



SPEC[®] CFP2006 Result

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Supermicro

Supermicro X11SSM-F motherboard
(X11SSM-F, Intel Pentium G4400)

SPECfp[®]_rate2006 = 107

SPECfp_rate_base2006 = 106

CPU2006 license: 001176

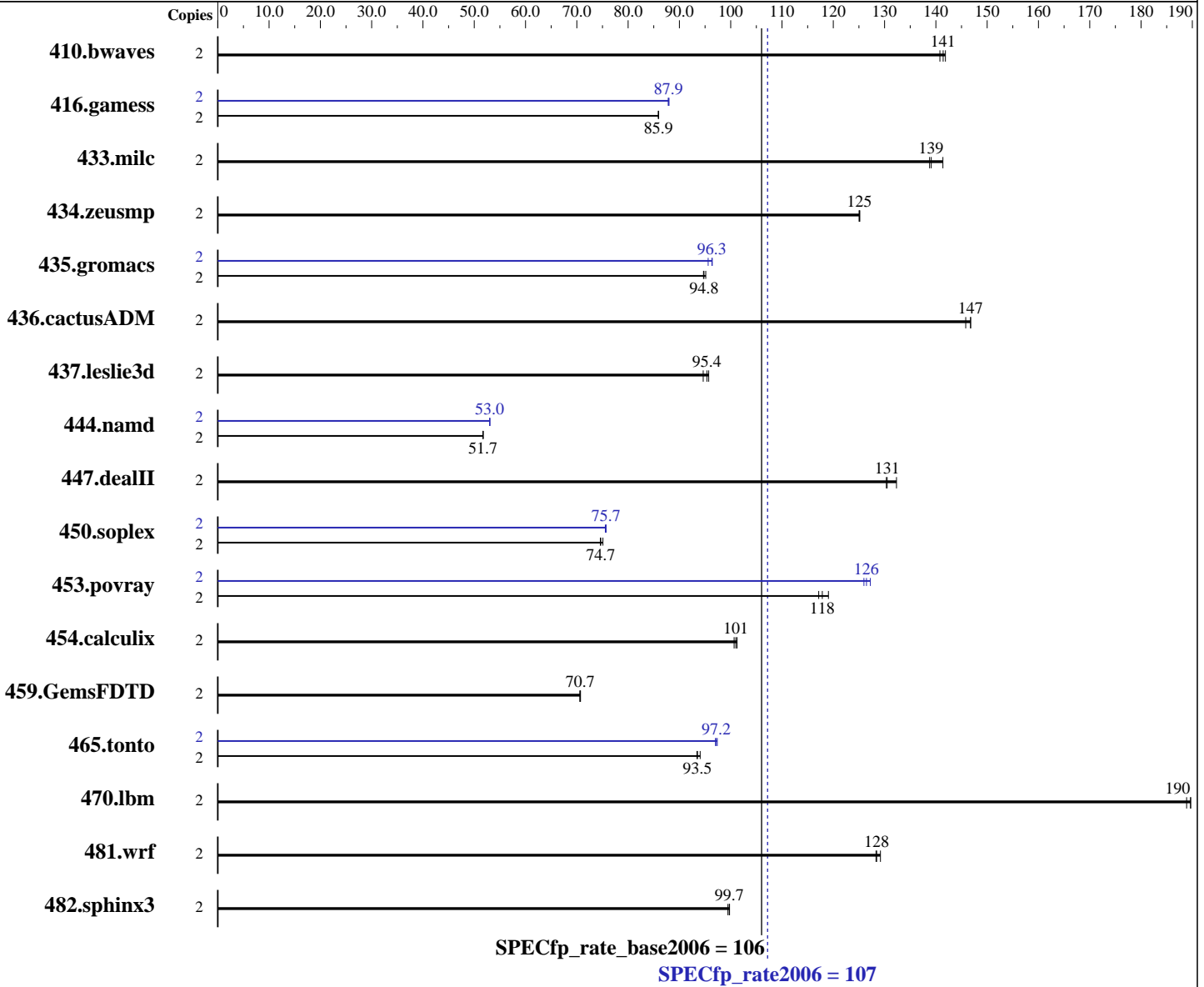
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Jan-2016

