



# SPEC<sup>®</sup> CFP2006 Result

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## Sugon

SPECfp<sup>®</sup>2006 = **95.3**

Sugon I620-G20 (Intel Xeon E5-2630 v3)

SPECfp\_base2006 = **92.6**

CPU2006 license: 9046

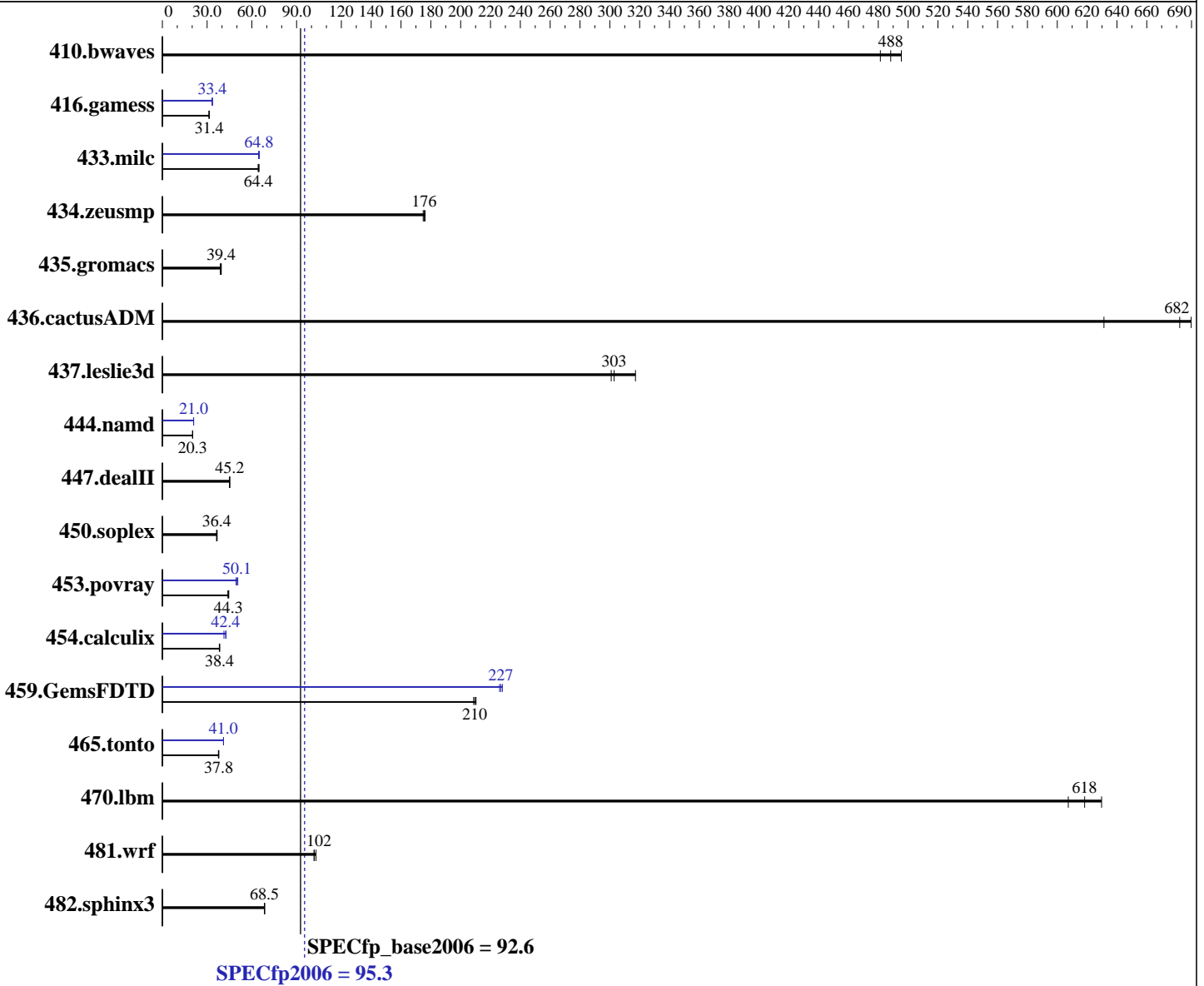
Test sponsor: Sugon

Tested by: Sugon

Test date: Sep-2014

Hardware Availability: Sep-2014

Software Availability: Sep-2013



**Hardware**

CPU Name: Intel Xeon E5-2630 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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 6.4 (Santiago)  
 2.6.32-358.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: Yes  
 File System: ext4

