



SPEC[®] CFP2006 Result

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Sugon

SPECfp[®]2006 = **111**

Sugon I620-G20 (Intel Xeon E5-2699 v3)

SPECfp_base2006 = **105**

CPU2006 license: 9046

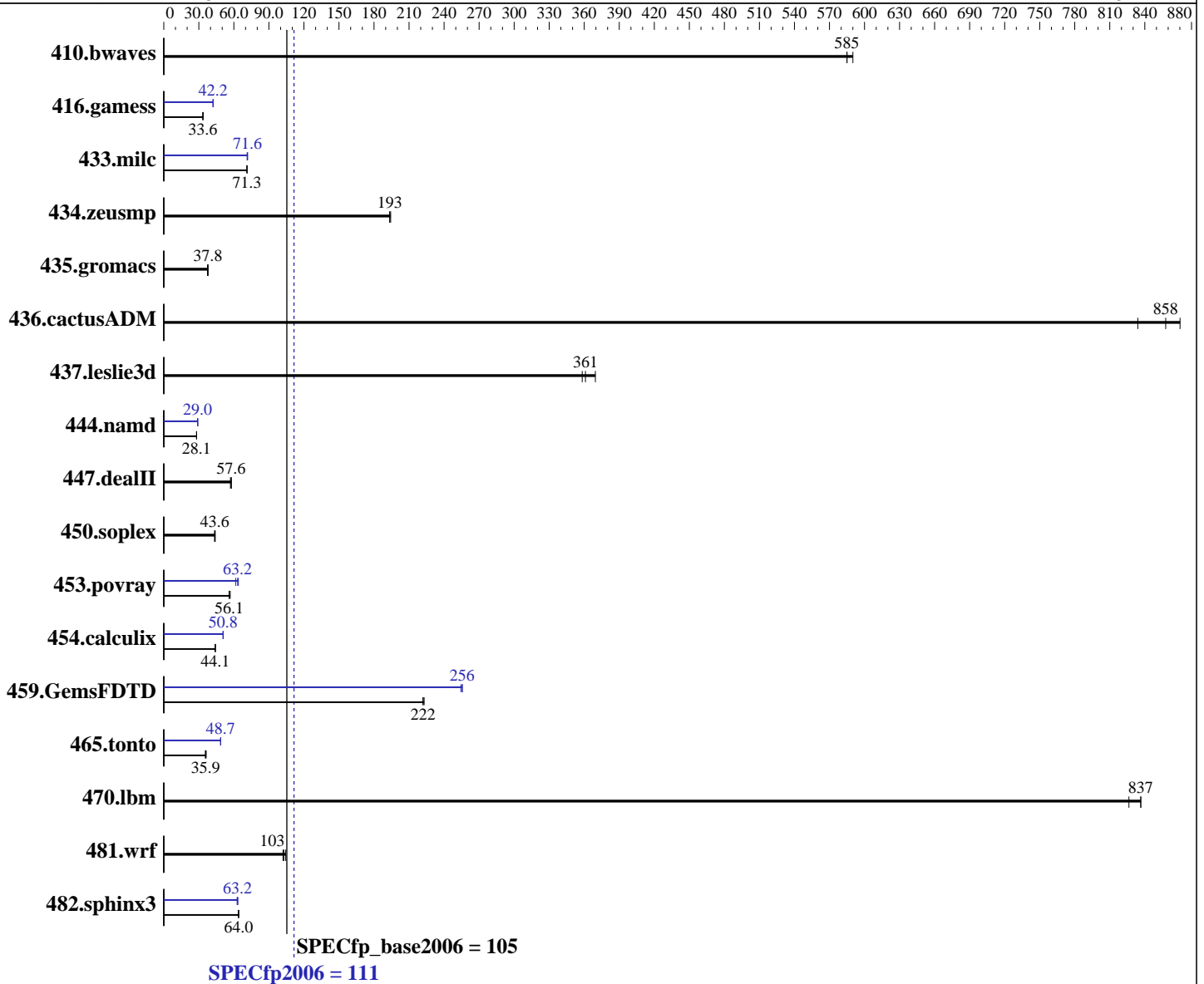
Test date: Oct-2014

Test sponsor: Sugon

Hardware Availability: Sep-2014

Tested by: Sugon

Software Availability: Aug-2014



Hardware

CPU Name: Intel Xeon E5-2699 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 36 cores, 2 chips, 18 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: Yes
 File System: ext4

