Subject: Re: IDL time test with a PowerMac G4
Posted by Pavel Romashkin on Tue, 05 Oct 1999 07:00:00 GMT
View Forum Message <> Reply to Message

It looks pretty good, although I fail to see a major improvement over G3. Both are far faster than my ability to comprehend the results of calculations they perform. I am a mac user, and in my opinion it is not the clock speed that matters, its the lack of dynamic memory allocation in the Mac OS and time between system crashes or screen freezes. Well, for one thing a faster Mac reboots faster after a crash, but that's about it...
Cheers,
Pavel

"Joseph B. Gurman" wrote:

> Running IDL 5.2 without any special Velocity Engine (AltiVec) plugins
> or other mods, a G4/450 running Mac OS 8.6 with 128 Mbyte of memory and a
> 20 Gbyte Western Digital (stock) Ultra ATA hard drive gets the following
> results on time_test2:
>
> IDL> time_test2
> |TIME_TEST2 performance for IDL 5.2:
> | OS_FAMILY=MacOS, OS=MacOS, ARCH=PowerMac
> | Mon Oct 4 15:36:29 1999
> 1 0.400000 Empty For loop, 2000000 times
> 2 0.166667 Call empty procedure (1 param) 100,000 times
> 3 0.0666667 Add 100,000 integer scalars and store
> 4 0.0833334 25,000 scalar loops each of 5 ops, 2 =, 1 if)
> 5 0.0166667 Mult 512 by 512 byte by constant and store, 10 times
> 6 0.0500000 Shift 512 by 512 byte and store, 100 times
> 7 0.0833334 Add constant to 512 x 512 byte array and store, 50 times
> 8 0.116667 Add two 512 by 512 byte images and store, 30 times
> 9 0.266667 Mult 512 by 512 floating by constant and store, 30 times
> 10 0.133333 Add constant to 512 x 512 floating and store, 40 times
> 11 0.666667 Add two 512 by 512 floating images and store, 30 times
> 12 0.0500001 Generate 225000 random numbers
> 13 0.0666666 Invert a 150 by 150 random matrix
> 14 0.0166667 LU Decomposition of a 150 by 150 random matrix
> 15 0.116667 Transpose 256 x 256 byte, FOR loops
> 16 0.116667 Transpose 256 x 256 byte, row and column ops x 10
> 17 0.0166668 Transpose 256 x 256 byte, TRANSPOSE function x 10
> 18 0.200000 Log of 100,000 numbers, FOR loop
> 19 0.0333333 Log of 100,000 numbers, vector ops
> 20 0.150000 131072 point forward plus inverse FFT
> 21 0.183333 Smooth 512 by 512 byte array, 5x5 boxcar, 10 times
> 22 0.0166667 Smooth 512 by 512 floating array, 5x5 boxcar, 2 times
> 23 1.71667 Write and read 512 by 512 byte array x 20
> 4.73333=Total Time, 0.096772401=Geometric mean, 23 tests.

