



SPEC® CFP2006 Result

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Huawei

SPECfp®2006 = 60.1

Huawei RH5885H V3 (Intel Xeon E7-4809 v2)

SPECfp_base2006 = 58.2

CPU2006 license: 3175

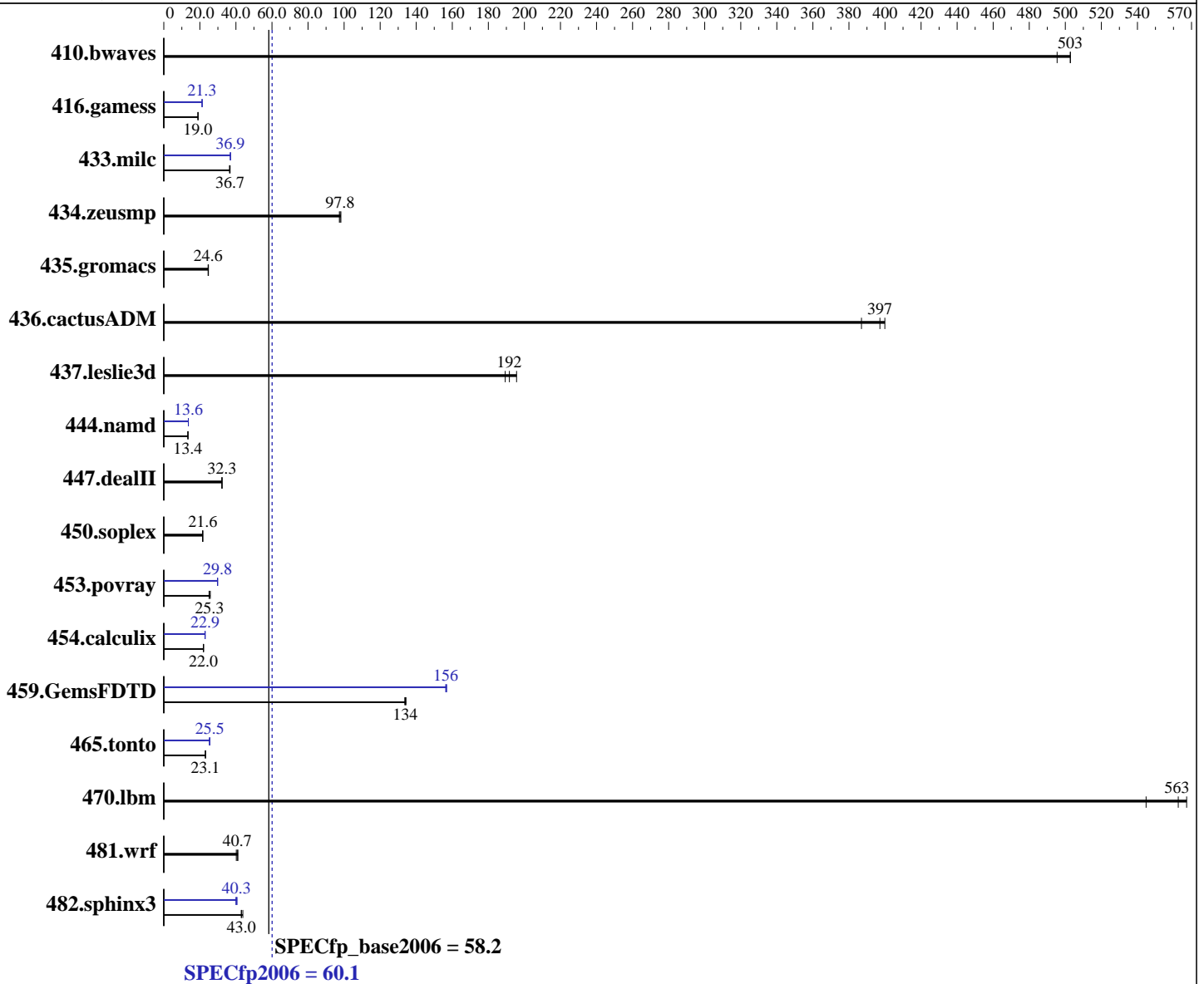
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