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L3 Cache: 45 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: 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	<u>23.2</u>	<u>585</u>	23.2	585	23.0	590	<u>23.2</u>	<u>585</u>	23.2	585	23.0	590
416.gamess	587	33.3	582	33.7	<u>583</u>	<u>33.6</u>	463	42.3	<u>464</u>	<u>42.2</u>	465	42.1
433.milc	<u>129</u>	<u>71.3</u>	129	71.3	129	71.1	<u>128</u>	<u>71.6</u>	128	71.8	129	71.3
434.zeusmp	47.0	193	<u>47.0</u>	<u>193</u>	46.8	194	47.0	193	<u>47.0</u>	<u>193</u>	46.8	194
435.gromacs	191	37.4	<u>189</u>	<u>37.8</u>	189	37.9	191	37.4	<u>189</u>	<u>37.8</u>	189	37.9
436.cactusADM	13.7	870	<u>13.9</u>	<u>858</u>	14.3	834	13.7	870	<u>13.9</u>	<u>858</u>	14.3	834
437.leslie3d	<u>26.0</u>	<u>361</u>	25.4	370	26.2	358	<u>26.0</u>	<u>361</u>	25.4	370	26.2	358
444.namd	<u>286</u>	<u>28.1</u>	285	28.1	286	28.0	276	29.0	277	29.0	<u>276</u>	<u>29.0</u>
447.dealII	198	57.9	<u>199</u>	<u>57.6</u>	201	57.1	198	57.9	<u>199</u>	<u>57.6</u>	201	57.1
450.soplex	192	43.5	<u>191</u>	<u>43.6</u>	189	44.0	192	43.5	<u>191</u>	<u>43.6</u>	189	44.0
453.povray	<u>94.9</u>	<u>56.1</u>	93.5	56.9	95.1	55.9	83.3	63.8	<u>84.2</u>	<u>63.2</u>	86.3	61.6
454.calculix	187	44.2	188	44.0	<u>187</u>	<u>44.1</u>	162	50.9	<u>163</u>	<u>50.8</u>	163	50.7
459.GemsFDTD	47.6	223	<u>47.8</u>	<u>222</u>	47.8	222	41.7	254	41.5	256	<u>41.5</u>	<u>256</u>
465.tonto	271	36.3	277	35.6	<u>274</u>	<u>35.9</u>	<u>202</u>	<u>48.7</u>	202	48.7	202	48.6
470.lbm	16.6	826	<u>16.4</u>	<u>837</u>	16.4	837	16.6	826	<u>16.4</u>	<u>837</u>	16.4	837
481.wrf	109	102	<u>109</u>	<u>103</u>	107	104	109	102	<u>109</u>	<u>103</u>	107	104
482.sphinx3	306	63.7	303	64.3	<u>305</u>	<u>64.0</u>	311	62.8	<u>308</u>	<u>63.2</u>	308	63.4

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"

Platform Notes

BIOS Configuration:
 Enforce POR set to disabled
 Memory Frequency set to 2133
 Early Snoop set to disabled
 COD set to disable
 Power Technology set to performance
 Sysinfo program /home/cpu2006/config/sysinfo.rev6874
 \$Rev: 6874 \$ \$Date:: 2013-11-20 #\$ 654bd3fcf53b06faef0efe54ed011998
 running on localhost Thu Oct 23 16:23:34 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 E5-2699 v3 @ 2.30GHz
 2 "physical id"s (chips)
 72 "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      : 18
siblings       : 36
physical 0:    cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1:    cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size     : 46080 KB

```

```

From /proc/meminfo
MemTotal:      264474500 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 23 11:03

```

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       ext4  1.8T  585G  1.2T   34% /

```

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.

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)



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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 = "36"

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 03:41:05 EST 2014

Submission: cpu2006-20141023-32570.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
 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

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Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

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: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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-alloc -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: -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.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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