



SPEC[®] CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp[®]_rate2006 = 616

SPECfp_rate_base2006 = 606

CPU2006 license: 001176

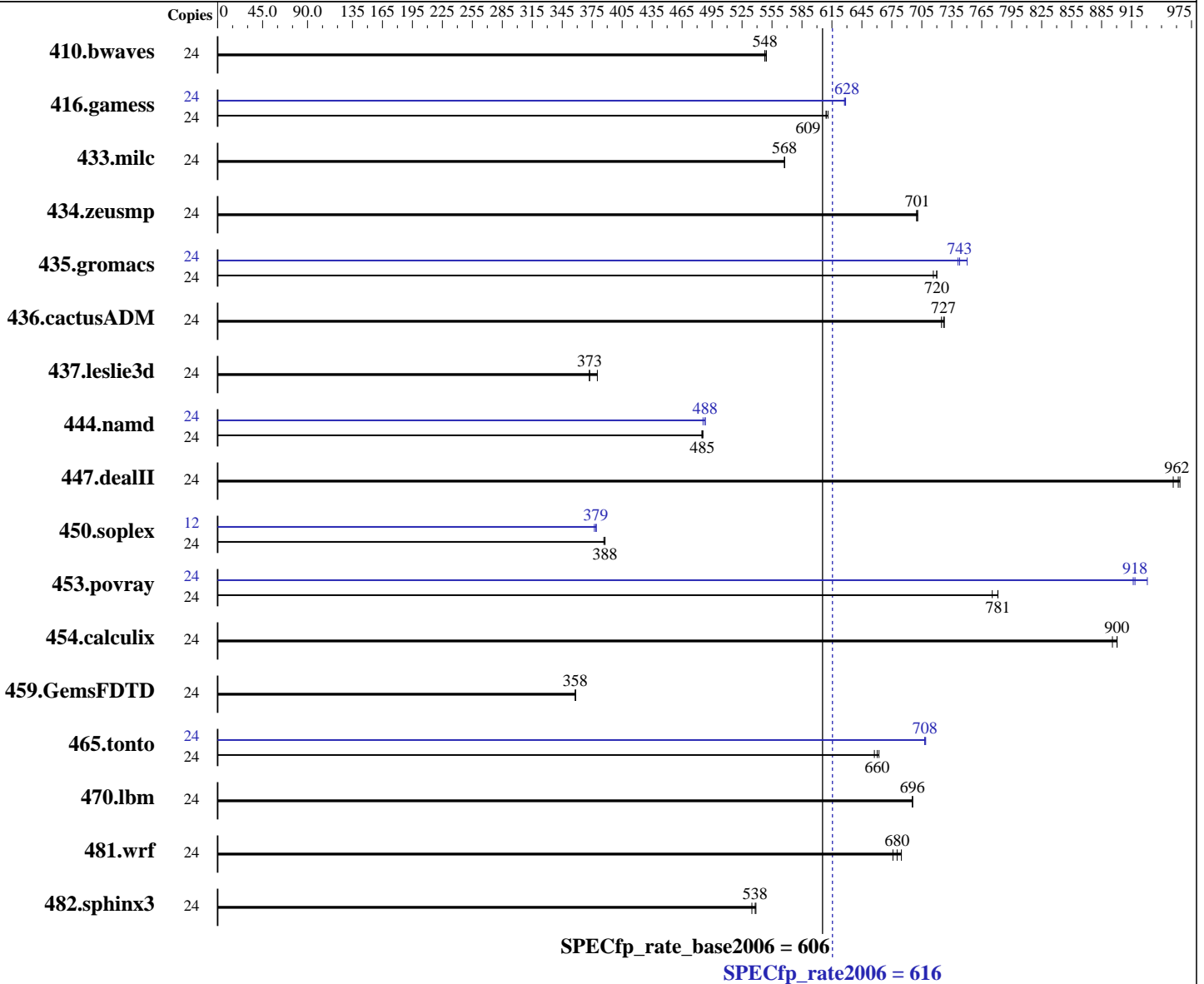
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015



Hardware

CPU Name: Intel Xeon E5-2643 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3400
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 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

