



SPEC® CINT2006 Result

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Supermicro

SuperServer 2048U-RTR4
(X10QRH+ , Intel Xeon E5-4655 v3)

SPECint®2006 = 61.3

SPECint_base2006 = 59.6

CPU2006 license: 001176

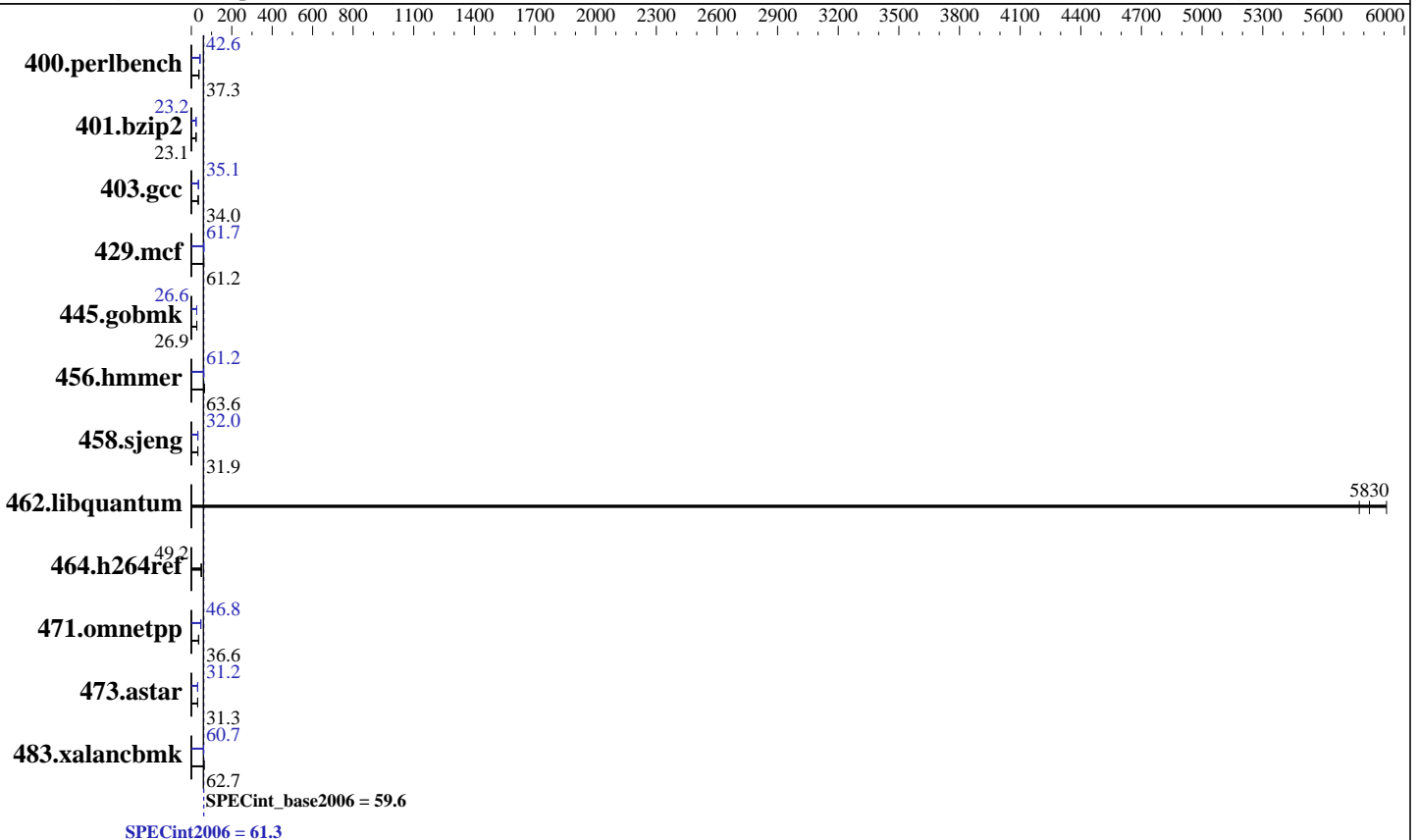
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Jun-2015

Hardware Availability: Jun-2015

Software Availability: Oct-2014



Hardware

CPU Name: Intel Xeon E5-4655 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
 CPU MHz: 2900
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
 CPU(s) orderable: 1,2,4 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 1 x 512 GB SATA III, SSD
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12,
Kernel 3.12.28-4-default
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE
for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.0



