Subject: Re: call_external for file I/O
Posted by Charlie Solomon on Thu, 22 Oct 1998 07:00:00 GMT
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Mark Rivers wrote in message ...

> I am not sure what you mean. Is the data actually in a disk file or is it in
> memory? If it is in a disk file then some process needs to do the disk I/O.
> If it is in memory then call_external can be used to get it into IDL.

The data is in a disk file initially, the map_file routine puts the relevant part of the file into memory and sets those pages for sequential access, so that when IDL accesses the data in memory it is not based on an algorithm like most recently used. This is optimal for image data in which you may need to access different subsets of the array at different times.

> Note that IDL's disk I/O on NT is quite fast. >5MB/sec is not hard to achieve
> using writeu and readu.

I agree that it is fast, but the method we use on our Solaris machine seems much faster for the same files. I don't have time data available right now, but I could get it if needed.

Thanks for your reply,
Charlie Solomon
Raytheon Systems Co.

Subject: Re: call_external for file I/O
Posted by rivers on Thu, 22 Oct 1998 07:00:00 GMT
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In article <70ldu6$i60@hacgate2.hac.com>, "Charlie Solomon" <crsolomon@west.raytheon.com> writes:
> Hello experts,
>
> Is anyone out there using call_external to read image files into a variable
> on the Windows NT platform? I have used a c routine on the Solaris platform
> called map_file, which bypasses the standard I/O layer and maps data
> directly into/from memory, making data access very fast compared to using
> IDL's built in file I/O utils. I did not write map_file, but my
> understanding is that it utilizes features in unix which allow this sort of
> memory mapping without going through the stdio layer. I would love to get
> the same speed on my NT machine. Any ideas?

I am not sure what you mean. Is the data actually in a disk file or is it in memory? If it is in a disk file then some process needs to do the disk I/O. If it is in memory then call_external can be used to get it into IDL.

Note that IDL's disk I/O on NT is quite fast. >5MB/sec is not hard to achieve using writeu and readu.

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Subject: Re: call_external for file I/O
Posted by Charlie Solomon on Mon, 26 Oct 1998 08:00:00 GMT
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David Foster wrote ...
> I'm wondering if what you are coming up against is a storage order
> problem, in which the elements of the array are being accessed in
> an order that is not optimal given the order of storage of the
> elements in memory. Ideally the dimension that varies fastest in
> memory should be incremented first.
>
> We've run up against this problem before, and have written a C
> routine to optimize access to a 3D array in memory. If you're
> interested in checking it out let me know.

Thank you, yes, I would like to take a look at that.

> You also might want to look into Eric Korpela's VARRAY utility
> that allows you to have memory mapped files:
>
> http://sag-www.ssl.berkeley.edu/~korpela/mmap/
> korpela@islay.ssl.berkeley.edu

VARRAY looks like a good implementation of what our map_file does,

and this site is a very good reference, thank you. I want to work on
doing something like this with WindowsNT. Eric's page says that it
should be straightforward to convert VARRAY to use Win32's...we'll
see!

Thanks, Charlie Solomon
Raytheon Systems Co., El Segundo, CA

Subject: Re: call_external for file I/O
Posted by David Foster on Mon, 26 Oct 1998 08:00:00 GMT
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Charlie Solomon wrote:
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> I agree that it is fast, but the method we use on our Solaris machine seems
> much faster for the same files. I don't have time data available right now,
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Charlie -

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problem, in which the elements of the array are being accessed in
an order that is not optimal given the order of storage of the
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 korpela@islay.ssl.berkeley.edu

Dave
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   ~~~~~~ ~~~~~~
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     Programmer/Analyst   Brain Image Analysis Laboratory
   ~~~~~~

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