Hardware

CPU Name: Intel Xeon E7-4809 v2
 CPU Characteristics:
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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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: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 1 TB (64 x 16 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz and CL7)
 Disk Subsystem: 2 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	27.0	503	27.0	503	27.4	495	27.0	503	27.0	503	27.4	495
416.gamess	1030	19.0	1034	18.9	1032	19.0	922	21.2	921	21.3	921	21.3
433.milc	250	36.7	252	36.4	250	36.7	249	36.9	248	37.0	249	36.9
434.zeusmp	92.7	98.2	93.1	97.8	93.5	97.4	92.7	98.2	93.1	97.8	93.5	97.4
435.gromacs	288	24.8	290	24.6	290	24.6	288	24.8	290	24.6	290	24.6
436.cactusADM	30.1	397	29.9	400	30.9	387	30.1	397	29.9	400	30.9	387
437.leslie3d	48.0	196	49.0	192	49.6	189	48.0	196	49.0	192	49.6	189
444.namd	599	13.4	599	13.4	599	13.4	589	13.6	589	13.6	589	13.6
447.dealII	354	32.3	354	32.3	355	32.2	354	32.3	354	32.3	355	32.2
450.soplex	386	21.6	386	21.6	388	21.5	386	21.6	386	21.6	388	21.5
453.povray	206	25.8	212	25.1	210	25.3	179	29.8	178	29.9	179	29.8
454.calculix	375	22.0	374	22.0	376	22.0	360	22.9	360	22.9	360	22.9
459.GemsFDTD	79.4	134	79.2	134	79.0	134	67.6	157	67.8	156	67.8	156
465.tonto	426	23.1	426	23.1	426	23.1	390	25.3	385	25.6	385	25.5
470.lbm	25.2	545	24.2	567	24.4	563	25.2	545	24.2	567	24.4	563
481.wrf	278	40.2	272	41.1	274	40.7	278	40.2	272	41.1	274	40.7
482.sphinx3	453	43.0	453	43.0	445	43.8	480	40.6	487	40.0	483	40.3

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 Performance
 Set Lock_step to disabled
 Baseboard Management Controller used to adjust the fan speed to 100%
 Set Intel Hyper Threading to disabled
 Sysinfo program /spec/config/sysinfo.rev6800
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
 running on RH5885HV3 Mon Oct 20 22:40:04 2014

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Platform Notes (Continued)

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>

```

From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E7-4809 v2 @ 1.90GHz
 4 "physical id"s (chips)
24 "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    : 6
  siblings     : 6
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
  physical 2: cores 0 1 2 3 4 5
  physical 3: cores 0 1 2 3 4 5
 cache size   : 12288 KB

```

```

From /proc/meminfo
MemTotal:      1058606704 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 RH5885HV3 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 Oct 20 12:13

```

SPEC is set to: /spec
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5       ext4  321G  3.7G  301G   2% /spec

```

Additional information from dmidecode:

```

Memory:
60x Hynix HMT42GR7AFR4C-PB 16 GB 1600 MHz 2 rank
4x Hynix HMT42GR7MFR4C-PB 16 GB 1600 MHz 2 rank

```

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 1 TB and the dmidecode description should have two lines reading as:

```

60x Hynix HMT42GR7AFR4C-PB 16 GB 1600 MHz 2 rank
4x Hynix HMT42GR7MFR4C-PB 16 GB 1600 MHz 2 rank

```

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Platform Notes (Continued)

Dmidecode mistakenly believes the memory was running at 1600 MHz, when it should only run at 1066 MHz. This benchmark result is intended to provide perspective on past performance using the historical software described on this result page. The system as described on this result page was formerly generally available (Oct-2014). But at the time of this publication (November 2014), the compiler specified (Intel Compiler 12) was not listed as supported per <https://software.intel.com/en-us/articles/intel-compilers-supported-compiler-versions>. This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

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 = "24"
```

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
```

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Base Portability Flags (Continued)

```

447.deallI: -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

```

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



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Software Availability: Nov-2013

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: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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

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: basepeak = yes

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

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Peak Optimization Flags (Continued)

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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