



OMPM2001 Result

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Hewlett-Packard Company
HP Integrity Superdome 64-way (1500 MHz Itanium 2)

SPECompMpeak2001 = 42290
SPECompMbase2001 = 36730

SPEC license #HPG2116 | Tested by: Hewlett-Packard Company | Test site: Richardson, Texas | Test date: Dec-2003 | Hardware Avail: Oct-2003 | Software Avail: Jan-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	68.1	88094	68.1	88094	
312.swim_m	6000	65.1	92236	65.1	92236	
314.mgrid_m	7300	223	32693	223	32693	
316.applu_m	4000	59.7	66967	45.1	88744	
318.galgel_m	5100	1028	4959	511	9974	
320.earthquake_m	2600	186	13972	153	16976	
324.apsi_m	3400	52.0	65392	52.0	65392	
326.gafort_m	8700	211	41167	211	41167	
328.fma3d_m	4600	144	32035	111	41320	
330.art_m	6400	78.5	81569	78.4	81638	
332.ammp_m	7000	370	18931	328	21348	

Hardware

CPU: Intel Itanium 2
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 64
 CPU(s) orderable: 6 to 64 by 2
 Primary Cache: L1 Inst/Data: 16 KB, associativity = 4
 Secondary Cache: L2 Unified: 256 KB, associativity = 8
 L3 Cache: L3 Unified: 6144 KB, associativity = 24
 Other Cache: None
 Memory: 256GB (512 * 512MB DIMMs)
 Disk Subsystem: root disk 1x36 SCSI
 Other Hardware: --

Software

OpenMP Threads: 64
 Parallel: OpenMP
 Operating System: HP-UX 11i-TCOE B.11.23
 Compiler: HP C/ANSI C Compiler C.05.55
 HP aC++ Compiler C.05.55
 HP Fortran 90 Compiler B.11.23.03
 HP LIBF90 PHSS_29620
 HP F90 Compiler PHSS_29663
 HP-UX OS Patch PHKL_30089

File System: vxfs
 System State: Single-user

Notes/Tuning Information

User environment:

```
MP_IDLE_THREADS_WAIT=-1
OMP_FIRST_USE=0
```

Portability Flags:

```
318.galgel: +source=fixed +extend_source
```

Base:

```
F90 +Ofaster +DSitanium2 +Oopenmp
+Oinfo +DD64 -minshared
cc +Ofaster +Oopenmp +DD64 +Oinfo +DSitanium2
-minshared -AOe +Onofltacc +Odataprefetch=direct
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe; \
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 \
mpsched -T FILL $command
```

Peak:

```
310.wupwise_m: basepeak=true
312.swim_m: basepeak=true
314.mgrid_m: basepeak=true
```



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Notes/Tuning Information (Continued)

```

316.applu_m:
  ONESTEP=true
  submit = chatr -s +id enable +pd 256k +pi 256k $commandexe;
  _M_ARENA_OPTS=64:32 mpsched -T FILL $command

318.galgel_m: +Ofaster +DSitanium2 +Oopenmp +Oinfo
  +DD64 -minshared +Onodataprefetch
  ONESTEP = true
  submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
  OMP_NUM_THREADS=9 _M_ARENA_OPTS=64:32 mpsched -T FILL $command

320.equake_m: +Ofaster +Oopenmp +DD64 +Oinfo
  +DSitanium2 -minshared -AOe +FPD +Onofltacc
  +Onoparmsoverlap +Otype_safety=strong
  submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
  _M_ARENA_OPTS=64:32 mpsched -T FILL $command

324.apsi_m: basepeak=true

326.gafort_m: basepeak=true

328.fma3d_m: +Ofaster +DSitanium2 +Oopenmp +Oinfo +DD64
  -minshared +Oinline_budget=75
  ONESTEP=true
  submit = chatr -s +id disable +pd 1m +pi 1m $commandexe;
  _M_ARENA_OPTS=64:32 mpsched -T FILL $command

330.art_m: +O3 +Oopenmp +DD64 +Oinfo +DSitanium2
  -minshared -AOe +FPD +Onofltacc +Onoparmsoverlap
  +Otype_safety=strong
  submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
  _M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 mpsched -T FILL $command

332.ammp_m: +Ofaster +Oopenmp +DD64 +Oinfo
  +DSitanium2 -minshared -AOe +Onofltacc
  submit = chatr -s +id disable +pd 64k +pi 64k $commandexe;
  _M_ARENA_OPTS=64:32 mpsched -T FILL $command

```

Alternate Sources:

```

ompl.32 OMPL 32 bit compatible sources
from SPEC Web site ompm2001-srcl32bit-20020822.tar.gz
used for Peak 328.fma3d_m

```

Kernel Parameters (/stand/system):

```

maxdsiz      0xc0000000
maxdsiz_64bit 0x3fffbfffff
maxssiz      0x17f00000
maxssiz_64bit 0x40000000
maxtsiz      0x40000000
maxtsiz_64bit 0x40000000
vps_pagesize 4096
vps_ceiling  16384
dbc_min_pct  20
dbc_max_pct  20
swapmem_on   0

```



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Notes/Tuning Information (Continued)

Notes:

System was configured with 1/2 of memory interleaved and
1/2 of memory local to each cell

System configured as a single partition with 16 cells and
4 processors per cell

Threads were assigned to cpus using the FILL strategy
from the HP-UX mpsched utility

Memory tuning is documented in man page malloc(3C)

`_M_ARENA_OPTS=64:32`
64 malloc arenas, 32 4k pages expansion

`_M_SBA_OPTS=16348:150:256`
16384 maxfast size, 150 small blocks, 256 grain size