

AN-013 OPS241 Code Update

From time to time, OmniPreSense provides code updates with new features and/or fixes for its radar sensors. The embedded code in the OPS241 short range radar sensor can be easily updated to take advantage of these enhancements. This application note describes how to update the code on the OPS241 radar sensors.

Update Tools

To update the code on the OPS241 radar sensor the user will need a JTAG programmer and a PC based code flashing tool. An example of a low cost JTAG programmer is the [miniWiggler](#) (Figure 1) available from Infineon. Other models are available from [Seggar](#).



Figure 1. miniWiggler JTAG Programmer

The code flashing tool used by OmniPreSense is Memtool (Figure 2) also provided by Infineon. This free tool is available [here](#).

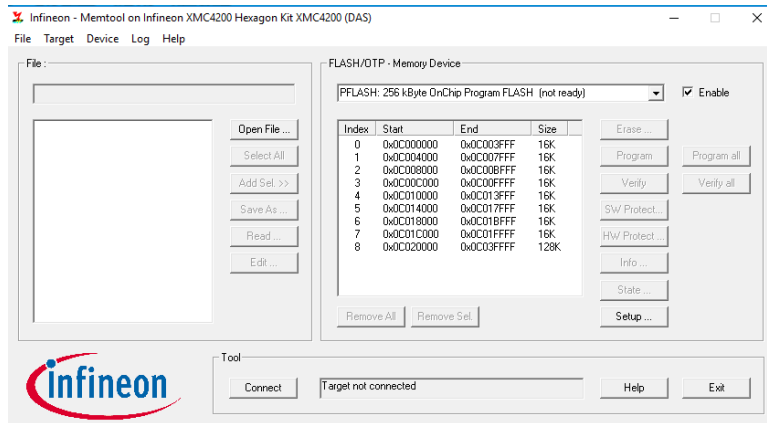


Figure 2. Memtool Programming Tool

Code Updating

To update the code in the OPS241, follow the step by step instructions which follow. You should have a JTAG programming tool like the miniWiggler or Seggar noted above.

Step 1. Download and install the Memtool programming tool from the Infineon website. Follow the installation instructions that come with the download.

Step 2. Connect the JTAG programming tool connector to the JTAG connector on the OPS241 (J6) located in near the middle of the board (Figure 3). The connector is keyed, so it can only connect in one direction.

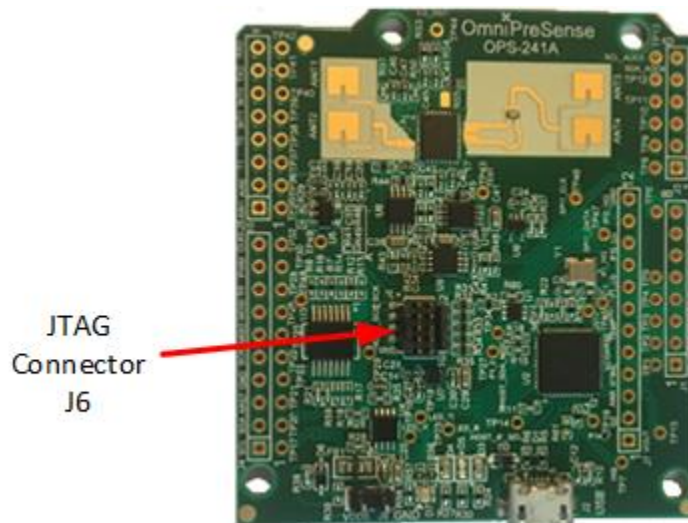


Figure 3. JTAG Connector J6

Step 3. Plug in the USB connector of the JTAG programmer to a USB port on the PC. Plug in a USB micro cable into the OPS241 and the other end into another USB port on the PC (Figure 4). This provides power to the OPS241 during the program update.