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Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|----------------|-------------|-------------|---------|-------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 262 | 37.3 | 264 | 37.0 | <u>262</u> | <u>37.3</u> | 230 | 42.6 | <u>230</u> | <u>42.6</u> | 230 | 42.6 |
| 401.bzip2 | 418 | 23.1 | 415 | 23.2 | <u>417</u> | <u>23.1</u> | <u>416</u> | <u>23.2</u> | 416 | 23.2 | 417 | 23.2 |
| 403.gcc | <u>237</u> | <u>34.0</u> | 237 | 34.0 | 237 | 33.9 | 230 | 35.0 | 229 | 35.2 | <u>229</u> | <u>35.1</u> |
| 429.mcf | 151 | 60.3 | 148 | 61.8 | <u>149</u> | <u>61.2</u> | 148 | 61.8 | <u>148</u> | <u>61.7</u> | 148 | 61.4 |
| 445.gobmk | <u>390</u> | <u>26.9</u> | 389 | 27.0 | 390 | 26.9 | <u>394</u> | <u>26.6</u> | 394 | 26.6 | 394 | 26.7 |
| 456.hammer | <u>147</u> | <u>63.6</u> | 147 | 63.6 | 147 | 63.5 | 152 | 61.2 | <u>152</u> | <u>61.2</u> | 152 | 61.3 |
| 458.sjeng | 379 | 31.9 | 379 | 31.9 | <u>379</u> | <u>31.9</u> | <u>378</u> | <u>32.0</u> | 378 | 32.0 | 378 | 32.0 |
| 462.libquantum | <u>3.56</u> | <u>5830</u> | 3.59 | 5780 | 3.50 | 5910 | <u>3.56</u> | <u>5830</u> | 3.59 | 5780 | 3.50 | 5910 |
| 464.h264ref | <u>450</u> | <u>49.2</u> | 450 | 49.2 | 451 | 49.1 | <u>450</u> | <u>49.2</u> | 450 | 49.2 | 451 | 49.1 |
| 471.omnetpp | <u>171</u> | <u>36.6</u> | 171 | 36.6 | 178 | 35.0 | 133 | 46.9 | <u>134</u> | <u>46.8</u> | 134 | 46.7 |
| 473.astar | 225 | 31.2 | 224 | 31.3 | <u>224</u> | <u>31.3</u> | <u>225</u> | <u>31.2</u> | 225 | 31.2 | 226 | 31.0 |
| 483.xalancbmk | <u>110</u> | <u>62.7</u> | 110 | 62.9 | 113 | 61.1 | <u>114</u> | <u>60.7</u> | 114 | 60.5 | 114 | 60.7 |

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Settings:

Hyper-Threading (ALL) = Disable

Early Snoop = Disable

Enforce POR = Disabled

Sysinfo program /home/SPEC2K6/SPEC2006-V12/config/sysinfo.rev6914

\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1

running on linux-rrui Wed Jun 17 02:56:33 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

model name : Intel(R) Xeon(R) CPU E5-4655 v3 @ 2.90GHz

4 "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.)

Continued on next page



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Platform Notes (Continued)

```
cpu cores : 6
siblings  : 6
physical 0: cores 1 3 5 9 11 12
physical 1: cores 1 3 5 9 11 12
physical 2: cores 1 3 5 9 11 12
physical 3: cores 1 3 5 9 11 12
cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      529339400 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 linux-rrui 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 5 Jun 17 02:53
```

```
SPEC is set to: /home/SPEC2K6/SPEC2006-V12
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       ext4  458G  7.2G  450G   2% /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. 1.00 06/01/2015
Memory:
16x NO DIMM NO DIMM

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Platform Notes (Continued)

```

1x Samsung(data:13/44) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
1x Samsung(data:13/48) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
3x Samsung(data:13/51) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
2x Samsung(data:14/13) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
1x Samsung(data:14/16) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
5x Samsung(data:14/17) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
1x Samsung(data:14/25) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
14x Samsung(data:14/26) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
4x Samsung(data:14/47) M393A2G40DB0-CPB 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,scatter"

LD_LIBRARY_PATH = "/home/SPEC2K6/SPEC2006-V12/libs/32:/home/SPEC2K6/SPEC2006-V12/libs/64:/home/SPEC2K6/SPEC2006-V12/sh"

OMP_NUM_THREADS = "24"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Base Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

```



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32

401.bzip2: -DSPEC_CPU_LP64

403.gcc: -DSPEC_CPU_LP64

429.mcf: -DSPEC_CPU_LP64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

464.h264ref: -DSPEC_CPU_LP64

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmarheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmarheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmarheap

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.xml>

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For other inquiries, please contact webmaster@spec.org.

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