SPEC® CFP2006 Result
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Supermicro

SuperServer 6018TR-T
(X10DRT-L , Intel Xeon E5-2618L v4)

$SPECfp^{®}2006 =$ 106
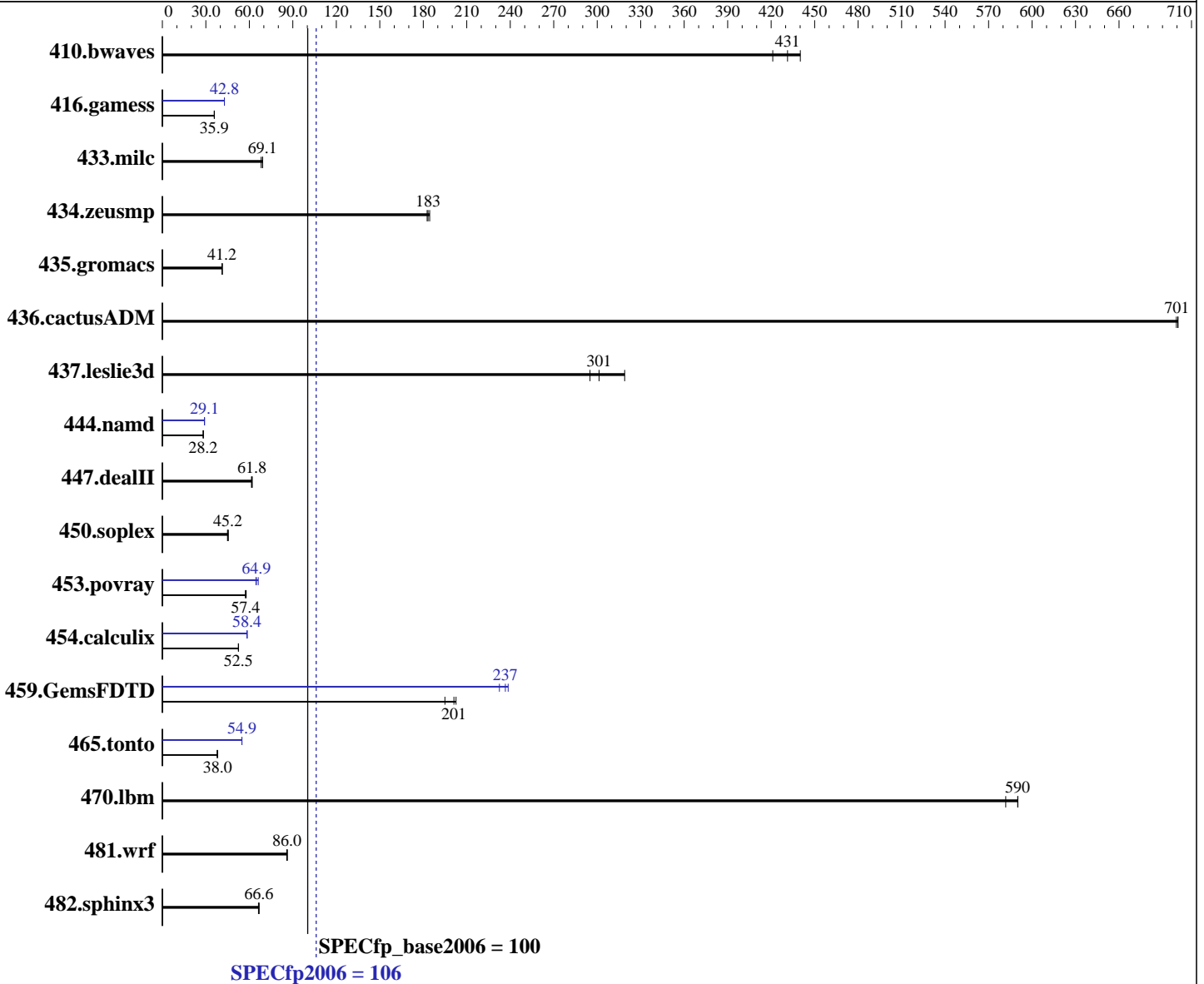
$SPECfp\_base2006 =$ 100

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: May-2016
Hardware Availability: Mar-2016
Software Availability: Sep-2015

SPECfp_base2006 = 100
SPECfp2006 = 106

	Hardware	
CPU Name:	Intel Xeon E5-2618L v4	
CPU Characteristics:	Intel Turbo Boost Technology up to 3.20 GHz	
CPU MHz:	2200	
FPU:	Integrated	
CPU(s) enabled:	20 cores, 2 chips, 10 cores/chip	
CPU(s) orderable:	1,2 chips	
Primary Cache:	32 KB I + 32 KB D on chip per core	
Secondary Cache:	256 KB I+D on chip per core	