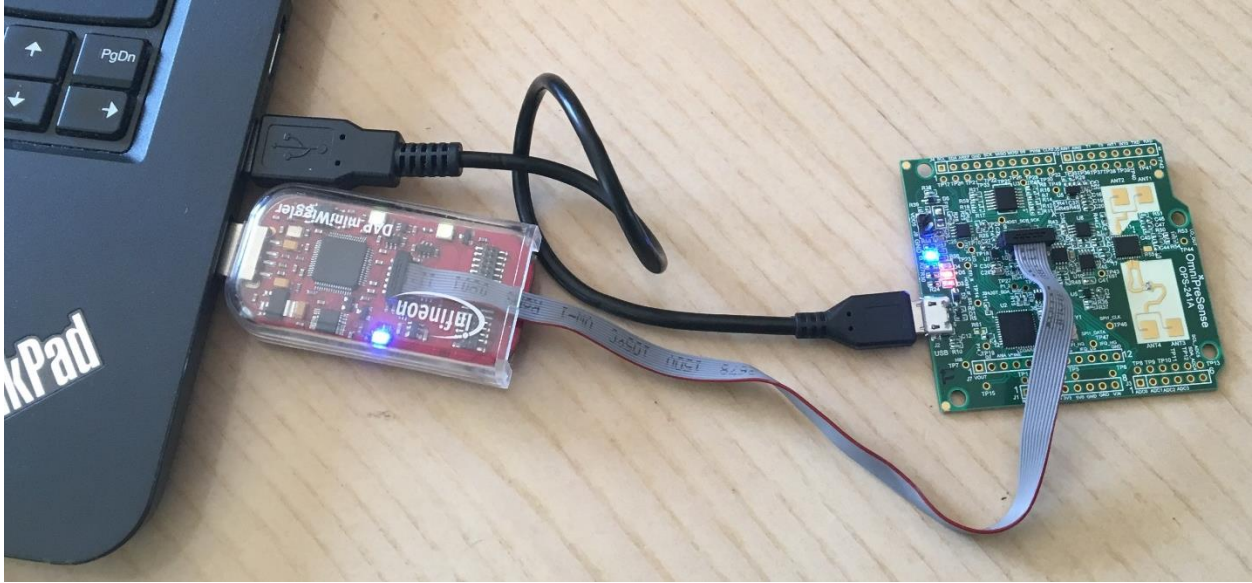


Figure 4. USB and JTAG Connections to PC

Step 4. Start Memtool on the PC to get a window similar to that shown in Figure 2. Press the Connect button. A message will appear to the right of the Connect button indicating the connection is in progress. If successful, the message will change to “Ready for Memtool Command” (Figure 5).

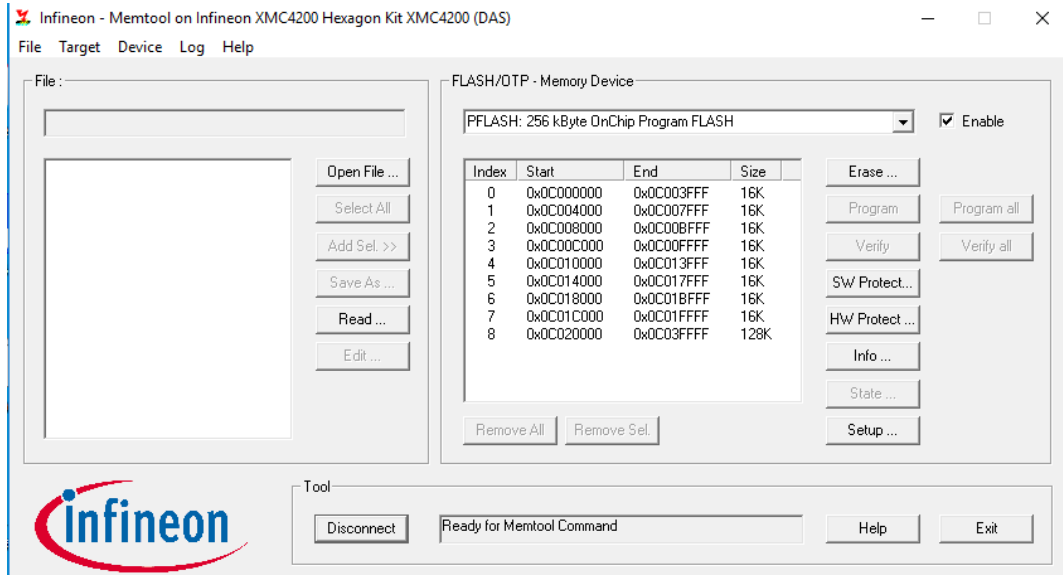


Figure 5. Memtool Connected State Window

Next, select Open File in the middle left of the window, browse to the location of the hex file to update the OPS241 with (Figure 6) and press Open. Contact OmniPreSense [customer service](#) to obtain the latest code version.

