



SPEC[®] CFP2006 Result

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Supermicro

SuperServer 5039D-i
(X11SSL-F , Intel Pentium G4400)

SPECfp[®]_rate2006 = 107

SPECfp_rate_base2006 = 106

CPU2006 license: 001176

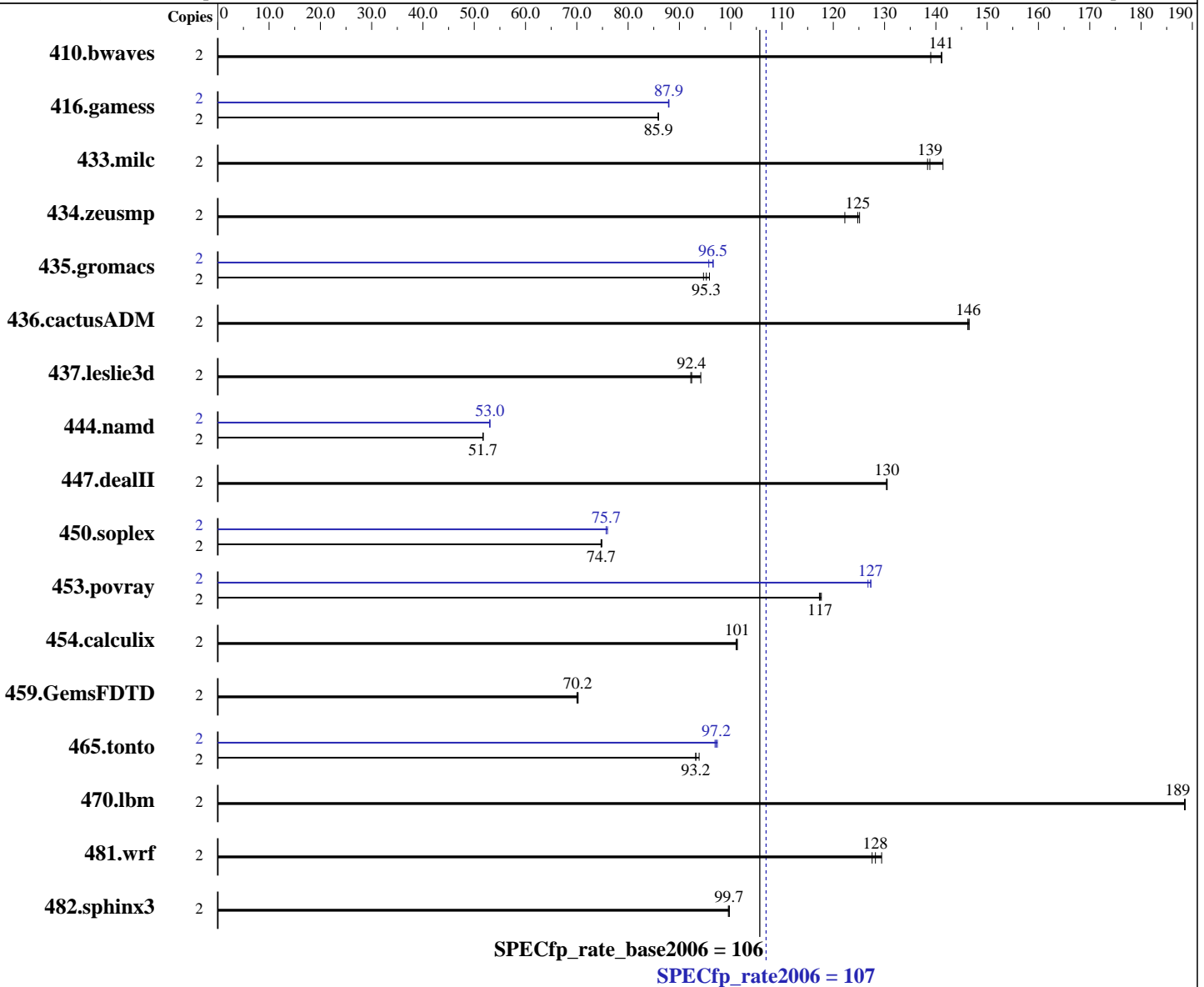
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2015

Hardware Availability: Sep-2015

Software Availability: Sep-2015



Hardware

CPU Name: Intel Pentium G4400
 CPU Characteristics:
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.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: No
 File System: xfs
 System State: Run level 3 (multi-user)

