



OMPM2001 Result

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Hewlett-Packard Company
ProLiant DL585 (AMD Opteron (TM) 880)

SPECompMpeak2001 = 17948

SPECompMbase2001 = 16621

SPEC license #HPG0001 | Tested by: Hewlett-Packard Company | Test site: Austin, Texas | Test date: Oct-2005 | Hardware Avail: Sep-2005 | Software Avail: Oct-2005

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	233	25723	224	26830	
312.swim_m	6000	441	13606	375	15992	
314.mgrid_m	7300	425	17181	418	17457	
316.applu_m	4000	423	9460	302	13241	
318.galgel_m	5100	334	15281	314	16249	
320.earthquake_m	2600	135	19249	127	20513	
324.apsi_m	3400	165	20613	161	21095	
326.gafort_m	8700	538	16183	512	16978	
328.fma3d_m	4600	428	10744	399	11536	
330.art_m	6400	136	47031	136	47031	
332.ammp_m	7000	738	9482	722	9694	

Hardware

CPU: AMD Opteron (TM) 880
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
 CPU(s) orderable: 1,2,4
 Primary Cache: 64KBI + 64KBD on chip
 Secondary Cache: 1024KB (I+D) on chip
 L3 Cache: None
 Other Cache: None
 Memory: 16x1GB, PC3200 CL3 DDR SDRAM ECC Registered
 Disk Subsystem: SCSI, 36GB, 15K RPM
 Other Hardware: None

Software

OpenMP Threads: 8
 Parallel: OpenMP
 Operating System: RedHat Enterprise Linux, Advanced Server version 4 (2)
 Compiler: PathScale EKO Compiler Suite, Release 2.2.1
 File System: ext3
 System State: Multi-User

Notes/Tuning Information

Environment Settings:

```
export PSC_OMP_AFFINITY=TRUE
export PSC_OMP_AFFINITY_MAP=0,1,2,3,4,5,6,7
export PSC_OMP_STATIC_FAIR=TRUE
export PSC_OMP_THREAD_SPIN=1000000000
export OMP_DYNAMIC=FALSE
export OMP_NUM_THREADS=8
ONESTEP=yes for base and peak
ulimit -s unlimited
```

Machine Configuration

```
DL585 BIOS version 4.12 A01 - 8/26/2005
chkconfig --levels 12345 cpuspeed off
```

Baseline optimization flags:

```
COPTIMIZE = -mp -Ofast
FOPTIMIZE = -mp -Ofast -OPT:early_mp=on -mcmmodel=medium
```

Peak optimization flags:

```
310.wupwise_m: -mp -Ofast -msse3 -LNO:prefetch Ahead=5:prefetch=3
               -OPT:unroll_times_max=8:unroll_size=128:IEEE_NaN_Inf=off:ro=3
               -IPA:linear=on:plimit=50000:callee_limit=5000
```



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Notes/Tuning Information (Continued)

```

-INLINE:aggressive=on
312.swim_m: -mp -O3 -OPT:Ofast -m3dnow -mcmodel=medium -LNO:simd=0
314.mgrid_m: -mp -Ofast -CG:gcm=off:cflow=off -LNO:fusion=2:prefetch=0
      -msse3 -OPT:early_mp=on:unroll_times_max=8:unroll_size=256:ro=3
      -mcmodel=medium
316.applu_m: -mp -Ofast -mcmodel=medium -CG:local_fwd_sched=on
      -LNO:fusion=2:fission=2:full_unroll_size=10000:prefetch=3
      -TENV:X=3
      use_submit_for_speed=1
      submit= numactl --interleave=0,1,2,3 $command
318.galgel_m: -mp -Ofast -OPT:early_mp=on -OPT:fast_complex=on +ACML
      RM_SOURCES=lapak.f90
      -L<acml2.7.0-install-dir>/pathscale64_mp/lib -lacml
      -I<acml2.7.0-install-dir>/pathscale64_mp/include
320.equake_m: -Ofast -mp -OPT:alias=disjoint
324.apsi_m: -mp -O3 -OPT:Ofast -TENV:x=4 -LNO:fusion=2:prefetch=0
326.gafort_m: -Ofast -OPT:early_mp=on -mp -LNO:vintr=0
328.fma3d_m: -mp -O2 -ipa -CG:load_exe=1 -OPT:Ofast:IEEE_arith=3:ro=3
      -WOPT:mem_opnds=on:retype_expr=on -IPA:pu_reorder=1
330.art_m: basepeak=yes
332.ammp_m: -mp -O3 -OPT:alias=disjoint:unroll_times_max=8:Ofast:ro=3
      -fno-math-errno -TENV:X=4 -LNO:prefetch=0
      use_submit_for_speed=1
      submit= PSC_OMP_GUIDED_CHUNK_MAX=700 $command

```

Portability Flags:

318.galgel_m: -fixedform -extend_source

Extra Flags:

330.art_m: -DINTS_PER_CACHELINE=16 -DBBLS_PER_CACHELINE=8

Alternate Source:

```

330.art_m      : Required srcalt purduel used for base and peak
310.wupwise_m  : Approved srcalt ompl.32 used for peak
312.swim_m     : Approved srcalt ompl.32 used for peak
314.mgrid_m    : Approved srcalt ompl used for peak
320.equake_m   : Approved srcalt ompl.32 used for peak
324.apsi_m     : Approved srcalt ompl used for peak

```

Math library acml2.7.0 available via download

<http://developer.amd.com/acml.aspx>

file = acml-2-7-0-pathscale-64bit.tgz

Use the +ACML option to select this library.

For a description of Pathscale Compiler and portability flags and system parameters used to generate this result, please refer to HP-Pathscale-20051026.txt file in the flags directory.