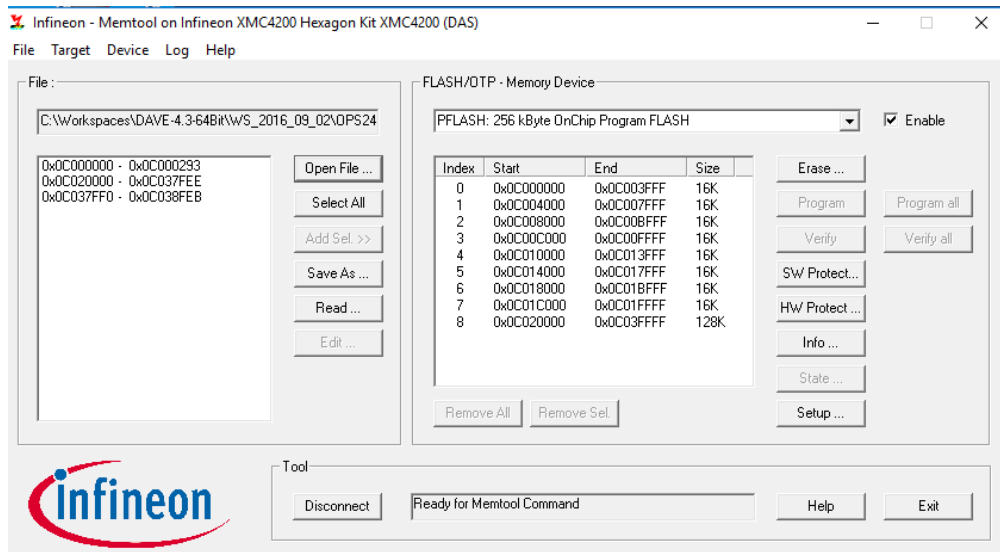


Figure 6. Hex File Selection

Step 5. Several address files should appear in the window on the left. Press the Select All button in the middle left of the window to select all the files to program and then press Add Set>> (Figure 1Figure 7).

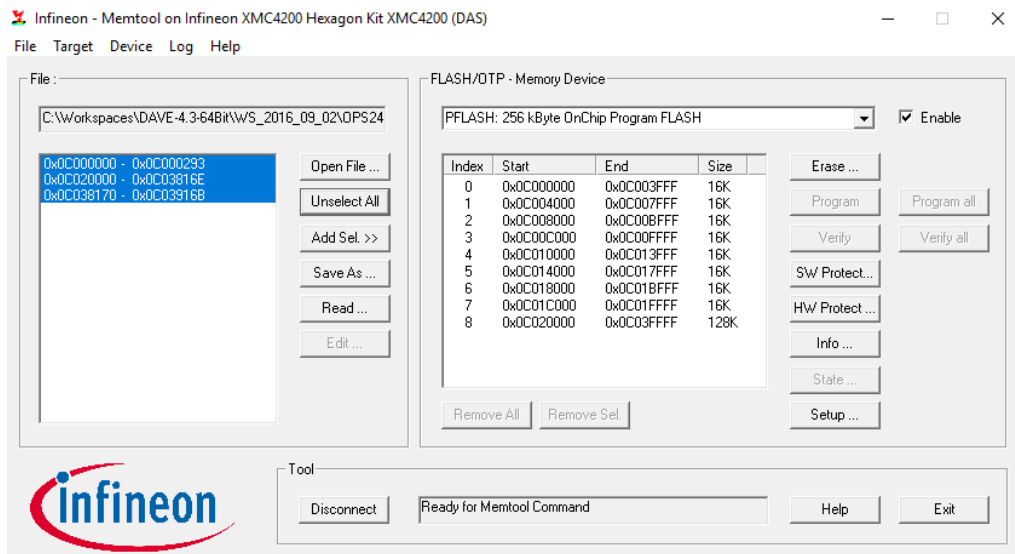


Figure 7. Select All Files and Add Sel>> Window

Step 6. Pressing Add Sel>> will add the files to the window on the right side. The Program all button on the far right will now be available to press (Figure 8).

