SPEC® CINT2006 Result
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Fujitsu

CELSIUS R920 (Intel Xeon E5-2650)

SPECint®2006 = 45.4

SPECint_base2006 = 41.9

Benchmark results (blue = peak, black = base):

Benchmark	Peak	Base
400.perlbench	29.7	25.0
401.bzip2	18.9	18.6
403.gcc	27.6	27.3
429.mcf		56.2
445.gobmk	21.4	19.5
456.hmmer	43.9	42.8
458.sjeng	23.1	23.3
462.libquantum	2500	2440
464.h264ref	44.4	34.6
471.omnetpp	32.8	23.8
473.astar		25.0
483.xalancbmk	44.8	42.2

SPECint_base2006 = 41.9

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Hardware

CPU Name:	Intel Xeon E5-2650
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
CPU(s) orderable:	1,2 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:	64 GB (16 x 4 GB 2Rx8 PC3-12800R-11, ECC)
Disk Subsystem:	1 x SATA III, 500 GB, 7200 rpm
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.1, 2.6.32-131.0.15.el6.x86_64
Compiler:	C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Run level 3 (multi - user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap 10 (Multi-Core)

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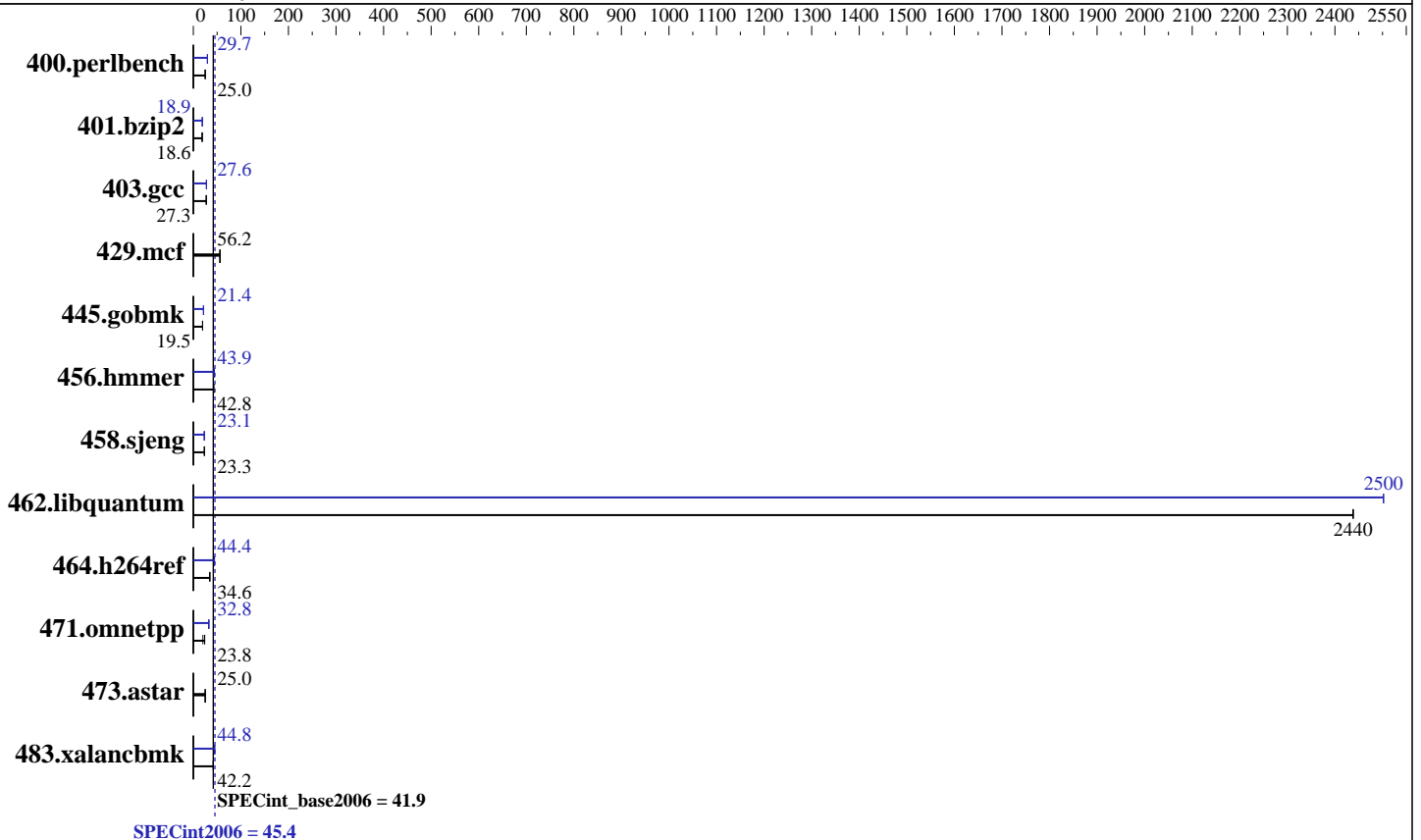SPECint_base2006 = 41.9

