

# Creating TI-RTOS Projects for Other MSP430 Devices

This page describes on how to create a MSP430 project for a non-MSP430F5529 device. TI-RTOS 1.20 supports MSP430F5xx and MSP430F6xx families.

For this exercise, a CCS project for a MSP430F5527 will be created. These are the steps to be performed:

1. Build MSP430Ware driverlib and TI-RTOS driver libraries.
2. Create an empty MSP430F5529 TI-RTOS project for CCS.
3. Reconfigure the project's properties to use the new libraries.
4. Port over the board files for your new MSP430 device.

## Build MSP430Ware driverlib and TI-RTOS driver libraries.

- Open windows command prompt or linux terminal console and navigate into the TI-RTOS directory.

```
cd c:\TI\rtos_1_20_00_28
```

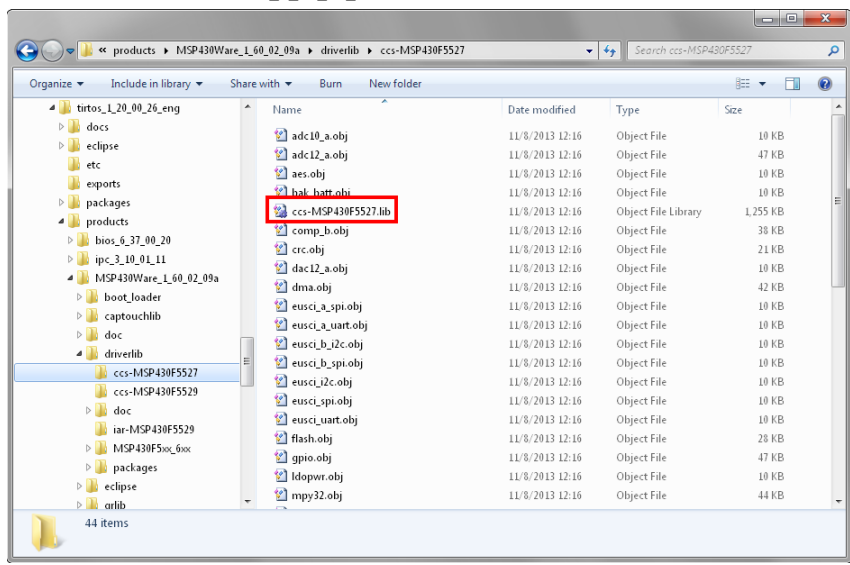
- Edit *tirtos.mak* and update *MSP430DEVLIST* to include the new MSP430 device

```
To build TI-RTOS driver libraries for other MSP430 devices; simply append the
device names to MSP430DEVLIST (separated by whitespaces)
MSP430DEVLIST := \
MSP430F5529 \
MSP430F5527 \
MSP430F6459 \
etc...
MSP430DEVLIST := MSP430F5529 \
MSP430F5527
```

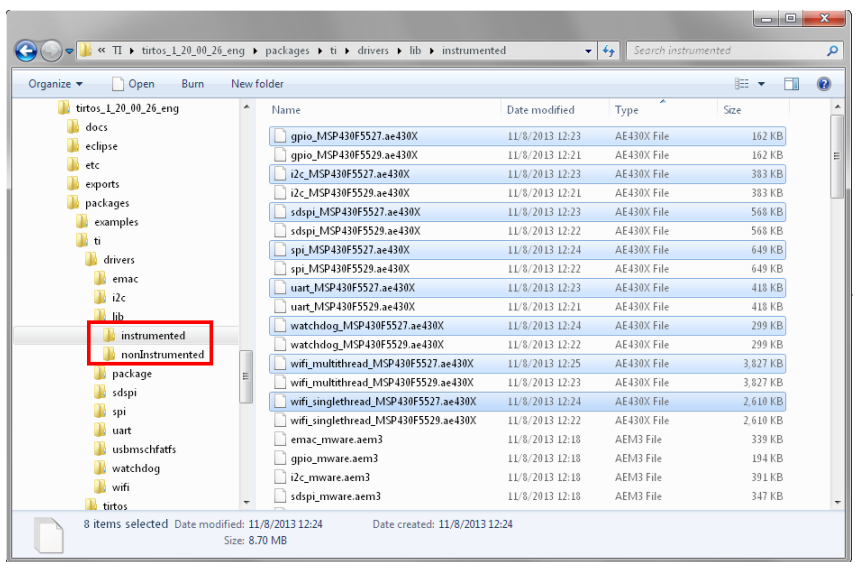
- Build MSP430Ware driverlib and TI-RTOS driver libraries.

```
..\xdctools_3_25_04_88\gmake.exe -f tirtos.mak drivers
```

