OMPM2001 Result

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IBM Corporation

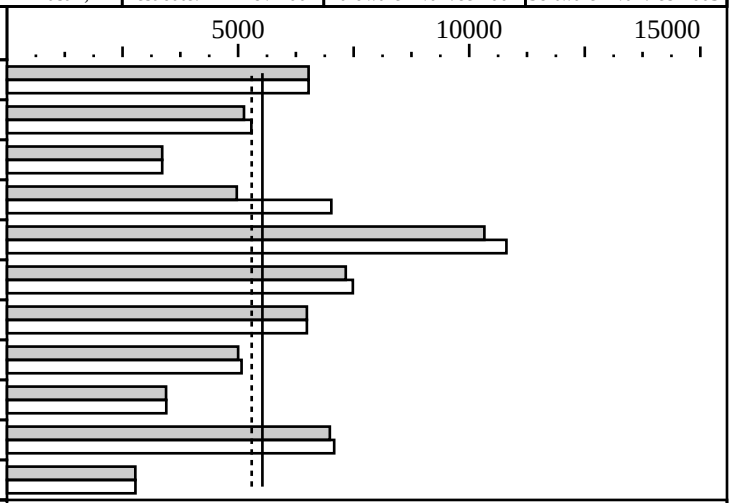
IBM eServer pSeries 650 Model 6M2 (1450 MHz, 4 CPU)

SPECompMpeak2001 = 5526

SPECompMbase2001 = 5294

SPEC license #: HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Nov-2002 | Hardware Avail: Dec-2002 | Software Avail: Feb-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	920	6525	920	6525
312.swim_m	6000	1170	5127	1135	5286
314.mgrid_m	7300	2174	3358	2174	3358
316.applu_m	4000	805	4971	570	7017
318.galgel_m	5100	494	10328	472	10805
320.equake_m	2600	355	7329	347	7482
324.apsi_m	3400	524	6488	524	6488
326.gafort_m	8700	1740	5001	1714	5075
328.fma3d_m	4600	1337	3441	1335	3446
330.art_m	6400	916	6984	904	7078
332.ammp_m	7000	2521	2776	2519	2779



Hardware

CPU:	POWER4+
CPU MHz:	1450
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip, 1 chip/SCM
CPU(s) orderable:	1,2 (order by # SCM)
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1536KB unified (on chip)/chip
L3 Cache:	32MB unified (off chip)/SCM, 2 SCM in SUT
Other Cache:	None
Memory:	2x8x2 = 32GB
Disk Subsystem:	1x18.2GB SCSI
Other Hardware:	None

Software

OpenMP Threads:	4
Parallel:	OpenMP
Operating System:	AIX 5L V5.2
Compiler:	XL Fortran for AIX, Version 8.1 PTF 2 IBM C for AIX, Version 6.0 PTF 2 Other Software: ESSL 3.3, MASS 3.0
File System:	AIX/JFS
System State:	Multi-user

Notes/Tuning Information

```
Tested by IBM
  Portability Flags & Environment Variables
      -qfixed used in: wupwise_m, swim_m, mgrid_m, applu_m, apsi_m
      -qfixed=80 used in: galgel_m
      -qsuffix=f=f90 used in: galgel_m, gafort_m, fma3d_m
      ENV_XLFRTEOPTS=NAMELIST=OLD used in: gafort_m

    Base Flags
      C:         -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1
                 -bmaxdata:0x80000000 -qsmp=omp
      FORTRAN:   -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1
                 -bmaxdata:0x80000000 -qsmp=omp

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

    Peak Flags
      -bmaxdata:0x80000000 used in all cases
      -qsmp=omp used in all cases
      312.swim_m:    -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
```

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Notes/Tuning Information (Continued)

```
      314.mgrid_m:   basepeak=true
      316.applu_m:   -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
      318.galgel_m:  -O5 -qalign=natural -qhot=arraypad -qessl -qlibessl -lesslsmp
                     -lpesslsmp -lblacssmp -lmass -qipa=partition=large -qmaxmem=-1
      320.equake_m:  -O5 -qalign=natural -qhot=arraypad -Q
      324.apsi_m:    basepeak=true
      326.gafort_m:  basepeak=true
      328.fma3d_m:   -O5 -qalign=natural -qhot=arraypad -qipa=noobject
                     -qipa=partition=large -qmaxmem=-1
      330.art_m:     -O5 -qalign=natural -qhot=arraypad -Q
      332.ammp_m:    -O5 -qalign=natural -qhot=arraypad -Q

  Peak sources:
    318.galgel: eigQR.f90 (for portability to lapack version 3).
    Available as SPEC OMP2001 Source: omp2001-galgel-20020117.tar.gz.

    SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001.
    Available as SPEC OMPM2001 Source: ompm2001-srcl32bit-20020925.tar.gz.
    For 312.swim_m, 316.applu_m, 320.equake_m, 326.gafort_m, 330.art_m,
        332.ammp_m.

    SCM: Acronym for "Single-Chip Module"
    SUT: Acronym for "System Under Test"

    The 4-way pSeries 650 machine contains 2 CPU boards.
    L3-caches set to PRIVATE mode through the configuration menu.

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

    APAR IY 35693 was applied to AIX to enable new hardware support.
    ulimits set to unlimited.
    Memory affinity was set as follows:
      vmo -r -o memory_affinity=1
      shutdown -r
      export MEMORY_AFFINITY=MCM
```