

I/O Using the TMS320C2xx Asynchronous Serial Port in C



APPLICATION REPORT: SPRA353

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March 1998*



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Abstract

This document describes a program that demonstrates how to access the TMS320C2xx asynchronous serial port from the Texas Instruments C compiler. This program is a C version of the `echo.asm` file found in Example C-10 of Appendix C in the TMS320C2xx User's Guide (SPRU127B). The program receives input from the serial port and echoes each character as it is received. This document lists the contents of the program, and explains how to obtain and use it.



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Introduction

This program can be obtained via the Internet by typing the following location into your browser and executing the self-extracting archive after downloading it:

<ftp://ftp.ti.com/pub/tms320bbs/c2xxfiles/ECHO2XX.EXE>

This program demonstrates how to access the TMS320C2xx asynchronous serial port from the Texas Instruments C compiler. It is a C version of the `echo.asm` file found in Example C-10 of Appendix C in the TMS320C2xx User's Guide (SPRU127B). The program receives input from the serial port and echoes each character as it is received.

Contents

File	Description
<code>main.c</code>	Main C module that initializes the serial port settings and contains the interrupt service routines.
<code>register.h</code>	Header file included by <code>main.c</code> that contains all memory-mapped registers that can be accessed in the C language.
<code>cvector.asm</code>	Assembly file that generates the TMS320C2xx vectors including the reset and serial transmit and receive vectors.
<code>c203.cmd</code>	Linker command file describing memory map and sections for the C203.
<code>echo2xx.doc</code>	This document (in Microsoft Word format).
<code>echo2xx.htm</code>	This document (in HTML format).
<code>echo2xx.txt</code>	This document (in plain text format).
<code>echo2xx.out</code>	Executable file for sample C program to be loaded by TMS320C2xx simulator or hardware.
<code>build.bat</code>	Batch file for building <code>echo2xx.out</code> using only the Texas Instruments toolset.
<code>rts2xx.lib</code>	Runtime support library.



Usage

Just load `echo2xx.out` into the debugger and then run it. Next, run a generic terminal program such as HyperTerminal (included in Windows 95) and connect the PC serial port to the serial port on the TMS320C2xx. Make sure to set the baud rate on the PC to 1200 baud if running the TMS320C2xx at 20 MHz, and 2400 baud if running at 40 MHz. Then type on the keyboard to verify that characters are being echoed back by the TMS320C2xx.

Modification

The baud rate and clock rate may be changed in the `#define` statements of `main.c`. To build, just type `build.bat` from a DOS prompt. Or if using the GODSP Code Composer development system, create a project with the following files: `rts2xx.lib`, `main.c`, `cvector.asm`, `c203.cmd`, and `registers.h`. Then build as usual.