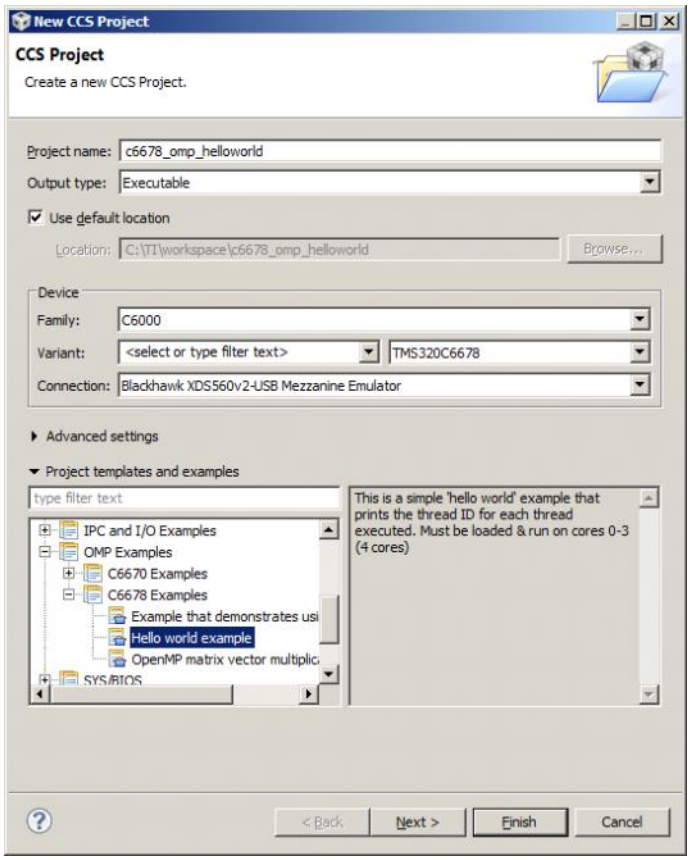
C6678 OMP HW

Tuesday, April 09, 2013
8:27 AM

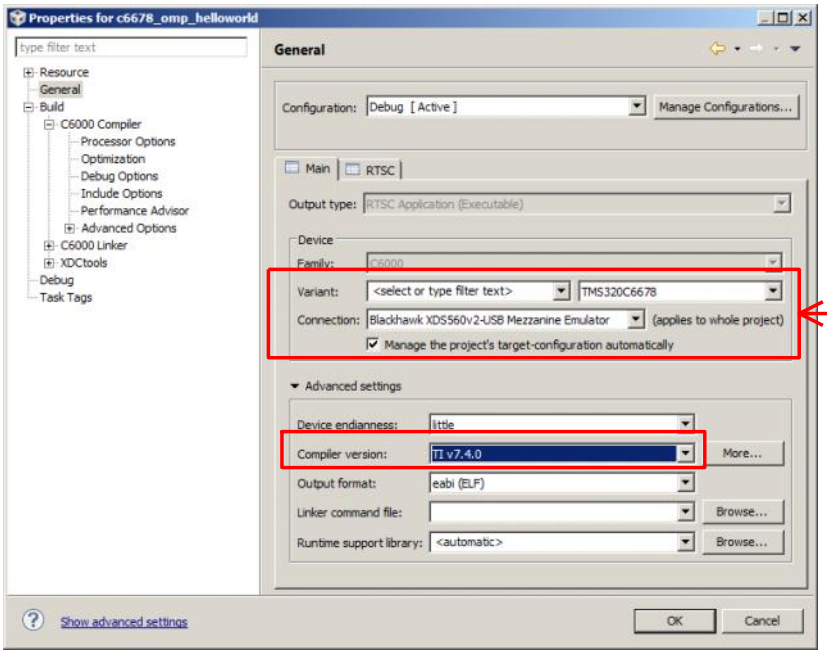
C6678 OMP Hello World Demo

Create a new CCS project

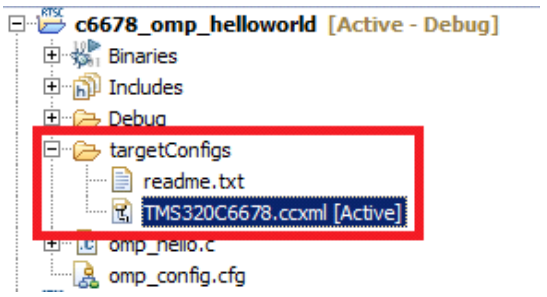


From Project Explorer, right-click on the project name,
select Properties:

