# 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\tirtos_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 whitepsaces)
#    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`.
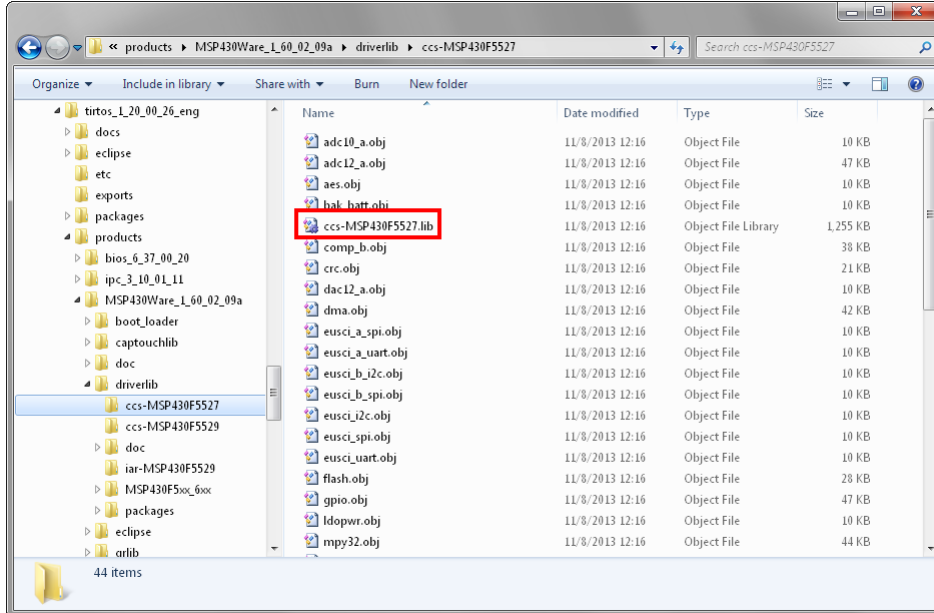


- **(Optional)** Verify that the new TI-RTOS driver libraries were built. For MSP430, TI-RTOS creates several TI-RTOS driver libraries at a per device basis. Again, we'll make a visual inspection to see that these libraries were created. You will find these libraries in `.\packages\ti\drivers\lib\[non]instrumented\driver_MSP430*.ae430X`
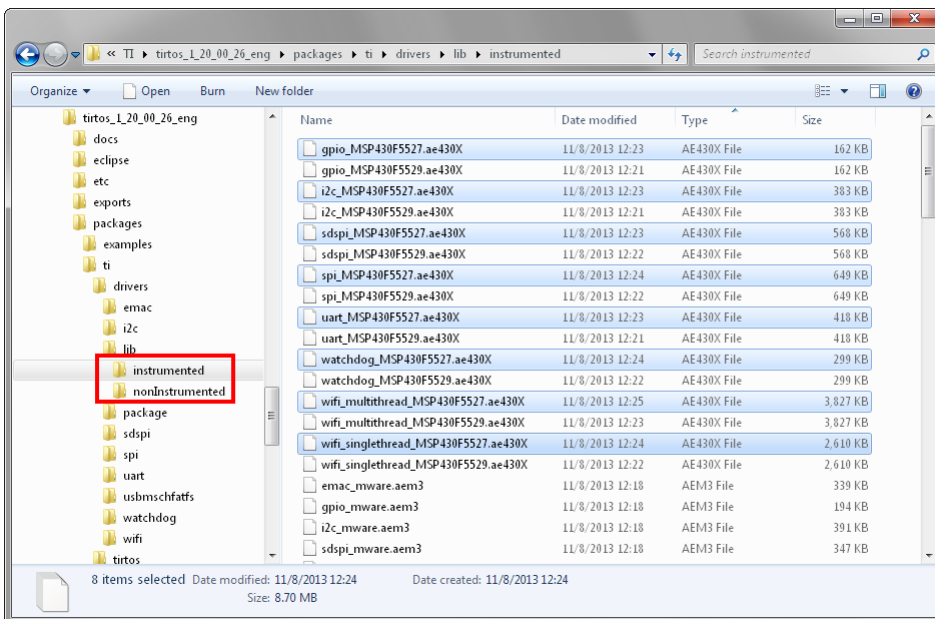
# Create an empty MSP430F5529 TI-RTOS project for CCS.

