SPEC® CINT2006 Result
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Supermicro

SuperServer 8027R-7RFT+
(X9QR7-TF+ , Intel E5-4640 v2)

$SPECint^{®}2006 =$ 46.1

$SPECint\_base2006 =$ 43.5

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Jul-2014
Hardware Availability: Aug-2013
Software Availability: Sep-2013

0 100 200 300 400 500 600 700 800 900 1050 1200 1350 1500 1650 1800 1950 2100 2250 2400 2550 2700 2850 3000 3300

- **400.perlbench** 30.3 / 25.5
- **401.bzip2** 18.6 / 18.4
- **403.gcc** 25.9 / 25.3
- **429.mcf** 55.3
- **445.gobmk** 21.1 / 19.5
- **456.hmmer** 46.3 / 47.4
- **458.sjeng** 23.3 / 22.7
- **462.libquantum** 3170
- **464.h264ref** 44.0 / 37.9
- **471.omnetpp** 33.5 / 24.6
- **473.astar** 24.9 / 25.0
- **483.xalancbmk** 43.7 / 45.4

SPECint_base2006 = 43.5

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Hardware

CPU Name:	Intel Xeon E5-4640 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.70 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (32 x 8 GB 2Rx8 PC3-14900R-13, ECC)
Disk Subsystem:	1 x 512 GB SATA III SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.5, Kernel 2.6.32-431.el6.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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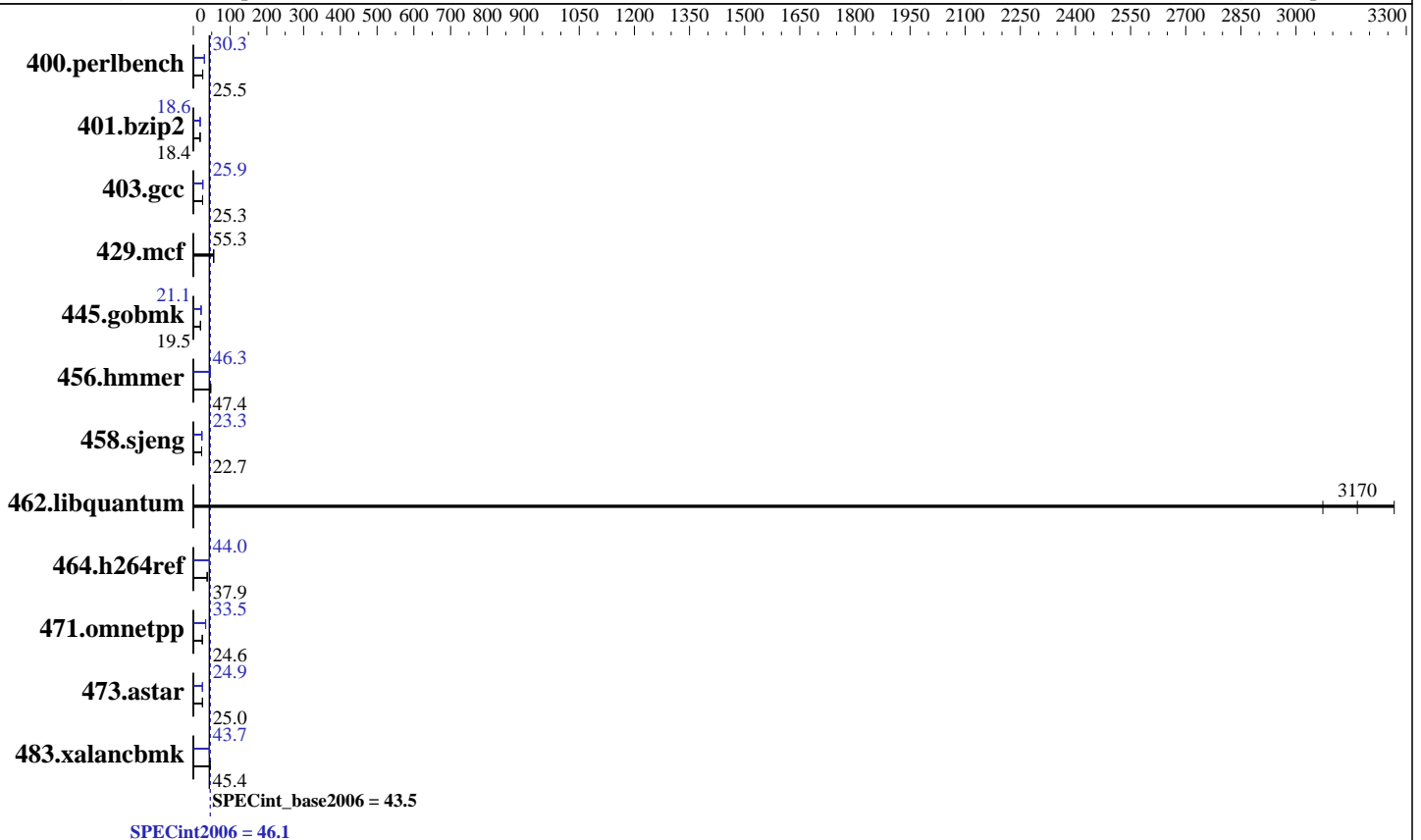
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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	**383**	**25.5**	383	25.5	383	25.5	**323**	**30.3**	322	30.3	324	30.2
401.bzip2	**524**	**18.4**	524	18.4	525	18.4	518	18.6	**518**	**18.6**	518	18.6
403.gcc	319	25.3	318	25.3	**318**	**25.3**	**311**	**25.9**	311	25.9	311	25.9
429.mcf	**165**	**55.3**	165	55.1	164	55.5	**165**	**55.3**	165	55.1	164	55.5
445.gobmk	537	19.5	**537**	**19.5**	537	19.5	498	21.1	**498**	**21.1**	497	21.1
456.hmmer	201	46.4	**197**	**47.4**	196	47.5	**202**	**46.3**	203	46.0	202	46.3
458.sjeng	534	22.7	533	22.7	**533**	**22.7**	520	23.3	519	23.3	**519**	**23.3**
462.libquantum	**6.54**	**3170**	6.74	3070	6.34	3270	**6.54**	**3170**	6.74	3070	6.34	3270
464.h264ref	585	37.8	**584**	**37.9**	583	38.0	505	43.8	503	44.0	**503**	**44.0**
471.omnetpp	255	24.5	**255**	**24.6**	254	24.6	**187**	**33.5**	185	33.7	188	33.3
473.astar	280	25.0	**281**	**25.0**	282	24.9	283	24.8	**282**	**24.9**	282	24.9
483.xalancbmk	**152**	**45.4**	152	45.5	153	45.1	157	43.8	158	43.7	**158**	**43.7**

