



SPEC[®] CFP2006 Result

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Fujitsu

PRIMERGY RX2540 M2, Intel Xeon E5-2667 v4, 3.20 GHz

SPECfp[®]2006 = 128

SPECfp_base2006 = 124

CPU2006 license: 19

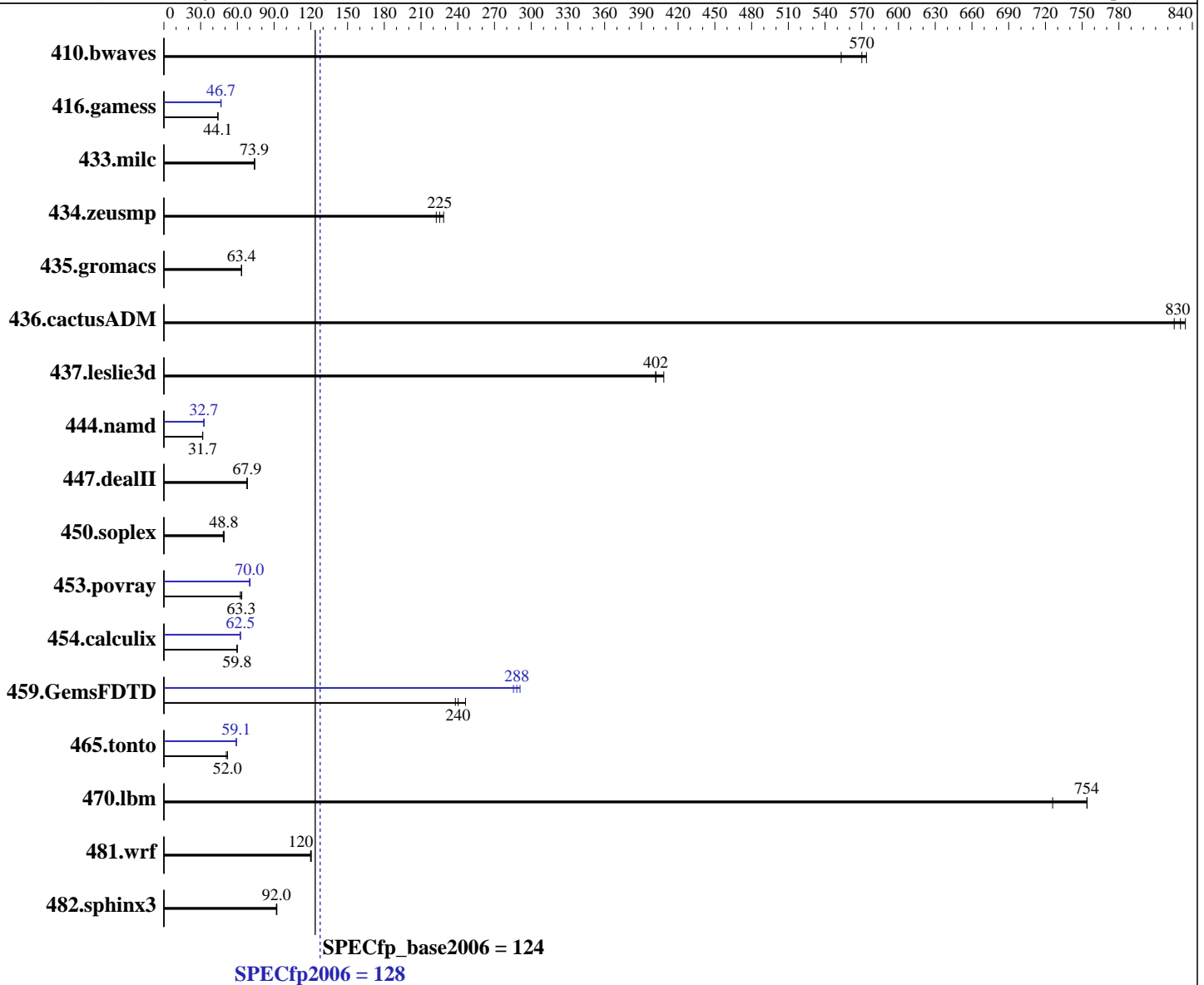
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Feb-2016

