SPEC® CFP2006 Result
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Huawei

Huawei E9000 CH121 (Intel Xeon E5-2658)

$SPECfp^{®}2006 =$ 69.9
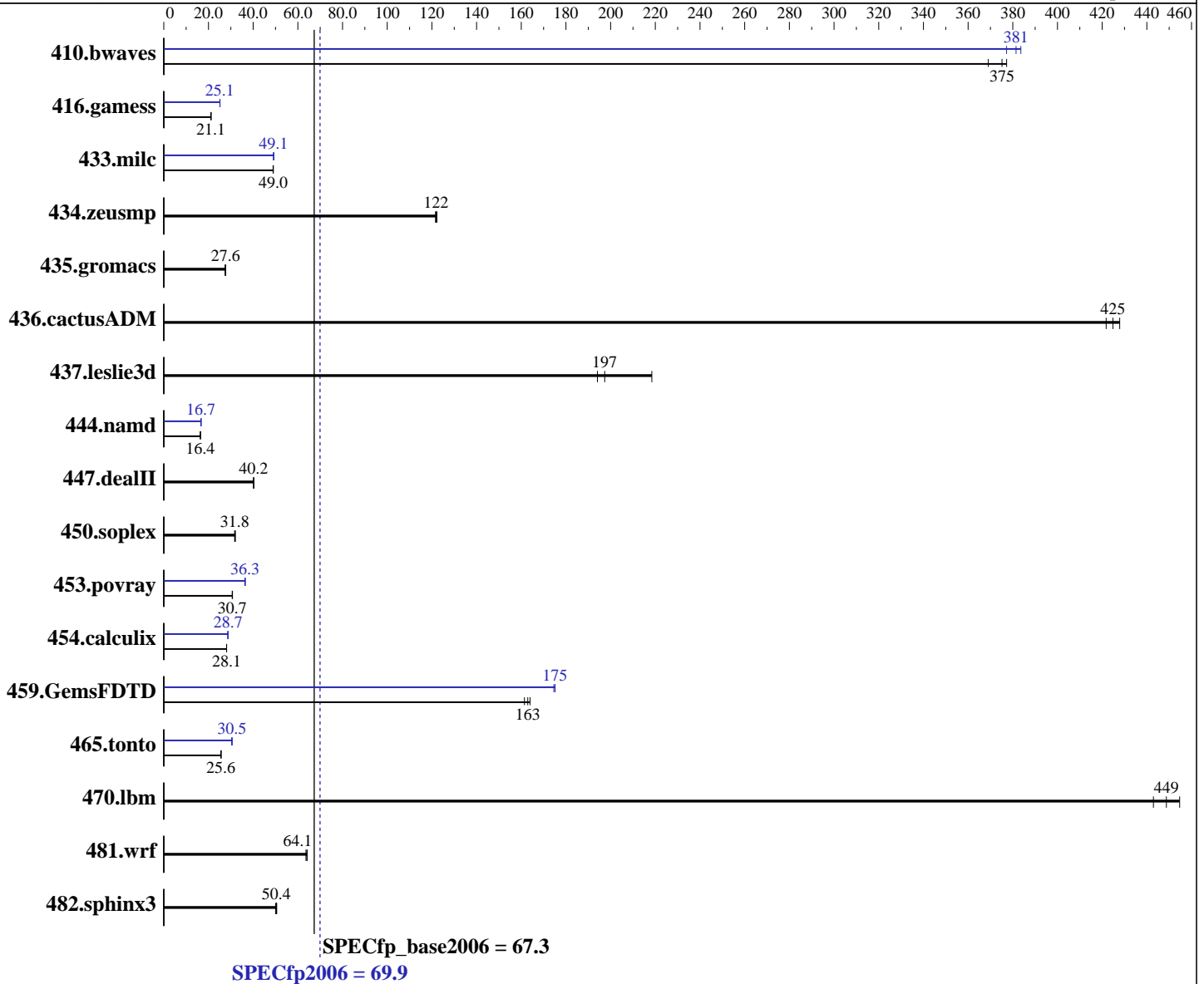
$SPECfp\_base2006 =$ 67.3

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

Test date: Jan-2013
Hardware Availability: Aug-2012
Software Availability: Sep-2012

