
Subject: Computing Speed

Posted by [Matthew Hanson](#) on Tue, 17 Feb 1998 08:00:00 GMT

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Greeting all,

I have been running IDL on a Sparc Station20 for several months. A couple months ago we got an Ultra 1 (167MHz, 128MB RAM) and i used that for a while for our IDL apps. Now i have a Pentium II (300MHz) with 128 MB of RAM.

Running some computationally intensive surface fitting and FFT's on both machines i have found, quite surprisingly, that the PC (running NT) is whuppin the SUN Station (which costs roughly 6 times the PC).

(We also run a Atmospheric Fortran program - the PC runs this about 8 times faster than the UNIX)

What has been other people's experience running IDL on PC and UNIX based machines? How about Macs? Fast, slow. . . ?

--

Matthew Hanson

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Subject: Re: Computing Speed

Posted by [krieger](#) on Thu, 19 Feb 1998 08:00:00 GMT

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In article <34EA0198.C58@ktaadn.com>, Matthew Hanson <matt@ktaadn.com> wrote:

> Greeting all,
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> couple months ago we got an Ultra 1 (167MHz, 128MB RAM) and i used that
> for a while for our IDL apps. Now i have a Pentium II (300MHz) with 128
> MB of RAM.
> Running some computationally intensive surface fitting and FFT's on both
> machines i have found, quite surprisingly, that the PC (running NT) is
> whuppin the SUN Station (which costs roughly 6 times the PC).

Well, you should compare roughly equal processor generations. Comparing IDL on my Ultra1 167 (256MB RAM) at work with my P166 (64MB, WinNT4.0) at home, the SUN is about twice as fast than the PC doing IDL builtin FFT of 1024x1024 images.

The decision between workstation and PC depends on much more factors than processor power alone. If you go for a PC, I would recommend using Linux. As far as I know, you can get IDL for Linux with floating net license in contrast to WinNT with CPU license only. Much less administration hassle and now one can steal your dongles :-)

Cheers

Karl

--

To reply by email, please replace .oz by .de in the address field.
Sorry for the inconvenience caused by this anti-SPAM measure.

Subject: Re: Computing Speed
Posted by [Joe\[1\]](#) on Thu, 19 Feb 1998 08:00:00 GMT
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Charles Allen wrote:

>
> Matthew Hanson (matt@ktaadn.com) wrote:
> : Running some computationally intensive surface fitting and FFT's on
> both
> : machines i have found, quite surprisingly, that the PC (running NT)
> is
>
> I find that standard C-based computations tend to follow one of the
> SPEC benchmarks in terms of relative speed of hardware (read the SPEC
> algorithm descriptions to see which might match your mix of
> computations). I am able to use the SPECfp and/or SPECint numbers to
> predict my software's performance on new hardware.
>
> If someone has access to an Intel box running both NT and Linux, I
> think lots of folks in this newsgroup (like me :-) would be interested
> in the IDL benchmark results.
>
> -- Charles Allen --

Here are a few scores for my P-Pro 200MHz w 512K Cache overclocked to 233MHz, Ultra (narrow) SCSI Hard Drives running IDL 5.0.x.

Time_Test 3.5
Time_Test2 9.3

--

Joe Zawodny

<http://wwwp.exis.net/~zawodny>

Subject: Re: Computing Speed

Posted by [David Kastrup](#) on Thu, 19 Feb 1998 08:00:00 GMT

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callen@bga.com (Charles Allen) writes:

> : > : If someone has access to an Intel box running both NT and Linux, I
> : > : think lots of folks in this newsgroup (like me :-) would be interested
> : > : in the IDL benchmark results.
>
> [Several benchmark results posted]
>
> I guess I wasn't clear enough. What seems to be the most interesting
> question here is whether the Un*x implementation of IDL is as good as
> the NT implementation. The best way to do that is to compare the
> benchmark numbers from >> the same hardware << running equivalent
> versions of the NT and Linux implementation. I don't have easy net
> access for a few weeks, but I believe RSI has a Linux/Intel
> implementation, and of course they have an NT/Intel implementation.
> If they have both Linux/Alpha and NT/Alpha implementations, that would
> be another interesting comparison.
>
> Painfully posted while working in a remote region of the universe,

One has to take I/O speed into account with such tests, however. More often than not a sluggish response or execution time of workstations is caused by networking delays. Comparing the performance of a workstation that loads, executes, and even perhaps swaps over a congested or even just normally performing network is not going to be fair as compared with the performance of a basically non-networked computer.