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L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (4 x 8 GB 2Rx8 PC4-2133P-U)
Disk Subsystem: 1 x 200 GB SATA III SSD
Other Hardware: None

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	2	196	139	<u>193</u>	<u>141</u>	193	141	2	196	139	<u>193</u>	<u>141</u>	193	141
416.gamess	2	456	85.8	456	85.9	<u>456</u>	<u>85.9</u>	2	445	88.0	<u>445</u>	<u>87.9</u>	446	87.9
433.milc	2	133	138	<u>132</u>	<u>139</u>	130	141	2	133	138	<u>132</u>	<u>139</u>	130	141
434.zeusmp	2	145	125	149	122	<u>146</u>	<u>125</u>	2	145	125	149	122	<u>146</u>	<u>125</u>
435.gromacs	2	<u>150</u>	<u>95.3</u>	151	94.7	149	95.9	2	<u>148</u>	<u>96.5</u>	148	96.6	149	95.7
436.cactusADM	2	163	146	163	147	<u>163</u>	<u>146</u>	2	163	146	163	147	<u>163</u>	<u>146</u>
437.leslie3d	2	204	92.2	<u>203</u>	<u>92.4</u>	200	94.2	2	204	92.2	<u>203</u>	<u>92.4</u>	200	94.2
444.namd	2	<u>310</u>	<u>51.7</u>	310	51.7	310	51.7	2	302	53.0	<u>302</u>	<u>53.0</u>	302	53.0
447.dealII	2	<u>175</u>	<u>130</u>	176	130	175	131	2	<u>175</u>	<u>130</u>	176	130	175	131
450.soplex	2	<u>223</u>	<u>74.7</u>	223	74.7	223	74.9	2	<u>220</u>	<u>75.7</u>	220	76.0	220	75.7
453.povray	2	90.4	118	90.7	117	<u>90.6</u>	<u>117</u>	2	83.9	127	<u>83.6</u>	<u>127</u>	83.6	127
454.calculix	2	163	101	<u>163</u>	<u>101</u>	163	101	2	163	101	<u>163</u>	<u>101</u>	163	101
459.GemsFDTD	2	<u>302</u>	<u>70.2</u>	303	70.0	302	70.3	2	<u>302</u>	<u>70.2</u>	303	70.0	302	70.3
465.tonto	2	211	93.2	<u>211</u>	<u>93.2</u>	210	93.8	2	202	97.4	<u>203</u>	<u>97.2</u>	203	96.9
470.lbm	2	146	189	146	188	<u>146</u>	<u>189</u>	2	146	189	146	188	<u>146</u>	<u>189</u>
481.wrf	2	<u>174</u>	<u>128</u>	175	128	173	129	2	<u>174</u>	<u>128</u>	175	128	173	129
482.sphinx3	2	392	99.5	391	99.7	<u>391</u>	<u>99.7</u>	2	392	99.5	391	99.7	<u>391</u>	<u>99.7</u>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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

Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on X11SSL-01 Thu Dec 31 19:49:42 2015

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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) Pentium(R) CPU G4400 @ 3.30GHz
 1 "physical id"s (chips)
 2 "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      : 2
siblings       : 2
physical 0:    : cores 0 1
cache size     : 3072 KB
```

From /proc/meminfo

```
MemTotal:      32898524 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server
```

uname -a:

```
Linux X11SSL-01 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Dec 31 04:11

SPEC is set to: /usr/cpu2006

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        xfs   183G  60G  123G  33% /
```

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. 1.0a 10/23/2015

Memory:

4x Micron 16ATF1G64AZ-2G1A2 8 GB 2 rank 2133 MHz

(End of data from sysinfo program)

General Notes

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

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

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

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Base Portability Flags (Continued)

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:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks (except as noted below):
icpc -m64

450.soplex: icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64

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

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Peak Portability Flags (Continued)

444.namd: -DSPEC_CPU_LP64
 447.dealII: -DSPEC_CPU_LP64
 450.soplex: -D_FILE_OFFSET_BITS=64
 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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xSSE4.2(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: -xSSE4.2(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) -opt-malloc-options=3

453.povray: -xSSE4.2(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: -xSSE4.2(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

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Peak Optimization Flags (Continued)

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(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 -auto -inline-alloc
-opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(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) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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/Supermicro-Platform-Settings-V1.2-revH.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/Supermicro-Platform-Settings-V1.2-revH.xml>

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