



SPEC[®] CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer F618R2-FC0
(X10DRFF-C, Intel Xeon E5-2697 v4)

SPECfp[®]_rate2006 = 1020

SPECfp_rate_base2006 = 991

CPU2006 license: 001176

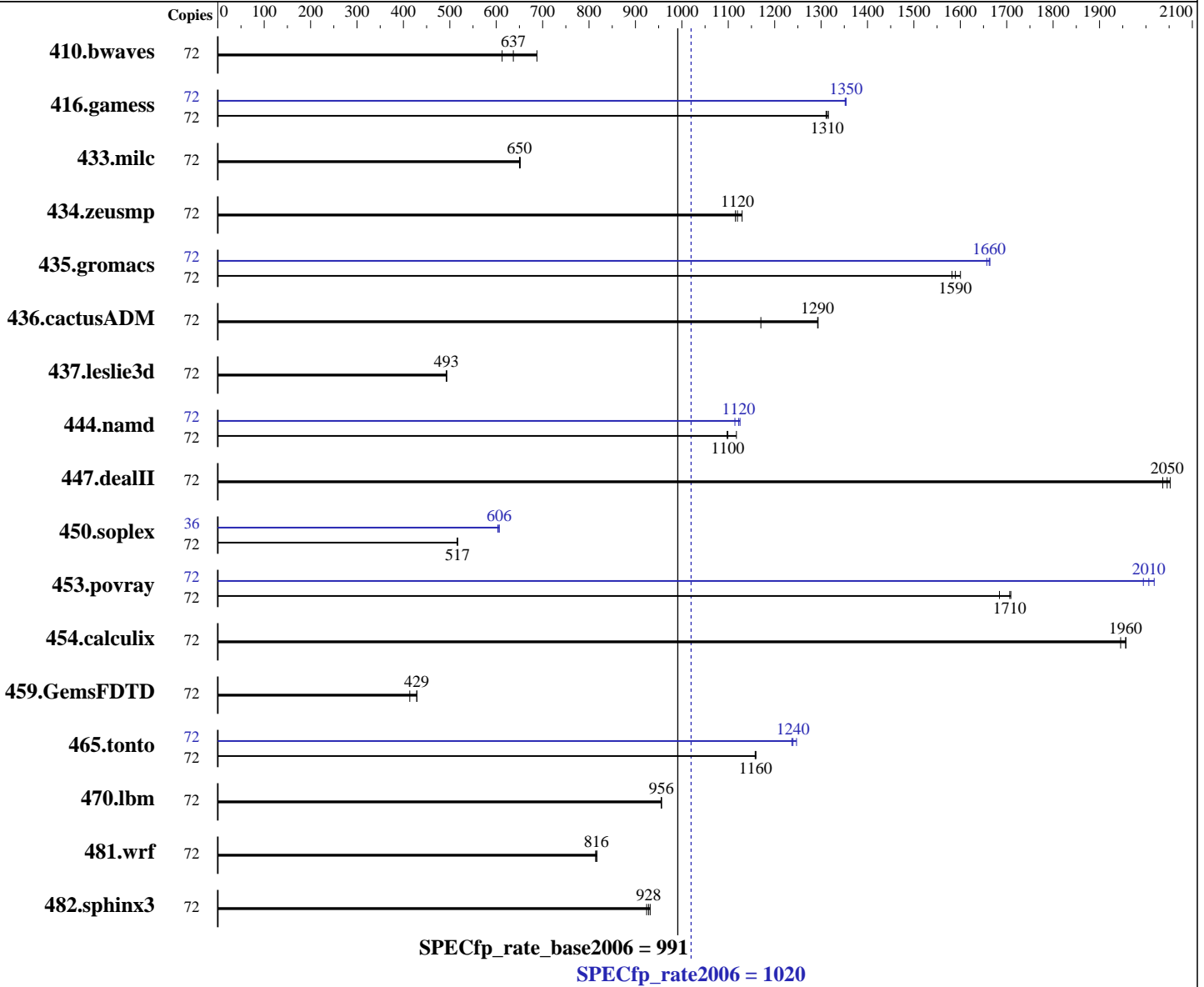
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015



Hardware

CPU Name: Intel Xeon E5-2697 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 36 cores, 2 chips, 18 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: Red Hat Enterprise Linux Server release 7.2, Kernel 3.10.0-327.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)