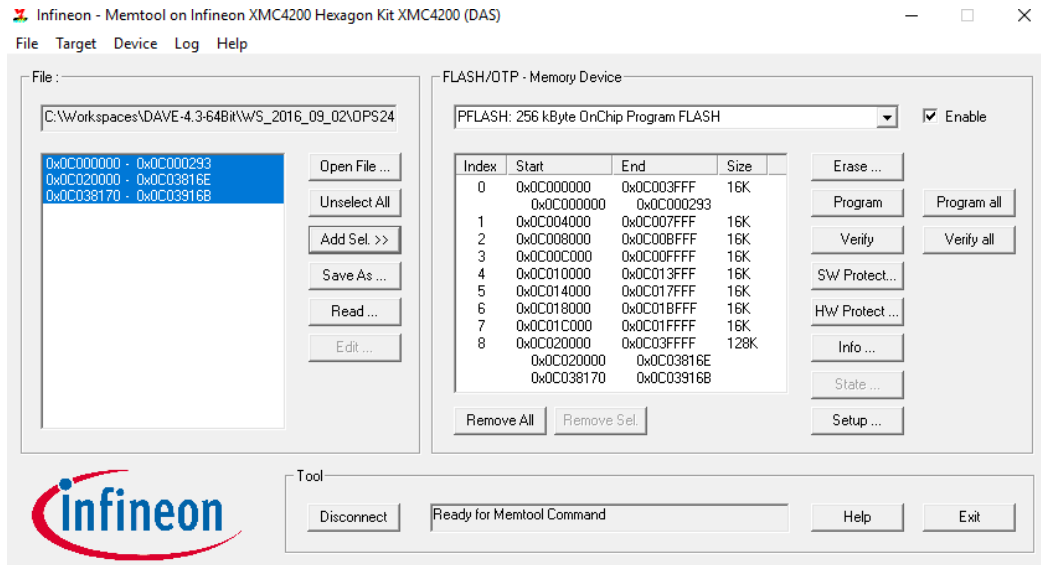


Figure 8. Files Ready to Program

Step 7. Press the Program all button and the programming process will start. It will take 3-5 seconds to flash the new files into the OPS241. A progress window will appear as shown in Figure 9. Upon completion the window will stay present but in the Result box it will say “success” (Figure 10). Press the Exit button to exit the window. The board is now successfully reprogrammed.

