



# SPEC® CFP2006 Result

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## Huawei

**SPECfp®\_rate2006 = 602**

Huawei RH5885H V3 (Intel Xeon E7-4809 v2)

**SPECfp\_rate\_base2006 = 589**

CPU2006 license: 3175

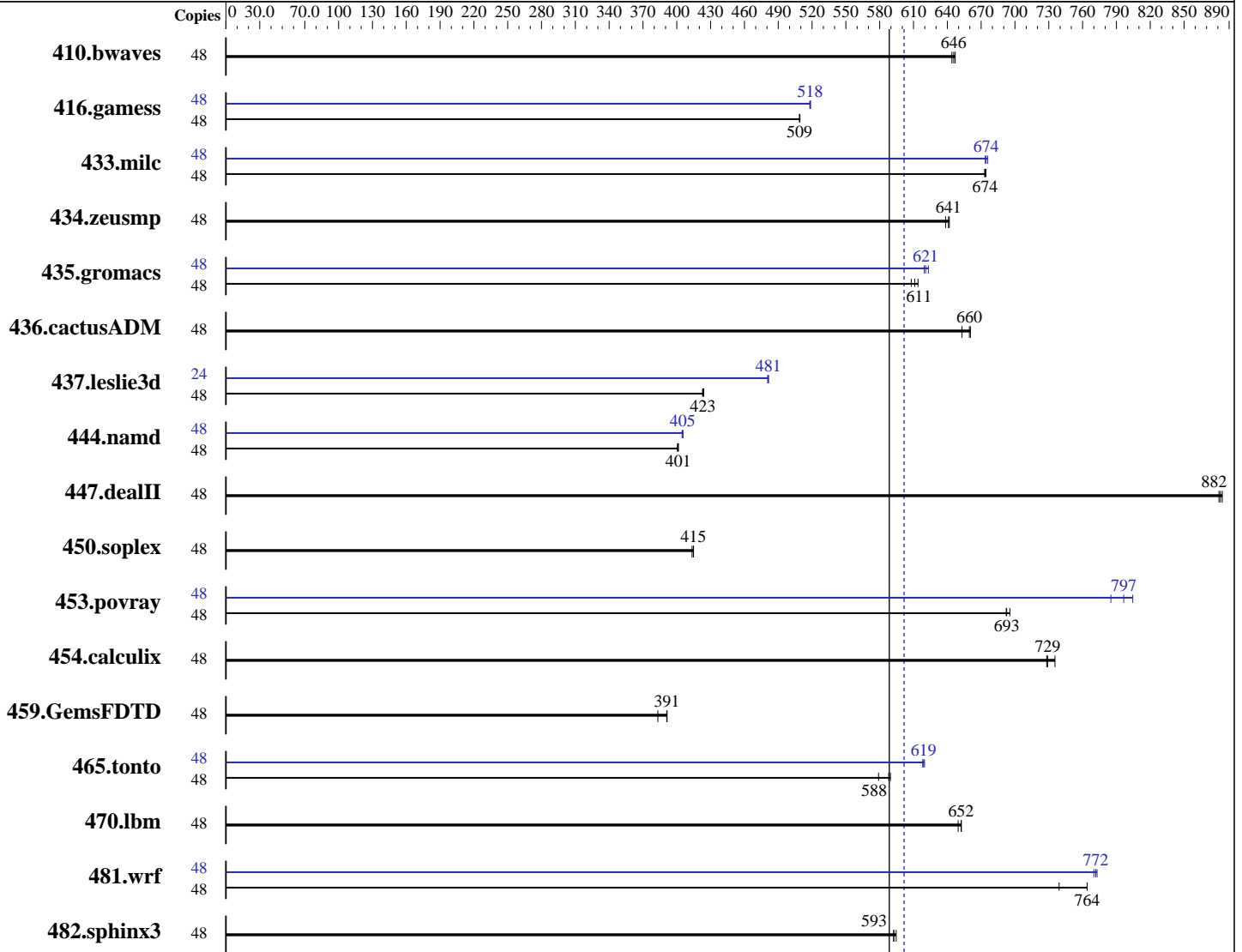
Test sponsor: Huawei

Tested by: Huawei

Test date: Oct-2014

Hardware Availability: Feb-2014

Software Availability: Nov-2013



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### 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, 2 threads/core  
 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 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: No  
 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)  
 Disk Subsystem: 2 x 300 GB SAS, 10K RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	1013	644	1008	647	<b>1010</b>	<b>646</b>	48	1013	644	1008	647	<b>1010</b>	<b>646</b>
416.gamess	48	1845	509	<b>1846</b>	<b>509</b>	1847	509	48	1814	518	1812	519	<b>1813</b>	<b>518</b>
433.milc	48	<b>654</b>	<b>674</b>	654	674	655	673	48	654	674	652	676	<b>653</b>	<b>674</b>
434.zeusmp	48	<b>681</b>	<b>641</b>	681	642	684	638	48	<b>681</b>	<b>641</b>	681	642	684	638
435.gromacs	48	<b>561</b>	<b>611</b>	564	608	558	614	48	550	623	553	620	<b>552</b>	<b>621</b>
436.cactusADM	48	<b>870</b>	<b>660</b>	868	660	878	653	48	<b>870</b>	<b>660</b>	868	660	878	653
437.leslie3d	48	1064	424	1067	423	<b>1066</b>	<b>423</b>	24	469	481	469	481	<b>469</b>	<b>481</b>
444.namd	48	959	401	<b>959</b>	<b>401</b>	961	401	48	<b>950</b>	<b>405</b>	949	406	951	405
447.dealII	48	623	881	621	884	<b>622</b>	<b>882</b>	48	623	881	621	884	<b>622</b>	<b>882</b>
450.soplex	48	965	415	<b>965</b>	<b>415</b>	968	414	48	965	415	<b>965</b>	<b>415</b>	968	414
453.povray	48	369	692	<b>369</b>	<b>693</b>	367	695	48	<b>321</b>	<b>797</b>	317	804	325	785
454.calculix	48	538	735	<b>543</b>	<b>729</b>	544	728	48	538	735	<b>543</b>	<b>729</b>	544	728
459.GemsFDTD	48	1329	383	1301	391	<b>1302</b>	<b>391</b>	48	1329	383	1301	391	<b>1302</b>	<b>391</b>
465.tonto	48	<b>803</b>	<b>588</b>	801	590	816	579	48	<b>763</b>	<b>619</b>	764	618	762	620
470.lbm	48	1011	652	<b>1011</b>	<b>652</b>	1015	650	48	1011	652	<b>1011</b>	<b>652</b>	1015	650
481.wrf	48	702	764	<b>702</b>	<b>764</b>	725	739	48	694	773	696	770	<b>695</b>	<b>772</b>
482.sphinx3	48	<b>1579</b>	<b>593</b>	1579	592	1573	595	48	<b>1579</b>	<b>593</b>	1579	592	1573	595

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"



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### Platform Notes

