

Digital Filter Block (DFB) Code Example

Objective

"This example shows the use of the Digital Filter Block (DFB) component. It demonstrates matrix multiplication by a scalar. It also demonstrates the DFB interaction with DMA.

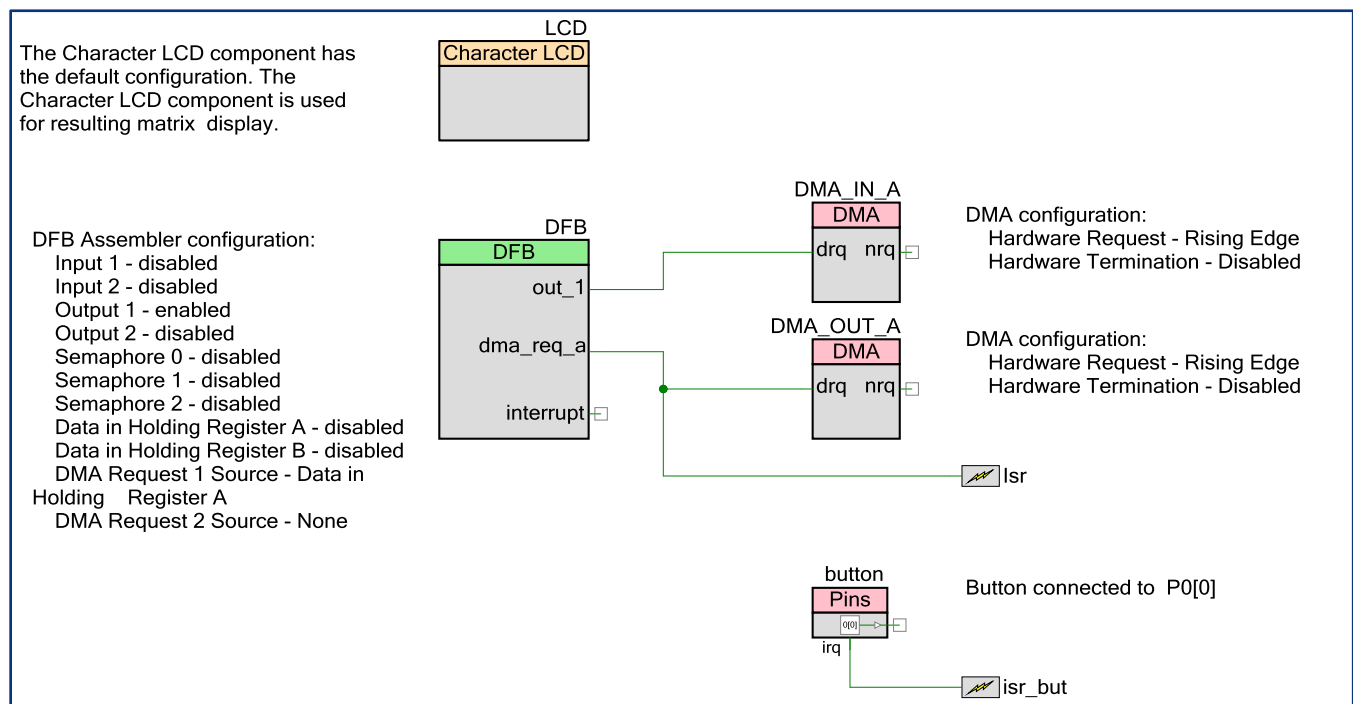
This project consists of the DFB, two DMAs, a button, and an LCD. The DFB component is used for matrix multiplication by a scalar. One DMA component is used to pass matrix elements from RAM to the DFB, another DMA component is used to pass the results of the multiplication from the DFB to RAM. The button is used to change the value of the scalar. The LCD component displays the resulting matrix.

A CY8CKIT-001 is required for this project. See the schematic for more details.

Procedure

1. Build the project and program the hex file to the target device.
2. Connect button SW1 to Port 0[0] on the CY8CKIT-001 Development kit.
3. Power cycle the device.
4. Push button SW1 several times.
5. Observe the results on the LCD.

Schematic



PSoC Resources

Cypress provides a wealth of data at www.cypress.com to help you to select the right PSoC device for your design, and quickly and effectively integrate the device into your design. For a comprehensive list of resources, see [KBA86521](#), [How to Design with PSoC 3, PSoC 4, and PSoC 5LP](#). The following is an abbreviated list for PSoC:

- **Overview:** [PSoC Portfolio](#), [PSoC Roadmap](#)
- **Product Selectors:** [PSoC 1](#), [PSoC 3](#), [PSoC 4](#), or [PSoC 5LP](#). In addition, [PSoC Creator](#) includes a device selection tool.
- **Datasheets:** Describe and provide electrical specifications for the PSoC 3, PSoC 4, and PSoC 5LP device families.
- **CapSense Design Guides:** Learn how to design capacitive touch-sensing applications with the PSoC 3, PSoC 4, and PSoC 5LP families of devices.
- **Application Notes** and **Code Examples:** Cover a broad range of topics, from basic to advanced level. Many of the application notes include code examples.
- **Technical Reference Manuals (TRM):** Provide detailed descriptions of the architecture and registers in each of the PSoC 3, PSoC 4, and PSoC 5LP device families.
- **PSoC Training Videos:** These videos provide step-by-step instructions on getting started building complex designs with PSoC.
- **Development Kits:**
 - [CY8CKIT-042](#) and [CY8CKIT-040](#), PSoC 4 Pioneer kits, are easy-to-use and inexpensive development platforms. These kits include connectors for Arduino™ compatible shields and Digilent® Pmod™ daughter cards.
 - [CY8CKIT-049](#) is a series of very low-cost prototyping platform for sampling PSoC 4 devices.
 - [CY8CKIT-030](#) and [CY8CKIT-050](#) are designed for analog performance. They enable you to evaluate, develop, and prototype high-precision analog, low-power, and low-voltage applications powered by PSoC 3 and PSoC 5LP, respectively.
 - [CY8CKIT-001](#) is a common development platform for all PSoC family devices.
- The [MiniProg3](#) device provides an interface for flash programming and debug.

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Cypress Semiconductor
198 Champion Court
San Jose, CA 95134-1709

Phone : 408-943-2600
Fax : 408-943-4730
Website : www.cypress.com

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