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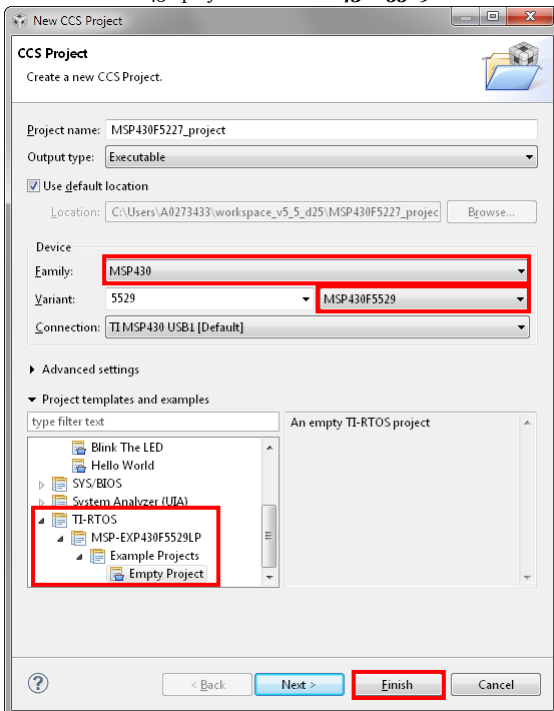


# Reconfigure the project's properties to use the new libraries.

- 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**.
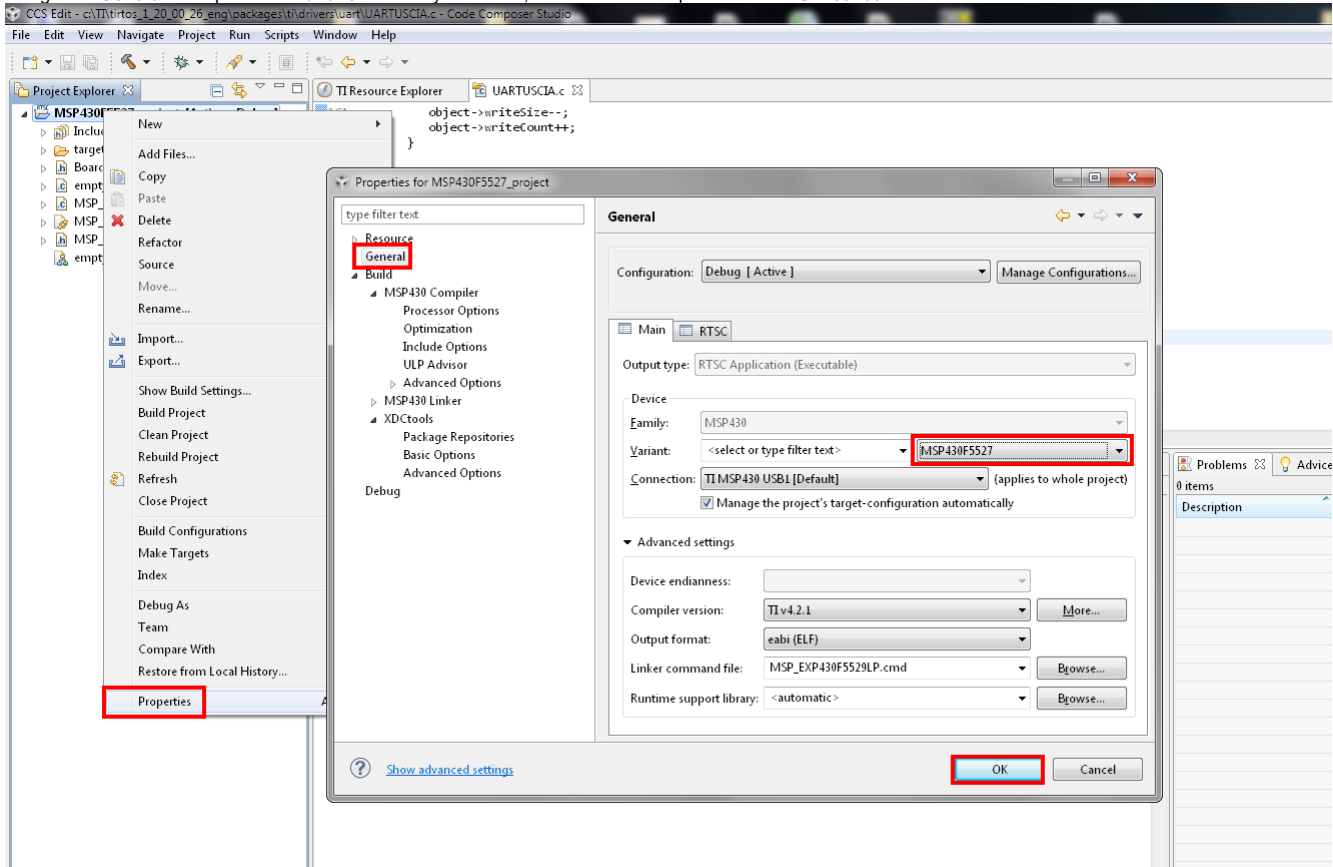


