OMPM2001 Result

Copyright ©1999-2002, Standard Performance Evaluation Corporation

IBM Corporation

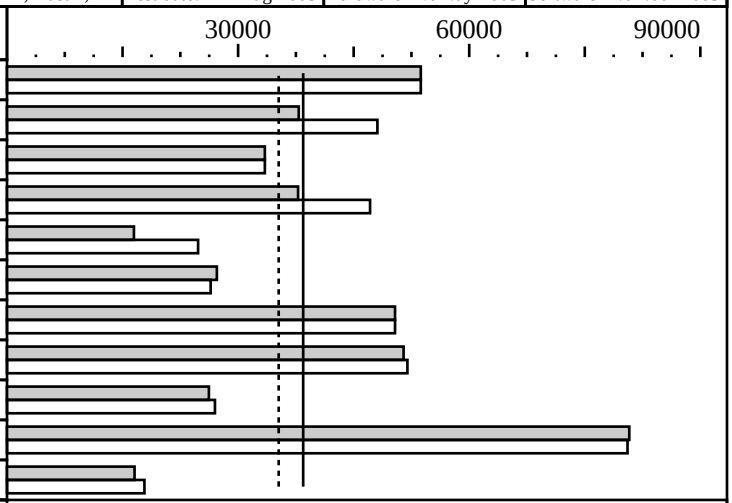
IBM eServer pSeries 690 Turbo (1700 MHz, 32 CPU)

SPECompMpeak2001 = 38447

SPECompMbase2001 = 35267

SPEC license #1 HPG0005 | Tested by: IBM | Test site: IBM, Austin, TX | Test date: Aug-2003 | Hardware Avail: May-2003 | Software Avail: Jul-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
310.wupwise_m	6000	112	53712	112	53712
312.swim_m	6000	158	37872	125	48082
314.mgrid_m	7300	218	33471	218	33471
316.applu_m	4000	106	37785	84.9	47128
318.galgel_m	5100	310	16477	206	24806
320.equake_m	2600	95.4	27242	98.4	26436
324.apsi_m	3400	67.5	50370	67.5	50370
326.gafort_m	8700	169	51481	167	51977
328.fma3d_m	4600	176	26209	170	26994
330.art_m	6400	79.2	80776	79.5	80550
332.ammp_m	7000	423	16557	392	17840



Hardware

CPU:	POWER4+
CPU MHz:	1700
FPU:	Integrated
CPU(s) enabled:	32 cores, 16 chips, 2 cores/chip, 4 chip/MCM
CPU(s) orderable:	1,2,3,4 (order by # MCM)
Primary Cache:	64KBI+32KBD (on chip)/core
Secondary Cache:	1536KB unified (on chip)/chip
L3 Cache:	128MB unified (off chip)/MCM, 4 MCM in SUT
Other Cache:	None
Memory:	256 GB
Disk Subsystem:	1x36GB SCSI, 10K RPM
Other Hardware:	None

Software

OpenMP Threads:	32
Parallel:	OpenMP
Operating System:	AIX 5L V5.2
Compiler:	IBM C for AIX, Version 6.0 IBM XL FORTRAN for AIX, Version 8.1.1.0 Other Software: ESSL 3.3.0.5, MASS 3.0
File System:	AIX/JFS
System State:	Multi-User

Notes/Tuning Information

```
Tested by IBM

 Portability Flags & Environment Variables
   -bmaxdata:0x80000000 used in all cases except 330.art_m
   -bmaxdata:0xD0000000 used in 330.art_m
   -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
   ENV_XLFRTEOPTS=NAMELIST=OLD used in: 326.gafort_m

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

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

 Peak Flags
    -qsmp=omp used in all cases
    310.wupwise_m: basepeak=true
```

Copyright ©1999-2002, Standard Performance Evaluation Corporation

Notes/Tuning Information (Continued)

```
   312.swim_m:    -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4
   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
                  ENV_OMP_NUM_THREADS=16
   320.equake_m:  -q64 -O5 -qalign=natural -qhot=arraypad -Q
   324.apsi_m:    basepeak=true
   326.gafort_m:  -O5 -qalign=natural -qhot=arraypad -qipa=partition=large
                  -qmaxmem=-1
   328.fma3d_m:   -O5 -qalign=natural -qhot=arraypad -qipa=noobject
                  -qipa=partition=large -qmaxmem=-1
   330.art_m:     -DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16
                  -q64 -O5 -qalign=natural -qhot=arraypad -Q
   332.ammp_m:    -O5 -qalign=natural -qhot=arraypad -Q

Alternate sources:
   318.galgel (peak): 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.
   Used in 312.swim_m (peak), 316.applu_m (peak), 326.gafort_m (peak),
   328.fma3d_m (peak).

   ISO C and C++ compatible sources available as SPEC OMPM2001 source:
   ompm2001-fabs-20030418.tar.gz.
   Used in 330.art_m (base & peak).

   ISO C and C++ compatible sources available as SPEC OMPM2001 source:
   ompm2001-isoc-20020619.tar.gz.
   Used in 320.equake_m (peak) & 332.ammp_m (peak).


MCM: Acronym for "Multi-Chip Module"
SUT: Acronym for "System Under Test"

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

APAR IY 36772 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
```