Getting Started with IPC

A.   Installing IPC

Requirements:
- DSP/BIOS 6.30
- XDCTools 3.20

1. Unzip the IPC zip package to some location on Linux or Windows box. We recommend using the same root directory where XDCtools and BIOS are installed (e.g. C:\Program Files\Texas Instruments)

   ```
   % unzip ipc_1_21_xx_xx.zip
   ```

   NOTE: Steps 2-5 are needed if and only if it is necessary to build IPC applications outside CCSv4

2. Add the IPC package path (i.e. <ipc_install>/ipc_1_21_xx_xx/packages)into XDCPATH. XDCTools and BIOS6 must also be present in the XDCPATH. The following template may be used to configure XDCPATH:

   ```
   C:/Program Files/Texas
   Instruments/CCSv4/DebugServer/packages;C:/Program Files/Texas
   Instruments/<IPC_PRODUCT>/packages;C:/Program Files/Texas
   Instruments/<BIOS_PRODUCT>/packages;C:/Program Files/Texas
   Instruments/<XDCTOOLS_PRODUCT>/packages;
   ```

3. Copy and rename the supplied default config.bld as specified below

   ```
   %cp <ipc_install>/ipc_1_21_xx_xx/etc/config.bld.default
   <ipc_install>/ipc_1_21_xx_xx/packages/config.bld
   ```

4. Set/modify the codegen tool paths if necessary (the defaults usually work).
5. Set the rootDir in config.bld to point to your codegen tools.
6. Uncomment the Build.targets as needed.

   NOTE: The config.bld.default supplied with IPC file is very similar to the one supplied with BIOS 6

B. Building IPC examples outside CCSv4

Building Single-core Examples

The single core examples can be built in two different ways. The first is via the "xdc" command. This approach uses the config.bld described in the above section.

1. Change directory to the desired directory
   ```
   % cd <ipc_install>/ipc_1_21_xx_xx/packages/ti/sdo/utils/examples
   ```

2. Run the "xdc" command
   ```
   % xdc
   ```

The other way is via the CCS templates. Refer to Section C (Building IPC examples within CCSv4) for more details.

The following are the examples:

ti\sdo\utils\examples

- list: example of the ti.sdo.utils.List module
- multiProc: example of the ti.sdo.utils.MultiProc module
- multiProcSingleImage: example of the MultiProc module when a single needs to be loaded on multiple cores.

ti\sdo\io\examples

- stream: example of the ti.sdo.io.Stream module

ti\sdo\ipc\examples\singlecore

- notify_loopback: Example of the ti.sdo.ipc.Notify module using loopback functionality (which allows it to run on a single core).
- message: Example of the ti.sdo.ipc.MessageQ module on a single core.

Building Multi-core Examples

The multi-core examples can be built in two different ways. The first is via the "xdc" command. This approach uses the config.bld described in the above section.

1. Change directory to the desired directory
   ```
   % cd <ipc_install>/ipc_1_21_xx_xx
   /packages/ti/sdo/ipc/examples/multicore/c6474
   ```

2. Run the "xdc" command
   ```
   % xdc
   ```

   NOTE: Another way to build examples is by using the CCS templates. Refer to Section C (Building IPC examples within CCSv4) for more information.

   Each platform example directory contains a multiprocessor Notify and MessageQ example. Refer to the readme.txt files in the respective directories for more details.

Rebuilding IPC modules

The individual modules can be rebuilt also via the "xdc" command. For example, to rebuild the utils modules:

1. Change directory to the desired directory (e.g. utils)
```
% cd <ipc_install>/ipc_1_21_xx_xx/packages/ti/sdo/utils
```

2. Run the "xdc" command
```
% xdc
```

C. Building IPC examples within CCSv4

1. Untar the IPC product into C:\Program Files\Texas Instruments\

   You should see C:\Program Files\Texas Instruments\ipc_1_21_xx_xx_eng\packages after it has untarred