- **(Optional)** Verify that the new MSP430 driverlib library was built. In TI-RTOS' products subdirectory, you will find MSP430Ware's driverlib. In the driverlib folder you should find a new subdirectory *ccs-MSP430\** that matches your device. Within the subdirectory, look for a *ccs-MSP430\*.lib* library. For this example, we'd be expecting to find *.\products\MSP430Ware\_1\_60\_##\_###\driverlib\ccs-MSP430F5527\ccs-MSP430F5527.lib*.

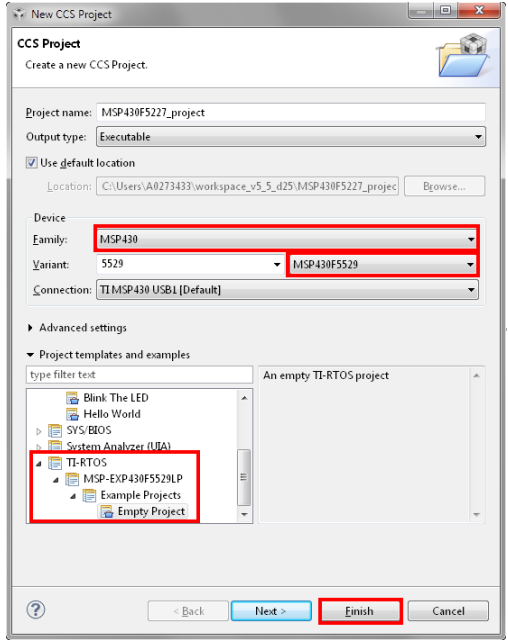


- **(Optional)** Verify that the new TI-RTOS driver libraries were built. For MSP430, TI-RTOS creates several TI-RTOS driver libraries at a per device basis. Again, we'll make a visual inspection to see that these libraries were created. You will find these libraries in *.\packages\ti\drivers\lib\[non]instrumented\driver\_MSP430\*.ae430X*



