SPEC® CINT2006 Result
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Sun Microsystems

Sun Fire X4600 M2 (AMD Opteron 8384 2.7GHz)
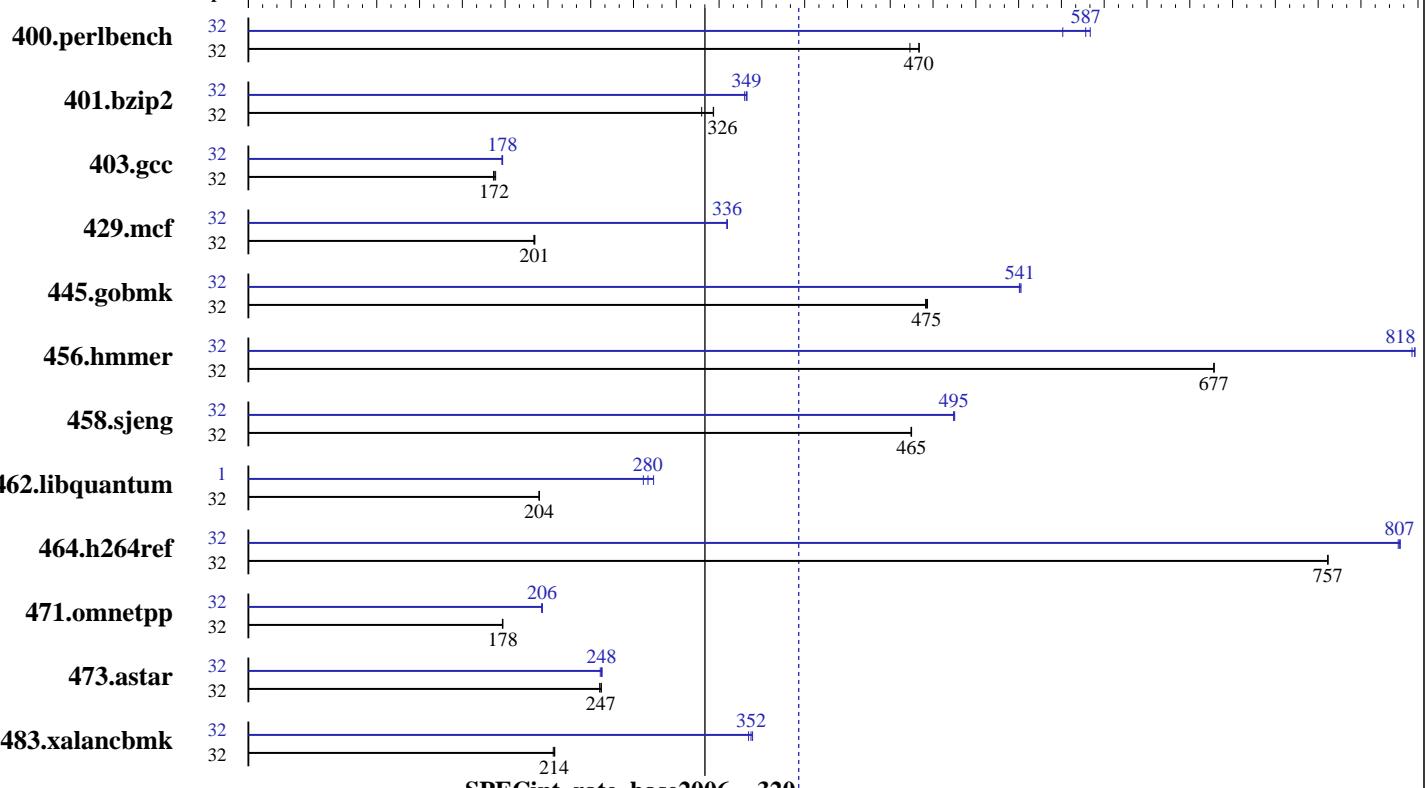
SPECint®_rate2006 =   386

SPECint_rate_base2006 =   320

CPU2006 license: 6

Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Dec-2008

Hardware Availability: Jan-2009

Software Availability: Nov-2008

	Copies	
400.perlbench	32	587
	32	470
401.bzip2	32	349
	32	326
403.gcc	32	178
	32	172
429.mcf	32	336
	32	201
445.gobmk	32	541
	32	475
456.hmmer	32	818
	32	677
458.sjeng	32	495
	32	465
462.libquantum	1	280
	32	204
464.h264ref	32	807
	32	757
471.omnetpp	32	206
	32	178
473.astar	32	248
	32	247
483.xalancbmk	32	352
	32	214

SPECint_rate_base2006 = 320

SPECint_rate2006 = 386

Hardware

CPU Name:	AMD Opteron 8384
CPU Characteristics:	
CPU MHz:	2700
FPU:	Integrated
CPU(s) enabled:	32 cores, 8 chips, 4 cores/chip
CPU(s) orderable:	2, 4, 6, 8 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core
L3 Cache:	6 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (64 x 2 GB, DDR2-667 CL5 ECC Registered SDRAM)
Disk Subsystem:	2 x SAS, 72 GB, 10 K RPM
Other Hardware:	2 x Filler Modules

