

# SPEC<sup>®</sup> CINT2006 Result

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**Fujitsu**

**SPECint<sup>®</sup>\_rate2006 = 280**

PRIMERGY RX1330 M3, Intel Xeon E3-1280 v6, 3.9GHz

**SPECint\_rate\_base2006 = 271**

CPU2006 license: 19

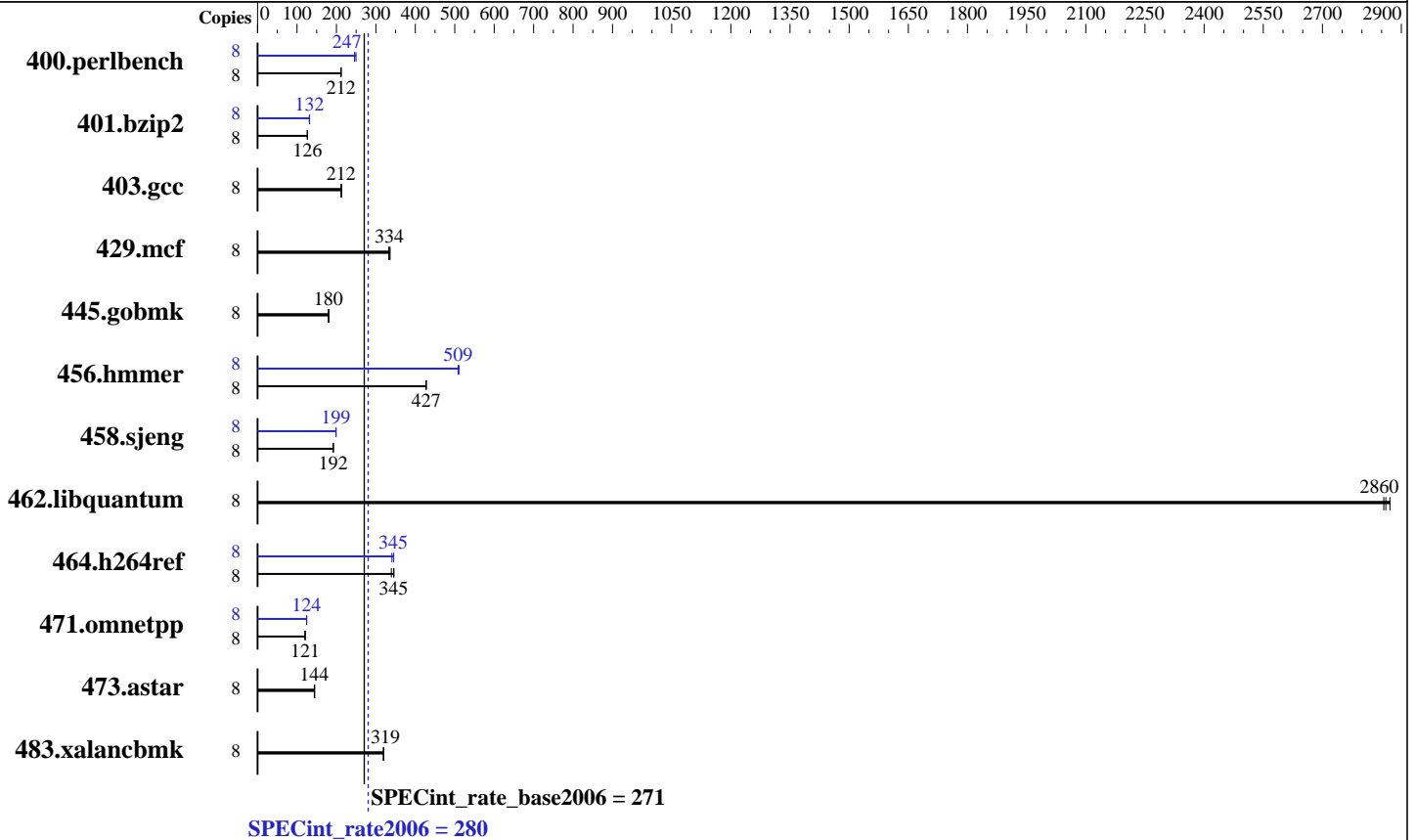
Test date: Mar-2017

Test sponsor: Fujitsu

Hardware Availability: May-2017

Tested by: Fujitsu

Software Availability: Nov-2016



## Hardware

CPU Name: Intel Xeon E3-1280 v6  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.20 GHz  
 CPU MHz: 3900  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core  
 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  
 L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2400T-E)  
 Disk Subsystem: 2 x SAS, 600 GB, 15000 RPM  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 12 SP2 (x86\_64) 4.4.21-68-default  
 Compiler: C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux  
 Auto Parallel: No  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2