## Create an empty MSP430F5529 TI-RTOS project for CCS.

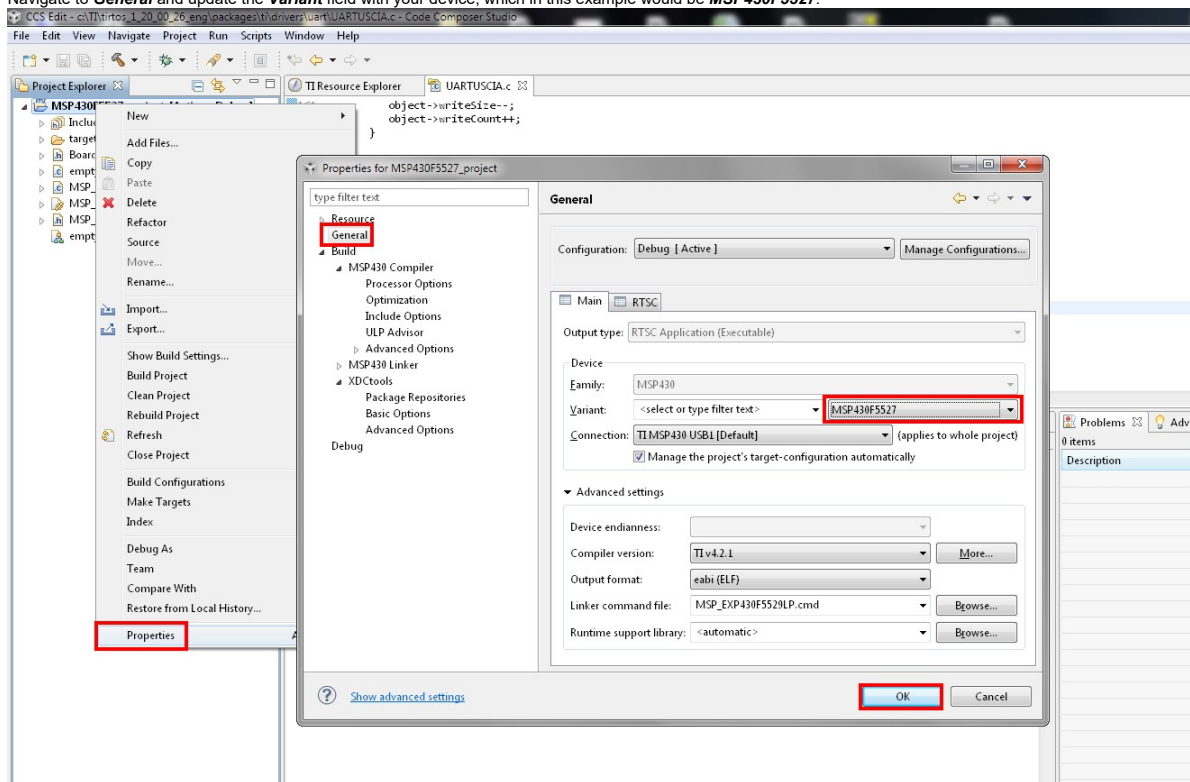
Create a new MSP430 project for the *MSP430F5529* based on the TI-RTOS User Guide instructions.



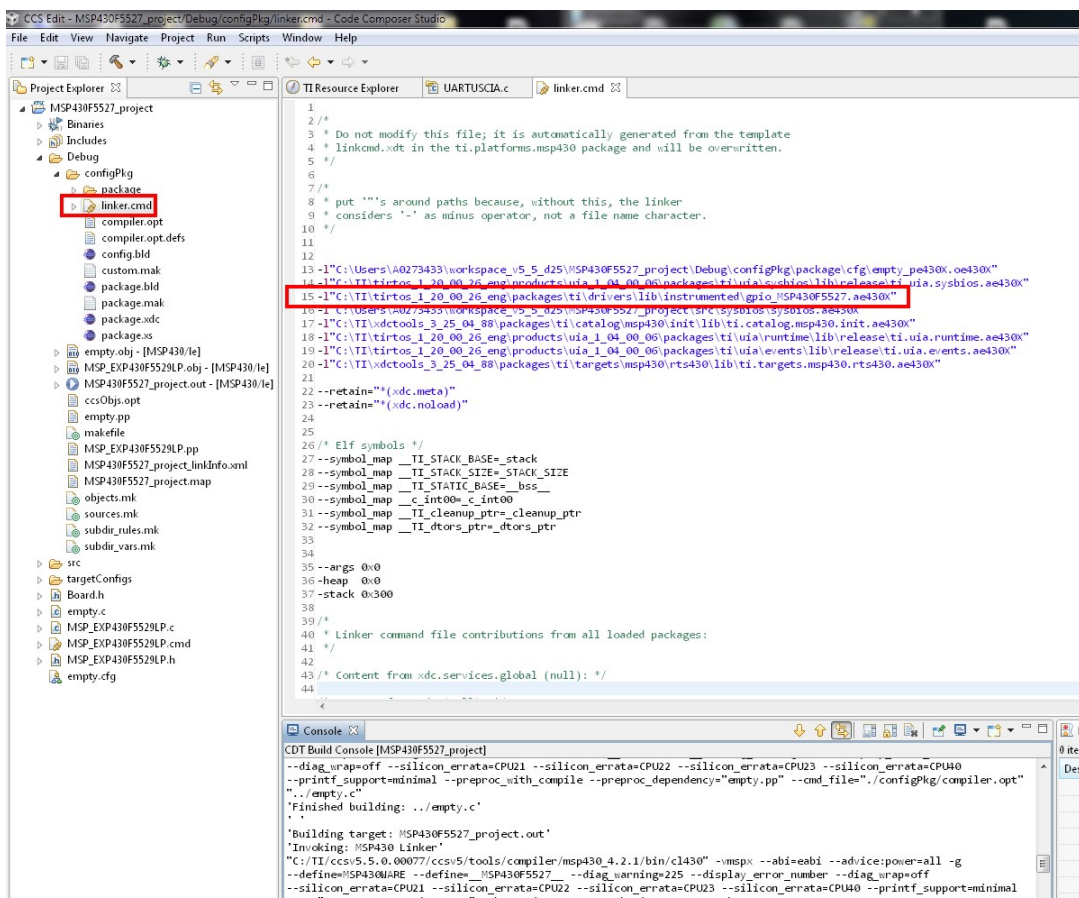
## Reconfigure the project's properties to use the new libraries.