Hardware Availability: Apr-2016

Software Availability: Sep-2015



Hardware

CPU Name: Intel Xeon E5-2667 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3200
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 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: SUSE Linux Enterprise Server 12 SP1 (x86_64)
 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: ext4
 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 (16 x 16 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x SATA, 500 GB, 7200 RPM
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	<u>23.8</u>	<u>570</u>	24.6	553	23.7	574	<u>23.8</u>	<u>570</u>	24.6	553	23.7	574
416.gamess	444	44.1	445	44.0	<u>444</u>	<u>44.1</u>	419	46.7	<u>420</u>	<u>46.7</u>	421	46.5
433.milc	124	74.2	124	73.9	<u>124</u>	<u>73.9</u>	124	74.2	124	73.9	<u>124</u>	<u>73.9</u>
434.zeusmp	40.9	222	39.8	228	<u>40.4</u>	<u>225</u>	40.9	222	39.8	228	<u>40.4</u>	<u>225</u>
435.gromacs	112	63.5	113	63.4	<u>113</u>	<u>63.4</u>	112	63.5	113	63.4	<u>113</u>	<u>63.4</u>
436.cactusADM	14.3	834	14.5	825	<u>14.4</u>	<u>830</u>	14.3	834	14.5	825	<u>14.4</u>	<u>830</u>
437.leslie3d	23.4	402	<u>23.4</u>	<u>402</u>	23.0	408	23.4	402	<u>23.4</u>	<u>402</u>	23.0	408
444.namd	253	31.7	<u>253</u>	<u>31.7</u>	253	31.7	246	32.7	<u>246</u>	<u>32.7</u>	246	32.6
447.dealII	<u>168</u>	<u>67.9</u>	168	68.1	169	67.9	<u>168</u>	<u>67.9</u>	168	68.1	169	67.9
450.soplex	172	48.5	<u>171</u>	<u>48.8</u>	170	49.2	172	48.5	<u>171</u>	<u>48.8</u>	170	49.2
453.povray	83.6	63.6	85.3	62.4	<u>84.1</u>	<u>63.3</u>	75.6	70.4	76.0	70.0	<u>76.0</u>	<u>70.0</u>
454.calculix	138	59.8	138	59.8	<u>138</u>	<u>59.8</u>	132	62.4	<u>132</u>	<u>62.5</u>	132	62.5
459.GemsFDTD	44.6	238	43.1	246	<u>44.1</u>	<u>240</u>	37.2	286	<u>36.8</u>	<u>288</u>	36.5	291
465.tonto	193	50.9	<u>189</u>	<u>52.0</u>	189	52.0	166	59.1	166	59.2	<u>166</u>	<u>59.1</u>
470.lbm	18.9	726	<u>18.2</u>	<u>754</u>	18.2	754	18.9	726	<u>18.2</u>	<u>754</u>	18.2	754
481.wrf	<u>92.9</u>	<u>120</u>	92.9	120	93.3	120	<u>92.9</u>	<u>120</u>	92.9	120	93.3	120
482.sphinx3	211	92.3	<u>212</u>	<u>92.0</u>	212	91.9	211	92.3	<u>212</u>	<u>92.0</u>	212	91.9

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

BIOS configuration:
Energy Performance = Performance
Utilization Profile = Unbalanced
QPI snoop mode: Home Snoop
COD Enable = Disabled, Early Snoop = Disabled
CPU C1E Support = Disabled
Sysinfo program /home/BUNDLE/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on RX2540M2 Mon Feb 15 15:59:24 2016

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Platform Notes (Continued)

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 E5-2667 v4 @ 3.20GHz
 2 "physical id"s (chips)
 32 "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    : 8
  siblings     : 16
  physical 0   : cores 0 2 3 4 8 10 11 12
  physical 1   : cores 0 2 3 4 8 10 11 12
cache size     : 25600 KB
```

```
From /proc/meminfo
MemTotal:      264400668 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 RX2540M2 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 Feb 15 15:57 last=5
```

```
SPEC is set to: /home/BUNDLE
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   424G  220G  204G  52% /home
```

Additional information from dmidecode:

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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 FUJITSU // American Megatrends Inc. V5.0.0.11 R1.1.0 for D3289-B1x
01/14/2016

Memory:
16x Micron 36ASF2G72PZ-2G3A3 16 GB 2 rank 2400 MHz
8x NO DIMM NO DIMM

(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/BUNDLE/libs/32:/home/BUNDLE/libs/64:/home/BUNDLE/sh"  
OMP_NUM_THREADS = "16"
```

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
```

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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 -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



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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: -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

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Peak Optimization Flags (Continued)

465.tonto (continued):

-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

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/Fujitsu-Platform-Settings-V1.2-HSW-RevA.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/Fujitsu-Platform-Settings-V1.2-HSW-RevA.xml>

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