



SPEC® CFP2006 Result

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Sugon

SPECfp®2006 = **110**

Sugon TC4600E/CB50-G20 (Intel Xeon E5-2637 v4)

SPECfp_base2006 = **106**

CPU2006 license: 9046

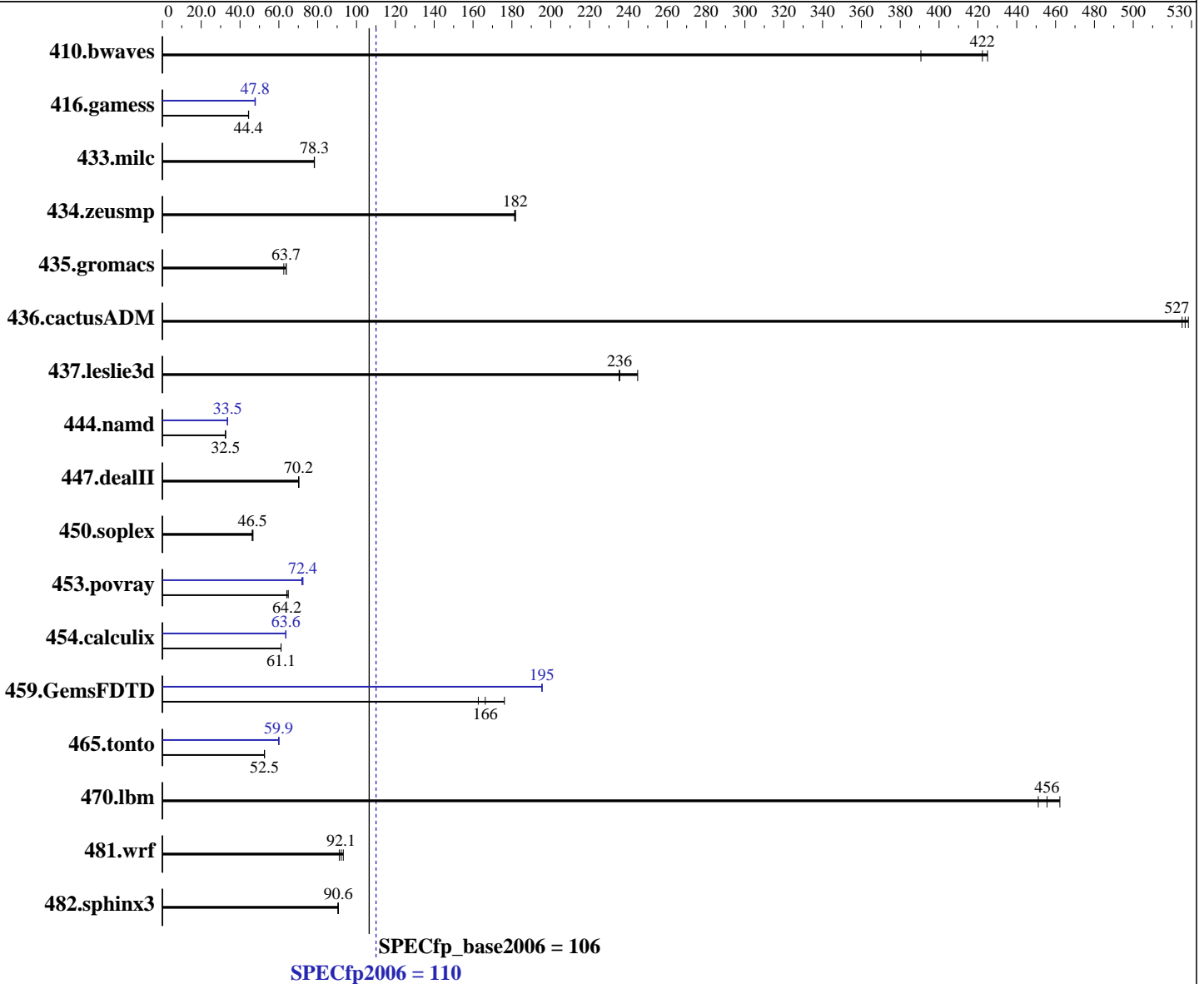
Test date: Oct-2016

Test sponsor: Sugon

Hardware Availability: May-2016

Tested by: Sugon

Software Availability: Mar-2016



Hardware

CPU Name: Intel Xeon E5-2637 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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 7.2 (Maipo)
 3.10.0-327.el7.x86_64
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R)
 Disk Subsystem: 2 x SATA, 300 GB, RAID 0
 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	34.8	391	<u>32.2</u>	<u>422</u>	32.0	425	34.8	391	<u>32.2</u>	<u>422</u>	32.0	425
416.gamess	442	44.3	440	44.5	<u>441</u>	<u>44.4</u>	409	47.9	410	47.7	<u>410</u>	<u>47.8</u>
433.milc	117	78.3	117	78.2	<u>117</u>	<u>78.3</u>	117	78.3	117	78.2	<u>117</u>	<u>78.3</u>
434.zeusmp	50.2	181	<u>50.1</u>	<u>182</u>	50.0	182	50.2	181	<u>50.1</u>	<u>182</u>	50.0	182
435.gromacs	<u>112</u>	<u>63.7</u>	114	62.5	112	63.8	<u>112</u>	<u>63.7</u>	114	62.5	112	63.8
436.cactusADM	22.6	528	22.8	525	<u>22.7</u>	<u>527</u>	22.6	528	22.8	525	<u>22.7</u>	<u>527</u>
437.leslie3d	38.4	245	<u>39.9</u>	<u>236</u>	40.0	235	38.4	245	<u>39.9</u>	<u>236</u>	40.0	235
444.namd	247	32.5	<u>247</u>	<u>32.5</u>	246	32.5	239	33.5	<u>239</u>	<u>33.5</u>	239	33.5
447.dealII	163	70.3	163	70.1	<u>163</u>	<u>70.2</u>	163	70.3	163	70.1	<u>163</u>	<u>70.2</u>
450.soplex	179	46.7	<u>179</u>	<u>46.5</u>	180	46.2	179	46.7	<u>179</u>	<u>46.5</u>	180	46.2
453.povray	82.0	64.9	<u>82.8</u>	<u>64.2</u>	83.0	64.1	74.0	71.8	<u>73.5</u>	<u>72.4</u>	73.5	72.4
454.calculix	<u>135</u>	<u>61.1</u>	135	61.1	135	61.1	130	63.6	130	63.6	<u>130</u>	<u>63.6</u>
459.GemsFDTD	60.2	176	65.2	163	<u>63.8</u>	<u>166</u>	54.2	196	<u>54.3</u>	<u>195</u>	54.3	195
465.tonto	187	52.7	187	52.5	<u>187</u>	<u>52.5</u>	164	60.1	164	59.9	<u>164</u>	<u>59.9</u>
470.lbm	<u>30.2</u>	<u>456</u>	29.7	462	30.5	451	<u>30.2</u>	<u>456</u>	29.7	462	30.5	451
481.wrf	123	91.1	120	93.2	<u>121</u>	<u>92.1</u>	123	91.1	120	93.2	<u>121</u>	<u>92.1</u>
482.sphinx3	<u>215</u>	<u>90.6</u>	215	90.7	216	90.4	<u>215</u>	<u>90.6</u>	215	90.7	216	90.4

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

