

The sample C project for the Color Organ Board is written for the Microchip MPLAB integrated development environment (IDE) with the Microchip PIC18 C compiler. Both can be downloaded from Microchip, and there is a copy of at

<http://eceserv0.ece.wisc.edu/~morrow/IEEE/index.html>

Install MPLAB, and then install the C18 compiler. A default installation is recommended.

Download the sample MPLAB C project, and open in MPLAB.

The sample code demonstrates how to use the switches, control the display pattern and intensity, and communicate through the USB interface. The sample program's features are described below. It is strongly recommended that you do not change the interrupt service routine code unless you are very sure of what you are doing.

Switch S1 cycles through the available operating modes:

- MODE_TEST – a repetitive test mode that paints the LEDs in red, green, blue, and white with varying the display brightness.
- MODE_R – displays a bar graph of audio channel 0 using red LEDs. See more information on peak-hold modes below.
- MODE_G – displays a bar graph of audio channel 1 using green LEDs. See more information on peak-hold modes below.
- MODE_BOTH – displays a bar graph of audio channel 0 using red LEDs and audio channel 1 using green LEDs. See more information on peak-hold modes below.

In MODE_TEST, switch S2 has no effect. In the three audio modes, switch S2 cycles through the available peak-hold modes:

- PEAK_OFF – no peak indication is displayed.
- PEAK_BLUE – the peak audio level is displayed in blue.
- PEAK_WHITE – the peak audio level is displayed in white.
- PEAK_CHANNEL – the peak audio level is displayed in the color corresponding to the channel(s) that experienced the peak level.

The USB interface will appear to be a serial COM port when connected to a computer. The serial interface on the board will respond to serial data as follows:

- 'H' or 'h' – the board replies with its welcome message.
- 'D' or 'd' – the LED display is dimmed by one step for each character received. It responds with '-' until the display is completely off, then it responds with '0'.
- 'U' or 'u' – the LED display is brightened by one step for each character received. It responds with '+' until the display is at maximum intensity, then it responds with '∞'.