

# DESIGNER'S NOTEBOOK



## A Simple Way to Terminate Unused TMS320C40 Comm Ports

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### *Design Problem*

Is there an easy way to terminate an unused comm port without using external pull-up resistors?

### *Solution*

You can terminate the control lines on unused individual comm ports by tying the control lines together on the same comm port, i.e.,

$$\begin{array}{l} \overline{\text{CSTRB}} \text{ to } \overline{\text{CRDY}} \\ \overline{\text{CREQ}} \text{ to } \overline{\text{CACK}} \end{array}$$

The idea is that this would hold the control inputs high without the use of external pull up resistors. As a secondary effect, a port terminated like this would provide a monitor/test point, to which one could connect a logic analyzer or external device to capture data written to the port.

### **Writing a Word to the Comm Port**

#### **Case 1: Writing to ports 0, 1, or 2**

These are output ports at reset and will not request the token when the processor writes to the port (i.e., these ports already have the token). CSTRB will drive CRDY correctly for each byte written.

#### **Case II: Writing to ports 3, 4, or 5**

When the processor writes a word to the port the first time, the port will request the token and the control and data lines will switch directions without problems, but there is no way to make the CREQ line go active again. That port can continue sending words, but it cannot become an input port again.