TMS320 DSP
DESIGNER'S NOTEBOOK

Interfacing a TMS320C2x, 'C2xx, or 'C5x DSP to an 8-Bit Boot EPROM

APPLICATION BRIEF: SPRA263

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Abstract

This document describes how to interface a TMS320C2x, TMS320C2xx or TMS320C5x DSP to an 8-bit boot EPROM.

Design Problem

How do you interface a ’C2x, ’C2xx, or ’C5x DSP to an 8-bit boot EPROM?

Solution

For cost-conscious designs, the user may wish to use a TMS27C256 EPROM. However, for maximum flexibility, the use of the TMS27C512 allows for future software expansion, code evaluation, and increased availability of parts. The addition of an extra output to supply this A15 pin is often too much of a penalty since global memory exists for a maximum of 32K words or bytes, 0X8000 to 0XFFFF.

One approach to solve this problem is to use the FSX pin on the serial port. On power-up, this pin is three-stated so you need to add a pull-up resistor of 10K ohms on this line and then connect it to the V_{PP} pin of the TMS27C256 (see pages 7-15 of the 1995 TI MOS Memory Databook - SMYD095). The V_{PP} line on the TMS27C256 must be held at +5 V DC. This same pin is address A15 on the TMS27C512 (see pages 7-69 of the TI MOS Memory Databook).

On power-up with a TMS27C256, everything proceeds as usual. Address 0X7FFF in the TMS27C256 contains the boot routine selection byte, XXXXXX01b, typically 0x81 for a boot from 0X8000 global memory (0X000 in EPROM). The first four bytes of the EPROM memory contain the destination and length of the data to be transferred.

When using the TMS27C512, the operation is similar, except the boot routine byte is located at 0XFFFF in the EPROM. The starting four bytes of destination and length of transfer is located at 0X8000 in the TMS27C512. Now, the initialization code in your software will set the FSX pin to a low value and then transfer the rest of the code and/or data to RAM from 0X0000 up to 0X7FFF of the EPROM.

Example 1. Example Code for a TMS320C52

```
Lacl  #80h          ;Set global memory for maximum
Samm  greg
Lamm  spc           ;Set A15 of EPROM to a “0"
Or    #00020h
Samm  spc

              transfer code from EPROM into RAM here

   lamm  spc        ; Return A15 of EPROM to a “1"
   and   #0FFDFh
   samm  spc
```