--

David Kastrup

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Subject: Re: Computing Speed
Posted by [callen](#) on Thu, 19 Feb 1998 08:00:00 GMT
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: > : If someone has access to an Intel box running both NT and Linux, I
: > : think lots of folks in this newsgroup (like me :-) would be interested
: > : in the IDL benchmark results.

[Several benchmark results posted]

I guess I wasn't clear enough. What seems to be the most interesting question here is whether the Un*x implementation of IDL is as good as the NT implementation. The best way to do that is to compare the benchmark numbers from >> the same hardware << running equivalent versions of the NT and Linux implementation. I don't have easy net access for a few weeks, but I believe RSI has a Linux/Intel implementation, and of course they have an NT/Intel implementation. If they have both Linux/Alpha and NT/Alpha implementations, that would be another interesting comparison.

Painfully posted while working in a remote region of the universe,

-- Charles Allen --

Subject: Re: Computing Speed
Posted by [steinhh](#) on Thu, 19 Feb 1998 08:00:00 GMT
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For IDL V 4.0.1c

Time (s)	Machine/spec
4.0	Digital Alpha Server 2100 5/250 (250MHz), 1GB
2.3	Digital Workstation 500au 5/500 (500MHz), 300MB

Using the IDL v 4.0.1 version of time_test, identical results were obtained for IDL v 5.0.3

For IDL v 5.0.3, there are several "improved" time tests, and they've been modified to allow skipping the file read/write, which is a big plus, since disk I/O to your current directory says nothing about your machine's computation speed.

(You must ".run time_test" to get at time_test2/3!)

For IDL v 5.0.3, time_test2,/nofileio:

Time (s)	Machine/spec
7.5	Digital Alpha Server 2100 5/250, 1GB
4.6	Digital Workstation 500au 5/500, 300MB

For IDL v 5.0.3, time_test3,/nofileio:

12.0	Digital Alpha Server 2100 5/250, 1GB
7.9	Digital Workstation 500au 5/500, 300MB

Any others? I must say I was surprised to see the PPro 200MHz result, though it would be nice to see how it compares with some more complex, large-array computations.. (not that I have any good suggestions..) I should also mention that the Alpha Server has four processors installed, which should beat the PPro pretty easily when used in parallel!

Regards,

Stein Vidar

Subject: Re: Computing Speed
Posted by [Mirko Loehmann](#) on Thu, 19 Feb 1998 08:00:00 GMT
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E. Scott Claflin wrote:

>
> Charles Allen (callen@bga.com) wrote:
>
> : If someone has access to an Intel box running both NT and Linux, I
> : think lots of folks in this newsgroup (like me :-) would be interested
> : in the IDL benchmark results.
>
> : -- Charles Allen --
>
> Here are some results from running time_test with IDL 4 on three
> machines.
>
> Time Machine
> (s)
>
> 8.2 Sun Ultra 1, 167 MHz, 128 MB, Solaris 2.5
>
> 4.9 Sun Ultra 2, 296 MHz, 260 MB, Solaris 2.5
>

> 3.9 Dell Pentium Pro, 200 MHz, 64 MB, Win95
>
> Does anyone have Linux?
>
> --Scott Claflin
results running time_test with IDL 5

11.5 Pentium 100 MHz, 48MB, Linux 2.0.30

9.4 DEC 3000 AXP 600 ,175MHz,256MB ,Digital UNIX 4.0

Mirko

Subject: Re: Computing Speed
Posted by [Helge.Rebhan](#) on Thu, 19 Feb 1998 08:00:00 GMT
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In article <34EAE0EA.7B9A7DE@LaRC.NASA.gov>,
J.M.nospam.Zawodny@LaRC.NASA.gov wrote:

