SPEC® CFP2006 Result
2006-2014 Standard Performance Evaluation Corporation

Huawei

Huawei CH121 (Intel Xeon E5-2670 v2)

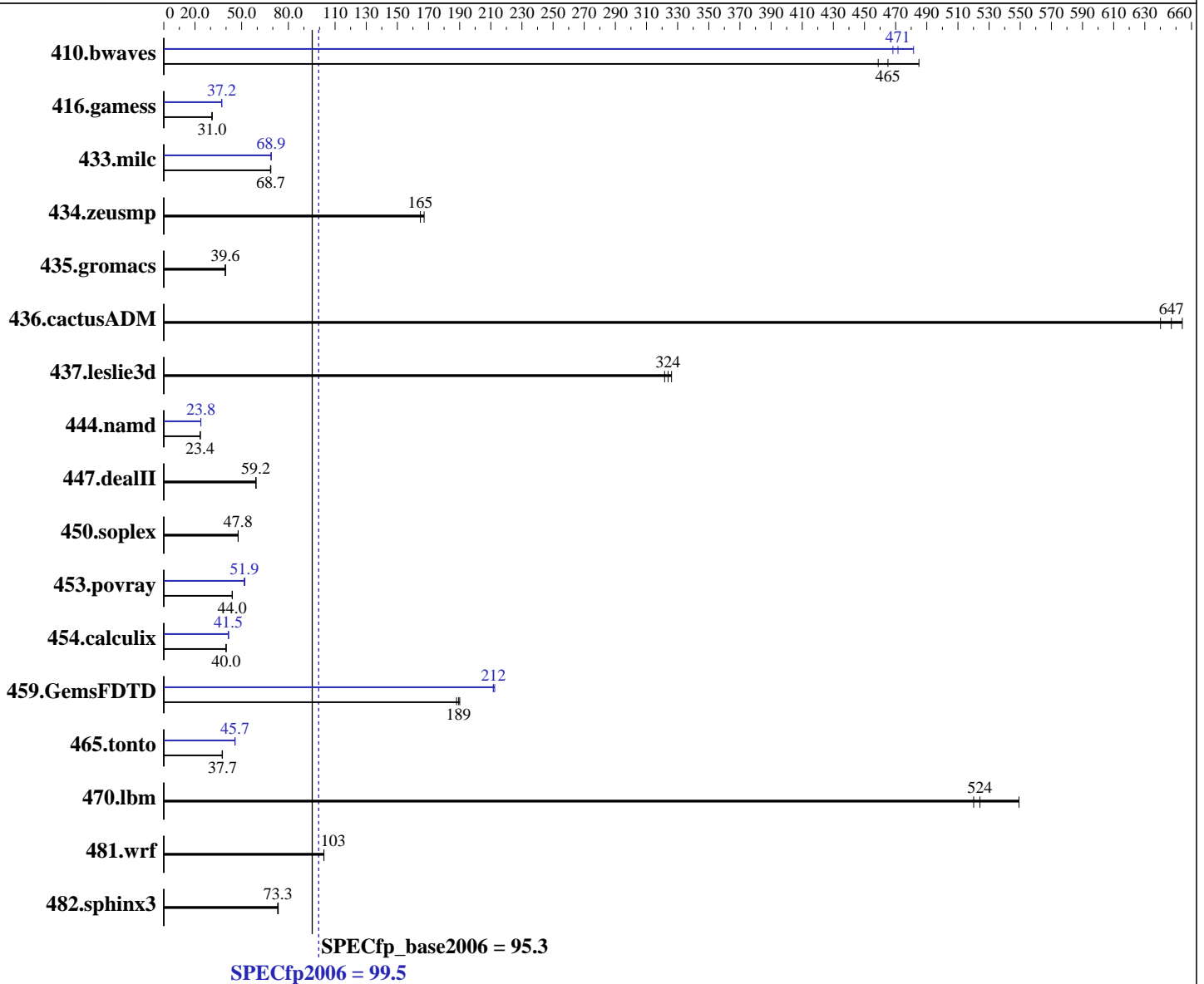$SPECfp®2006 =$ 99.5

$SPECfp\_base2006 =$ 95.3

license: 3175
Test sponsor: Huawei
Tested by: Huawei

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

Benchmark	Result (base)	Result (peak)
410.bwaves	465	471
416.gamess	31.0	37.2
433.milc	68.7	68.9
434.zeusmp	165	
435.gromacs	39.6	
436.cactusADM	647	
437.leslie3d	324	
444.namd	23.4	23.8
447.dealII	59.2	
450.soplex	47.8	
453.povray	44.0	51.9
454.calculix	40.0	41.5
459.GemsFDTD	189	212
465.tonto	37.7	45.7
470.lbm	524	
481.wrf	103	
482.sphinx3	73.3	