This System is electrically equal to TC6600/CB50-G20
 Sysinfo program /benchmarks/cpu2006/config/sysinfo.rev6914
 \$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
 running on c1302 Tue Oct 25 20:00:19 2016

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

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Platform Notes (Continued)

```

model name : Intel(R) Xeon(R) CPU E5-2637 v4 @ 3.50GHz
  2 "physical id"s (chips)
  16 "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 : 4
  siblings  : 8
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      131925028 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

```

```

uname -a:
Linux c1302 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64
x86_64 x86_64 GNU/Linux

```

run-level 3 Oct 8 16:35

```

SPEC is set to: /benchmarks/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  544G   86G  431G  17% /

```

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. 5.11 05/18/2016
Memory:
8x NO DIMM NO DIMM
8x Samsung M393A2K43BB1-CRC 16 GB 2 rank 2400 MHz

```

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Platform Notes (Continued)

(End of data from sysinfo program)

General Notes

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

KMP_AFFINITY = "granularity=fine,compact,1,0"

LD_LIBRARY_PATH = "/benchmarks/cpu2006/libs/32:/benchmarks/cpu2006/libs/64:/benchmarks/cpu2006/sh"

OMP_NUM_THREADS = "8"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

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
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

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Base Portability Flags (Continued)

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:

433.milc: basepeak = yes

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Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -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:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -inline-calloc
-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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-BDW-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-BDW-revB.xml>

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For other inquiries, please contact webmaster@spec.org.

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