SPEC® CFP2006 Result

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Supermicro

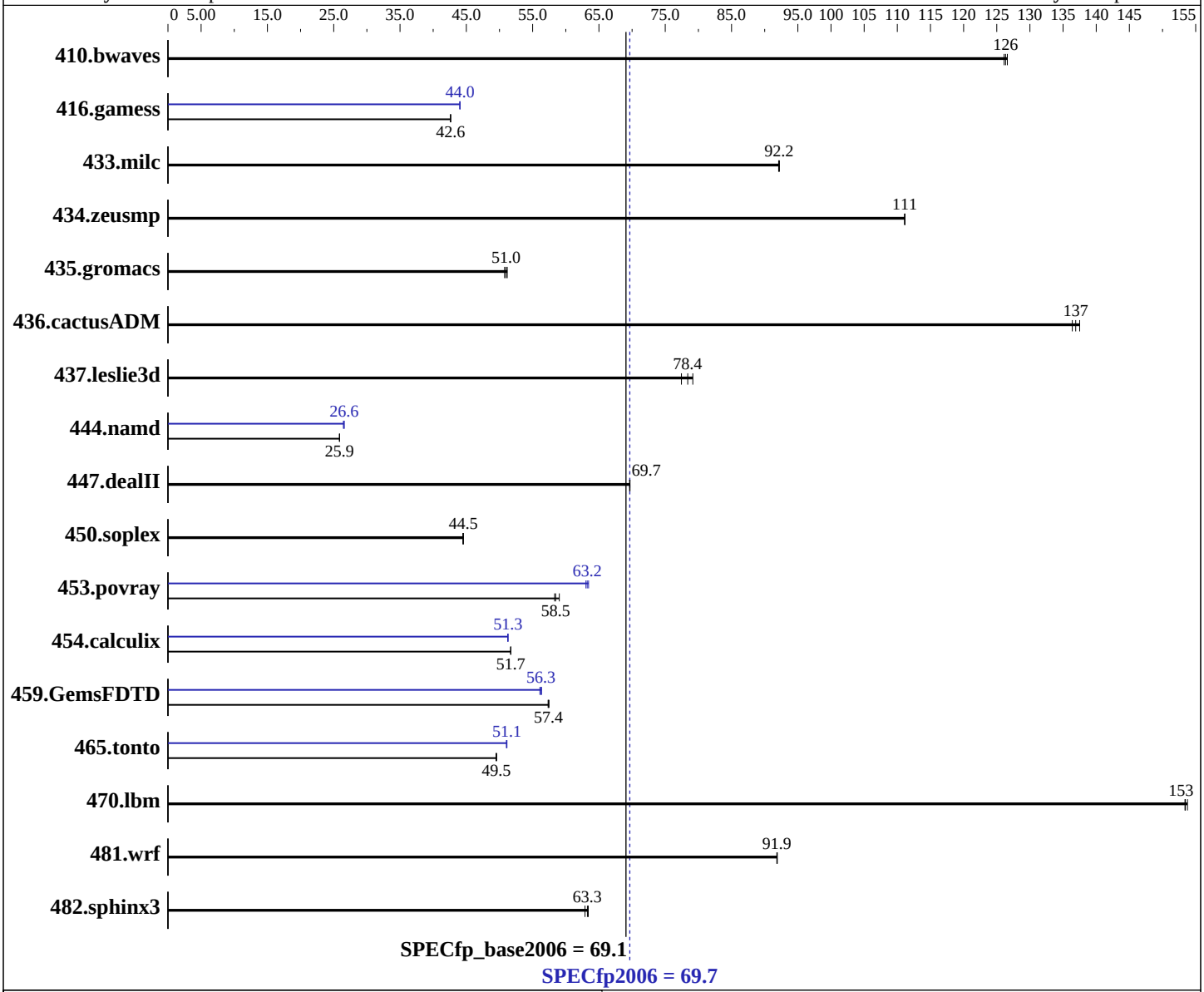
SuperServer 5019S-M
(X11SSH-F , Intel Pentium G4400)

SPECfp®2006 = 69.7

SPECfp_base2006 = 69.1

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:	Yes
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: 16 GB (4 x 4 GB 1Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 200 GB SATA III SSD
Other Hardware: None

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	**108**	**126**	107	127	108	126	**108**	**126**	107	127	108	126
416.gamess	460	42.6	459	42.6	**459**	**42.6**	445	44.0	444	44.1	**445**	**44.0**
433.milc	99.7	92.1	99.5	92.2	**99.6**	**92.2**	99.7	92.1	99.5	92.2	**99.6**	**92.2**
434.zeusmp	**81.9**	**111**	81.9	111	81.9	111	**81.9**	**111**	81.9	111	81.9	111
435.gromacs	140	51.2	**140**	**51.0**	141	50.8	140	51.2	**140**	**51.0**	141	50.8
436.cactusADM	86.9	138	**87.3**	**137**	87.6	136	86.9	138	**87.3**	**137**	87.6	136
437.leslie3d	121	77.4	119	79.2	**120**	**78.4**	121	77.4	119	79.2	**120**	**78.4**
444.namd	**310**	**25.9**	310	25.9	310	25.9	302	26.6	**302**	**26.6**	303	26.5
447.dealII	164	69.7	164	69.6	**164**	**69.7**	164	69.7	164	69.6	**164**	**69.7**
450.soplex	187	44.6	**187**	**44.5**	187	44.5	187	44.6	**187**	**44.5**	187	44.5
453.povray	**91.0**	**58.5**	91.2	58.3	90.1	59.0	84.4	63.0	83.9	63.4	**84.1**	**63.2**
454.calculix	160	51.7	160	51.7	**160**	**51.7**	161	51.3	**161**	**51.3**	161	51.2
459.GemsFDTD	185	57.5	**185**	**57.4**	185	57.3	189	56.1	**189**	**56.3**	188	56.3
465.tonto	**199**	**49.5**	199	49.5	198	49.6	**193**	**51.1**	193	51.0	192	51.1
470.lbm	89.6	153	**89.6**	**153**	89.4	154	89.6	153	**89.6**	**153**	89.4	154
481.wrf	**122**	**91.9**	122	91.9	122	91.8	**122**	**91.9**	122	91.9	122	91.8
482.sphinx3	307	63.4	**308**	**63.3**	310	62.9	307	63.4	**308**	**63.3**	310	62.9

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

```
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on X11SSH-01 Sat Jan  9 03:16:51 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
```

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Platform Notes (Continued)

```
        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:       16213292 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 X11SSH-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 8 22:05

  SPEC is set to: /usr/cpu2006
     Filesystem     Type  Size  Used Avail Use% Mounted on
     /dev/sda2      xfs   183G   23G  160G  13% /
  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. 1.0a 12/29/2015
    Memory:
     4x Micron 9ASF51272AZ-2G1A1 4 GB 1 rank 2133 MHz

  (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 = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"
OMP_NUM_THREADS = "2"

 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
  482.sphinx3: -DSPEC_CPU_LP64
```

Base Optimization Flags

C benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

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

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

Benchmarks using both Fortran and C:
`-xSSE4.2 -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`

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`

Continued on next page

Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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) -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -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/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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For other inquiries, please contact webmaster@spec.org.

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