Subject: Re: Parallel Processing in IDL
Posted by Michael Galloy on Mon, 11 Oct 2010 16:41:21 GMT
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On 10/11/10 10:35 AM, Ammar Yusuf wrote:
> What's an easy way to use multiple processors in IDL? I have a large
> program but I want to start with a simple program first. Let's say I
> have an array of a million integers and I have four processors. I want
> to add all the elements in this array and output it. I could split the
> array into four parts and give it to each processor right? Is this
> possible? How would I do this? Thanks!

IDL's thread pool (search the IDL online help for thread pool for more information) will do things like that automatically if you just have a system with multiple processors.

If you want to do more complex tasks than just vector operations then check out FastDL (it has an MPI interface and a task farming interface, depending on the level of control you need):

http://www.txcorp.com/products/FastDL/index.php

Disclosure: I work for Tech-X.

Mike
--
www.michaelgalloy.com
Research Mathematician
Tech-X Corporation

Subject: Re: Parallel Processing in IDL
Posted by Matt[2] on Mon, 11 Oct 2010 16:41:46 GMT
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On Oct 11, 10:35 am, Ammar Yusuf <amyus...@gmail.com> wrote:
> What's an easy way to use multiple processors in IDL? I have a large
> program but I want to start with a simple program first. Let's say I
> have an array of a million integers and I have four processors. I want
> to add all the elements in this array and output it. I could split the
> array into four parts and give it to each processor right? Is this
> possible? How would I do this? Thanks!

I would look at the documentation about thread pool.

In your case
y = total(array)
will take care of what you want to do assuming your thread pool is set

up properly.

from the total documentation:
"This routine is written to make use of IDL's thread pool, which can
increase execution speed on systems with multiple CPUs. The values
stored in the !CPU system variable control whether IDL uses the thread
pool for a given computation. In addition, you can use the thread pool
keywords TPOOL_MAX_ELTS, TPOOL_MIN_ELTS, and TPOOL_NOTHREAD to
override the defaults established by !CPU for a single invocation of
this routine. See Thread Pool Keywords for details. "

Cheers,
Matt

Subject: Re: Parallel Processing in IDL
Posted by Haje Korth on Mon, 11 Oct 2010 17:51:27 GMT
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Check the thread pool as Matt suggests. If this does not work for you
you can also check the idl_idlbridge. Haje

On Oct 11, 12:35 pm, Ammar Yusuf <amyus...@gmail.com> wrote:
> What's an easy way to use multiple processors in IDL? I have a large
> program but I want to start with a simple program first. Let's say I
> have an array of a million integers and I have four processors. I want
> to add all the elements in this array and output it. I could split the
> array into four parts and give it to each processor right? Is this
> possible? How would I do this? Thanks!

Subject: Re: Parallel Processing in IDL
Posted by Ammar Yusuf on Mon, 11 Oct 2010 18:06:35 GMT
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On Oct 11, 12:41 pm, mgalloy <mgal...@gmail.com> wrote:
> On 10/11/10 10:35 AM, Ammar Yusuf wrote:
>
>> What's an easy way to use multiple processors in IDL? I have a large
>> program but I want to start with a simple program first. Let's say I
>> have an array of a million integers and I have four processors. I want
>> to add all the elements in this array and output it. I could split the
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> IDL's thread pool (search the IDL online help for thread pool for more

> information) will do things like that automatically if you just have a
> system with multiple processors.
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> If you want to do more complex tasks than just vector operations then
> check out FastDL (it has an MPI interface and a task farming interface,
> depending on the level of control you need):
>
> http://www.txcorp.com/products/FastDL/index.php
>
> Disclosure: I work for Tech-X.
>
> Mike
> --www.michaelgalloy.com
> Research Mathematician
> Tech-X Corporation

Well let's say I have a for loop and inside this for loop I have
around 50-100 lines and these computations are going out to different
procedures and functions. Would I still use the IDL Thread Pool?
Thanks!

Subject: Re: Parallel Processing in IDL
Posted by Michael Galloy on Mon, 11 Oct 2010 20:01:58 GMT
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On 10/11/10 12:06 PM, Ammar Yusuf wrote:
> Well let's say I have a for loop and inside this for loop I have
> around 50-100 lines and these computations are going out to different
> procedures and functions. Would I still use the IDL Thread Pool?
> Thanks!

The thread pool automatically detects and uses multiple CPUs for vector
operations and particular routines (listed below). So there is no way to
control how work is sent to the various processors. You can control a
few parameters via the CPU routine.