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"

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/SPEC-CPU/SPEC2006_v11/libs/32:/home/SPEC-CPU/SPEC2006_v11/libs/64:/home/SPEC-CPU/SPEC2006_v11/sh"
OMP_NUM_THREADS = "40"

 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
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
      icc -m64

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Base Compiler Invocation (Continued)

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.hmmer: -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

Base Optimization Flags

C benchmarks:
    -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
    -xAVX -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

    445.gobmk: icc -m32

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Peak Compiler Invocation (Continued)

        464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
        `icpc -m32`

        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`
        473.astar: `-DSPEC_CPU_LP64`
        483.xalancbmk: `-DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

        400.perlbench: `-xAVX(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: `-xAVX(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: `-xAVX -ipo -O3 -no-prec-div -inline-calloc`
                `-opt-malloc-options=3 -auto-ilp32`

        429.mcf: `basepeak = yes`

        445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
                `-ansi-alias`

        456.hmmer: `-xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
                `-ansi-alias`

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

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Peak Optimization Flags (Continued)

462.libquantum: `basepeak = yes`

464.h264ref: `-xAVX(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: `-xAVX(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 -lsmartheap`

473.astar: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32`
`-Wl,-z,muldefs -L/sh -lsmartheap64`

483.xalancbmk: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`
`-Wl,-z,muldefs -L/sh -lsmartheap`

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-linux64.20140128.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-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revD.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Wed Jul 30 10:53:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 July 2014.