OMPM2001 Result

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IBM Corporation

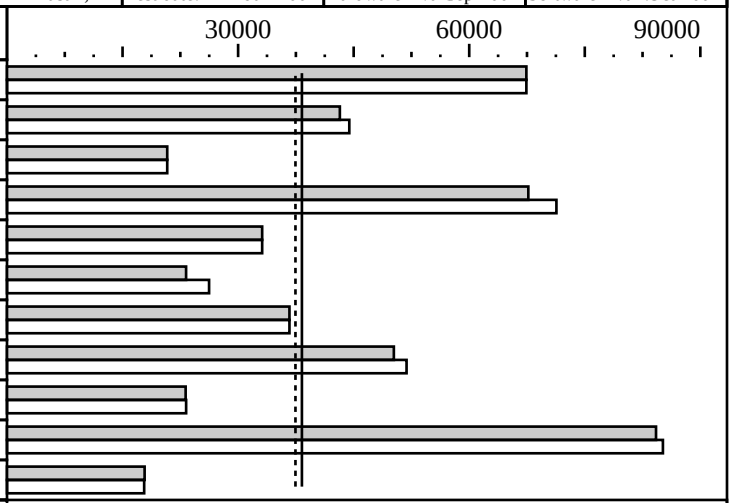
IBM eServer p5 570 (1900 MHz, 16 CPU)

SPECompMpeak2001 = 38282

SPECompMbase2001 = 37444

SPEC license #: HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Jun-2004 | Hardware Avail: Sep-2004 | Software Avail: Oct-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	89.0	67419	89.0	67419
312.swim_m	6000	139	43207	135	44433
314.mgrid_m	7300	351	20799	351	20799
316.applu_m	4000	59.1	67673	56.1	71319
318.galgel_m	5100	154	33122	154	33122
320.equake_m	2600	112	23247	99.1	26231
324.apsi_m	3400	92.7	36664	92.7	36664
326.gafort_m	8700	173	50216	168	51866
328.fma3d_m	4600	198	23189	198	23252
330.art_m	6400	76.0	84248	75.2	85143
332.ammp_m	7000	392	17864	393	17805



Hardware

CPU:	POWER5
CPU MHz:	1900
FPU:	Integrated
CPU(s) enabled:	16 cores, 8 chips, 2 cores/chip (SMT on)
CPU(s) orderable:	2,4,8,12,16
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1920KB unified (on chip)/chip
L3 Cache:	36MB unified (off chip)/DCM, 8 DCM/SUT
Other Cache:	none
Memory:	64x1 GB DDR2
Disk Subsystem:	1x36GB SCSI, 15K RPM
Other Hardware:	

Software

OpenMP Threads:	32
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: IBM Engineering and Scientific Subroutine Library for AIX, Version 4 Release 2
File System:	AIX/JFS2
System State:	Multi-user

Notes/Tuning Information

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Tested by IBM
 Portability Flags & Environment Variables

   Linker flag: -bmaxdata:0x80000000 used in all ca
   -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
   Linker flag: -bmaxdata:0xD0000000 used in 330.art_m (for base and peak)

 Base Flags
   C: -q64 -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1 -qsmp=omp
   FORTRAN:-O5 -qipa=partition=large -qmaxmem=-1 -qsmp=omp

 Base & Peak User Environment:
   OMP_NUM_THREADS=32
   OMP_DYNAMIC=FALSE
   ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC
   MALLOCMULTIHEAP=1

 Peak Flags
   -qsmp=omp used in all cases
   310.wupwise_m: basepeak=1
   312.swim_m:    -O5 -qtune=pwr5 -qarch=pwr5
```

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Notes/Tuning Information (Continued)

```
  314.mgrid_m:   basepeak=1
  316.applu_m:   -O5 -qtune=pwr5 -qarch=pwr5
  318.galgel_m:  basepeak = 1
  320.equake_m:  -q64 -O5 -qalign=natural -qhot=arraypad -Q
  324.apsi_m:    basepeak=1
  326.gafort_m:  -O5 -qhot=arraypad -qipa=partition=large -qmaxmem=-1
  328.fma3d_m:   -O5 -qhot=arraypad -qipa=noobject
                 -qipa=partition=large -qmaxmem=-1
  330.art_m:     -qpdf1/pdf2
                 -q64 -O5 -blpdata -qalign=natural -qhot=arraypad -Q
  332.ammp_m:    -q64 -O5 -qalign=natural -qhot=arraypad -Q

Alternate sources:
  Add critical region around update of linked list in parallel loop.
  Approved 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, 320.equake_m, 326.gafort_m.

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)
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=400 -o lgpg_size=16777216 -o memory_affinity=1
  chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
  reboot -q
  export MEMORY_AFFINITY=MCM
```