SPEC® CFP2006 Result

Huawei

Huawei RH1288 V3 (Intel Xeon E5-2660 v3)

$SPECfp®2006 =$ 89.6

$SPECfp\_base2006 =$ 83.1

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

Results graph (scale 0 to 500):

- **410.bwaves** — 373
- **416.gamess** — 40.0 / 35.2
- **433.milc** — 66.4 / 66.0
- **434.zeusmp** — 149
- **435.gromacs** — 39.4
- **436.cactusADM** — 367
- **437.leslie3d** — 220
- **444.namd** — 26.6 / 25.8
- **447.dealII** — 53.6
- **450.soplex** — 39.9
- **453.povray** — 58.7 / 52.7
- **454.calculix** — 49.8 / 36.7
- **459.GemsFDTD** — 154 / 135
- **465.tonto** — 48.4 / 32.8
- **470.lbm** — 443
- **481.wrf** — 83.1
- **482.sphinx3** — 71.3 / 59.6

SPECfp_base2006 = 83.1
SPECfp2006 = 89.6
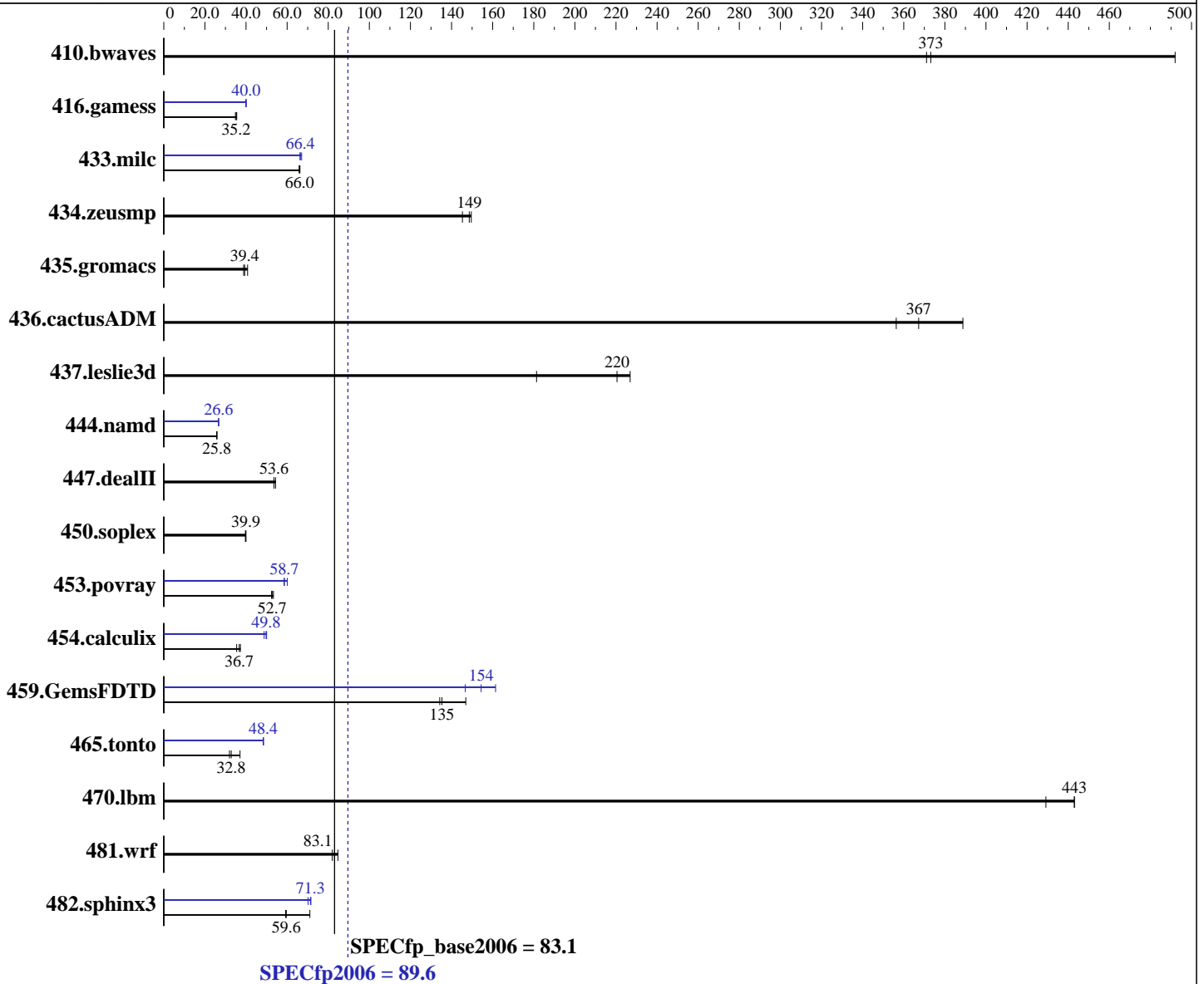
Hardware

