



# SPEC® CFP2006 Result

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## Sugon

SPECfp®\_rate2006 = 773

Sugon I620-G20(Intel Xeon E5-2670 v3)

SPECfp\_rate\_base2006 = 752

CPU2006 license: 9046

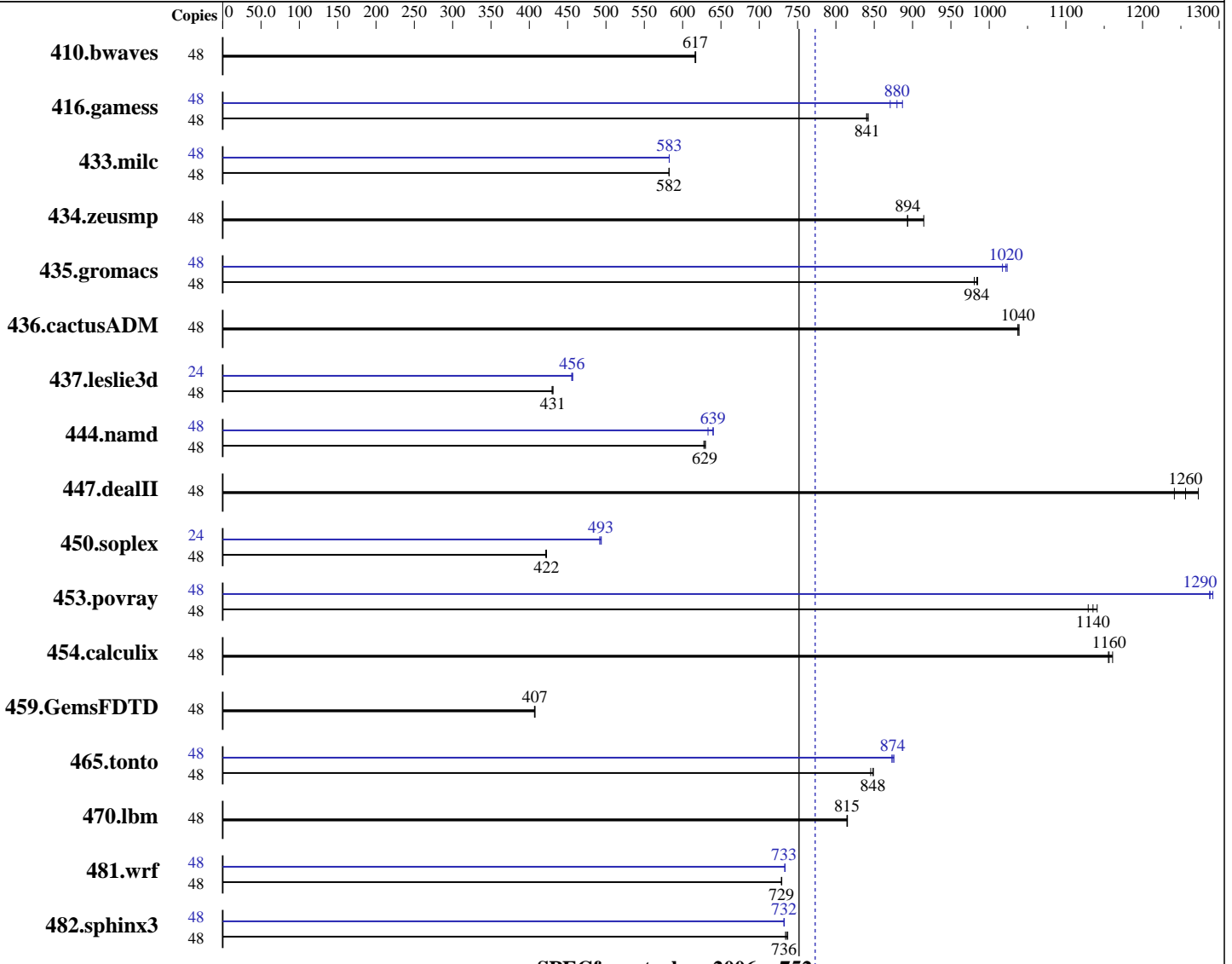
Test sponsor: Sugon

Tested by: Sugon

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Aug-2014



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### Hardware

CPU Name: Intel Xeon E5-2670 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core  
 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

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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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SPECfp\_rate2006 = **773**

Sugon I620-G20(Intel Xeon E5-2670 v3)