Software

Operating System:	OpenSolaris 2008.05
Compiler:	Sun Studio Express 11/08
Auto Parallel:	Yes
File System:	Benchmark on ufs, OS on zfs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap 7.4 32-bit Library for Solaris

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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	32	674	464	665	470	**665**	**470**	32	548	571	530	590	**533**	**587**
401.bzip2	32	972	318	**947**	**326**	947	326	32	888	348	**885**	**349**	883	350
403.gcc	32	1486	173	**1495**	**172**	1499	172	32	1449	178	**1446**	**178**	1445	178
429.mcf	32	1458	200	1453	201	**1454**	**201**	32	869	336	870	336	**869**	**336**
445.gobmk	32	**706**	**475**	707	475	705	476	32	621	541	620	542	**621**	**541**
456.hmmer	32	**441**	**677**	441	677	441	677	32	365	818	366	816	**365**	**818**
458.sjeng	32	**833**	**465**	833	465	833	465	32	782	495	**783**	**495**	783	494
462.libquantum	32	**3251**	**204**	3255	204	3249	204	1	**74.0**	**280**	74.8	277	72.9	284
464.h264ref	32	**936**	**757**	936	757	936	757	32	878	806	**878**	**807**	877	808
471.omnetpp	32	1123	178	1121	178	**1122**	**178**	32	973	206	970	206	**971**	**206**
473.astar	32	**909**	**247**	912	246	908	247	32	906	248	**907**	**248**	911	247
483.xalancbmk	32	**1030**	**214**	1033	214	1028	215	32	625	354	**627**	**352**	630	351

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.
    Processes were bound to cores using "submit" and "pbind".
```

Operating System Notes

```
    export OMP_NUM_THREADS=32
    export SUNW_MP_PROCBIND=TRUE
    export SUNW_MP_THR_IDLE=SPIN
    export OMP_NESTED=FALSE
    export STACKSIZE=16384
    export OMP_DYNAMIC=TRUE
    ulimit -s 131072  (shell): increases stack


    /etc/system parameters
       tune_t_fsflushr=1
       autoup=900
       lpg_alloc_prefer=1
```

Platform Notes

```
    Default BIOS settings was used.
```

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Base Compiler Invocation

C benchmarks:
    cc

C++ benchmarks:
    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 -xprefetch -m64`

C++ benchmarks:
    `-fast -xipo=2 -xvector=simd -m64 -xpagesize=2m -xprefetch=no`
    `-library=stlport4`

Base Other Flags

C benchmarks:
    `-V`

C++ benchmarks:
    `-verbose=version`

Peak Compiler Invocation

C benchmarks:
    cc

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Peak Compiler Invocation (Continued)

C++ benchmarks:
    CC

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_SOLARIS_X64
      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 -lbsdmalloc
               -xvector=simd -xpagesize=2M -xprefetch=no
               -L/data1/SmartHeap_7.4/lib -R/data1/SmartHeap_7.4/lib -lsmartheap
               -xalias_level=std

    401.bzip2: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
               -xalias_level=strong -lumem -xpagesize=2M -xprefetch=no
               -Wu,-fsimple=3

      403.gcc: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2
               -xalias_level=std -xprefetch=no -xpagesize=2M -m64
               -Wu,-fsimple=3

      429.mcf: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2
               -xalias_level=strict -xprefetch=no%auto -lbsdmalloc
               -Wu,-fsimple=3

    445.gobmk: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -m64 -xrestrict
               -xalias_level=strong -xdepend -xpagesize=2m -lmvec
               -Wu,-fsimple=3

    456.hmmer: -xprofile=collect:./feedback(pass 1)
               -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
               -Wu,-fsimple=3

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

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Peak Optimization Flags (Continued)

```
        458.sjeng (continued):
                  -xalias_level=std -Wu,-fsimple=3

    462.libquantum: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast -xreduction -xipo=2
                  -xvector=simd -m64 -xautopar -xunroll=8 -lmtmalloc
                  -Wu,-fsimple=3 -xalias_level=std

       464.h264ref: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
                  -xalias_level=std -Wu,-fsimple=3

C++ benchmarks:

       471.omnetpp: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast -xipo=2
                  -xvector=simd -lumem -xpagesize=2M -xprefetch=no
                  -L/data1/SmartHeap_7.4/lib -R/data1/SmartHeap_7.4/lib -lsmartheap
                  -xalias_level=compatible -Qoption ube -fsimple=3
                  -qoption ube -sched_first_pass=0 -library=stlport4

         473.astar: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
                  -xpagesize=2m -M /usr/lib/ld/map.bssalign -xprefetch=no
                  -xvector=simd -xdepend -xalias_level=simple
                  -Qoption ube -fsimple=3 -library=stlport4

    483.xalancbmk: -xprofile=collect:./feedback(pass 1)
                  -xprofile=use:./feedback(pass 2) -fast -xipo=2
                  -Qoption ube -fsimple=3 -xvector=simd -lumem
                  -L/data1/SmartHeap_7.4/lib -R/data1/SmartHeap_7.4/lib -lsmartheap
                  -library=stlport4
```

Peak Other Flags

C benchmarks:
```
        -V
```

C++ benchmarks:
```
        -verbose=version
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090713.00.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090713.00.xml

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

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