



SPEC CFP2006 Result

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Huawei

SPECfp2006 = **81.8**

Huawei CH222 V3 (Intel Xeon E5-2650 v3)

SPECfp_base2006 = **77.3**

CPU2006 license: 3175

Test sponsor: Huawei

Tested by: Huawei

Test date: Sep-2014

Hardware Availability: Sep-2014

Software Availability: Nov-2013

L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 1 x 300 GB SAS, 10K RPM
 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 | 40.8 | 333 | 26.8 | 507 | 40.4 | 336 | 40.8 | 333 | 26.8 | 507 | 40.4 | 336 |
| 416.gamess | 613 | 32.0 | 610 | 32.1 | 618 | 31.7 | 540 | 36.2 | 541 | 36.2 | 542 | 36.1 |
| 433.milc | 154 | 59.6 | 155 | 59.4 | 154 | 59.5 | 154 | 59.4 | 154 | 59.5 | 154 | 59.7 |
| 434.zeusmp | 65.4 | 139 | 67.6 | 135 | 65.4 | 139 | 65.4 | 139 | 67.6 | 135 | 65.4 | 139 |
| 435.gromacs | 199 | 35.8 | 199 | 35.9 | 193 | 37.0 | 199 | 35.8 | 199 | 35.9 | 193 | 37.0 |
| 436.cactusADM | 34.1 | 350 | 32.9 | 363 | 32.3 | 369 | 34.1 | 350 | 32.9 | 363 | 32.3 | 369 |
| 437.leslie3d | 55.4 | 170 | 58.0 | 162 | 40.8 | 230 | 55.4 | 170 | 58.0 | 162 | 40.8 | 230 |
| 444.namd | 342 | 23.5 | 342 | 23.5 | 342 | 23.5 | 331 | 24.2 | 331 | 24.2 | 331 | 24.2 |
| 447.dealII | 231 | 49.5 | 231 | 49.5 | 232 | 49.3 | 231 | 49.5 | 231 | 49.5 | 232 | 49.3 |
| 450.soplex | 227 | 36.7 | 227 | 36.8 | 227 | 36.7 | 227 | 36.7 | 227 | 36.8 | 227 | 36.7 |
| 453.povray | 110 | 48.4 | 112 | 47.3 | 112 | 47.6 | 101 | 52.9 | 100 | 53.1 | 101 | 52.9 |
| 454.calculix | 258 | 32.0 | 246 | 33.6 | 246 | 33.6 | 181 | 45.6 | 181 | 45.6 | 181 | 45.6 |
| 459.GemsFDTD | 72.8 | 146 | 51.6 | 206 | 83.8 | 127 | 72.8 | 146 | 51.6 | 206 | 83.8 | 127 |
| 465.tonto | 329 | 29.9 | 334 | 29.5 | 340 | 29.0 | 225 | 43.8 | 225 | 43.6 | 225 | 43.7 |
| 470.lbm | 31.4 | 437 | 32.2 | 426 | 32.0 | 429 | 31.4 | 437 | 32.2 | 426 | 32.0 | 429 |
| 481.wrf | 144 | 77.3 | 145 | 77.0 | 140 | 80.0 | 144 | 77.3 | 145 | 77.0 | 140 | 80.0 |
| 482.sphinx3 | 298 | 65.5 | 294 | 66.3 | 296 | 65.8 | 298 | 65.5 | 294 | 66.3 | 296 | 65.8 |

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 huawei Mon Sep 1 21:33:35 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 E5-2650 v3 @ 2.30GHz
    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:      264302428 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 huawei 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 Sep 1 09:18

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext4  266G   81G  172G  32% /

```

Additional information from dmidecode:

```

BIOS Insyde Corp. 8.09 07/14/2014
Memory:
  8x NO DIMM NO DIMM      3 rank
  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>

The Huawei CH121 V3 and Huawei CH222 V3 are electronically equivalent.

The results have been measured on a Huawei CH121 V3 model

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: basepeak = yes

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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.dealIII: 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: 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)
-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>

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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