



SPEC® CFP2006 Result

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Sugon

SPECfp®2006 = **98.3**

Sugon I620-G20 (Intel Xeon E5-2652 v3)

SPECfp_base2006 = **95.3**

CPU2006 license: 9046

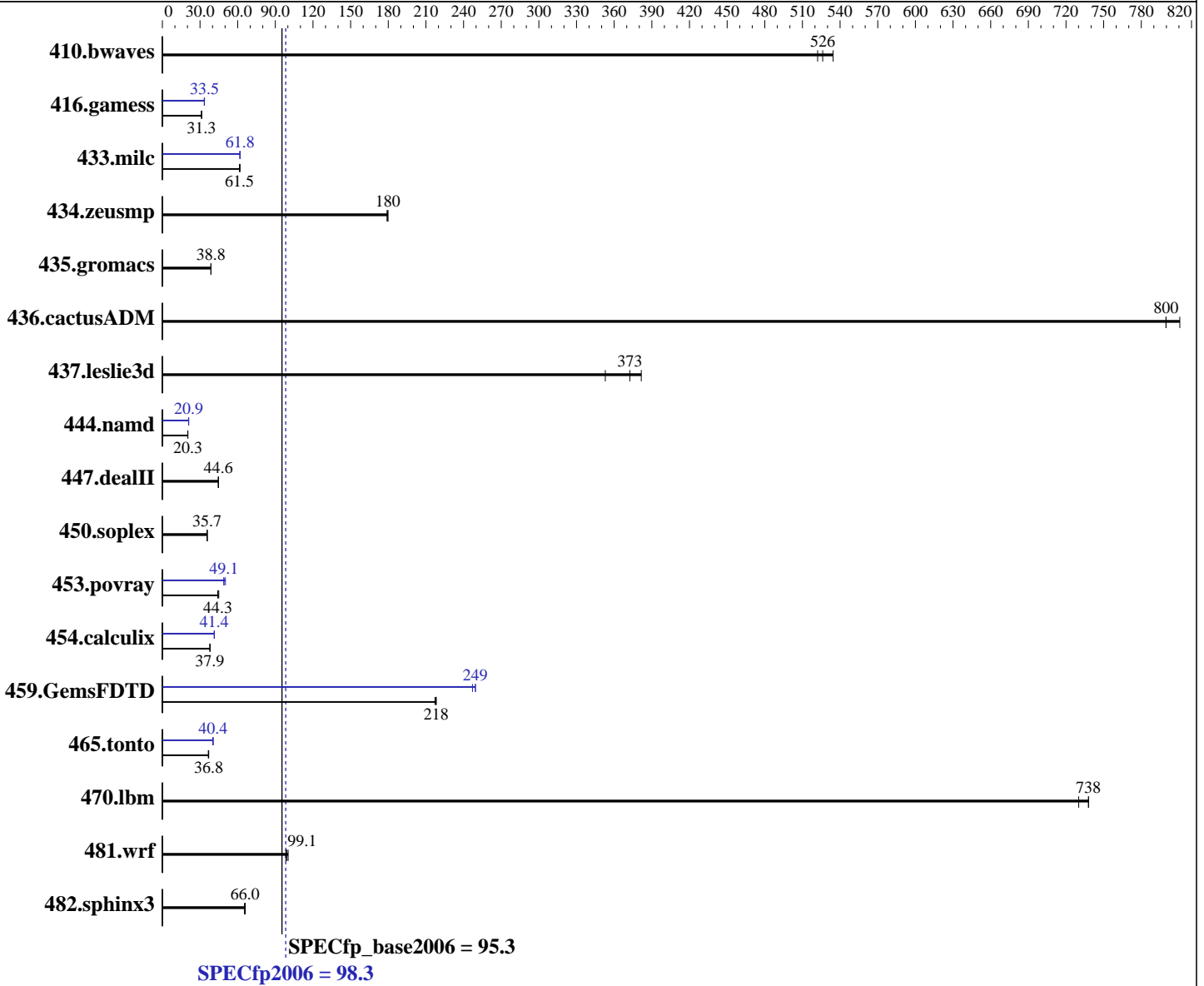
Test sponsor: Sugon

Tested by: Sugon

Test date: Oct-2014

Hardware Availability: Sep-2014

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2652 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 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: 25 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 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	26.0	522	25.4	534	<u>25.8</u>	<u>526</u>	26.0	522	25.4	534	<u>25.8</u>	<u>526</u>
416.gamess	<u>627</u>	<u>31.3</u>	626	31.3	627	31.2	<u>584</u>	<u>33.5</u>	584	33.5	587	33.3
433.milc	148	61.9	<u>149</u>	<u>61.5</u>	149	61.5	148	61.9	149	61.8	<u>148</u>	<u>61.8</u>
434.zeusmp	50.8	179	50.6	180	<u>50.6</u>	<u>180</u>	50.8	179	50.6	180	<u>50.6</u>	<u>180</u>
435.gromacs	<u>184</u>	<u>38.8</u>	185	38.7	184	38.8	<u>184</u>	<u>38.8</u>	185	38.7	184	38.8
436.cactusADM	14.9	800	14.7	811	<u>14.9</u>	<u>800</u>	14.9	800	14.7	811	<u>14.9</u>	<u>800</u>
437.leslie3d	26.6	353	<u>25.2</u>	<u>373</u>	24.6	382	26.6	353	<u>25.2</u>	<u>373</u>	24.6	382
444.namd	<u>395</u>	<u>20.3</u>	396	20.3	395	20.3	383	20.9	<u>383</u>	<u>20.9</u>	383	21.0
447.dealII	257	44.6	255	44.8	<u>257</u>	<u>44.6</u>	257	44.6	255	44.8	<u>257</u>	<u>44.6</u>
450.soplex	233	35.8	<u>234</u>	<u>35.7</u>	234	35.6	233	35.8	<u>234</u>	<u>35.7</u>	234	35.6
453.povray	120	44.2	118	45.0	<u>120</u>	<u>44.3</u>	109	49.0	<u>108</u>	<u>49.1</u>	106	50.2
454.calculix	218	37.8	<u>218</u>	<u>37.9</u>	217	38.1	199	41.4	199	41.4	<u>199</u>	<u>41.4</u>
459.GemsFDTD	<u>48.6</u>	<u>218</u>	48.8	217	48.6	218	42.9	247	42.5	249	<u>42.5</u>	<u>249</u>
465.tonto	269	36.6	266	36.9	<u>267</u>	<u>36.8</u>	243	40.5	244	40.3	<u>243</u>	<u>40.4</u>
470.lbm	18.8	730	18.6	738	<u>18.6</u>	<u>738</u>	18.8	730	18.6	738	<u>18.6</u>	<u>738</u>
481.wrf	<u>113</u>	<u>99.1</u>	114	98.3	111	100	<u>113</u>	<u>99.1</u>	114	98.3	111	100