>>
>> What has been other people's experience running IDL on PC and UNIX
>> based
>> machines? How about Macs? Fast, slow. . . ?
>
> I noticed the same thing when I switched from a DEC Alpha 3000/500
> to a PPro 200MHz a couple of years ago. The PPro was nearly twice
> as fast and most IDL tests and it cost way less than the Alpha
> (and I could buy software for NT unlike Digital Unix). Most of
> the Alpha folks here have upgraded to PC's. We are now working on
> getting rid of Sun's and saving a few hundred thousand dollars in
> the process.

You will also save a significant amount of money for your IDL licences !
Out of some 'historic' reasons IDL on Unix workstations is 3 to 5 times
more expensive than PC or MAC versions ! I never heard any justification
for this ??

Servus, Helge

--

Sorry for this but please adjust e-mail address for direct reply

Subject: Re: Computing Speed

Posted by [J.D. Smith](#) on Mon, 23 Feb 1998 08:00:00 GMT

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Speed Seekers:

I see that while I typed my last message, everyone began reporting time_tests. I am still willing to compile the results if you send me the full information. The fields I currently have are (you can use this as a form for entry):

Make : (Make of your computer)

Processor/Speed : (Processor and speed + number of processors if >1)

Memory : (Amount of RAM in Mb)

OS : (Operating System, including version)

IDL Version : (Version of IDL used)

Video Hardware : (Video Hardware, if Known)

tt2 -- mean/geom : (Mean (= total/23) and geometric mean of time_test2)

gt2 : (Mean (= total/4) and geometric mean of graphics_times2)

tt2 -- test 23 : (Result of tt2 test 23 (Disk I/O -- see below))

A few notes: Use time_test2 on the latest version of IDL you have. Make sure to cd to a local partition (i.e. not a network partition, /tmp usually is safe on unix-like systems) before running the test, or your disk i/o results will be very skewed.

JD

--

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Cornell University Dept. of Astronomy |*| (607) 255-4083
206 Space Sciences Bldg. |*| FAX: (607) 255-5875
Ithaca, NY 14853 |*|

Subject: Re: Computing Speed

Posted by [J.D. Smith](#) on Mon, 23 Feb 1998 08:00:00 GMT

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There is a built-in speed spec for IDL, called time_test.

Just

.run time_test

and then

time_test2 (newer version which scales to the high-end better).

I get, on my 166Mhz Pentium Linux box:

|TIME_TEST2 performance for IDL 5.0.3:

| OS_FAMILY=unix, OS=linux, ARCH=x86

| Mon Feb 23 12:32:07 1998

```
1  1.45600 Empty For loop, 2000000 times
2  1.37400 Call empty procedure (1 param) 100,000 times
3  0.542000 Add 100,000 integer scalars and store
4  0.615000 25,000 scalar loops each of 5 ops, 2 =, 1 if)
5  0.303000 Mult 512 by 512 byte by constant and store, 10
times
6  1.04900 Shift 512 by 512 byte and store, 100 times
7  0.956000 Add constant to 512 x 512 byte array and store, 50
times
8  0.794000 Add two 512 by 512 byte images and store, 30 times
9  1.22300 Mult 512 by 512 floating by constant and store, 30
times
10 1.18100 Add constant to 512 x 512 floating and store, 40
times
11 2.29200 Add two 512 by 512 floating images and store, 30
times
12 0.257000 Generate 225000 random numbers
13 0.708000 Invert a 150 by 150 random matrix
14 0.400000 LU Decomposition of a 150 by 150 random matrix
15 0.846000 Transpose 256 x 256 byte, FOR loops
16 0.618000 Transpose 256 x 256 byte, row and column ops x 10
17 0.0420001 Transpose 256 x 256 byte, TRANSPOSE function x 10
18 1.99800 Log of 100,000 numbers, FOR loop
19 0.0950000 Log of 100,000 numbers, vector ops
20 1.99700 131072 point forward plus inverse FFT
21 1.58600 Smooth 512 by 512 byte array, 5x5 boxcar, 10 times
22 0.230000 Smooth 512 by 512 floating array, 5x5 boxcar, 2
times
23 1.06900 Write and read 512 by 512 byte array x 20
21.6310=Total Time, 0.67674329=Geometric mean, 23
tests.
```

