SPEC® CINT2006 Result

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Sun Microsystems

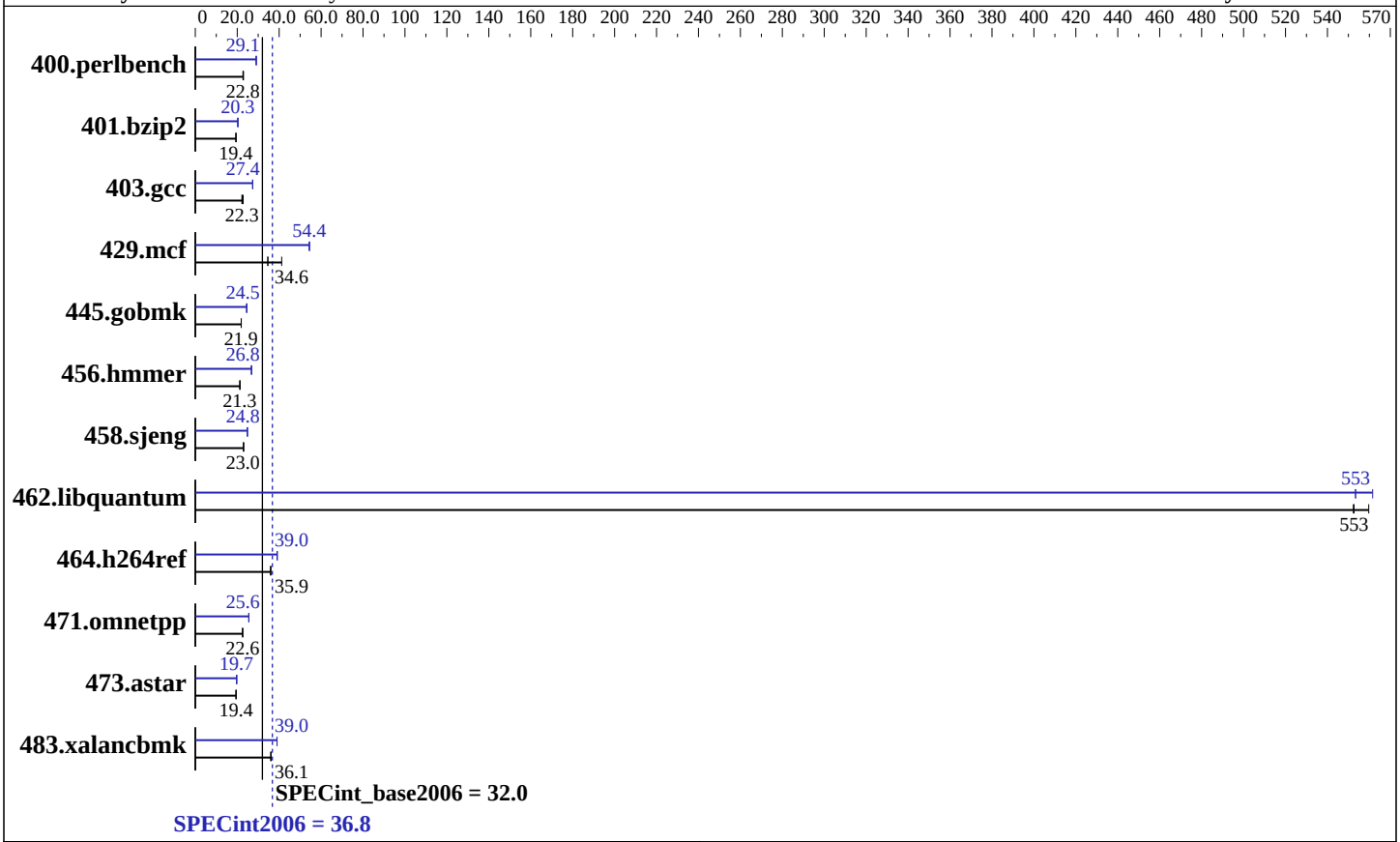
Sun Blade X6270 (Intel Xeon X5570 2.93GHz)

SPECint®2006 = 36.8

SPECint_base2006 = 32.0

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Apr-2009
Hardware Availability: Apr-2009
Software Availability: Jun-2009



Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 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:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6 x 4 GB DDR3-1333)
Disk Subsystem:	134 GB using 1x ST914602SSUN146GSAS SAS 10 K RPM
Other Hardware:	None

Software

Operating System:	OpenSolaris 2008.11
Compiler:	Sun Studio 12 Update 1 (internal build 39.0)
Auto Parallel:	Yes
File System:	zfs with gzip compression
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap Library 9.01 for x64

