



OMPL2001 Result

Copyright ©1999-2007, Standard Performance Evaluation Corporation

IBM Corporation
IBM eServer p5 595 (1900 MHz, 64 CPU)

SPECompLpeak2001 = 672757
SPECompLbase2001 = 620741

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
311.wupwise_l	9200	168	875814	168	875814
313.swim_l	12500	307	652359	275	726223
315.mgrid_l	13500	415	521055	415	521055
317.applu_l	13500	265	816109	243	889842
321.quake_l	13000	797	261113	797	261113
325.apsi_l	10500	330	509199	330	509199
327.gafort_l	11000	272	646229	272	646229
329.fma3d_l	23500	752	499790	752	499790
331.art_l	25000	305	1311513	179	2229235

Hardware		Software	
CPU:	POWER5	OpenMP Threads:	128
CPU MHz:	1900	Parallel:	OpenMP
FPU:	Integrated	Operating System:	AIX 5L V5.3
CPU(s) enabled:	64 cores, 32 chips, 2 cores/chip (SMT on)	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
CPU(s) orderable:	16,24,32,40,48,56,64	File System:	AIX/JFS2
Primary Cache:	64KBI+32KBD (on chip)	System State:	Multi-user
Secondary Cache:	1920KB unified (on chip)		
L3 Cache:	36MB unified (off-chip)/chip, 4 chips/MCM, 8 MCM/SUT		
Other Cache:	None		
Memory:	256 GB DDR2		
Disk Subsystem:	2x36GB SCSI, 15K RPM		
Other Hardware:	None		

Notes/Tuning Information

Tested by IBM

Portability Flags & Environment Variables

-qfixed used in: 311.wupwise_l, 313.swim_l, 315.mgrid_l, 317.applu_l, 325.apsi_l
-qfixed=80 used in: 319.galgel_l
-qsuffix=f=f90 used in: 319.galgel_l, 327.gafort_l, 329.fma3d_l

Base Flags

C: -q64 -O5 -qalign=natural -lmass -qsmp=omp
FORTRAN: -q64 -O5 -lmass -qsmp=omp

Base & Peak User Environment:

OMP_NUM_THREADS=128
OMP_DYNAMIC=FALSE
XL SMP OPTS=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
311.wupwise_l: basepeak=1
313.swim_l: -q64 -O3 -qarch=pwr3 -qtune=pwr3
315.mgrid_l: basepeak=1
XL SMP OPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
OMP_NUM_THREADS=64
317.applu_l: -q64 -O3 -qarch=pwr4 -qtune=pwr4



OMPL2001 Result

Copyright ©1999-2007, Standard Performance Evaluation Corporation

IBM Corporation
IBM eServer p5 595 (1900 MHz, 64 CPU)

SPECompLpeak2001 = 672757

SPECompLbase2001 = 620741

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

Notes/Tuning Information (Continued)

```

XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
OMP_NUM_THREADS=64
319.galgel_1: -q64 -O5 -qhot=arraypad -qipa=noobject -qipa=partition=large -qmaxmem=-1
321.earthquake_1: basepeak=1
XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=2
OMP_NUM_THREADS=64
325.apsi_1: basepeak=1
327.gafort_1: basepeak=1
329.fma3d_1: basepeak=1
331.art_1: -q64 -O5 -qalign=natural -lmass -blpdata
EXTRA_CFLAGS= -DINTS_PER_CACHELINE=32 -DDBLS_PER_CACHELINE=16

```

Alternate sources:

Add critical region around update of linked list in parallel loop.
 Required src.alt available as ompm-purduel-20040324.tar.gz
 Used for 331.art_1, base and peak.

APAR IY62267 was applied to AIX 5L V5.3 to achieve Maintenance 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)

MCM: Acronym for "Multi-Chip Module" (four dual-core processor chips + four L3-cache chips)

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 lpgg_regions=4096 -o lpgg_size=16777216 -o memory_affinity=1
chuser capabilities=CAP_BYPASS_RAC_VMM,CAP_PROPAGATE $USER
shutdown -r

```