Table 12.2. Thread aware mathematical routines
ACOS ALOG10 ALOG
CONJ COS COSH FINITE FLOOR GAMMA
ASIN ERRORF GAUSSINT ROUND
ATAN EXP IMAGINARY SIN TVSCL
FINDGEN UINDGEN FLOAT
ABS CEIL EXPINT ISHFT
LNGAMMA MATRIX_MULTIPLY PRODUCT SINH SQRT TAN TANH VOIGT

Table 12.3. Thread aware image processing routines
BYTSCL CONVOL FFT

Table 12.4. Thread aware array creation routines
INTERPOLATE DCINDGEN MAKE_ARRAY DOUBLE ULONG
POLY_2D DCOMPLEXARR REPLICATE FIX ULONG64
BINDGEN INDGEN ULINDGEN
BYTARR CINDGEN LINDGEN L64INDGEN
UL64INDGEN

Table 12.5. Thread aware data type conversion routines
BYTE COMPLEX DCOMPLEX LONG LONG64 UINT

Table 12.6. Thread aware array manipulation routines
MAX MIN REPLICATE_INPLACE TOTAL WHERE

Table 12.7. Thread aware programming and IDL control routines
BYTEORDER LOGICAL_AND LOGICAL_OR LOGICAL_TRUE

Mike
--
www.michaelgalloy.com
Research Mathematician
Tech-X Corporation

Subject: Re: Parallel Processing in IDL
Posted by natha on Mon, 11 Oct 2010 22:13:48 GMT
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On 11 oct, 12:35, Ammar Yusuf <amyus...@gmail.com> wrote:
> What's an easy way to use multiple processors in IDL? I have a large
> program but I want to start with a simple program first. Let's say I
> have an array of a million integers and I have four processors. I want
> to add all the elements in this array and output it. I could split the
> array into four parts and give it to each processor right? Is this
> possible? How would I do this? Thanks!

I wrote a routine to use multi-threading some time ago. I use
IDL_IDLBridge and SHMMAP and it works good for some cases. If you are
interested I can send you a copy.
It only works for functions without output keywords.

Cheers,
nata

Subject: Re: Parallel Processing in IDL
Posted by rogass on Tue, 12 Oct 2010 12:34:46 GMT

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On 12 Okt., 00:13, nata <bernat.puigdomen...@gmail.com> wrote:
> On 11 oct, 12:35, Ammar Yusuf <amyus...@gmail.com> wrote:
>
>> What's an easy way to use multiple processors in IDL? I have a large
>> program but I want to start with a simple program first. Let's say I
>> have an array of a million integers and I have four processors. I want
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> IDL_IDLBridge and SHMMAP and it works good for some cases. If you are
> interested I can send you a copy.
> It only works for functions without output keywords.
>
> Cheers,
> nata

Hi Nata,
please send the copy also to me :)

Cheers

CR

Subject: Re: Parallel Processing in IDL
Posted by Ammar Yusuf on Wed, 13 Oct 2010 19:38:58 GMT
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On Oct 11, 6:13 pm, nata <bernat.puigdomen...@gmail.com> wrote:
> On 11 oct, 12:35, Ammar Yusuf <amyus...@gmail.com> wrote:
>
>> What's an easy way to use multiple processors in IDL? I have a large
>> program but I want to start with a simple program first. Let's say I
>> have an array of a million integers and I have four processors. I want
>> to add all the elements in this array and output it. I could split the
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> IDL_IDLBridge and SHMMAP and it works good for some cases. If you are
> interested I can send you a copy.
> It only works for functions without output keywords.
>
> Cheers,

> nata

Can you send that code to me please. Thanks!

Subject: Re: Parallel Processing in IDL
Posted by desilvestri.manuela on Tue, 03 May 2016 14:18:54 GMT
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Il giorno martedì 12 ottobre 2010 00:13:48 UTC+2, nata ha scritto:
> On 11 oct, 12:35, Ammar Yusuf <amyus...@gmail.com> wrote:
>> What's an easy way to use multiple processors in IDL? I have a large
>> program but I want to start with a simple program first. Let's say I
>> have an array of a million integers and I have four processors. I want
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>> possible? How would I do this? Thanks!
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> IDL_IDLBridge and SHMMAP and it works good for some cases. If you are
> interested I can send you a copy.
> It only works for functions without output keywords.
>
> Cheers,
> nata

Hi nata!
I'm challenging with IDL multithreading and I have some problems... Can I have a copy of the code you were talking about?

Cheers

MDS

Subject: Re: Parallel Processing in IDL
Posted by charan.harish on Sat, 22 Jul 2017 21:25:56 GMT
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On Tuesday, October 12, 2010 at 3:43:48 AM UTC+5:30, nata wrote:
> On 11 oct, 12:35, Ammar Yusuf <amyus...@gmail.com> wrote:
>> What's an easy way to use multiple processors in IDL? I have a large
>> program but I want to start with a simple program first. Let's say I
>> have an array of a million integers and I have four processors. I want
>> to add all the elements in this array and output it. I could split the
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>> possible? How would I do this? Thanks!

>
> I wrote a routine to use multi-threading some time ago. I use
> IDL_IDLBridge and SHMMAP and it works good for some cases. If you are
> interested I can send you a copy.
> It only works for functions without output keywords.
>
> Cheers,
> nata

Dear Nata,
Can you send me your script? Further, I would like to tell you my problem that is, I am currently trying to read a bunch of *.sdf files from IDL and then doing post-processing. The problem is since the data size is huge, my IDL script is taking an enormous time.

Hence, can you kindly advise me as of how should I write a parallel IDL script which can read the file in parallel mode and finishes quickly?
Thanking you in advance!

Looking forward to a positive for a positive responce.

Subject: Re: Parallel Processing in IDL
Posted by natha on Mon, 24 Jul 2017 12:56:51 GMT
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Hi,

My library is available online
https://github.com/bernatp3rs/idl_cpu_pm/wiki

Enjoy!