CPU Name:	Intel Xeon E5-2660 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	20 cores, 2 chips, 10 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 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

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L3 Cache:	25 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM	Other Software:	None
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	36.6	371	**36.4**	**373**	27.6	492	36.6	371	**36.4**	**373**	27.6	492
416.gamess	**556**	**35.2**	562	34.9	552	35.5	**489**	**40.0**	490	40.0	489	40.0
433.milc	139	66.2	**139**	**66.0**	139	65.9	139	66.3	137	67.1	**138**	**66.4**
434.zeusmp	60.8	150	62.6	145	**61.2**	**149**	60.8	150	62.6	145	**61.2**	**149**
435.gromacs	184	38.8	175	40.8	**181**	**39.4**	184	38.8	175	40.8	**181**	**39.4**
436.cactusADM	30.7	389	**32.5**	**367**	33.5	356	30.7	389	**32.5**	**367**	33.5	356
437.leslie3d	**42.6**	**220**	51.8	181	41.4	227	**42.6**	**220**	51.8	181	41.4	227
444.namd	311	25.8	**311**	**25.8**	311	25.8	301	26.6	301	26.6	**301**	**26.6**
447.dealII	210	54.4	213	53.6	**213**	**53.6**	210	54.4	213	53.6	**213**	**53.6**
450.soplex	209	39.9	210	39.7	**209**	**39.9**	209	39.9	210	39.7	**209**	**39.9**
453.povray	101	52.4	99.7	53.3	**101**	**52.7**	**90.7**	**58.7**	90.9	58.5	88.6	60.1
454.calculix	**225**	**36.7**	233	35.5	221	37.3	**166**	**49.8**	169	48.8	165	50.0
459.GemsFDTD	72.2	147	79.0	134	**78.4**	**135**	72.3	147	**68.7**	**154**	65.7	161
465.tonto	308	32.0	265	37.1	**300**	**32.8**	**203**	**48.4**	203	48.4	203	48.5
470.lbm	**31.0**	**443**	31.0	443	32.0	429	**31.0**	**443**	31.0	443	32.0	429
481.wrf	**134**	**83.1**	136	82.0	132	84.7	**134**	**83.1**	136	82.0	132	84.7
482.sphinx3	**327**	**59.6**	274	71.1	329	59.3	272	71.6	278	70.2	**273**	**71.3**

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
Set Hyper-Threading to Disabled
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 localhost Thu Feb 13 08:39:07 2014

This section contains SUT (System Under Test) info as seen by
```

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Platform Notes (Continued)

```
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 E5-2660 v3 @ 2.60GHz
      2 "physical id"s (chips)
      20 "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 : 10
      siblings  : 10
      physical 0: cores 0 1 2 3 4 8 9 10 11 12
      physical 1: cores 0 1 2 3 4 8 9 10 11 12
   cache size : 25600 KB

From /proc/meminfo
   MemTotal:       264276812 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 Feb 12 20:38

SPEC is set to: /spec
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda1       ext4  433G  115G  297G  28% /

Additional information from dmidecode:
  BIOS Insyde Corp. 1.16 09/02/2014
  Memory:
   8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 1 rank
   8x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 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 = "20"

 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
```

SPEC CFP2006 Result

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Test sponsor: Huawei
Tested by: Huawei

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

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-HASWELL-V1.1.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-HASWELL-V1.1.xml

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

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