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L3 Cache: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)  
 Disk Subsystem: 1 x 2.0 TB SATA 7200 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	28.2	481	27.4	495	<b>27.8</b>	<b>488</b>	28.2	481	27.4	495	<b>27.8</b>	<b>488</b>
416.gamess	624	31.4	626	31.3	<b>624</b>	<b>31.4</b>	587	33.4	<b>586</b>	<b>33.4</b>	582	33.6
433.milc	142	64.8	143	64.3	<b>143</b>	<b>64.4</b>	<b>142</b>	<b>64.8</b>	141	65.0	142	64.5
434.zeusmp	52.0	175	51.6	176	<b>51.8</b>	<b>176</b>	52.0	175	51.6	176	<b>51.8</b>	<b>176</b>
435.gromacs	181	39.5	<b>181</b>	<b>39.4</b>	184	38.8	181	39.5	<b>181</b>	<b>39.4</b>	184	38.8
436.cactusADM	18.9	631	17.3	690	<b>17.5</b>	<b>682</b>	18.9	631	17.3	690	<b>17.5</b>	<b>682</b>
437.leslie3d	31.2	301	<b>31.0</b>	<b>303</b>	29.6	317	31.2	301	<b>31.0</b>	<b>303</b>	29.6	317
444.namd	395	20.3	<b>395</b>	<b>20.3</b>	395	20.3	<b>383</b>	<b>21.0</b>	383	21.0	383	21.0
447.dealII	<b>253</b>	<b>45.2</b>	253	45.2	254	45.0	<b>253</b>	<b>45.2</b>	253	45.2	254	45.0
450.soplex	229	36.4	227	36.7	<b>229</b>	<b>36.4</b>	229	36.4	227	36.7	<b>229</b>	<b>36.4</b>
453.povray	121	43.9	119	44.5	<b>120</b>	<b>44.3</b>	105	50.6	<b>106</b>	<b>50.1</b>	108	49.4
454.calculix	215	38.4	216	38.2	<b>215</b>	<b>38.4</b>	<b>194</b>	<b>42.4</b>	193	42.7	200	41.3
459.GemsFDTD	<b>50.6</b>	<b>210</b>	50.8	209	50.4	210	46.9	226	46.5	228	<b>46.7</b>	<b>227</b>
465.tonto	<b>261</b>	<b>37.8</b>	262	37.6	260	37.9	<b>240</b>	<b>41.0</b>	240	41.0	240	41.0
470.lbm	22.6	607	21.8	630	<b>22.2</b>	<b>618</b>	22.6	607	21.8	630	<b>22.2</b>	<b>618</b>
481.wrf	110	102	108	103	<b>110</b>	<b>102</b>	110	102	108	103	<b>110</b>	<b>102</b>
482.sphinx3	<b>285</b>	<b>68.5</b>	284	68.5	285	68.5	<b>285</b>	<b>68.5</b>	284	68.5	285	68.5

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:  
 Enforce POR set to Enable  
 Early Snoop set to disabled  
 COD set to disable  
 Power Technology set to performance  
 Sysinfo program /home/cpu2006/config/sysinfo.rev6818  
 \$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
 running on localhost Fri Sep 19 16:36:18 2014

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**Test sponsor:** Sugon

**Tested by:** Sugon

**Test date:** Sep-2014

**Hardware Availability:** Sep-2014

**Software Availability:** Sep-2013

## 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 E5-2630 v3 @ 2.40GHz
 2 "physical id"s (chips)
 32 "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     : 16
  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:      264480068 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux localhost 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Sep 19 09:15

```

SPEC is set to: /home/cpu2006
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda3       ext4      1.8T  411G  1.3T  24% /

```

```

Additional information from dmidecode:
BIOS American Megatrends Inc. 067 08/13/2014
Memory:
 16x 16 GB
 8x NO DIMM NO DIMM
 16x Samsung M393A2G40DB0-CPB 16 GB 1866 MHz 2 rank

```

(End of data from sysinfo program)



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## General Notes

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

KMP\_AFFINITY = "granularity=fine,compact,1,0"

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

OMP\_NUM\_THREADS = "16"

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

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

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

Submitted: Wed Nov 5 04:16:18 EST 2014

Submission: cpu2006-20141105-32759.sub

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

Submitted: Sun Nov 23 21:26:15 EST 2014

Submission: cpu2006-20141105-32759.sub

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

Submitted: Wed Nov 26 05:11:52 EST 2014

Submission: cpu2006-20141105-32759.sub

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

Submitted: Thu Nov 27 00:57:34 EST 2014

Submission: cpu2006-20141105-32759.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

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http://www.spec.org/



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## Base Portability Flags (Continued)

```

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:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -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
```



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Software Availability: Sep-2013

## Peak Portability Flags

Same as Base Portability Flags

## 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) -prof-use(pass 2)  
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(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.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(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: -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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

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**Tested by:** Sugon

**Software Availability:** Sep-2013

## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -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-ic14.0-official-linux64-revC.html>

<http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-HSW-revA.20141203.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.20141203.xml>

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

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