SPECfp\_rate\_base2006 = **752**

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Tested by: Sugon

Test date: Oct-2014

Hardware Availability: Sep-2014

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L3 Cache: 30 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 2.0 TB SATA Disk  
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	1058	616	<b>1058</b>	<b>617</b>	1057	617	48	1058	616	<b>1058</b>	<b>617</b>	1057	617
416.gamess	48	1119	840	<b>1118</b>	<b>841</b>	1116	842	48	<b>1068</b>	<b>880</b>	1060	887	1079	871
433.milc	48	<b>757</b>	<b>582</b>	757	582	756	583	48	756	583	<b>756</b>	<b>583</b>	756	583
434.zeusmp	48	478	915	489	893	<b>489</b>	<b>894</b>	48	478	915	489	893	<b>489</b>	<b>894</b>
435.gromacs	48	<b>348</b>	<b>984</b>	348	985	350	980	48	335	1020	337	1020	<b>335</b>	<b>1020</b>
436.cactusADM	48	<b>553</b>	<b>1040</b>	552	1040	553	1040	48	<b>553</b>	<b>1040</b>	552	1040	553	1040
437.leslie3d	48	1047	431	1050	430	<b>1047</b>	<b>431</b>	24	495	455	<b>495</b>	<b>456</b>	494	457
444.namd	48	613	628	611	630	<b>612</b>	<b>629</b>	48	601	640	<b>602</b>	<b>639</b>	608	633
447.dealII	48	<b>437</b>	<b>1260</b>	431	1270	442	1240	48	<b>437</b>	<b>1260</b>	431	1270	442	1240
450.soplex	48	948	422	<b>948</b>	<b>422</b>	950	421	24	<b>406</b>	<b>493</b>	405	494	407	492
453.povray	48	<b>225</b>	<b>1140</b>	226	1130	224	1140	48	198	1290	198	1290	<b>198</b>	<b>1290</b>
454.calculix	48	<b>342</b>	<b>1160</b>	343	1160	341	1160	48	<b>342</b>	<b>1160</b>	343	1160	341	1160
459.GemsFDTD	48	1250	407	1252	407	<b>1251</b>	<b>407</b>	48	1250	407	1252	407	<b>1251</b>	<b>407</b>
465.tonto	48	556	849	559	845	<b>557</b>	<b>848</b>	48	541	873	<b>540</b>	<b>874</b>	539	876
470.lbm	48	810	815	809	815	<b>810</b>	<b>815</b>	48	810	815	809	815	<b>810</b>	<b>815</b>
481.wrf	48	735	729	736	729	<b>735</b>	<b>729</b>	48	731	733	<b>731</b>	<b>733</b>	731	733
482.sphinx3	48	1269	737	<b>1272</b>	<b>736</b>	1274	734	48	1277	733	<b>1277</b>	<b>732</b>	1278	732

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"

## Platform Notes

BIOS Configuration:  
Enforce POR set to disabled  
Memory Frequency set to 2133

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Test sponsor: Sugon

Tested by: Sugon

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Aug-2014

## Platform Notes (Continued)

Early Snoop set to disabled

COD set to enable

Power Technology set to performance

Sysinfo program /home/cpu2006/config/sysinfo.rev6874

\$Rev: 6874 \$ \$Date:: 2013-11-20 #\$ 654bd3fcf53b06faef0efe54ed011998

running on localhost Tue Oct 28 18:53:31 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 E5-2670 v3 @ 2.30GHz

2 "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 : 12

siblings : 24

physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13

physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13

cache size : 15360 KB

From /proc/meminfo

MemTotal: 264476860 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 Oct 28 06:00

SPEC is set to: /home/cpu2006

Filesystem Type Size Used Avail Use% Mounted on

/dev/sda3 ext4 1.8T 614G 1.1T 36% /

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

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## Platform Notes (Continued)

BIOS American Megatrends Inc. 068 08/15/2014

Memory:

16x Hynix Semiconductor HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz

8x NO DIMM NO DIMM

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/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>

Submitted\_by: Tian Yuwan <tianyw@sugon.com>

Submitted: Fri Oct 31 01:43:45 EDT 2014

Submission: cpu2006-20141031-32613.sub

## 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

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Test date: Oct-2014

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Tested by: Sugon

Software Availability: Aug-2014

## Base Portability Flags (Continued)

```

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:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

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Hardware Availability: Sep-2014

Tested by: Sugon

Software Availability: Aug-2014

## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak 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  
 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

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

470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3  
 -unroll2

C++ benchmarks:

444.namd: -xCORE-AVX2(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: -xCORE-AVX2(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)

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## Peak Optimization Flags (Continued)

450.soplex (continued):

-opt-malloc-options=3

453.povray: -xCORE-AVX2(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: -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: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

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) -unroll4

-auto -inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(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: -xCORE-AVX2 -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/Sugon-Platform-Settings-V1.2-HSW-revA.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/Sugon-Platform-Settings-V1.2-HSW-revA.xml>



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

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