- Edit the project properties to use the new MSP430 libraries that were just built. This is simply done by updating the CCS project properties with the new device variant. **Right-click** on the project and select **Properties**.

- Navigate to **General** and update the **Variant** field with your device, which in this example would be **MSP430F5527**.



- Click **OK** to close the window.
- Build the project to verify that you have no build errors.
- **(Optional)** Since the **Empty** example uses the **GPIO driver** we can verify that you using the new TI-RTOS GPIO library by looking at what we're linking into our application. The generated RTSC Debug\configPkg\linker.cmd file includes a link to `gpio_MSP430F5527.ae430x`



## Port over the board files for your new MSP430 device.

The last step is to customize the board files (e.g. MSP\_EXP430F5529LP.[ch] and MSP\_EXP430F5529LP.cmd) to your own development board. See [Migrating a TI-RTOS project to a custom development board.](#)

## Creating a TI-RTOS Project for an MSP430 Device with EUSCI Drivers

These steps apply to TI-RTOS 2.15.01 or higher. In this example, we'll use the MSP430F6779 with TI-RTOS 2.15.01. The steps for building the drivers are identical to the previous example.

- Open windows command prompt or linux terminal console and navigate into the TI-RTOS directory.

```
cd c:\ti\rtos_2_15_01_xx
```

- Edit `tirtos.mak` and update `MSP430DEVLIST` to include the new MSP430 device

```
##
## To build TI-RTOS driver libraries for other MSP430 devices; simply append the
## device names to MSP430DEVLIST (separated by commas)
## MSP430DEVLIST := MSP430F5529,MSP430F5527,MSP430F6459,etc...
MSP430DEVLIST := MSP430F5529,MSP430FR5969,MSP430FR6989,MSP430F6779
```

- Build MSP430Ware driverlib and TI-RTOS driver libraries.

```
..\xdctools_3_32_00_06_core\gmake.exe -f tirtos.mak drivers
```

As in the previous example, verify that the drives were built.

- Since the MSP430F6779 is a F5xx\_6xx device, create an empty project one of the TI-RTOS supported F5xx\_6xx devices. In this example, we'll create an empty project for the MSP430F5529.

enter search keyword Address:

## Empty Project

An empty TI-RTOS project

These are the steps to import the project, build the project, and debug:

**Step 1:** [Import the example project into CCS](#)

Click on the link above to import the project. The imported project will expand the project node to browse the imported source files. Click on a source file within the project to open the source file editor.

**Step 2:** [Build the imported project](#)

To change build options, right click on the project and select Build, select the link above, or select the Build toolbar button.

