



# SPEC<sup>®</sup> CINT2006 Result

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## Supermicro

Supermicro SuperServer 4047R-7JRFT  
X9QR7-JTF, Intel Xeon E5-4610 v2)

**SPECint<sup>®</sup>\_rate2006 = 1110**

**SPECint\_rate\_base2006 = 1080**

CPU2006 license: 001176

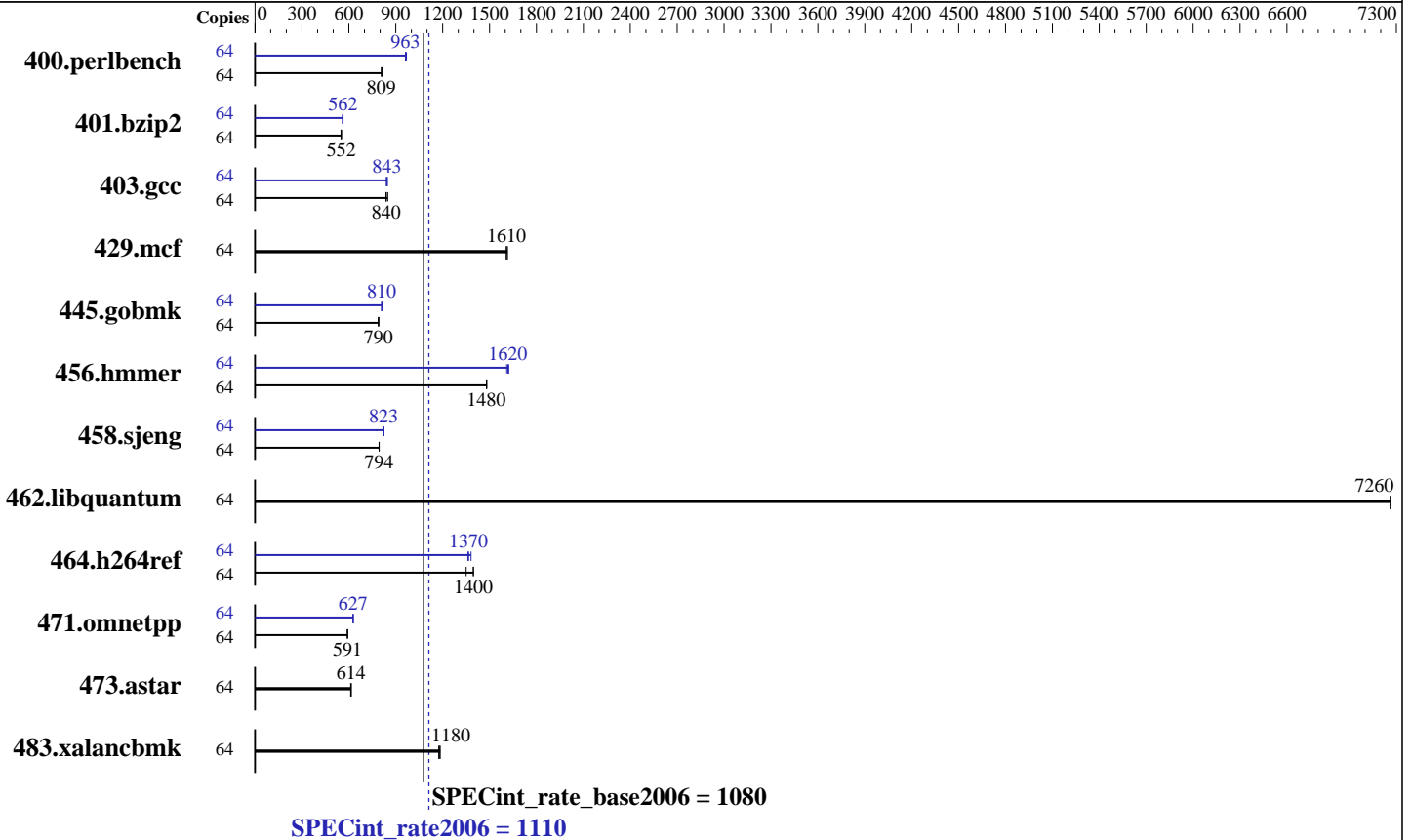
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Jun-2014