2. Launch CCS and ensure that the new IPC product is in your RTSC path:
   - You may automatically be prompted to use the new product. If you are, select 'yes'
   - Click on 'Window' → 'Preferences'
   - Navigate to CCS→ RTSC
   - Ensure that a BIOS 6.30 release is selected in the "Products and Repositories" list
   - Ensure that an XDCtools 3.20 release is selected in the "XDCtools version" dropdown list
   - Ensure that your IPC product that was untarred in Step 1 is selected in "Products and Repositories"
   - Add/select any other repositories you might need for your application in this configuration panel

3. Restart CCS if any changes were made in Step 2
4. Now you should be able to create a new CCSv4 project. Click on File→New Project
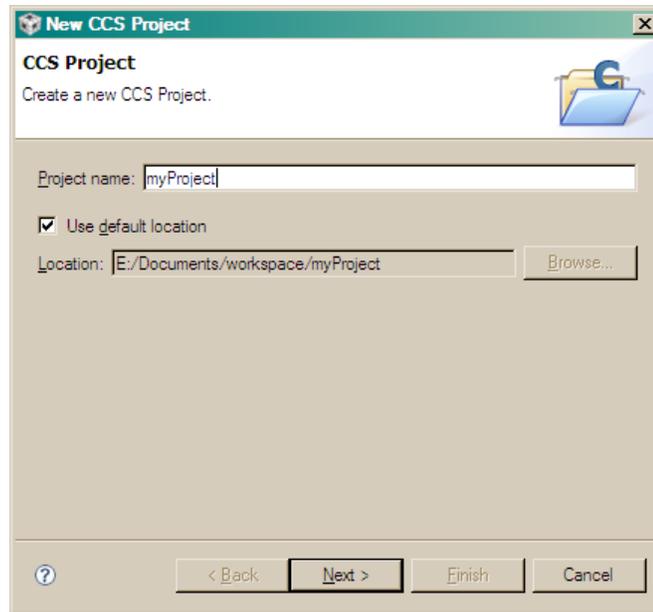
5. Select the class of processors that you need to build for 'i.e. c6000'
6. Select device-specific attributes as shown below.
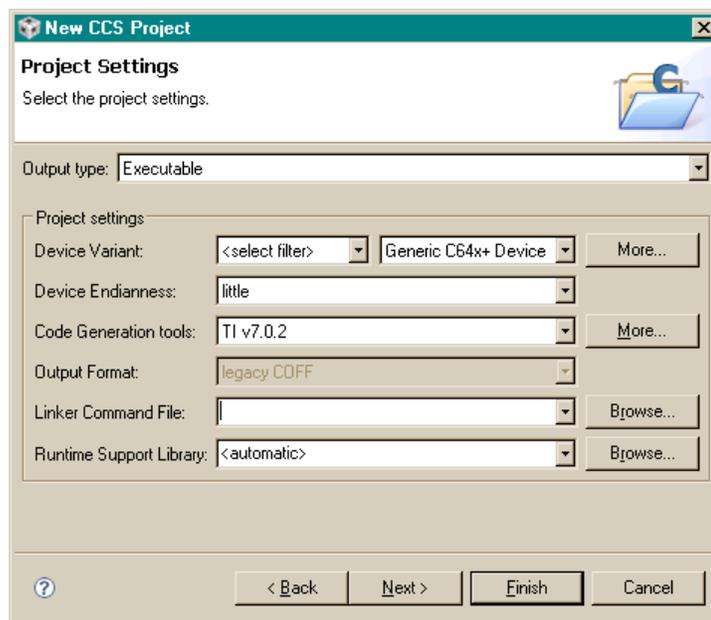
7. Select an IPC example for your device from the 'Projects Templates' wizard pane.
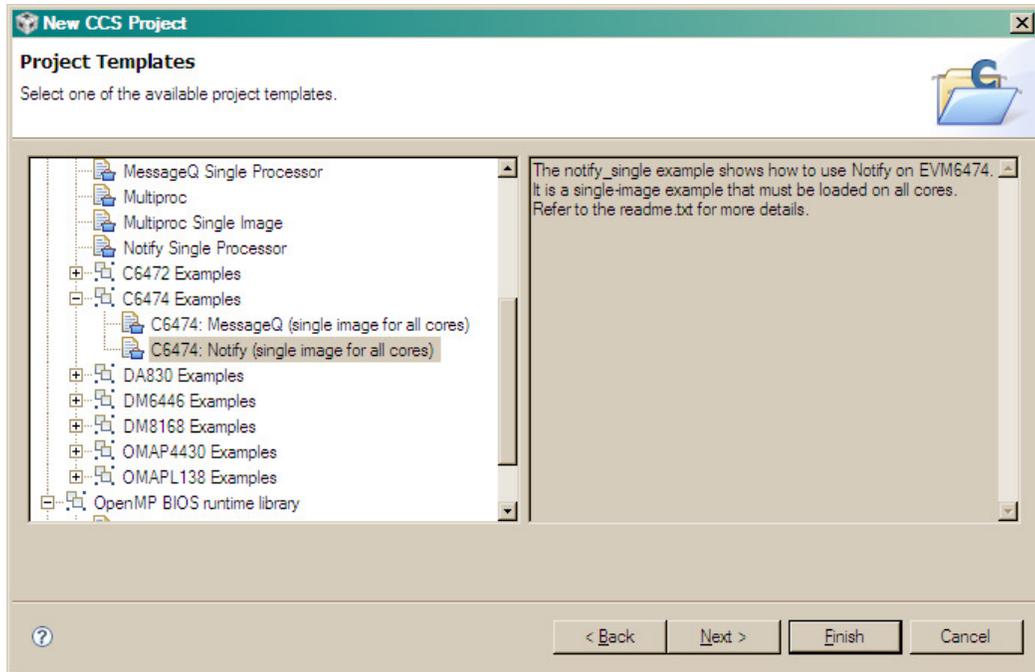
8. Ensure that the correct repositories are selected and then select the IPC platform corresponding to your device/core. I.e. for c6474:
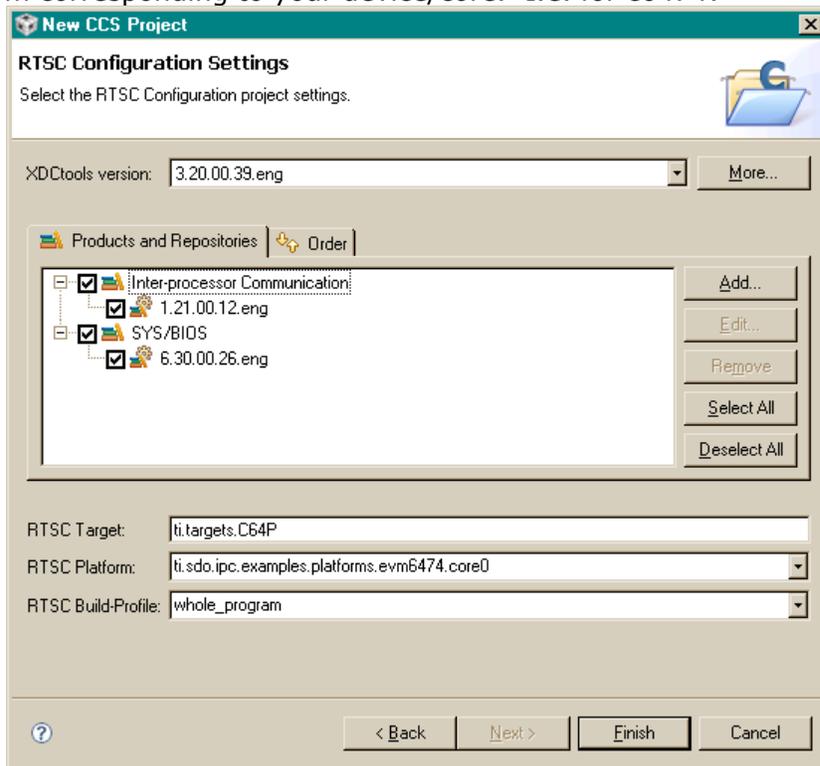
9. Click 'Finish' and you will see your newly created project in the 'C/C++ Projects' pane.

10. You can build your project immediately by right clicking 'myProject' and clicking 'Build'

11. You are done!