In addition, you can try graphics_times2 to see how fast display is. I

get

|GRAPHICS_TIMES2 performance for IDL 5.0.3:

| OS_FAMILY=unix, OS=linux, ARCH=x86

| Mon Feb 23 12:33:06 1998

```
1 0.213000 Simple plot, 10 times
2 0.648000 1000 vectors x 100
```

3 1.28900 Polygon filling
 4 0.998000 Display 512 x 512 image, 10 times
 3.14800=Total Time, 0.64913418=Geometric mean, 4
 tests.

And for our ancient SPARC IPX, I get:

|TIME_TEST2 performance for IDL 5.0:

```
| OS_FAMILY=unix, OS=sunos, ARCH=sparc
| Mon Feb 23 12:33:04 1998
1 7.87000 Empty For loop, 2000000 times
2 4.13100 Call empty procedure (1 param) 100,000 times
3 2.89100 Add 100,000 integer scalars and store
4 2.85200 25,000 scalar loops each of 5 ops, 2 =, 1 if)
5 2.84500 Mult 512 by 512 byte by constant and store, 10
times
6 3.65100 Shift 512 by 512 byte and store, 100 times
7 5.61000 Add constant to 512 x 512 byte array and store, 50
times
8 3.94400 Add two 512 by 512 byte images and store, 30 times
9 4.41800 Mult 512 by 512 floating by constant and store, 30
times
10 3.17900 Add constant to 512 x 512 floating and store, 40
times
11 6.58900 Add two 512 by 512 floating images and store, 30
times
12 1.98200 Generate 225000 random numbers
13 2.37200 Invert a 150 by 150 random matrix
14 1.25800 LU Decomposition of a 150 by 150 random matrix
15 3.62300 Transpose 256 x 256 byte, FOR loops
16 2.38700 Transpose 256 x 256 byte, row and column ops x 10
17 0.263000 Transpose 256 x 256 byte, TRANSPOSE function x 10
18 7.20700 Log of 100,000 numbers, FOR loop
19 0.861000 Log of 100,000 numbers, vector ops
20 4.82200 131072 point forward plus inverse FFT
21 4.16000 Smooth 512 by 512 byte array, 5x5 boxcar, 10 times
22 1.10000 Smooth 512 by 512 floating array, 5x5 boxcar, 2
times
23 4.96800 Write and read 512 by 512 byte array x 20
82.9830=Total Time, 2.9239724=Geometric mean, 23
tests.
```

and

|GRAPHICS_TIMES2 performance for IDL 5.0:

```
| OS_FAMILY=unix, OS=sunos, ARCH=sparc
| Mon Feb 23 12:35:34 1998
1 7.99500 Simple plot, 10 times
```

2 2.21100 1000 vectors x 100
3 2.07900 Polygon filling
4 6.79300 Display 512 x 512 image, 10 times
19.0780=Total Time, 3.9749423=Geometric mean, 4
tests.

Pretty dumpy eh?

An Ultra1 167Mhz in a neighbor's office got got 11.5961 total, .34812 geometric mean, roughly twice as fast as the Pentium. If other people wanted to run these tests, I could collect the results and post them... using the newest version of IDL 5 would be best. A broad mix of hardware/operating systems would also be good. Remember to free up all the memory and process space possible before running it (or suffer the ridicule of your fellow IDL'er)! Just include all relevant details in an email to me.... sometime, say, over the next two weeks.

JD

--

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Ithaca, NY 14853 [*]