Hardware Availability: Mar-2014

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-4610 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core  
 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: 16 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz)  
 Disk Subsystem: 1 x 750 GB SATA II, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4, Kernel 2.6.32-358.23.2.el6.x86\_64  
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;  
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 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							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
400.perlbench	64	771	811	773	809	<b>773</b>	<b>809</b>	64	<b>649</b>	<b>963</b>	650	962	646	968		
401.bzip2	64	1123	550	<b>1119</b>	<b>552</b>	1118	552	64	1106	558	<b>1099</b>	<b>562</b>	1097	563		
403.gcc	64	607	849	615	837	<b>614</b>	<b>840</b>	64	<b>611</b>	<b>843</b>	614	839	608	847		
429.mcf	64	<b>363</b>	<b>1610</b>	362	1610	363	1610	64	<b>363</b>	<b>1610</b>	362	1610	363	1610		
445.gobmk	64	<b>850</b>	<b>790</b>	849	791	851	789	64	<b>828</b>	<b>810</b>	830	809	825	814		
456.hammer	64	<b>403</b>	<b>1480</b>	403	1480	403	1480	64	368	1620	371	1610	<b>369</b>	<b>1620</b>		
458.sjeng	64	<b>976</b>	<b>794</b>	976	793	976	794	64	939	824	942	822	<b>941</b>	<b>823</b>		
462.libquantum	64	<b>183</b>	<b>7260</b>	183	7260	183	7260	64	<b>183</b>	<b>7260</b>	183	7260	183	7260		
464.h264ref	64	<b>1015</b>	<b>1400</b>	1014	1400	1049	1350	64	1025	1380	<b>1037</b>	<b>1370</b>	1041	1360		
471.omnetpp	64	<b>676</b>	<b>591</b>	676	591	677	591	64	637	628	<b>638</b>	<b>627</b>	638	627		
473.astar	64	730	615	<b>732</b>	<b>614</b>	735	612	64	730	615	<b>732</b>	<b>614</b>	735	612		
483.xalancbmk	64	373	1180	<b>374</b>	<b>1180</b>	376	1170	64	373	1180	<b>374</b>	<b>1180</b>	376	1170		

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 Configuration:  
Disable C1E Support, DRAM RAPL Mode, Demand Scrub, Double Refresh.  
Set Package C-state Limit to C0  
Sysinfo program /usr/cpu2006/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191  
running on 58-173.hnet Thu Jun 5 13:51:53 2014

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 E5-4610 v2 @ 2.30GHz  
4 "physical id"s (chips)  
64 "processors"  
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with  
Continued on next page



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### Platform Notes (Continued)

```

caution.)
  cpu cores : 8
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7
  physical 1: cores 0 1 2 3 4 5 6 7
  physical 2: cores 0 1 2 3 4 5 6 7
  physical 3: cores 0 1 2 3 4 5 6 7
cache size : 16384 KB

```

```

From /proc/meminfo
MemTotal:      264487516 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.5 (Santiago)

```

```

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

```

```

uname -a:
Linux 58-173.hnet 2.6.32-431.5.1.el6.x86_64 #1 SMP Fri Jan 10 14:46:43 EST
2014 x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Jun 5 13:37

```

SPEC is set to: /usr/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  625G  567G   27G  96% /

```

```

Additional information from dmidecode:
BIOS American Megatrends Inc 3.0 10/01/2013
Memory:
16x 16 GB
2x Dimm1_Manufacturer Dimm1_PartNumber
2x Dimm3_Manufacturer Dimm3_PartNumber
2x Dimm5_Manufacturer Dimm5_PartNumber
2x Dimm7_Manufacturer Dimm7_PartNumber
16x Hynix Semiconducto HMT42GR7AFR4C-RD 16 GB 1600 MHz 1 rank

```

(End of data from sysinfo program)  
 Only 16 DIMMs are installed. Please ignore extra info above.  
 The memory used are actually dual rank. Information provided by dmidecode is an error.

### 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"

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### General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_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 -m32  
  
C++ benchmarks:  
icpc -m32

### Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
462.libquantum: -DSPEC\_CPU\_LINUX  
483.xalancbmk: -DSPEC\_CPU\_LINUX

### Base Optimization Flags

C benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
  
C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3  
-Wl,-z,muldefs -L/sh -lsmarthheap

### Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

### Peak Compiler Invocation

C benchmarks (except as noted below):  
icc -m32

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Software Availability: Sep-2013

## Peak Compiler Invocation (Continued)

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

456.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -DSPEC\_CPU\_LINUX

483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll4 -auto-ilp32

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## Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)  
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs  
-L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

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-ic14.0-official-linux64-revC.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml>

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

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

Tested with SPEC CPU2006 v1.2.

Report generated on Fri Jul 25 00:20:19 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 23 July 2014.