SPEC® CINT2006 Result

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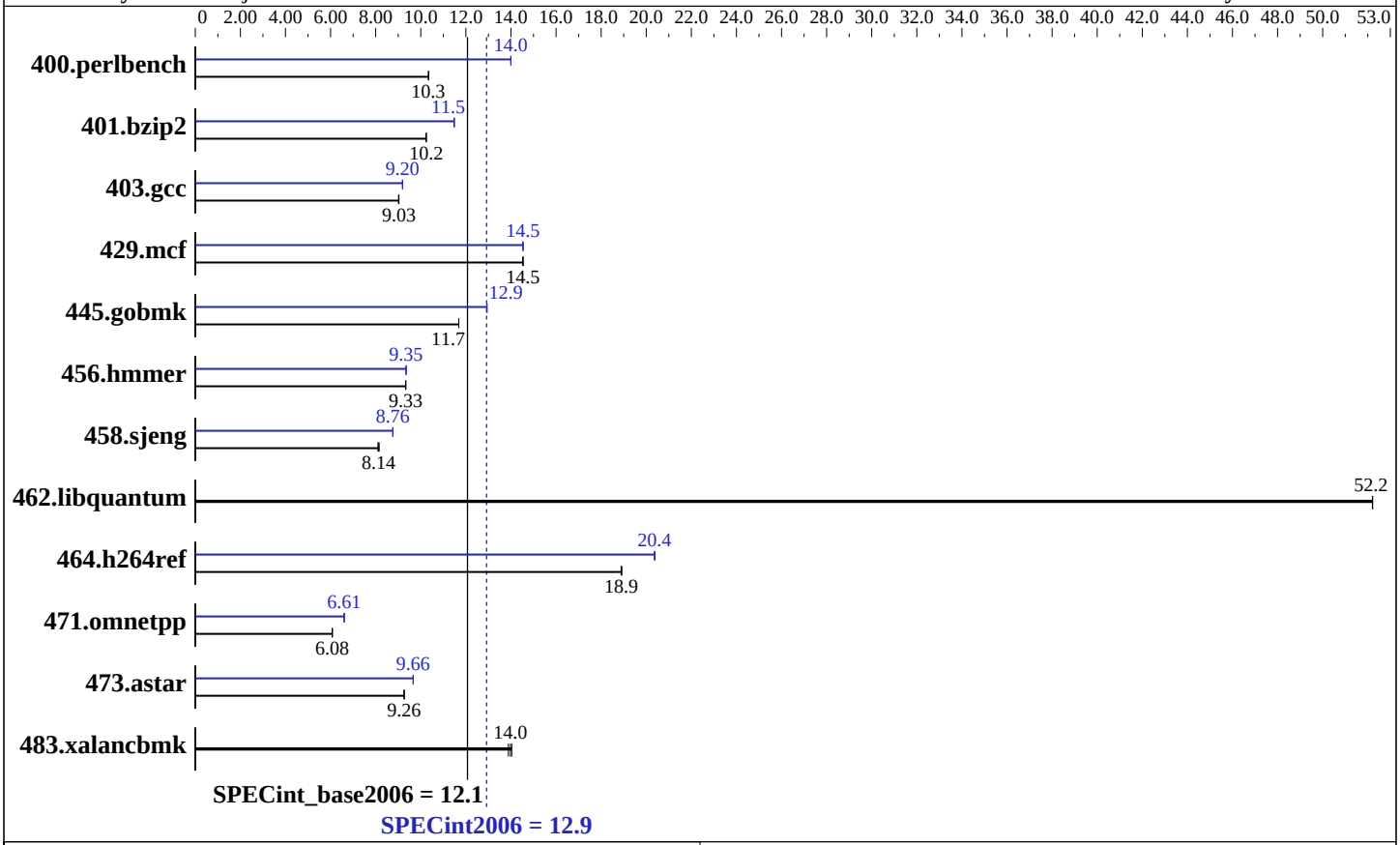
Sun Microsystems
Sun SPARC Enterprise M4000

SPECint®2006 = 12.9

SPECint_base2006 = 12.1

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

Test date: Sep-2009
Hardware Availability: Nov-2009
Software Availability: Jul-2009



Hardware

CPU Name:	SPARC64 VII
CPU Characteristics:	
CPU MHz:	2530
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 to 2 CPUMs; each CPUM contains 2 CPU chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	5632 KB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	64 GB (32 x 2 GB), 8-way interleaved
Disk Subsystem:	1 x Seagate Savvio 10K.2 (146 GB 10,000 RPM SAS)
Other Hardware:	None