Continued on next page

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: No
 File System: ext4
 System State: Run level 3 (multi-user)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400P-R)
Disk Subsystem: 1 x 1000 GB SATA III, 7200 RPM
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	24	595	548	<u>595</u>	<u>548</u>	594	549	24	595	548	<u>595</u>	<u>548</u>	594	549		
416.gamess	24	<u>771</u>	<u>609</u>	769	611	771	609	24	<u>748</u>	<u>628</u>	747	629	749	628		
433.milc	24	388	568	388	567	<u>388</u>	<u>568</u>	24	388	568	388	567	<u>388</u>	<u>568</u>		
434.zeusmp	24	312	701	<u>312</u>	<u>701</u>	312	700	24	312	701	<u>312</u>	<u>701</u>	312	700		
435.gromacs	24	238	720	<u>238</u>	<u>720</u>	239	717	24	231	741	<u>231</u>	<u>743</u>	228	750		
436.cactusADM	24	396	725	394	728	<u>395</u>	<u>727</u>	24	396	725	394	728	<u>395</u>	<u>727</u>		
437.leslie3d	24	<u>606</u>	<u>373</u>	593	380	606	372	24	<u>606</u>	<u>373</u>	593	380	606	372		
444.namd	24	396	486	397	485	<u>397</u>	<u>485</u>	24	396	486	<u>394</u>	<u>488</u>	394	488		
447.dealII	24	285	963	287	957	<u>285</u>	<u>962</u>	24	285	963	287	957	<u>285</u>	<u>962</u>		
450.soplex	24	516	388	518	387	<u>516</u>	<u>388</u>	12	264	379	265	377	<u>264</u>	<u>379</u>		
453.povray	24	165	776	163	781	<u>163</u>	<u>781</u>	24	139	917	137	931	<u>139</u>	<u>918</u>		
454.calculix	24	221	896	<u>220</u>	<u>900</u>	220	901	24	221	896	<u>220</u>	<u>900</u>	220	901		
459.GemsFDTD	24	<u>711</u>	<u>358</u>	710	358	711	358	24	<u>711</u>	<u>358</u>	710	358	711	358		
465.tonto	24	357	662	<u>358</u>	<u>660</u>	359	657	24	<u>333</u>	<u>708</u>	333	709	334	708		
470.lbm	24	474	696	<u>474</u>	<u>696</u>	474	696	24	474	696	<u>474</u>	<u>696</u>	474	696		
481.wrf	24	<u>394</u>	<u>680</u>	392	685	397	676	24	<u>394</u>	<u>680</u>	392	685	397	676		
482.sphinx3	24	<u>869</u>	<u>538</u>	868	539	875	535	24	<u>869</u>	<u>538</u>	868	539	875	535		

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

Submit Notes

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

BIOS Settings:
Early Snoop = Disable
Home Dir Snoop with IVT- Style OSB = Disable

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi, Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

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

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

Platform Notes (Continued)

Enforce POR = Disabled
Sysinfo program /home/SPEC2K6/SPEC2006-V12/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 # \$ e3fbb8667b5a285932ceab81e28219e1
running on 160-223 Thu Mar 31 01:17:07 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) Xeon(R) CPU E5-2643 v4 @ 3.40GHz
 2 "physical id"s (chips)
 24 "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 : 6
siblings : 12
physical 0: cores 0 1 2 3 6 7
physical 1: cores 0 1 2 3 6 7
cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      264568432 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1
```

```
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 160-223 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 5 Mar 30 16:54
```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

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

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

Platform Notes (Continued)

SPEC is set to: /home/SPEC2K6/SPEC2006-V12
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 ext4 905G 42G 863G 5% /home
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. 2.0 12/28/2015
Memory:
16x Samsung M393A2G40DB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/SPEC2K6/SPEC2006-V12/libs/32:/home/SPEC2K6/SPEC2006-V12/libs/64:/home/SPEC2K6/SPEC2006-V12/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
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

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

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

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:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

C++ benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

Fortran benchmarks:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

```

Benchmarks using both Fortran and C:

```

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

```

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

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

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

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

Peak Compiler Invocation (Continued)

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
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: -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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -fno-alias -auto-ilp32
447.dealII: basepeak = yes

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

Peak Optimization Flags (Continued)

450.soplex: -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) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-malloc-options=3

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) -opt-mem-layout-trans=3(pass 2)
-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: basepeak = yes

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

Benchmarks using both Fortran and C:

435.gromacs: -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) -opt-mem-layout-trans=3(pass 2)
-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>



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer 6028R-TR
(X10DRi , Intel Xeon E5-2643 v4)

SPECfp_rate2006 = 616

SPECfp_rate_base2006 = 606

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 Tue May 3 18:00:25 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 May 2016.