BIOS configuration:

Set Power Efficiency Mode to Performance

Set Lock\_step to disabled

Sysinfo program /spec/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191

running on RH5885HV3 Fri Oct 17 07:07:37 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>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E7-4809 v2 @ 1.90GHz

4 "physical id"s (chips)

48 "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 : 12

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: 1058603704 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 16 12:44

SPEC is set to: /spec

Filesystem Type Size Used Avail Use% Mounted on

/dev/sda5 ext4 321G 46G 259G 16% /spec

Additional information from dmidecode:

BIOS American Megatrends Inc. BLISV395 07/25/2014

Memory:

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## Platform Notes (Continued)

64x 16 GB  
60x Hynix HMT42GR7AFR4C-PB 16 GB 1066 MHz 2 rank  
4x Hynix HMT42GR7MFR4C-PB 16 GB 1066 MHz 2 rank  
32x NO DIMM NO DIMM

(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 1066 MHz 2 rank  
4x Hynix HMT42GR7MFR4C-PB 16 GB 1066 MHz 2 rank

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"

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

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop\_caches

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

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## Base Portability Flags (Continued)

```

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 -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

```

## 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

```



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## 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) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -auto-ilp32

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) -opt-mem-layout-trans=3(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) -opt-mem-layout-trans=3(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

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## Peak Optimization Flags (Continued)

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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-revC.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-revC.xml>

<http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-V1.0-IVB-RevG.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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