Software

Operating System:	Solaris 10 5/09 with patches 119963-16, 120753-07, 118683-03
Compiler:	Sun Studio 12 Update 1
Auto Parallel:	No
File System:	ufs
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	945	10.3	**945**	**10.3**	944	10.4	698	14.0	**698**	**14.0**	698	14.0
401.bzip2	**942**	**10.2**	943	10.2	942	10.2	840	11.5	841	11.5	**840**	**11.5**
403.gcc	891	9.03	**892**	**9.03**	893	9.01	875	9.20	876	9.18	**875**	**9.20**
429.mcf	628	14.5	**628**	**14.5**	627	14.5	627	14.5	628	14.5	**627**	**14.5**
445.gobmk	**898**	**11.7**	898	11.7	898	11.7	811	12.9	**811**	**12.9**	811	12.9
456.hmmer	1000	9.33	1000	9.33	**1000**	**9.33**	998	9.35	**998**	**9.35**	998	9.35
458.sjeng	1494	8.10	**1487**	**8.14**	1485	8.15	1381	8.76	**1381**	**8.76**	1381	8.76
462.libquantum	397	52.2	**397**	**52.2**	397	52.2	397	52.2	**397**	**52.2**	397	52.2
464.h264ref	**1171**	**18.9**	1172	18.9	1170	18.9	1085	20.4	1087	20.4	**1086**	**20.4**
471.omnetpp	**1028**	**6.08**	1028	6.08	1030	6.07	**946**	**6.61**	948	6.59	946	6.61
473.astar	758	9.26	758	9.26	**758**	**9.26**	**726**	**9.66**	726	9.67	727	9.66
483.xalancbmk	**494**	**14.0**	492	14.0	497	13.9	**494**	**14.0**	492	14.0	497	13.9

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

Compiler Invocation Notes

```
Sun Studio compiler patches are available at
   http://developers.sun.com/sunstudio/downloads/patches/ss12u1_patches.jsp
```

Submit Notes

```
The config file option 'submit' was used.  Processes were assigned to
specific processors using 'pbind' commands.  The list of processors to use
was provided in the 'BIND' variable, to generate the pbind commands.
(For details, please see the config file.)
```

Operating System Notes

```
Shell Environments:

    ulimit -s 131072 was used to limit the space consumed
    by the stack.(making more space available for the heap)

System Tunables:
(/etc/system parameters)

    tune_t_fsflushr=10
       Controls how many seconds elapse between runs of the
       page flush daemon, fsflush.
    autoup=600
       Causes pages older than the listed number of seconds to
       be written by fsflush.
```

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Operating System Notes (Continued)

```
    bufhwm=3000
       Memory byte limit for caching I/O buffers.
    segmap_percent=1
       Set maximum percent memory for file system cache.

Other System Settings:

    The webconsole service was turned off using svcadm disable webconsole.
```

Platform Notes

```
Memory is 8-way interleaved by filling all slots with the same
capacity DIMMs.

This result is measured on a Fujitsu SPARC Enterprise M4000 Server.
Note that the Fujitsu SPARC Enterprise M4000 and Sun SPARC Enterprise
M4000 are electrically equivalent.
```

Base Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2
-xalias_level=std -M /usr/lib/ld/map.bssalign -ll2amm

C++ benchmarks:
-xdepend -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2
-xalias_level=compatible -library=stlport4 -M /usr/lib/ld/map.bssalign
-lfast

Base Other Flags

C benchmarks:
```
-xjobs=8 -V -#
```

C++ benchmarks:
```
-xjobs=8 -verbose=diags,version
```

Peak Compiler Invocation

C benchmarks:
```
cc
```

C++ benchmarks:
```
CC
```

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_SOLARIS_SPARC`
403.gcc: `-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 -fma=fused -xpagesize=4M -xipo=2 -xalias_level=std -xrestrict -Xc -lfast`

401.bzip2: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused -xpagesize=4M -xalias_level=strong`

403.gcc: `-xprofile=collect:./feedback`(pass 1)
`-xprofile=use:./feedback`(pass 2) `-fast -fma=fused -xpagesize=4M -xipo=2 -xarch=sparcvis2 -xalias_level=std -xprefetch_auto_type=indirect_array_access -xprefetch_level=2 -ll2amm`

429.mcf: `-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xalias_level=std -M /usr/lib/ld/map.bssalign -ll2amm`

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Peak Optimization Flags (Continued)

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xalias_level=std -xrestrict

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xipo=2

458.sjeng: Same as 456.hmmer

462.libquantum: basepeak = yes

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xipo=2 -xalias_level=std -xarch=sparcvis2
-xprefetch=no -ll2amm

C++ benchmarks:

471.omnetpp: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xalias_level=compatible -library=stlport4
-xipo=2 -xprefetch_level=2 -Qoption cg -Qlp-av=0 -lfast

473.astar: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -fma=fused
-xpagesize=4M -xalias_level=compatible -library=stlport4
-M /usr/lib/ld/map.bssalign -xipo=2 -xprefetch=no%auto
-xarch=v8plusb -lfast -lbsdmalloc

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:
-xjobs=8 -V -#

C++ benchmarks:
-xjobs=8 -verbose=diags,version

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r4.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-12u1-and-gccfss4.2.r4.xml

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For other inquiries, please contact webmaster@spec.org.

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