TMS320 DSP
DESIGNER'S NOTEBOOK

Switching From Bootloader to MP Mode with TMS320C31

APPLICATION BRIEF: SPRA219

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Contents

Abstract **7**
Design Problem **8**
Solution **8**

Switching From Bootloader to MP Mode with TMS320C31

Abstract

The ’C31 bootloader is expected to be used only at reset and then the ’C31 will stay in MCBL mode the rest of the time. It is sometimes convenient that once loading is done, the MCBL/MP pin is changed to enable the microprocessor memory map. This document discusses a technique to change from bootloader mode to microprocessor mode “on-the-fly”.

Design Problem

How can I boot change from bootloader mode to microprocessor mode “on-the-fly?”

Solution

The ’C31 bootloader is expected to be used at reset and then the ’C31 stays in MCBL mode the rest of the time. Yet, it is sometimes convenient that once loading is done, change the MCBL/MP pin to enable the microprocessor memory map.

The ’C31 device will continue to sample the MCBL/MP pin status. Therefore, it is possible to change the MCBL/MP mode without resetting the device. The user needs to make sure the MCBL/MP pin is high during the bootloading and the ’C31 is not using the overlapping memory during the mode transition time.

The user should use a routine in which it is guaranteed that no program fetch or data read/write is performed to the overlapping memory during the transition time. A ’C31-initiated interrupt issued via an otherwise unused pin (e.g., XF0, a timer bit–I/O) can be used to request a transition on the MCBL pin.