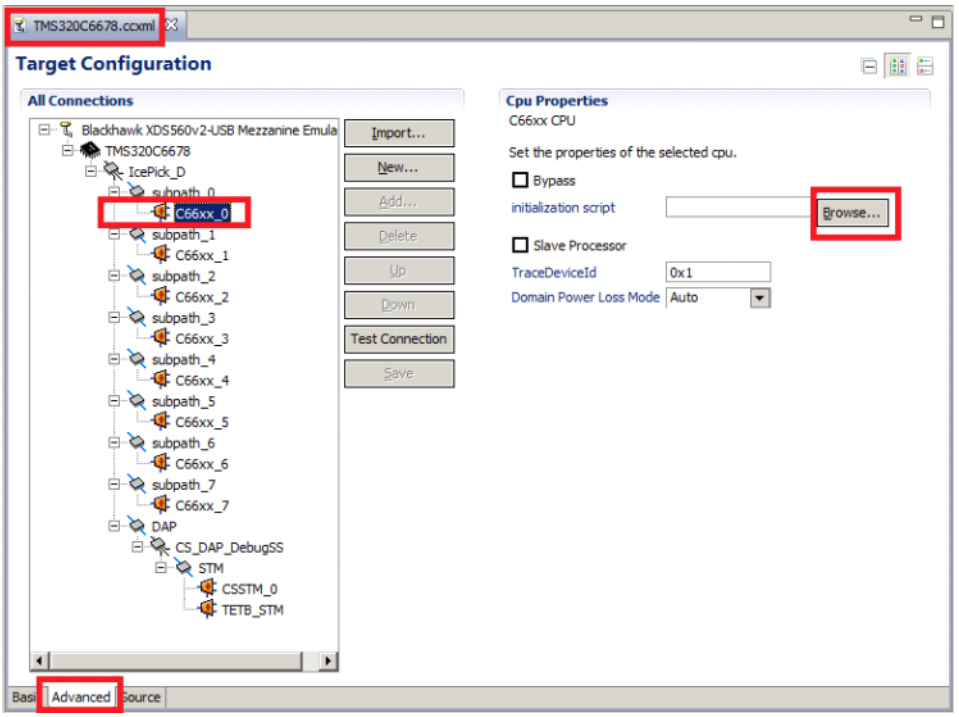
Be sure Compiler version is 7.4.0



Specifying the chip variant and connection will automatically generate a target configuration (but will still need to attach the GEL file)



Double-click on the target configuration
Click on the 'Advanced' tab
Select 'C66xx_0' from subpath_0
Press Browse… to navigate to the GEL; the path will be something like:
C:\TI\ccsv5\ccs_base\emulation\boards\evmc6678l\gel
Press Save



Project Modifications

One modification to the example project is required.
In the **Project Explorer** window, expand the set of files available under the new project. Open the file *omp_config.cfg* by double-clicking on it. The edit window has two tabs on the bottom left. Select the **Source** tab. Find the source line which begins *var*

OpenMP ... Change the code as follows ...

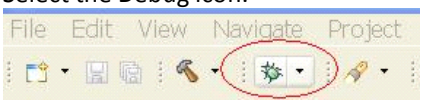
```
var OpenMP = xdc.useModule('ti.omp.utils.OpenMP');   // no change
OpenMP.setNumProcessors(4);                          // no change
OpenMP.autoDnldCore = false;                         // add this line
```

The new line disables the feature called auto-download. A side effect of auto-download is that printf works only on core 0. Save the change to the configuration file by entering control+S or selecting **File | Save**.

Pasted from <http://processors.wiki.ti.com/index.php/OpenMP_on_C6000>

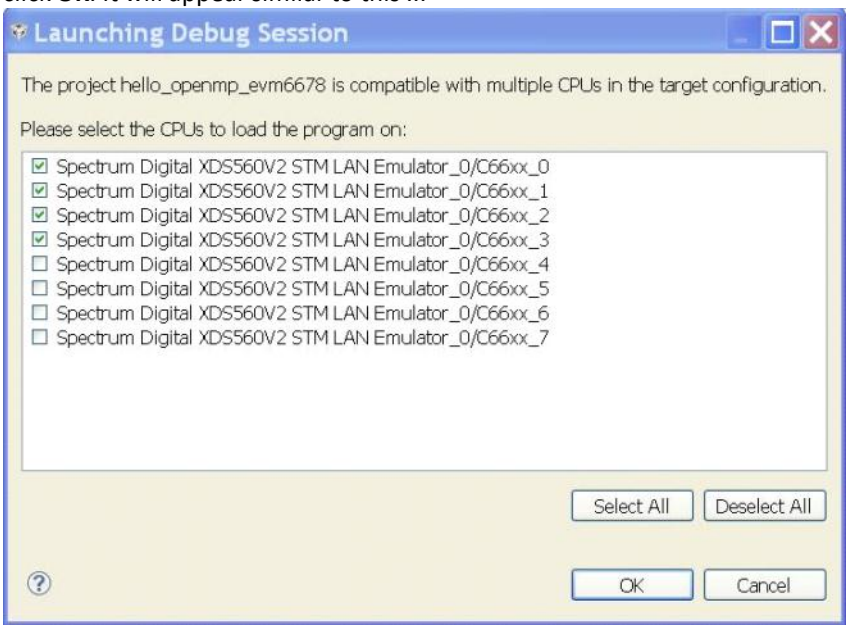
Build and Load

In the **Project Explorer** window, insure the new project is selected.
Select the Debug icon.