Benchmark	base	peak
410.bwaves	375	381
416.gamess	21.1	25.1
433.milc	49.0	49.1
434.zeusmp	122	
435.gromacs	27.6	
436.cactusADM	425	
437.leslie3d	197	
444.namd	16.4	16.7
447.dealII	40.2	
450.soplex	31.8	
453.povray	30.7	36.3
454.calculix	28.1	28.7
459.GemsFDTD	163	175
465.tonto	25.6	30.5
470.lbm	449	
481.wrf	64.1	
482.sphinx3	50.4	

SPECfp_base2006 = 67.3
SPECfp2006 = 69.9

Hardware

CPU Name: Intel Xeon E5-2658
CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
CPU(s) orderable: 1,2 chips
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 6.2 (Santiago)
2.6.32-220.el6.x86_64
Compiler: C/C++: Version 13.0.1 of Intel C++ Studio XE for Linux;
Fortran: Version 13.0.1 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext3

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L3 Cache:	20 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	64-bit
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	2 x 300 GB SAS 10 K RPM	Other Software:	None
Other Hardware:	None		

Results Table

	Base						Peak					
Benchmark	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**36.2**	**375**	36.0	377	36.8	369	36.0	377	**35.6**	**381**	35.4	384
416.gamess	925	21.2	930	21.0	**927**	**21.1**	**780**	**25.1**	778	25.2	780	25.1
433.milc	188	48.9	**187**	**49.0**	187	49.0	**187**	**49.1**	187	49.1	186	49.3
434.zeusmp	74.8	122	74.4	122	**74.6**	**122**	74.8	122	74.4	122	**74.6**	**122**
435.gromacs	258	27.7	260	27.4	**258**	**27.6**	258	27.7	260	27.4	**258**	**27.6**
436.cactusADM	27.9	428	28.3	422	**28.1**	**425**	27.9	428	28.3	422	**28.1**	**425**
437.leslie3d	**47.6**	**197**	43.0	218	48.4	194	**47.6**	**197**	43.0	218	48.4	194
444.namd	**490**	**16.4**	489	16.4	490	16.4	481	16.7	481	16.7	**481**	**16.7**
447.dealII	284	40.3	**285**	**40.2**	285	40.2	284	40.3	**285**	**40.2**	285	40.2
450.soplex	263	31.8	**262**	**31.8**	260	32.0	263	31.8	**262**	**31.8**	260	32.0
453.povray	**173**	**30.7**	174	30.6	173	30.7	**146**	**36.3**	146	36.5	147	36.3
454.calculix	294	28.1	293	28.1	**294**	**28.1**	287	28.7	288	28.6	**287**	**28.7**
459.GemsFDTD	**65.1**	**163**	65.7	161	64.7	164	60.6	175	60.8	175	**60.6**	**175**
465.tonto	384	25.6	**384**	**25.6**	385	25.6	**323**	**30.5**	324	30.4	322	30.6
470.lbm	30.2	455	31.0	443	**30.6**	**449**	30.2	455	31.0	443	**30.6**	**449**
481.wrf	176	63.6	174	64.1	**174**	**64.1**	176	63.6	174	64.1	**174**	**64.1**
482.sphinx3	389	50.1	386	50.5	**387**	**50.4**	389	50.1	386	50.5	**387**	**50.4**

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"
    Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
    Select only test related files when installing the operating system
```

Platform Notes

```
    BIOS configuration:
    Intel HT Technology = Disable
    Sysinfo program /opt/spec2006/config/sysinfo.rev6800
    $Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
    running on rhel62x64spec1.huawei.com Fri Jan 11 17:24:11 2013

    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 E5-2658 0 @ 2.10GHz
       2 "physical id"s (chips)
       16 "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 : 8
       siblings  : 8
       physical 0: cores 0 1 2 3 4 5 6 7
       physical 1: cores 0 1 2 3 4 5 6 7
    cache size : 20480 KB

 From /proc/meminfo
    MemTotal:       132120564 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.2 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux rhel62x64spec1.huawei.com 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9
    08:03:13 EST 2011 x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Jan 11 05:57

 SPEC is set to: /opt/spec2006
    Filesystem     Type    Size   Used Avail Use% Mounted on
    /dev/sdb1      ext3    276G   27G  235G  11% /opt

 Additional information from dmidecode:

 (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 = "/opt/spec2006/libs/32:/opt/spec2006/libs/64"
 OMP_NUM_THREADS = "16"

  Binaries compiled on a system with 2 x Xeon X5650 CPU + 16GB memory
```

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General Notes (Continued)

    using RHEL 6.2

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

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

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Base Optimization Flags (Continued)

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-linux64.20120425.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20121120.html

The flags files that were used to format this result can be browsed at
You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-revE.20121120.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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