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	430	22.7	425	23.0	**428**	**22.8**	337	29.0	336	29.1	**336**	**29.1**
401.bzip2	498	19.4	497	19.4	**497**	**19.4**	**476**	**20.3**	476	20.3	475	20.3
403.gcc	352	22.8	361	22.3	**361**	**22.3**	294	27.4	**294**	**27.4**	294	27.4
429.mcf	264	34.6	221	41.2	**263**	**34.6**	**168**	**54.4**	168	54.4	168	54.4
445.gobmk	**479**	**21.9**	479	21.9	478	21.9	**428**	**24.5**	428	24.5	428	24.5
456.hmmer	438	21.3	439	21.3	**438**	**21.3**	348	26.8	348	26.8	**348**	**26.8**
458.sjeng	526	23.0	526	23.0	**526**	**23.0**	487	24.8	487	24.8	**487**	**24.8**
462.libquantum	**37.5**	**553**	37.5	552	37.0	560	37.4	553	36.9	562	**37.4**	**553**
464.h264ref	616	35.9	615	36.0	**616**	**35.9**	567	39.0	**567**	**39.0**	566	39.1
471.omnetpp	277	22.5	277	22.6	**277**	**22.6**	245	25.5	244	25.6	**244**	**25.6**
473.astar	361	19.4	361	19.5	**361**	**19.4**	356	19.7	356	19.7	**356**	**19.7**
483.xalancbmk	191	36.0	191	36.1	**191**	**36.1**	**177**	**39.0**	177	39.0	177	39.0

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

Operating System Notes

```
ulimit -s 131072  (shell): increases stack

/etc/system parameters
   tune_t_fsflushr=10
   autoup=900
   set lpg_alloc_prefer=1
   set zfs:zfs_arc_max = 0x10000000
```

Platform Notes

```
AMIBIOS Build Date 1/26/09 ID 07.01.36.00
  Default BIOS settings used except:
  Intel VT-d: Disabled.  VT-d, if enabled, supports
  remapping of I/O DMA transfers for virtualization.
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "8"
SUNW_MP_PROCBIND = "true"
SUNW_MP_THR_IDLE = "SPIN"
```

Base Compiler Invocation

C benchmarks:
```
/data1/SUNWspro.b39/SUNWspro/bin/cc
```

C++ benchmarks:
```
/data1/SUNWspro.b39/SUNWspro/bin/CC
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS`
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_SOLARIS`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS`

Base Optimization Flags

C benchmarks:
```
-fast -xipo=2 -m64 -xpagesize=2M -xprefetch -xalias_level=std
-xautopar
```

C++ benchmarks:
```
-fast -xipo=2 -m64 -xpagesize=2M -xvector=simd -xprefetch=no%auto
-xalias_level=compatible
-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap64
-library=stlport4
```

Base Other Flags

C benchmarks:
```
-V -# -xjobs=16
```

C++ benchmarks:
```
-verbose=diags,version -xjobs=16
```

Peak Compiler Invocation

C benchmarks:
/data1/SUNWspro.b39/SUNWspro/bin/cc

C++ benchmarks:
/data1/SUNWspro.b39/SUNWspro/bin/CC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_IA32
403.gcc: -DSPEC_CPU_LP64 -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Peak Optimization Flags

C benchmarks:

400.perlbench: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=2M -xvector=simd -xalias_level=std
-xprefetch=no%auto -lbsdmalloc -lumem

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xalias_level=strong -xprefetch=no%auto
-lumem

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xpagesize=2M -xalias_level=std -m64 -xprefetch=no%auto

429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2
-xalias_level=strict -xprefetch=no%auto -lbsdmalloc

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -m64 -xpagesize=2M
-xrestrict -xalias_level=strong -xdepend -xautopar -lmvec

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xvector=simd -xrestrict -xalias_level=std
-xprefetch=no%auto

Continued on next page

Peak Optimization Flags (Continued)

462.libquantum: `-fast -xipo=2 -m64 -xpagesize=2M -xautopar -xreduction`

464.h264ref: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64`
`-xpagesize=2M -xalias_level=strong -xautopar`

C++ benchmarks:

471.omnetpp: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2`
`-xpagesize=2M`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap`
`-library=stlport4`

473.astar: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64`
`-xpagesize=2M`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap_mt64`
`-xalias_level=compatible -library=stlport4 -xautopar`

483.xalancbmk: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64`
`-xpagesize=2M -xunroll=12`
`-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap64`
`-library=stlport4`

Peak Other Flags

C benchmarks:
`-V -# -xjobs=16`

C++ benchmarks:
`-verbose=diags,version -xjobs=16`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.xml`

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