- Click **OK** to close the window.
- Build the project to verify that you have no build errors.
- **(Optional)** Since the *Empty* example uses the *GPIO driver* we can verify that you using the new TI-RTOS GPIO library by looking at what we're linking into our application. The generated RTSC `Debug\configPkg\linker.cmd`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

- System Analyzer (UIA Target)
- TI-RTOS for C2000
- TI-RTOS for C6000
- TI-RTOS for CC32XX
- TI-RTOS for MSP43x
  - Release Notes
  - MSP430FRxxx Family
  - MSP430x5xx Family
    - MSP430F5529
      - MSP-EXP430F5529 Launchpad
        - Driver Examples
          - TI Driver Examples
            - Empty Examples
              - Empty (Minimal) Project
              - **Empty Project**
            - FatFs Examples
            - GPIO Examples
            - I2C Examples
            - UART Examples
            - USB Examples
            - Watchdog Examples
        - Instrumentation Examples
        - Kernel Examples
        - Network Examples
- MSP432 Family

# Empty Project
### An empty TI-RTOS project

These are the steps to import the project, build the project, and deb...

**Step 1:** Import the example project into CCS

Click on the link above to import the project. The imported p...
expand the project node to browse the imported source files.
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 selec...
project, select the link above, or select the **Build** toolbar bu...
item.

**Step 3:** Debugger Configuration

Connection: **none**

- The MSP4305529 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 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.

| {{<br>1. switchcategory:MultiCore=<br><br>- For technical support on MultiCore devices, please post your questions in the C6000 MultiCore Forum<br>- For questions related to the BIOS MultiCore SDK (MCSDK), please use the BIOS Forum<br><br>Please post only comments related to the article **Creating TI-RTOS Projects for Other MSP430 Devices** here. | Keystone=<br><br>- For technical support on MultiCore devices, please post your questions in the C6000 MultiCore Forum<br>- For questions related to the BIOS MultiCore SDK (MCSDK), please use the BIOS Forum<br><br>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=*For 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.* | OMAPL1=*For 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.* | MAVRK=*For technical support on MAVRK please post your questions on The MAVRK Toolbox Forum. Please post only comments about the article* **Creating TI-RTOS Projects for Other MSP430 Devices** *here.* | *For technical su... please post you... questions at http://e2e.ti.com... Please post onl... comments abou... article* **Creating ... RTOS Projects ... Other MSP430 ... Devices** *here.*<br>}} |
|---|---|---|---|---|---|---|---|---|

# Links

**Amplifiers & Linear**
Audio
Broadband RF/IF & Digital Radio
Clocks & Timers
Data Converters

DLP & MEMS
High-Reliability
Interface
Logic
Power Management

Processors

- ARM Processors
- Digital Signal Processors (DSP)
- Microcontrollers (MCU)
- OMAP Applications Processors

Switches & Multiplexers
Temperature Sensors & Control ICs
Wireless Connectivity

Retrieved from "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.**