>
> For comparison, a similarly equipped (6 Gbyte hard drive, 512 Mbyte
> memory) Power Mac G3/350 gets:
>
> IDL> time_test2
> |TIME_TEST2 performance for IDL 5.2:
> | OS_FAMILY=MacOS, OS=MacOS, ARCH=PowerMac
> | Mon Oct 4 15:22:46 1999
> 1 0.633333 Empty For loop, 2000000 times
> 2 0.200000 Call empty procedure (1 param) 100,000 times
> 3 0.0833334 Add 100,000 integer scalars and store
> 4 0.0833333 25,000 scalar loops each of 5 ops, 2 =, 1 if)
> 5 0.0333334 Mult 512 by 512 byte by constant and store, 10 times
> 6 0.133333 Shift 512 by 512 byte and store, 100 times
> 7 0.116667 Add constant to 512 x 512 byte array and store, 50 times
> 8 0.266667 Add two 512 by 512 byte images and store, 30 times
> 9 0.450000 Mult 512 by 512 floating by constant and store, 30 times
> 10 0.433333 Add constant to 512 x 512 floating and store, 40 times
> 11 0.950000 Add two 512 by 512 floating images and store, 30 times
> 12 0.0500001 Generate 225000 random numbers
> 13 0.133333 Invert a 150 by 150 random matrix
> 14 0.0333333 LU Decomposition of a 150 by 150 random matrix
> 15 0.133333 Transpose 256 x 256 byte, FOR loops
> 16 0.183333 Transpose 256 x 256 byte, row and column ops x 10
> 17 0.0666667 Transpose 256 x 256 byte, TRANSPOSE function x 10
> 18 0.283333 Log of 100,000 numbers, FOR loop
> 19 0.0500001 Log of 100,000 numbers, vector ops
> 20 0.300000 131072 point forward plus inverse FFT
> 21 0.233333 Smooth 512 by 512 byte array, 5x5 boxcar, 10 times
> 22 0.0500001 Smooth 512 by 512 floating array, 5x5 boxcar, 2 times
> 23 3.05000 Write and read 512 by 512 byte array x 20
> 7.95000=Total Time, 0.16647963=Geometric mean, 23 tests.
>
> To bracket the G4 performance from the other side, a Compaq XP1000 with a
> 500 MHz Alpha EV67, 768 Mbyte of memory, and running Tru64 UNIX 4.0F gets:
>
> IDL> time_test2
> |TIME_TEST2 performance for IDL 5.2:
> | OS_FAMILY=unix, OS=OSF, ARCH=alpha
> | Mon Oct 4 21:29:19 1999
> 1 0.194336 Empty For loop, 2000000 times
> 2 0.115235 Call empty procedure (1 param) 100,000 times
> 3 0.0703120 Add 100,000 integer scalars and store
> 4 0.0673831 25,000 scalar loops each of 5 ops, 2 =, 1 if)
> 5 0.0419919 Mult 512 by 512 byte by constant and store, 10 times
> 6 0.0419930 Shift 512 by 512 byte and store, 100 times
> 7 0.172851 Add constant to 512 x 512 byte array and store, 50 times
> 8 0.121094 Add two 512 by 512 byte images and store, 30 times

> 9 0.0996090 Mult 512 by 512 floating by constant and store, 30 times
> 10 0.0390630 Add constant to 512 x 512 floating and store, 40 times
> 11 0.186524 Add two 512 by 512 floating images and store, 30 times
> 12 0.0292970 Generate 225000 random numbers
> 13 0.0771489 Invert a 150 by 150 random matrix
> 14 0.0205071 LU Decomposition of a 150 by 150 random matrix
> 15 0.0898440 Transpose 256 x 256 byte, FOR loops
> 16 0.0673831 Transpose 256 x 256 byte, row and column ops x 10
> 17 0.00781202 Transpose 256 x 256 byte, TRANSPOSE function x 10
> 18 0.176758 Log of 100,000 numbers, FOR loop
> 19 0.00976598 Log of 100,000 numbers, vector ops
> 20 0.243165 131072 point forward plus inverse FFT
> 21 0.113281 Smooth 512 by 512 byte array, 5x5 boxcar, 10 times
> 22 0.0361329 Smooth 512 by 512 floating array, 5x5 boxcar, 2 times
> 23 0.0664070 Write and read 512 by 512 byte array x 20
> 2.08789=Total Time, 0.066015022=Geometric mean, 23 tests.
>
> Considering the base price of the G4 (~ $2300) is a factor of four
> less than the base price of the XP1000 (~ $10K), the performance is none
> too shabby. And you can't play Bugdom on the Alpha. ;-)
>
> Joe Gurman
>
> --
> | Joseph B. Gurman, NASA Goddard Space Flight Center, Solar Physics
> | Branch, Greenbelt MD 20771 USA / Federal employees are still
> | prohibited from holding opinions while at work. Therefore, any
> | opinions expressed herein are somebody else's.