**Step 3:** [Debugger Configuration](#)


Connection: **none**

- The MSP430F5529 does not have EUSCI, so the board file for our MSP430F6779 project will need modification to replace the USCI configuration with EUSCI configuration.
- Note: We could have started with an empty project for one of the TI-RTOS devices that supports EUSCI, however, these are all FR5xx\_6xx devices. You would then need to change the project properties to have the F5xx\_6xx driverlib include and library search paths. The MSP430 driverlib for FR5xx\_6xx and F5xx\_6xx have some incompatible header files (e.g., gpio.h), so compiling the board file for your new project will result in many compilation errors. It may be useful, though, to import the Empty MSP430FR5969 project so you can compare that board file with the one you will be modifying.
- As in the previous example, edit the project properties to select the new device variant, which in this example would be **MSP430F6779**. You may also want to rename your project with a new name that reflects the device variant. Changing the device variant will bring in a new linker command file into the project (lnk\_msp430f6779.cmd for this example), so you need to exclude from the build the MSP\_EXP430F5529LP.cmd

```

empty_MSP430F6779_fromF5529
├── Binaries
├── Includes
├── Debug
├── src
├── targetConfigs
├── Board.h
├── empty.c
├── lnk_msp430f6779.cmd
├── MSP_EXP430F5529LP.c
├── MSP_EXP430F5529LP.h
├── empty_readme.txt
├── empty.cfg
├── makefile.defs
└── MSP_EXP430F5529LP.cmd
    
```

- Edit the board.c file for your new project (MSP\_EXP430F5929LP.c, if you have not renamed it), and replace all the USCI configuration with EUSCI. It may be useful to look at the board file for the empty MSP430FR5969 project to see where the changes need to be made.



**Engage in the TI E2E Community**  
Ask questions, share knowledge, explore ideas and help solve problems with fellow engineers.

Keystone=

1. switchcategory:MultiCore=

- For technical support on MultiCore devices, please post your questions in the C6000 MultiCore Forum
- For questions related to the BIOS MultiCore SDK (MCSDK), please use the BIOS Forum

Please post only comments related to the article [Creating TI-RTOS Projects for Other MSP430 Devices](#) here.


C2000=For technical support on the C2000 please post your questions on The C2000 Forum. Please post only comments about the article [Creating TI-RTOS Projects for Other MSP430 Devices](#) here.

DaVinci=For technical support on DaVinciplease post your questions on The DaVinci Forum. Please post only comments about the article [Creating TI-RTOS Projects for Other MSP430 Devices](#) here.

MSP430=For technical support on MSP430 please post your questions on The MSP430 Forum. Please post only comments about the article [Creating TI-RTOS Projects for Other MSP430 Devices](#) here.

OMAP35x= technical support on OMAP please post your questions on The OMAP Forum. Please post only comments about the article [Creating TI-RTOS Projects for Other MSP430 Devices](#) here.

### Links

 <ul style="list-style-type: none"> <li><a href="#">Amplifiers &amp; Linear Audio</a></li> <li><a href="#">Broadband RF/IF &amp; Digital Radio</a></li> <li><a href="#">Clocks &amp; Timers</a></li> <li><a href="#">Data Converters</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">DLP &amp; MEMS High-Reliability Interface</a></li> <li><a href="#">Logic</a></li> <li><a href="#">Power Management</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Processors</a></li> <li> <ul style="list-style-type: none"> <li>ARM Processors</li> <li>Digital Signal Processors (DSP)</li> <li>Microcontrollers (MCU)</li> <li>OMAP Applications Processors</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Switches &amp; Multiplexers</a></li> <li><a href="#">Temperature Sensors &amp; Control ICs</a></li> <li><a href="#">Wireless Connectivity</a></li> </ul>
--	--	---	---

Retrieved from "[https://processors.wiki.ti.com/index.php?title=Creating\\_TI-RTOS\\_Projects\\_for\\_Other\\_MSP430\\_Devices&oldid=211033](https://processors.wiki.ti.com/index.php?title=Creating_TI-RTOS_Projects_for_Other_MSP430_Devices&oldid=211033)"

---

This page was last edited on 18 December 2015, at 14:33.

Content is available under [Creative Commons Attribution-ShareAlike](#) unless otherwise noted.