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer F618R2-FC0
(X10DRFF-C , Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 2 x 100 GB SAS SSD, RAID 0
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	72	1423	688	<u>1536</u>	<u>637</u>	1597	613	72	1423	688	<u>1536</u>	<u>637</u>	1597	613
416.gamess	72	1076	1310	<u>1074</u>	<u>1310</u>	1071	1320	72	1043	1350	1041	1350	<u>1041</u>	<u>1350</u>
433.milc	72	1017	650	<u>1016</u>	<u>650</u>	1014	652	72	1017	650	<u>1016</u>	<u>650</u>	1014	652
434.zeusmp	72	580	1130	<u>585</u>	<u>1120</u>	587	1120	72	580	1130	<u>585</u>	<u>1120</u>	587	1120
435.gromacs	72	325	1580	321	1600	<u>323</u>	<u>1590</u>	72	310	1660	<u>309</u>	<u>1660</u>	309	1660
436.cactusADM	72	665	1290	<u>666</u>	<u>1290</u>	735	1170	72	665	1290	<u>666</u>	<u>1290</u>	735	1170
437.leslie3d	72	1372	493	1374	493	<u>1373</u>	<u>493</u>	72	1372	493	1374	493	<u>1373</u>	<u>493</u>
444.namd	72	517	1120	526	1100	<u>525</u>	<u>1100</u>	72	518	1110	<u>514</u>	<u>1120</u>	513	1130
447.dealII	72	404	2040	<u>403</u>	<u>2050</u>	401	2050	72	404	2040	<u>403</u>	<u>2050</u>	401	2050
450.soplex	72	<u>1162</u>	<u>517</u>	1164	516	1161	517	36	498	603	495	606	<u>495</u>	<u>606</u>
453.povray	72	227	1680	<u>224</u>	<u>1710</u>	224	1710	72	192	1990	190	2020	<u>191</u>	<u>2010</u>
454.calculix	72	304	1960	305	1950	<u>304</u>	<u>1960</u>	72	304	1960	305	1950	<u>304</u>	<u>1960</u>
459.GemsFDTD	72	1846	414	1781	429	<u>1782</u>	<u>429</u>	72	1846	414	1781	429	<u>1782</u>	<u>429</u>
465.tonto	72	612	1160	611	1160	<u>611</u>	<u>1160</u>	72	<u>572</u>	<u>1240</u>	568	1250	573	1240
470.lbm	72	1035	956	<u>1035</u>	<u>956</u>	1034	956	72	1035	956	<u>1035</u>	<u>956</u>	1034	956
481.wrf	72	<u>986</u>	<u>816</u>	988	814	984	817	72	<u>986</u>	<u>816</u>	988	814	984	817
482.sphinx3	72	1518	924	1506	932	<u>1512</u>	<u>928</u>	72	1518	924	1506	932	<u>1512</u>	<u>928</u>

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:
Enforce POR = Disabled
Memory Frequency = 2400

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer F618R2-FC0
(X10DRFF-C, Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

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

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

Platform Notes (Continued)

Early Snoop = Disable
COD Enable = Enable
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on X10DRFF-01 Wed Mar 9 18:26:06 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 E5-2697 v4 @ 2.30GHz
 2 "physical id"s (chips)
 72 "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      : 18
  siblings       : 36
  physical 0:    cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
  physical 1:    cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
cache size      : 23040 KB
```

```
From /proc/meminfo
MemTotal:      131913884 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server
```

```
uname -a:
Linux X10DRFF-01 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Mar 9 00:30

```
SPEC is set to: /usr/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   181G  6.6G 175G   4% /
```

Additional information from dmidecode:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer F618R2-FC0
(X10DRFF-C, Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

Platform Notes (Continued)

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 01/11/2016

Memory:

8x Hynix Semiconductor HMA42GR7AFR4N-UH 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 = "/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

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

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64

416.gamess: -DSPEC_CPU_LP64

433.milc: -DSPEC_CPU_LP64

434.zeusmp: -DSPEC_CPU_LP64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer F618R2-FC0
(X10DRFF-C , Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

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

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

Base 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: -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
```

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 F618R2-FC0
(X10DRFF-C , Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

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

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

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
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

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Supermicro

SuperServer F618R2-FC0
(X10DRFF-C , Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

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)

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 F618R2-FC0
(X10DRFF-C , Intel Xeon E5-2697 v4)

SPECfp_rate2006 = 1020

SPECfp_rate_base2006 = 991

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 17 16:51:47 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 17 May 2016.