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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	369	212	370	212	<u>369</u>	<u>212</u>	8	318	246	<u>317</u>	<u>247</u>	313	250
401.bzip2	8	613	126	<u>611</u>	<u>126</u>	611	126	8	585	132	<u>586</u>	<u>132</u>	589	131
403.gcc	8	302	213	<u>304</u>	<u>212</u>	304	212	8	302	213	<u>304</u>	<u>212</u>	304	212
429.mcf	8	219	333	<u>218</u>	<u>334</u>	217	336	8	219	333	<u>218</u>	<u>334</u>	217	336
445.gobmk	8	465	181	<u>466</u>	<u>180</u>	466	180	8	465	181	<u>466</u>	<u>180</u>	466	180
456.hammer	8	174	428	175	427	<u>175</u>	<u>427</u>	8	<u>147</u>	<u>509</u>	146	511	147	508
458.sjeng	8	504	192	505	192	<u>504</u>	<u>192</u>	8	486	199	<u>487</u>	<u>199</u>	487	199
462.libquantum	8	<u>57.9</u>	<u>2860</u>	57.7	2870	58.0	2860	8	<u>57.9</u>	<u>2860</u>	57.7	2870	58.0	2860
464.h264ref	8	<u>513</u>	<u>345</u>	522	339	512	346	8	520	340	513	345	<u>514</u>	<u>345</u>
471.omnetpp	8	415	120	<u>415</u>	<u>121</u>	414	121	8	402	125	402	124	<u>402</u>	<u>124</u>
473.astar	8	388	145	390	144	<u>389</u>	<u>144</u>	8	388	145	390	144	<u>389</u>	<u>144</u>
483.xalancbmk	8	173	320	173	319	<u>173</u>	<u>319</u>	8	173	320	173	319	<u>173</u>	<u>319</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"
Turbo mode set with :
cpupower -c all frequency-set -g performance
cpupower idle-set -d 2
cpupower idle-set -d 3
cpupower idle-set -d 4
echo always > /sys/kernel/mm/transparent_hugepage/enabled
echo 1 > /proc/sys/vm/drop_caches
echo 1000000000 > /proc/sys/kernel/sched_min_granularity_ns
echo 1500000000 > /proc/sys/kernel/sched_wakeup_granularity_ns
```

## Platform Notes

Sysinfo program /home/benchmark/speccpu-20160922-updated/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on linux-l8u9 Fri Mar 3 15:32:07 2017

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>

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## Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E3-1280 v6 @ 3.90GHz

1 "physical id"s (chips)

8 "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 : 8

physical 0: cores 0 1 2 3

cache size : 8192 KB

From /proc/meminfo

MemTotal: 65656544 kB

HugePages\_Total: 0

Hugepagesize: 2048 kB

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

SuSE-release:

SUSE Linux Enterprise Server 12 (x86\_64)

VERSION = 12

PATCHLEVEL = 2

# 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-SP2"

VERSION\_ID="12.2"

PRETTY\_NAME="SUSE Linux Enterprise Server 12 SP2"

ID="sles"

ANSI\_COLOR="0;32"

CPE\_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:

Linux linux-l8u9 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016

(63cf368) x86\_64 x86\_64 x86\_64 GNU/Linux

run-level 3 Mar 3 01:39

SPEC is set to: /home/benchmark/speccpu-20160922-updated

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
------------	------	------	------	-------	------	------------

/dev/sda4	xfs	516G	26G	490G	6%	/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 FUJITSU // American Megatrends Inc. V5.0.0.11 R0.92.0 for D3375-B1x  
02/02/2017

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## Platform Notes (Continued)

Memory:

4x Samsung M391A2K43BB1-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/benchmark/speccpu-20160922-updated/libs/32:/home/benchmark/speccpu-20160922-updated/libs/64:/home/benchmark/speccpu-20160922-updated/sh10.2*
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.2  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent\_hugepage/enabled  
runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

## Base Compiler Invocation

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

## Base Portability Flags

```
400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32  
401.bzip2: -D_FILE_OFFSET_BITS=64  
403.gcc: -D_FILE_OFFSET_BITS=64  
429.mcf: -D_FILE_OFFSET_BITS=64  
445.gobmk: -D_FILE_OFFSET_BITS=64  
456.hmmer: -D_FILE_OFFSET_BITS=64  
458.sjeng: -D_FILE_OFFSET_BITS=64  
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX  
464.h264ref: -D_FILE_OFFSET_BITS=64  
471.omnetpp: -D_FILE_OFFSET_BITS=64  
473.astar: -D_FILE_OFFSET_BITS=64  
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

## Base Optimization Flags

C benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-qopt-mem-layout-trans=3
```

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## Base Optimization Flags (Continued)

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap
```

## Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

## Peak Compiler Invocation

C benchmarks (except as noted below):

```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

```
400.perlbench: icc -m64
```

```
401.bzip2: icc -m64
```

```
456.hmmer: icc -m64
```

```
458.sjeng: icc -m64
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

## Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
```

```
401.bzip2: -DSPEC_CPU_LP64
```

```
403.gcc: -D_FILE_OFFSET_BITS=64
```

```
429.mcf: -D_FILE_OFFSET_BITS=64
```

```
445.gobmk: -D_FILE_OFFSET_BITS=64
```

```
456.hmmer: -DSPEC_CPU_LP64
```

```
458.sjeng: -DSPEC_CPU_LP64
```

```
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

```
464.h264ref: -D_FILE_OFFSET_BITS=64
```

```
471.omnetpp: -D_FILE_OFFSET_BITS=64
```

```
473.astar: -D_FILE_OFFSET_BITS=64
```

```
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

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## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -qopt-prefetch -auto-ilp32  
-qopt-mem-layout-trans=3

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: basepeak = yes

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-qopt-mem-layout-trans=3

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll4 -auto-ilp32  
-qopt-mem-layout-trans=3

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -unroll2 -qopt-mem-layout-trans=3

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2)  
-qopt-ra-region-strategy=block  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs  
-L/sh10.2 -lsmartheap

473.astar: basepeak = yes

483.xalanbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

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## Peak Other Flags (Continued)

403.gcc: -Dalloca=\_alloca

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