OMPM2001 Result

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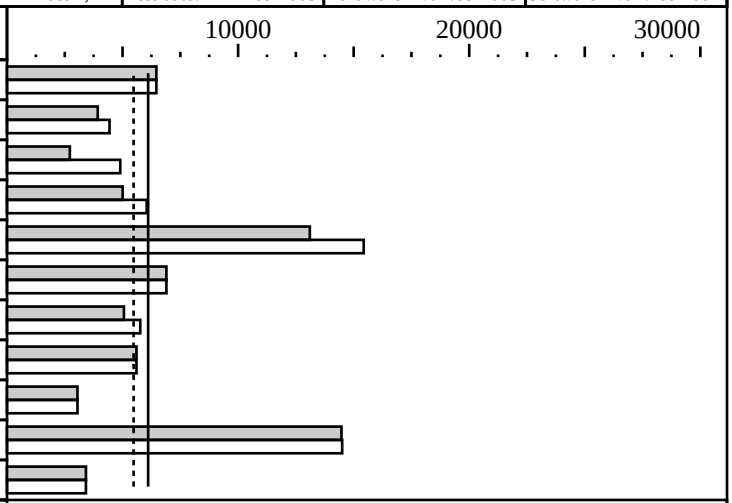
IBM Corporation
IBM eServer p5 510 (1650 MHz, 2 CPU)

SPECompMpeak2001 = 6108

SPECompMbase2001 = 5478

SPEC license #: HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Feb-2005 | Hardware Avail: Feb-2005 | Software Avail: Dec-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	928	6463	928	6463
312.swim_m	6000	1528	3926	1353	4436
314.mgrid_m	7300	2685	2719	1490	4900
316.applu_m	4000	799	5004	662	6046
318.galgel_m	5100	389	13103	330	15435
320.equake_m	2600	377	6898	377	6898
324.apsi_m	3400	672	5060	590	5766
326.gafort_m	8700	1553	5603	1553	5602
328.fma3d_m	4600	1509	3048	1508	3049
330.art_m	6400	442	14473	441	14503
332.ammp_m	7000	2049	3416	2049	3416



Hardware

CPU:	POWER5
CPU MHz:	1650
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip (SMT on)
CPU(s) orderable:	1,2
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified (on chip)/chip
L3 Cache:	36MB unified (off-chip)/DCM, 1 DCM/SUT
Other Cache:	None
Memory:	8x1GB
Disk Subsystem:	2x36GB SCSI, 15K RPM
Other Hardware:	None

Software

OpenMP Threads:	4
Parallel:	OpenMP
Operating System:	AIX 5L V5.3
Compiler:	XL C/C++ Enterprise Edition Version 7.0 for AIX XL Fortran Enterprise Edition V9.1 for AIX Other Software: ESSL for AIX V4.2
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
  FORTRAN: -O5 -qhot=arraypad -qipa=noobject -qipa=partition=large -qmaxmem=-1 -qsmp=omp
           EXTRA_LDFLAGS=-bmaxdata:0x80000000

Base & Peak User Environment:
  OMP_NUM_THREADS=4
  OMP_DYNAMIC=FALSE
  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
  MALLOCMULTIHEAP=1
  MEMORY_AFFINITY=MCM

Peak Flags:
  -qsmp=omp used in all cases
  310.wupwise_m:    basepeak=1
  312.swim_m:       -q64 -O5 -qarch=pwr3 -qtune=pwr3 -blpdata
```

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Notes/Tuning Information (Continued)

```
 314.mgrid_m:       -qpdf1/pdf2
                    -q64 -O5 -blpdata -qalign=natural -qhot=arraypad -Q
                    OMP_NUM_THREADS=2
                  XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
 316.applu_m:       -q64 -O4 -qhot -qmaxmem=-1 -blpdata
 318.galgel_m:      -O5 -q64 -qessl -lesslsmp -blpdata
 320.equake_m:      basepeak=1
 324.apsi_m:        -qpdf1/pdf2
                    -q64 -O5 -blpdata -qalign=struct=natural -qhot=arraypad -Q
 326.gafort_m:      -O5 -qipa=partition=large
                    EXTRA_LDFLAGS=-bmaxdata:0x80000000
 328.fma3d_m:      -O5 -qhot=arraypad -qipa=noobject -qipa=partition=large -qmaxmem=-1
                    EXTRA_LDFLAGS=-bmaxdata:0x80000000
 330.art_m:         -qpdf1/pdf2
                    -q64 -O5 -blpdata -qalign=natural -qhot=arraypad -Q
 332.ammp_m:        -qpdf1/pdf2
                    -q64 -O5 -blpdata -qalign=natural -qhot=arraypad -Q


Alternate sources:
   Add critical region around update of linked list in parallel loop.
   Required src.alt available as ompm-purdue1-20040324.tar.gz
   Used for 330.art_m, base and peak.

Peak sources:
   SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used
   with 312.swim_m, 316.applu_m, 326.gafort_m. Available as ompl.32 src.alt
   in SPEC OMP2001 v3.0.

APAR IY62267 was applied to AIX 5L V5.3 to achieve Mantainence Level 1.

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)
DCM:  Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)
ESSL: Engineering and Scientific Subroutine Library
SUT:  Acronym for "System Under Test"

C:          IBM XL C for AIX invoked as xlc_r
Fortran 90: IBM XL Fortran for AIX invoked as xlf90_r

ulimits set to unlimited.
Large page mode and memory affinity were set as follows:
   vmo -r -o lgpg_regions=512 -o lgpg_size=16777216 -o memory_affinity=1
   chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
   shutdown -r
```