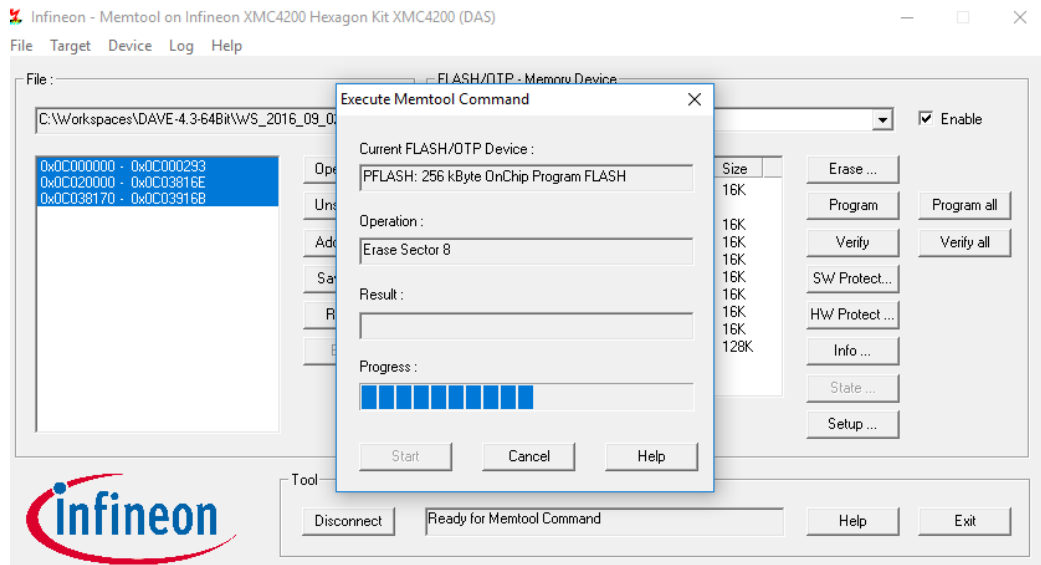


Figure 9. Programming Board in Process

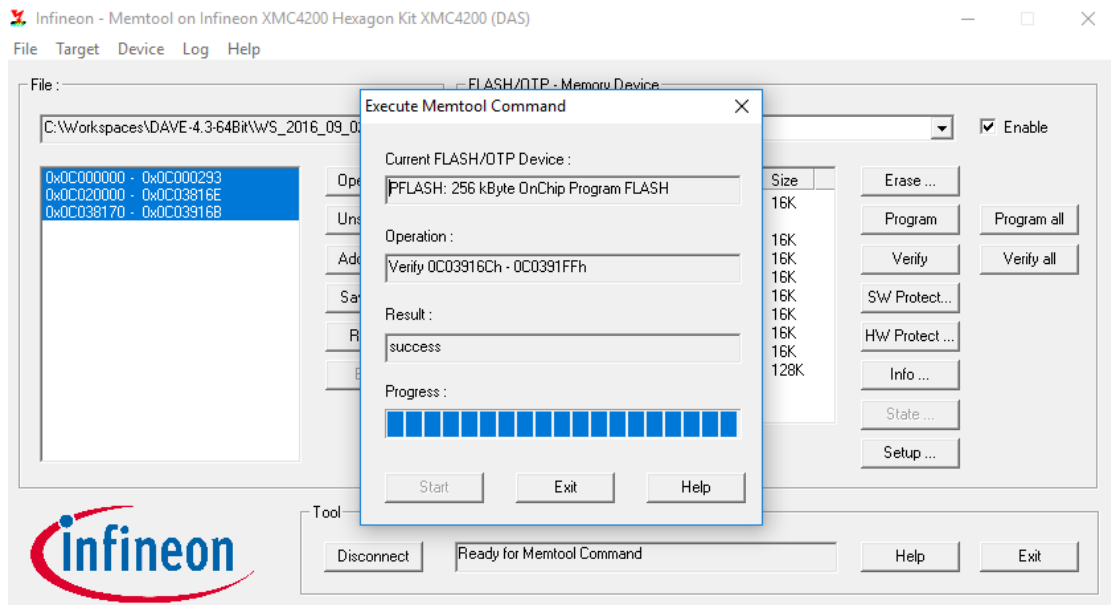


Figure 10. Completed Programming

Step 8. Once the board is reprogrammed it's ready to use. The Memtool will leave the board in a reset state. Unplug the board from the USB port and disconnect the JTAG connector on J6.

You can check the programming was successful by plugging the board back into the USB port on the PC and using [Tera Term](#) to validate the new code is programmed and runs. Start Tera Term and it will automatically detect which port the board is connected to. Select the Serial button with the proper port selection. You should see speed data (m/s) start to stream from the board while waving your hand above the board. Press ?? to report the board information and note the Version number is correct for the expected code which has been programmed (Figure 11).

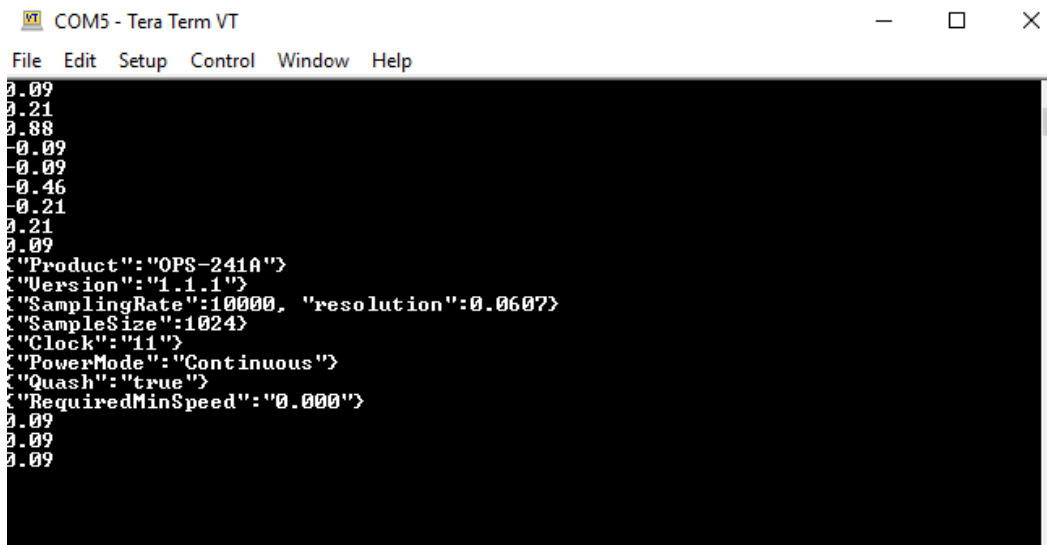


Figure 11. Programmed Board Validation

Additional Notes

There are other tools which may be used for programming boards. Besides the miniWiggler, [Seggar](#) has many programmers which can also be used. Infineon has also released a new programming tool called [XMC Flasher](#). This tool works with Seggar programmers but does not look to work with the miniWiggler.

Revision History

Version	Date	Description
A	Nov. 13, 2017	Initial release.