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Mar-2012
Hardware Availability: Mar-2012
Software Availability: Dec-2011

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	390	25.1	**390**	**25.0**	391	25.0	329	29.7	329	29.7	**329**	**29.7**
401.bzip2	520	18.6	519	18.6	**520**	**18.6**	509	18.9	509	18.9	**509**	**18.9**
403.gcc	295	27.3	**295**	**27.3**	295	27.3	**291**	**27.6**	291	27.6	292	27.6
429.mcf	164	55.6	162	56.3	**162**	**56.2**	164	55.6	162	56.3	**162**	**56.2**
445.gobmk	**538**	**19.5**	539	19.5	538	19.5	**490**	**21.4**	490	21.4	490	21.4
456.hmmer	218	42.7	218	42.9	**218**	**42.8**	213	43.8	**213**	**43.9**	213	43.9
458.sjeng	519	23.3	**519**	**23.3**	519	23.3	524	23.1	**524**	**23.1**	523	23.1
462.libquantum	8.50	2440	**8.50**	**2440**	8.50	2440	8.28	2500	**8.28**	**2500**	8.28	2500
464.h264ref	**639**	**34.6**	638	34.7	640	34.6	**498**	**44.4**	500	44.2	498	44.4
471.omnetpp	310	20.2	**262**	**23.8**	262	23.9	**191**	**32.8**	194	32.2	190	32.8
473.astar	**281**	**25.0**	282	24.9	278	25.3	**281**	**25.0**	282	24.9	278	25.3
483.xalancbmk	**164**	**42.2**	163	42.3	165	41.8	**154**	**44.8**	154	44.8	154	44.8

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 settings:
Hyper-Threading Technology = Disabled
Frequency Floor Override = Enabled

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/work/cpu2006/libs/32:/work/cpu2006/libs/64"
OMP_NUM_THREADS = "16"

Binaries compiled on a system with
2x Xeon E5-2690 CPU + 64 GB memory using
Red Hat Enterprise Linux Server release 6.1 (Santiago)

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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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.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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/opt/SmartHeap/lib64 -lsmartheap64
```

Base Other Flags

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

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m64
```

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Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

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: `-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 -ansi-alias`

401.bzip2: `-xSSE4.2(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: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
`-ansi-alias`

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

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Peak Optimization Flags (Continued)

```
       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

    462.libquantum: -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch
                  -auto-p32

       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)
                  -opt-ra-region-strategy=block            -ansi-alias
                  -Wl,-z,muldefs -L/opt/SmartHeap/lib -lsmartheap

         473.astar: basepeak = yes

    483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
                  -Wl,-z,muldefs -L/opt/SmartHeap/lib -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-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Platform.20120313.xml

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