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

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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-E)
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	193	141	<u>192</u>	<u>141</u>	192	142	2	193	141	<u>192</u>	<u>141</u>	192	142
416.gamess	2	456	85.9	456	86.0	<u>456</u>	<u>85.9</u>	2	<u>446</u>	<u>87.9</u>	446	87.8	445	88.0
433.milc	2	132	139	130	141	<u>132</u>	<u>139</u>	2	132	139	130	141	<u>132</u>	<u>139</u>
434.zeusmp	2	145	125	<u>145</u>	<u>125</u>	146	125	2	145	125	<u>145</u>	<u>125</u>	146	125
435.gromacs	2	150	95.1	151	94.7	<u>151</u>	<u>94.8</u>	2	148	96.4	149	95.6	<u>148</u>	<u>96.3</u>
436.cactusADM	2	163	147	<u>163</u>	<u>147</u>	164	146	2	163	147	<u>163</u>	<u>147</u>	164	146
437.leslie3d	2	<u>197</u>	<u>95.4</u>	196	95.7	199	94.6	2	<u>197</u>	<u>95.4</u>	196	95.7	199	94.6
444.namd	2	310	51.7	310	51.7	<u>310</u>	<u>51.7</u>	2	303	53.0	302	53.0	<u>302</u>	<u>53.0</u>
447.dealII	2	176	130	<u>175</u>	<u>131</u>	173	132	2	176	130	<u>175</u>	<u>131</u>	173	132
450.soplex	2	<u>223</u>	<u>74.7</u>	222	75.1	224	74.6	2	220	75.7	<u>220</u>	<u>75.7</u>	221	75.6
453.povray	2	<u>90.3</u>	<u>118</u>	90.8	117	89.4	119	2	84.5	126	<u>84.1</u>	<u>126</u>	83.6	127
454.calculix	2	163	101	<u>163</u>	<u>101</u>	164	101	2	163	101	<u>163</u>	<u>101</u>	164	101
459.GemsFDTD	2	300	70.7	<u>300</u>	<u>70.7</u>	301	70.6	2	300	70.7	<u>300</u>	<u>70.7</u>	301	70.6
465.tonto	2	209	94.0	211	93.4	<u>210</u>	<u>93.5</u>	2	203	97.0	<u>202</u>	<u>97.2</u>	202	97.4
470.lbm	2	<u>145</u>	<u>190</u>	145	189	145	190	2	<u>145</u>	<u>190</u>	145	189	145	190
481.wrf	2	<u>174</u>	<u>128</u>	174	128	173	129	2	<u>174</u>	<u>128</u>	174	128	173	129
482.sphinx3	2	<u>391</u>	<u>99.7</u>	392	99.5	391	99.8	2	<u>391</u>	<u>99.7</u>	392	99.5	391	99.8

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

As tested, the system used a Supermicro CSE-113MFAC2-R606CB chassis. The chassis is configured with 2 PWS-606P-1R redundant power supply, 1 SNK-P0046P heatsink, as well as 4 FAN-0154L4 middle cooling fan.

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Tested by: Supermicro

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Hardware Availability: Sep-2015

Software Availability: Sep-2015

Platform Notes (Continued)

```
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on X11SSM-01 Thu Jan 7 16:57:26 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
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:      32769340 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 X11SSM-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 Jan 7 01:07
```

```
SPEC is set to: /usr/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   183G   36G  147G  20% /
```

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
Continued on next page



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Platform Notes (Continued)

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. 1.0b 12/29/2015

Memory:

4x Micron 18ASF1G72AZ-2G1A1 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

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Base Portability Flags (Continued)

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:
 -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

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Peak Portability Flags (Continued)

```

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: -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-

```

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Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

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-calloc
-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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