



# SPEC® CFP2006 Result

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## Fujitsu

PRIMERGY RX1330 M2, Intel Xeon E3-1220 v5, 3.00 GHz

SPECfp®2006 = 92.0

SPECfp\_base2006 = 90.0

CPU2006 license: 19

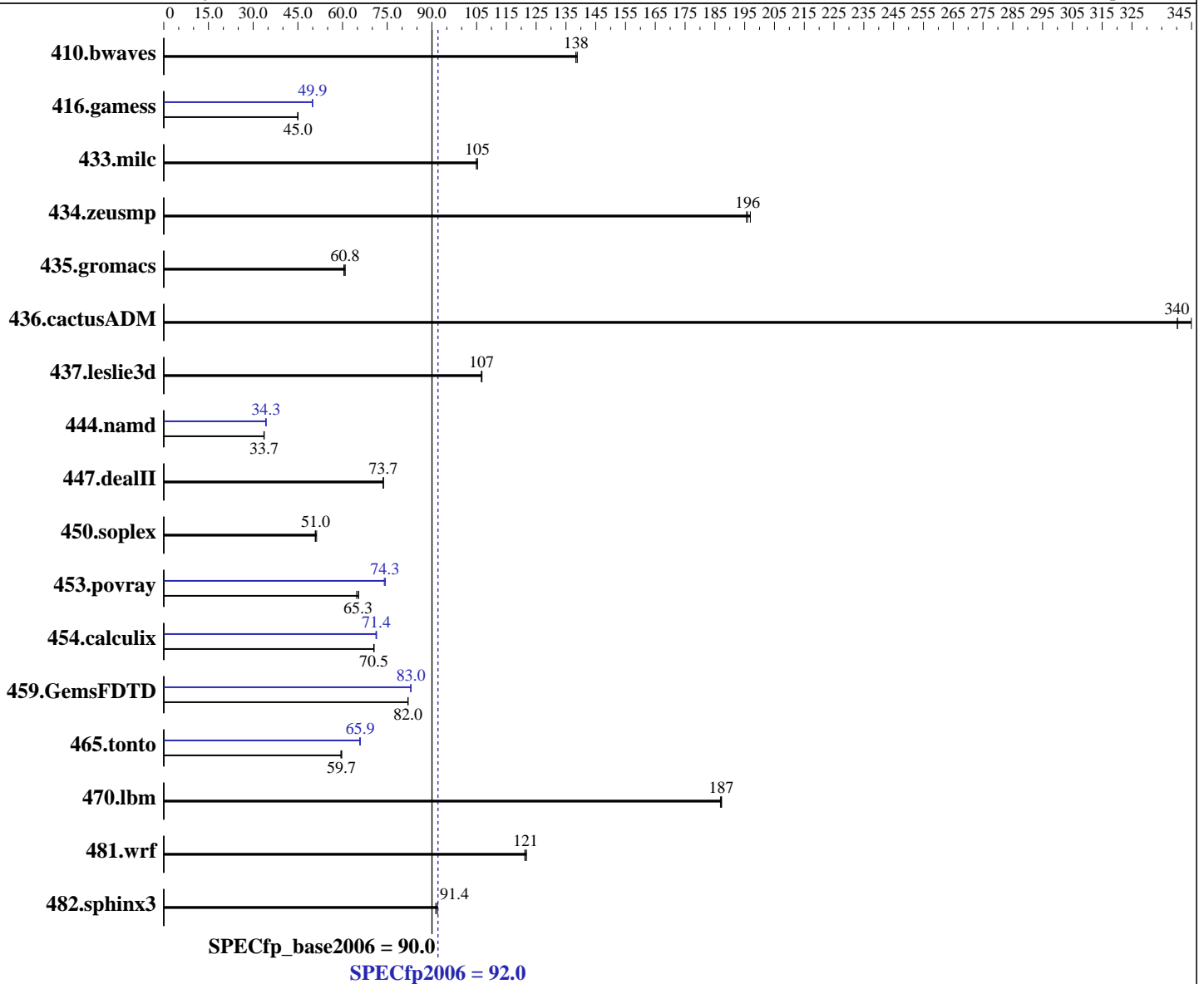
Test sponsor: Fujitsu

Tested by: Fujitsu

Test date: Dec-2015

Hardware Availability: Feb-2016

Software Availability: Sep-2015



### Hardware

CPU Name: Intel Xeon E3-1220 v5  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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: SUSE Linux Enterprise Server 12 (x86\_64)  
 Kernel 3.12.48-52.27-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: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)  
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	98.2	138	97.9	139	<u>98.2</u>	<u>138</u>	98.2	138	97.9	139	<u>98.2</u>	<u>138</u>
416.gamess	435	45.1	<u>435</u>	<u>45.0</u>	436	44.9	392	49.9	<u>392</u>	<u>49.9</u>	392	49.9
433.milc	87.2	105	<u>87.2</u>	<u>105</u>	87.5	105	87.2	105	<u>87.2</u>	<u>105</u>	87.5	105
434.zeusmp	46.5	196	<u>46.4</u>	<u>196</u>	46.2	197	46.5	196	<u>46.4</u>	<u>196</u>	46.2	197
435.gromacs	117	60.9	118	60.4	<u>117</u>	<u>60.8</u>	117	60.9	118	60.4	<u>117</u>	<u>60.8</u>
436.cactusADM	<u>35.1</u>	<u>340</u>	35.1	340	34.6	345	<u>35.1</u>	<u>340</u>	35.1	340	34.6	345
437.leslie3d	<u>88.1</u>	<u>107</u>	88.0	107	88.2	107	<u>88.1</u>	<u>107</u>	88.0	107	88.2	107
444.namd	238	33.7	<u>238</u>	<u>33.7</u>	239	33.6	234	34.2	<u>234</u>	<u>34.3</u>	234	34.3
447.dealII	155	73.7	155	73.6	<u>155</u>	<u>73.7</u>	155	73.7	155	73.6	<u>155</u>	<u>73.7</u>
450.soplex	163	51.3	164	50.8	<u>164</u>	<u>51.0</u>	163	51.3	164	50.8	<u>164</u>	<u>51.0</u>
453.povray	81.4	65.4	<u>81.5</u>	<u>65.3</u>	82.2	64.7	71.6	74.3	71.9	74.0	<u>71.6</u>	<u>74.3</u>
454.calculix	<u>117</u>	<u>70.5</u>	117	70.5	117	70.6	116	71.4	<u>116</u>	<u>71.4</u>	116	71.2
459.GemsFDTD	129	82.0	<u>129</u>	<u>82.0</u>	129	82.0	128	82.9	128	83.0	<u>128</u>	<u>83.0</u>
465.tonto	165	59.7	<u>165</u>	<u>59.7</u>	166	59.4	<u>149</u>	<u>65.9</u>	149	65.9	150	65.8
470.lbm	<u>73.4</u>	<u>187</u>	73.5	187	73.4	187	<u>73.4</u>	<u>187</u>	73.5	187	73.4	187
481.wrf	<u>92.0</u>	<u>121</u>	91.7	122	92.2	121	<u>92.0</u>	<u>121</u>	91.7	122	92.2	121
482.sphinx3	212	91.9	<u>213</u>	<u>91.4</u>	213	91.3	212	91.9	<u>213</u>	<u>91.4</u>	213	91.3

