on
      /dev/sda1       ext4  222G   81G  130G  39% /

   Additional information from dmidecode:
     BIOS Insyde Corp. 8.09 07/14/2014
     Memory:
     8x Micron 18ASF1G72PDZ-2G1A1 8 GB 2133 MHz 1 rank
     8x Micron 18ASF1G72PDZ-2G1A1 8 GB 2133 MHz 2 rank
     8x NO DIMM NO DIMM      3 rank

   (End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "48"

 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
 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:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
             -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
             -auto-ilp32 -ansi-alias

   470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
             -parallel
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

    444.namd: `-xCORE-AVX2(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: `-xCORE-AVX2(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: `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: `basepeak = yes`

  459.GemsFDTD: `-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 -opt-prefetch -parallel`

    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)`
          `-inline-calloc -opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

    435.gromacs: `basepeak = yes`

  436.cactusADM: `basepeak = yes`

    454.calculix: `-xCORE-AVX2 -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-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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