	Software	
Operating System:	SUSE Linux Enterprise Server 12 SP1, Kernel 3.12.49-11-default	
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:	25 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (8 x 32 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem:	1 x 400 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	**31.5**	**431**	32.3	421	30.9	440	**31.5**	**431**	32.3	421	30.9	440
416.gamess	545	35.9	548	35.8	**546**	**35.9**	**457**	**42.8**	457	42.8	458	42.8
433.milc	**133**	**69.1**	133	69.2	135	68.1	**133**	**69.1**	133	69.2	135	68.1
434.zeusmp	49.3	184	**49.7**	**183**	49.8	183	49.3	184	**49.7**	**183**	49.8	183
435.gromacs	**173**	**41.2**	173	41.3	173	41.2	**173**	**41.2**	173	41.3	173	41.2
436.cactusADM	17.1	700	**17.1**	**701**	17.1	701	17.1	700	**17.1**	**701**	17.1	701
437.leslie3d	**31.2**	**301**	29.5	319	31.9	295	**31.2**	**301**	29.5	319	31.9	295
444.namd	284	28.3	**284**	**28.2**	284	28.2	276	29.1	276	29.1	**276**	**29.1**
447.dealII	185	62.0	**185**	**61.8**	186	61.5	185	62.0	**185**	**61.8**	186	61.5
450.soplex	186	44.9	**185**	**45.2**	183	45.5	186	44.9	**185**	**45.2**	183	45.5
453.povray	92.0	57.8	92.8	57.3	**92.6**	**57.4**	**82.0**	**64.9**	82.4	64.6	80.4	66.2
454.calculix	157	52.6	157	52.4	**157**	**52.5**	**141**	**58.4**	141	58.4	141	58.4
459.GemsFDTD	**52.7**	**201**	52.4	203	54.4	195	44.5	239	**44.8**	**237**	45.6	233
465.tonto	259	38.0	260	37.8	**259**	**38.0**	**179**	**54.9**	179	54.9	179	54.9
470.lbm	**23.3**	**590**	23.3	590	23.6	582	**23.3**	**590**	23.3	590	23.6	582
481.wrf	130	85.8	**130**	**86.0**	129	86.3	130	85.8	**130**	**86.0**	129	86.3
482.sphinx3	**293**	**66.6**	292	66.7	294	66.3	**293**	**66.6**	292	66.7	294	66.3

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 Settings:
Early Snoop = Disable
Hyper-Threading (ALL) = Disabled
Sysinfo program /home/cpu2006_ic16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-hp47 Wed May 11 22:14:44 2016

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

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Tested by: Supermicro	**Software Availability:** Sep-2015

Platform Notes (Continued)

```
    http://www.spec.org/cpu2006/Docs/config.html#sysinfo

  From /proc/cpuinfo
     model name : Intel(R) Xeon(R) CPU E5-2618L v4 @ 2.20GHz
        2 "physical id"s (chips)
        20 "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  : 10
        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:       264381112 kB
     HugePages_Total:        0
     Hugepagesize:        2048 kB

  From /etc/*release* /etc/*version*
     SuSE-release:
        SUSE Linux Enterprise Server 12 (x86_64)
        VERSION = 12
        PATCHLEVEL = 1
        # This file is deprecated and will be removed in a future service pack or
        release.
        # Please check /etc/os-release for details about this release.
     os-release:
        NAME="SLES"
        VERSION="12-SP1"
        VERSION_ID="12.1"
        PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:12:sp1"

  uname -a:
     Linux linux-hp47 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
     (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 May 11 16:59

  SPEC is set to: /home/cpu2006_ic16
     Filesystem     Type   Size  Used Avail Use% Mounted on
     /dev/sda1      btrfs  373G  140G  233G  38% /
  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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Test sponsor:	Supermicro	**Hardware Availability:**	Mar-2016
Tested by:	Supermicro	**Software Availability:**	Sep-2015

Platform Notes (Continued)

```
   BIOS American Megatrends Inc. 2.0 12/17/2015
   Memory:
    8x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz, configured at 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 = "/home/cpu2006_ic16/libs/32:/home/cpu2006_ic16/libs/64:/home/cpu2006_ic16/sh"
OMP_NUM_THREADS = "20"

 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:
```
    -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
```

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Peak Optimization Flags

C benchmarks:

> 433.milc: basepeak = yes

> 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:

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Peak Optimization Flags (Continued)

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-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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Wed Jun 1 19:10:39 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 1 June 2016.