SPECfp_base2006 = 95.3
SPECfp2006 = 99.5

Hardware

CPU Name: Intel Xeon E5-2670 v2
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
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 12.1.0.225 of Intel C++ Studio XE for Linux;
Fortran: Version 12.1.0.225 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 PC3-14900R-13, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 300 GB SAS, 10000 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	29.6	459	**29.2**	**465**	28.0	485	28.2	482	**28.8**	**471**	29.0	468
416.gamess	**631**	**31.0**	631	31.0	633	31.0	526	37.2	527	37.2	**526**	**37.2**
433.milc	**134**	**68.7**	134	68.5	134	68.7	**133**	**68.9**	133	69.0	133	68.9
434.zeusmp	54.4	167	55.2	165	**55.2**	**165**	54.4	167	55.2	165	**55.2**	**165**
435.gromacs	181	39.5	**181**	**39.6**	181	39.6	181	39.5	**181**	**39.6**	181	39.6
436.cactusADM	18.7	640	18.3	654	**18.5**	**647**	18.7	640	18.3	654	**18.5**	**647**
437.leslie3d	**29.0**	**324**	28.8	326	29.2	322	**29.0**	**324**	28.8	326	29.2	322
444.namd	343	23.4	**343**	**23.4**	343	23.4	337	23.8	**337**	**23.8**	337	23.8
447.dealII	193	59.2	**193**	**59.2**	193	59.1	193	59.2	**193**	**59.2**	193	59.1
450.soplex	**175**	**47.8**	175	47.8	175	47.7	**175**	**47.8**	175	47.8	175	47.7
453.povray	121	44.1	121	43.9	**121**	**44.0**	102	52.1	**103**	**51.9**	103	51.6
454.calculix	206	40.0	**206**	**40.0**	206	40.0	199	41.5	**199**	**41.5**	199	41.5
459.GemsFDTD	55.8	190	**56.0**	**189**	56.4	188	50.1	212	**50.1**	**212**	49.9	212
465.tonto	**261**	**37.7**	263	37.5	261	37.7	215	45.7	**215**	**45.7**	215	45.8
470.lbm	**26.2**	**524**	26.4	520	25.0	549	**26.2**	**524**	26.4	520	25.0	549
481.wrf	109	103	109	103	**109**	**103**	109	103	109	103	**109**	**103**
482.sphinx3	**266**	**73.3**	266	73.2	265	73.5	**266**	**73.3**	266	73.2	265	73.5

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
Baseboard Management Controller used to adjust the fan speed to 100%
Sysinfo program /spec/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost Sat Jul 12 10:52:13 2014

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
```
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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2670 v2 @ 2.50GHz
      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:      264478184 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 Jul 12 10:46

SPEC is set to: /spec
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda2       ext4  272G   32G  227G  13% /

Additional information from dmidecode:
  Memory:
   2x Micron 36JSF2G72PZ-1G9E1 16 GB 1867 MHz 2 rank
   14x Samsung M393B2G70QH0-CMA 16 GB 1867 MHz 2 rank

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,0,1"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64"
OMP_NUM_THREADS = "20"
```

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General Notes (Continued)

```
Binaries compiled on a system with 2 x Xeon X5645 CPU + 16GB memory
using RHEL 6.1
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

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
```

Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

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Base Optimization Flags (Continued)

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

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

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

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

```
 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) -prof-use(pass 2) -fno-alias
             -auto-ilp32
```

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Peak Optimization Flags (Continued)

```
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) -prof-use(pass 2) -unroll4 -ansi-alias
```

Fortran benchmarks:

```
410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
            -static

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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

465.tonto: -xAVX(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: -xAVX -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-ic12.1-official-linux64.20111122.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-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml

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

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