OMPM2001 Result

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Hewlett-Packard Company

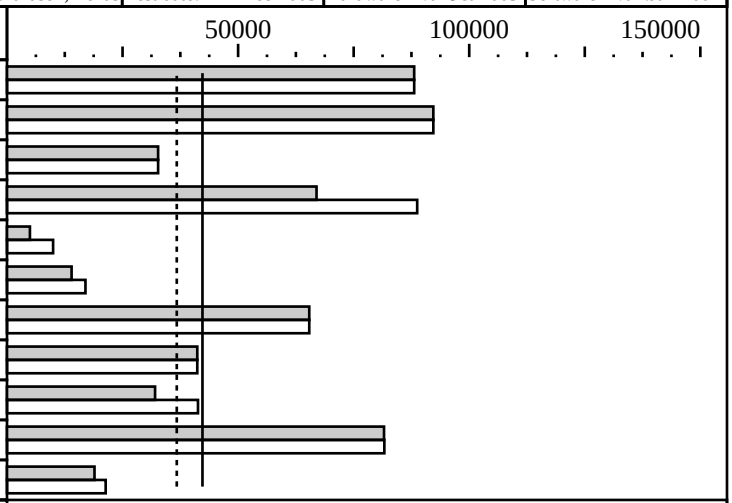
HP Integrity Superdome 64-way (1500 MHz Itanium 2)

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.equake_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:	HPUX11i-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
	HPUX 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


          mpsched -T FILL $command

Peak:
  310.wupwise_m:  basepeak=true

  312.swim_m:  basepeak=true

  314.mgrid_m: basepeak=true
```

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 Paramters (/stand/system):
      maxdsiz          0xc0000000
      maxdsiz_64bit    0x3ffbfffffff
      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 partiton 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