



OMPM2001 Result

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Hewlett-Packard Company
hp server rx7620 (1500 MHz Itanium 2)

SPECompMpeak2001 = 11828

SPECompMbase2001 = 11098

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	514	11668	484	12391	
312.swim_m	6000	432	13904	432	13904	
314.mgrid_m	7300	582	12549	582	12549	
316.applu_m	4000	184	21772	172	23198	
318.galgel_m	5100	519	9826	423	12052	
320.earthquake_m	2600	293	8885	262	9910	
324.apsi_m	3400	237	14321	237	14363	
326.gafort_m	8700	979	8887	979	8887	
328.fma3d_m	4600	670	6866	546	8420	
330.art_m	6400	540	11859	540	11859	
332.ammp_m	7000	893	7842	843	8301	

Hardware

CPU: Intel Itanium 2
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 8
 CPU(s) orderable: 2 to 8 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: 16GB (32 * 512MB DIMMs)
 Disk Subsystem: root disk 1x36 SCSI
 Other Hardware: --

Software

OpenMP Threads: 8
 Parallel: OpenMP
 Operating System: HPUX11i-TCOE B.11.23
 Compiler: HP C/ANSI C Compiler B.11.23
 HP aC++ Compiler B.11.23
 HP Fortran 90 Compiler B.11.23
 HP LIBF90 PHSS_29620
 HP F90 Compiler PHSS_29663
 HP aC++ Compiler PHSS_29655
 HP C Compiler PHSS_29656
 u2comp/be/plugin library PHSS_29657
 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 +Oopenmp
+Oinfo +DD64 -minshared
cc +Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc
submit = chatr -s +id disable +pd 256k +pi 256k +mergeseg $commandexe; \
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 \
_M_CACHE_OPTS=32768:256:1024 mpsched -T FILL $command
```

Peak:

```
310.wupwise_m: +Ofaster +cat +O3 +Oopenmp
+Oinfo +DD64 -minshared -Wl,+pd256k -Wl,+pi256k
ONESTEP = true
submit = chatr -s +id disable $commandexe;
```



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Notes/Tuning Information (Continued)

`_M_ARENA_OPTS=64:32 mpsched -T FILL $command`

312.swim_m: `basepeak=true`

314.mgrid_m: `basepeak=true`

316.applu_m: `+Ofaster +Oopenmp +Oinfo
+DD64 -minshared +DSitanium
ONESTEP=true
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
_M_ARENA_OPTS=64:32
_M_CACHE_OPTS=32768:256:1024 mpsched -T FILL $command`

318.galgel_m: `+Ofaster +Oopenmp +Oinfo
+DD64 -minshared +Onodataprefetch +Oloop_unroll=14
ONESTEP = true
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
_M_ARENA_OPTS=64:32
_M_CACHE_OPTS=32768:256:1024 mpsched -T FILL $command`

320.equake_m: `+Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc +Onoparmsoverlap +Odataprefetch=direct
submit = chatr -s +id disable +pd 64k +pi 64k $commandexe;
_M_ARENA_OPTS=64:32 _M_CACHE_OPTS=32768:256:1024
mpsched -T FILL $command`

324.apsi_m: `+Ofaster +Oopenmp +Oinfo +DD64 -minshared
ONESTEP = true
submit = chatr -s +id disable +pd 256k +pi 256k
$commandexe; _M_ARENA_OPTS=64:32
_M_CACHE_OPTS=32768:256:1024
mpsched -T FILL $command`

326.gafort_m: `basepeak=true`

328.fma3d_m: `+Ofaster +Oopenmp +Oinfo +DD64
-minshared +Oinline_budget=75
ONESTEP=true
submit = chatr -s +id disable +pd 1m +pi 1m
$commandexe; _M_ARENA_OPTS=64:32
_M_CACHE_OPTS=32768:256:1024
mpsched -T FILL $command`

330.art_m: `basepeak=true`

332.ammp_m: `+Ofaster +Oopenmp +DD64 +Oinfo
-minshared -AOe +Onofltacc
submit = chatr -s +id enable +pd 4m +pi 4m
$commandexe; _M_ARENA_OPTS=64:32
_M_CACHE_OPTS=32768:256:1024
mpsched -T FILL $command`

Alternate Sources:

hpg.1 C++ compiler compatible sources
from SPEC Web site `ompm2001-isoc-20020619.tar.gz`



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Notes/Tuning Information (Continued)

used for Base 320.equake_m 330.art_m 332.ammp_m
used for Peak 332.ammp_m

ompl.32 OMPL 32 bit compatible sources
from SPEC Web site ompm2001-srcl32bit-20020822.tar.gz
used for Peak 310.wupwise_m 328.fma3d_m

Kernel Paramters (/stand/system):
maxdsiz 0xc0000000
maxdsiz_64bit 0x3fffbffffff
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

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 2 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

M_CACHE_OPTS=32768:256:1024
32768 bucket_size: 256 buckets:1024 retirement_age