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 configuration:  
Sysinfo program /home/SPECcpu2006/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on RX1330M2 Thu Dec 10 21:33:32 2015

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

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### Platform Notes (Continued)

model name : Intel(R) Xeon(R) CPU E3-1220 v5 @ 3.00GHz

1 "physical id"s (chips)  
4 "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 : 4  
siblings : 4  
physical 0: cores 0 1 2 3  
cache size : 8192 KB

From /proc/meminfo

MemTotal: 65905596 kB  
HugePages\_Total: 0  
Hugepagesize: 2048 kB

/usr/bin/lsb\_release -d

SUSE Linux Enterprise Server 12

From /etc/\*release\* /etc/\*version\*

SuSE-release:

SUSE Linux Enterprise Server 12 (x86\_64)  
VERSION = 12  
PATCHLEVEL = 0

# 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"  
VERSION\_ID="12"  
PRETTY\_NAME="SUSE Linux Enterprise Server 12"  
ID="sles"  
ANSI\_COLOR="0;32"  
CPE\_NAME="cpe:/o:suse:sles:12"

uname -a:

Linux RX1330M2 3.12.48-52.27-default #1 SMP Mon Oct 5 10:08:10 UTC 2015  
(314f0e3) x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 5 Dec 10 16:56

SPEC is set to: /home/SPECcpu2006

Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda4 xfs 424G 15G 409G 4% /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.

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## Platform Notes (Continued)

BIOS FUJITSU // American Megatrends Inc. V5.0.0.11 R1.0.0 for D3375-A1x 10/27/2015

Memory:  
4x SK Hynix HMA82GU7MFR8N-TF 16 GB 2 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 = "/home/SPECcpu2006/libs/32:/home/SPECcpu2006/libs/64:/home/SPECcpu2006/sh"  
OMP\_NUM\_THREADS = "4"

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

For information about Fujitsu please visit: <http://www.fujitsu.com>

## 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

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## Base Portability Flags (Continued)

```

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

```

## 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/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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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