



OMPM2001 Result

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IBM Corporation
IBM System p5 595 (2300 MHz, 64 CPU)

SPECompMpeak2001 = 157880

SPECompMbase2001 = 148510

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	19.8	302968	19.4	308928	
312.swim_m	6000	21.5	279617	16.0	374773	
314.mgrid_m	7300	31.7	230100	31.8	229506	
316.applu_m	4000	13.1	306327	11.0	364023	
318.galgel_m	5100	93.2	54708	122	41918	
320.earthquake_m	2600	48.1	54109	40.4	64282	
324.apsi_m	3400	23.5	144763	23.4	145537	
326.gafort_m	8700	65.1	133733	52.1	167100	
328.fma3d_m	4600	59.9	76824	59.9	76824	
330.art_m	6400	16.8	381940	16.8	381028	
332.ammp_m	7000	90.7	77189	85.5	81877	

Hardware

CPU: POWER5+
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 64 cores, 32 chips, 2 cores/chip (SMT on)
 CPU(s) orderable: 16,32,48,64 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, 32 chips per SUT
 Other Cache: None
 Memory: 256 GB (64x4 GB)
 Disk Subsystem: 2x73GB SCSI, 15K RPM
 Other Hardware: None

Software

OpenMP Threads: 128
 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
 -O5 -q64 -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -qsmp=omp
 FORTRAN: -q64 -O5 -qipa=noobject -btextpsize:64K -bdatapsize:64K -bstackpsize:64K -qsmp=omp

Base & Peak User Environment:

OMP_NUM_THREADS=64
 OMP_DYNAMIC=FALSE
 XL SMP OPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
 MALLOCMULTIHEAP=1
 XL FRTE OPTS=intrinthds=1
 MEMORY_AFFINITY=MCM

Peak Flags:

-qsmp=omp used in all cases
 310.wupwise_m: -O5 -qhot=arraypad -qipa=noobject -qipa=partition=large -qmaxmem=-1 -q64 -btextpsize:64K -bdatapsize:64K
 XL SMP OPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
 OMP_NUM_THREADS=128



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Notes/Tuning Information (Continued)

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312.swim_m:      -O5 -qarch=pwr3 -qtune=pwr3 -q64 -btextpsize:64K -bdatapsize:64K -bstackpsize:64K
                 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
                 OMP_NUM_THREADS=64
314.mgrid_m:    -O5 -qipa=partition=large -qalign=struct=natural -q64 -btextpsize:64K -bdatapsize:64K
316.applu_m:    -O3 -qarch=pwr4 -qtune=pwr4 -q64 -btextpsize:64K -bdatapsize:64K
                 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
                 OMP_NUM_THREADS=128
318.galgel_m:   -O5 -blpdata -qipa=noobject -qipa=partition=large -qmaxmem=-1
                 EXTRA_LDFLAGS=-bmaxdata:0xD0000000/dsa
320.earthquake_m: -qpdf1/pdf2
                 -O5 -qfdpr -q64 -bdatapsize:64K
                 fdpr -q -O3
324.apsi_m:     -q64 -O5 -qipa=noobject -qipa=partition=large -qmaxmem=-1
                 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
                 OMP_NUM_THREADS=128
326.gafort_m:   -q64 -O5 -qipa=noobject -qipa=partition=large -qmaxmem=-1
                 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
                 OMP_NUM_THREADS=128
328.fma3d_m:    basepeak=1
330.art_m:      -qpdf1/pdf2
                 -O5 -qfdpr -q64 -btextpsize:64K -bdatapsize:64K -lesslsm
                 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
                 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
                 OMP_NUM_THREADS=128

```

Peak sources:

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

The installed OS level is AIX 5L for POWER version 5.3 with the 5300-04 Recommended Maintenance 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: 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 lpgg_regions=8192 -o lpgg_size=16777216
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
bosboot -aD
shutdown -rF
export MEMORY_AFFINITY=MCM

```



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