482.sphinx3	295	66.1	<u>295</u>	<u>66.0</u>	298	65.4	295	66.1	<u>295</u>	<u>66.0</u>	298	65.4

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
 DDR Speed set to 2133
 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.localdomain Wed Oct 8 18:43:48 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 E5-2652 v3 @ 2.30GHz
 2 "physical id"s (chips)
 40 "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    : 10
  siblings     : 20
  physical 0   : cores 0 1 2 3 4 8 9 10 11 12
  physical 1   : cores 0 1 2 3 4 8 9 10 11 12
cache size     : 25600 KB

```

```

From /proc/meminfo
MemTotal:      264478588 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.localdomain 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 Oct 8 11:38

```

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 2133 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 = "20"

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: Wed Nov 5 03:27:25 EST 2014

Submission: cpu2006-20141105-32757.sub

Submitted_by: Tian Yuwan <tianyw@sugon.com>

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

Submission: cpu2006-20141105-32757.sub

Submitted_by: Tian Yuwan <tianyw@sugon.com>

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

Submission: cpu2006-20141105-32757.sub

Submitted_by: Tian Yuwan <tianyw@sugon.com>

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

Submission: cpu2006-20141105-32757.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

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Standard Performance Evaluation Corporation

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http://www.spec.org/



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Base Portability Flags (Continued)

```

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
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.dealII: 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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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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