OMPM2001 Result

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IBM Corporation

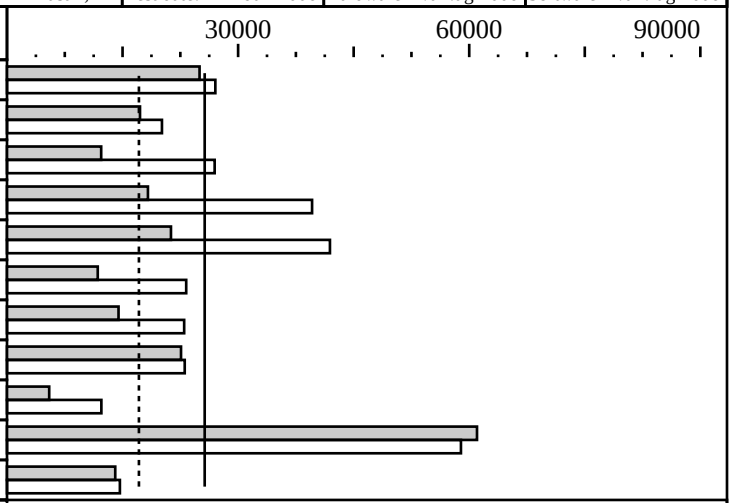
IBM System p5 550Q (1650 MHz, 8 CPU)

SPECompMpeak2001 = 25662

SPECompMbase2001 = 17126

SPEC license #1	HPG0005	Tested by:	IBM Austin	Test site:	Austin, TX	Test date:	Jun-2006	Hardware Avail	Aug-2006	Software Avail	Aug-2006

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	240	24996	222	27045
312.swim_m	6000	348	17265	298	20114
314.mgrid_m	7300	597	12225	271	26956
316.applu_m	4000	219	18295	101	39601
318.galgel_m	5100	240	21284	122	41920
320.equake_m	2600	221	11779	112	23262
324.apsi_m	3400	235	14478	148	22997
326.gafort_m	8700	385	22590	377	23070
328.fma3d_m	4600	840	5477	376	12250
330.art_m	6400	105	61010	109	58926
332.ammp_m	7000	498	14051	478	14654



Hardware

CPU:	POWER5+
CPU MHz:	1650
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip (SMT on)
CPU(s) orderable:	4,8 cores
Primary Cache:	64 KB I + 32 KB D on chip per core
Secondary Cache:	1920 KB I+D on chip per chip
L3 Cache:	36 MB I+D off chip per chip, 4 chips per SUT
Other Cache:	None
Memory:	64 GB (16x4 GB)
Disk Subsystem:	2x73GB SCSI, 15K RPM
Other Hardware:	None

Software

OpenMP Threads:	16
Parallel:	OpenMP
Operating System:	AIX 5L V5.3
Compiler:	XL C/C++ Enterprise Edition Version 8.0 for AIX XL Fortran Enterprise Edition Version 10.1 for AIX Other Software: ESSL 4.2.0.4
File System:	AIX/JFS2
System State:	Multi-user

Notes/Tuning Information

```
 Portability Flags & Environment Variables
  -qfixed used in: 310.wupwise_m, 312.swim_m, 314.mgrid_m, 316.applu_m, 324.apsi_m
  -qfixed=80 used in: 318.galgel_m
  -qsuffix=f=f90 used in: 318.galgel_m, 326.gafort_m, 328.fma3d_m

Base Flags
  C:       -qpdf1/pdf2
          -q64 -O5 -blpdata -qalign=natural -qhot=arraypad -Q -qsmp=omp -qipa=threads=4
  FORTRAN: -O5 -qipa=noobject -qipa=partition=large -qmaxmem=-1 -qsmp=omp -qipa=threads=4
           -bmaxdata:0xD0000000/dsa

Base & Peak User Environment:
  MEMORY_AFFINITY=MCM
  OMP_DYNAMIC=FALSE
  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
  XLFRTEOPTS=intrinthds=1
  MALLOCMULTIHEAP=1
  OMP_NUM_THREADS=16

Peak Flags:
  -qsmp=omp used in all cases
  310.wupwise_m:    -qpdf1/pdf2
                    -q64 -bdatapsize:64K -O5 -qmaxmem=-1
```

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Notes/Tuning Information (Continued)

```
 312.swim_m:        -qpdf1/pdf2
                    -q64 -bdatapsize:64K -O4
                  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
                    OMP_NUM_THREADS=8
 314.mgrid_m:       -q64 -bdatapsize:64K -O5 -qsave
                  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
                    OMP_NUM_THREADS=8
 316.applu_m:       -qpdf1/pdf2
                    -q64 -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -O4 -qfdpr
 318.galgel_m:      -O5 -qarch=pwr3 -qtune=pwr3 -qessl
                -bmaxdata:0x80000000 -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -lmass -lesslsmp
                  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
                    OMP_NUM_THREADS=8
 320.equake_m:      -q64 -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -O5 -qsave
                  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
                    OMP_NUM_THREADS=8
 324.apsi_m:        -bdatapsize:64K -bstackpsize:64K -O5 -qalign=struct=natural
                    -bmaxdata:0x80000000
 326.gafort_m:     -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -lmass -O5 -qhot=arraypad -Q
                    EXTRA_LDFLAGS=-bmaxdata:0x80000000
 328.fma3d_m:      -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -lhmu -O5 -qhot=arraypad -qipa=noobject -qmaxmem=-1
                    EXTRA_LDFLAGS=-bmaxdata:0x80000000
 330.art_m:         -qpdf1/pdf2
                    -O5 -qfdpr -q64 -btextpsize:64K -bdatapsize:64K -lesslsmp
                    fdpr -q -O3
                    EXTRA_CFLAGS= -DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16
 332.ammp_m:        -qpdf1/pdf2
                   -O5 -qipa=partition=large -qmaxmem=-1 -q64 -btextpsize:64K -bdatapsize:64K
```

Peak sources:
SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used with 312.swim_m, 316.applu_m, 320.equake_m, 326.gafort_m.

The installed OS level is AIX 5L for POWER version 5.3 with the 5300-04 Recommended Maintenence package.
The installed C/C++ compiler is XL C/C++ Enterprise Edition Version 8.0 for AIX with the August 2006 PTF.
The installed Fortran copiler is XL Fortran Enterprise Edition Version 10.1 with the August 2006 AIX PTF.

SMT: Acronym for "Simultaneous Multi-Threading". A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. (Enabled by default)
SUT: Acronym for "System Under Test"
ESSL: Engineering and Scientific Subroutine Library
PTF: IBM identifier for "Program Fix Level"

C: IBM XL C for AIX invoked as xlc_r
Fortran 90: IBM XL Fortran for AIX invoked as xlf_r

ulimits set to unlimited.
Large page mode and memory affinity were set as follows:

```
    vmo -r -o lgpg_regions=1024 -o lgpg_size=16777216
    chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
    bosboot -aD
    shutdown -rF
    export MEMORY_AFFINITY=MCM
```

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Notes/Tuning Information (Continued)