Debug icon

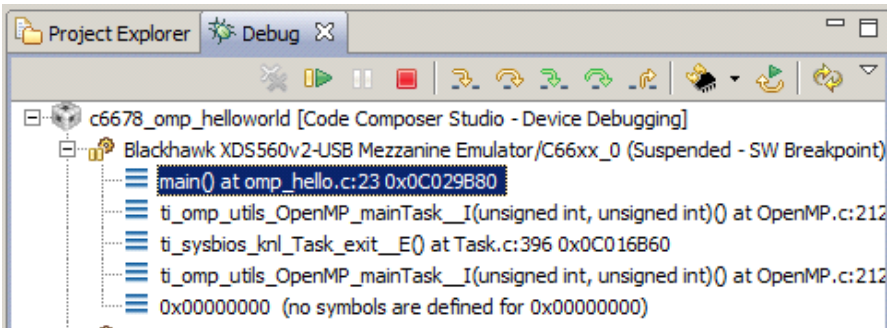
Next a dialog will come up which asks which CPU cores to load the program on. Select cores 0-3, then click **OK**. It will appear similar to this ...

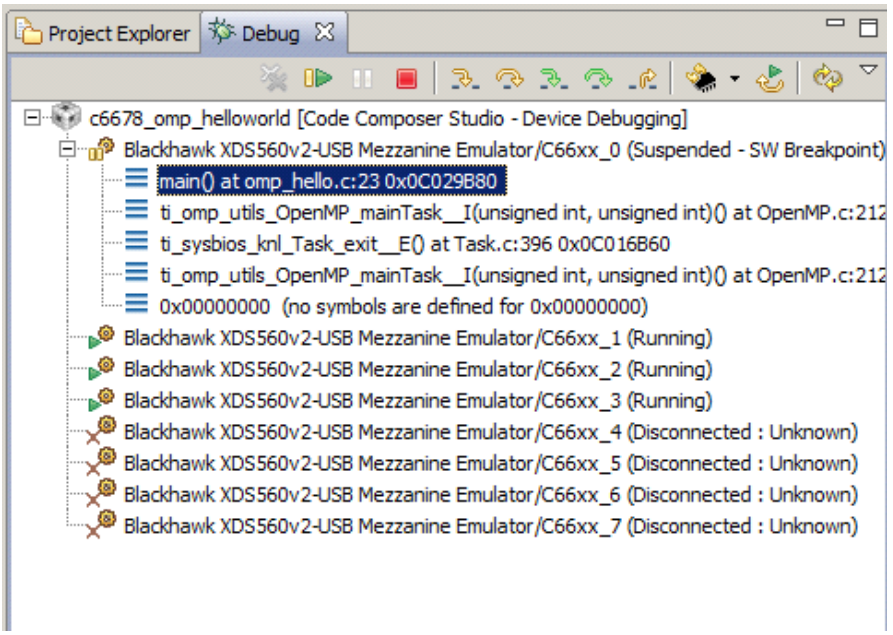


Select cores 0-3

Pasted from <http://processors.wiki.ti.com/index.php/OpenMP_on_C6000>

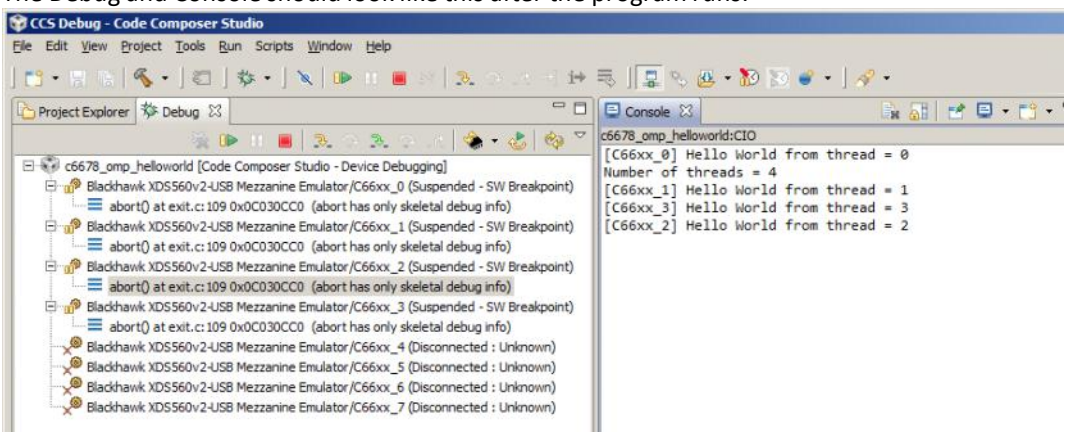
No cores should automatically begin "running". If they do, the likely cause is a missing GEL file.





Press F8 (Resume)

The Debug and Console should look like this after the program runs:



Changing the number of processors (threads):

Here we will change the demo to run on 8 cores, instead of the 4 cores the demo originally uses.

Update omp_config.cfg:

```
var OpenMP = xdc.useModule('ti.omp.utils.OpenMP');
OpenMP.setNumProcessors(8);
OpenMP.autoDnldCore = false;
```

Update omp_hello.c:

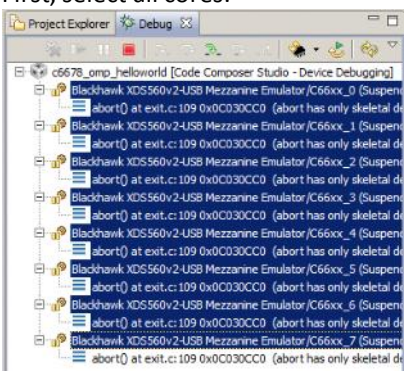
```
#define NTHREADS  8
```

Rebuild and run.

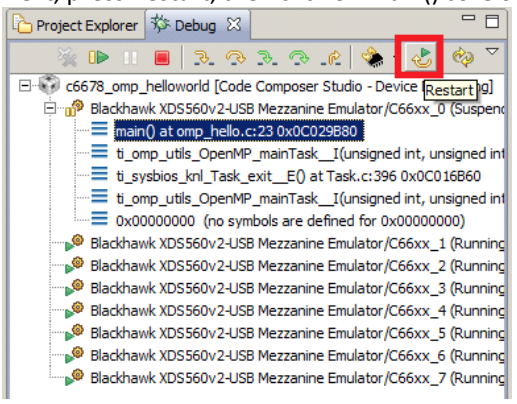
Restarting the demo

When the Hello World demo program has been restarted, there is a special procedure to run again, without restarting the debug session.

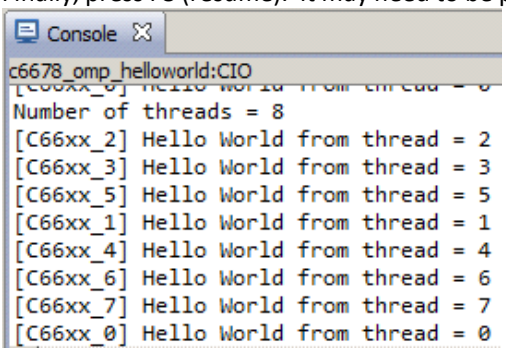
First, select all cores:



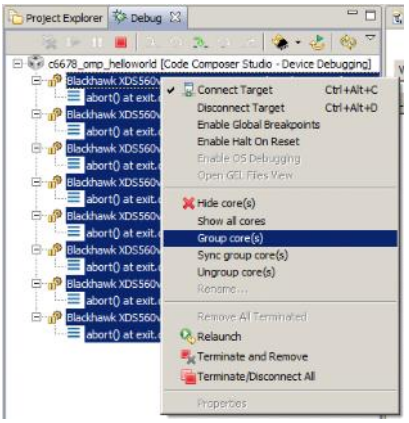
Next, press Restart, then click on main() core 0:



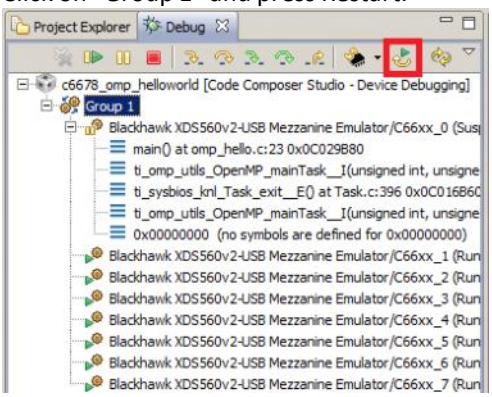
Finally, press F8 (resume). It may need to be pressed twice.



Alternatively, you may "group" the cores to make the process slightly more streamlined:



Click on "Group 1" and press Restart:



Press F8 (twice):