Manuals+ — User Manuals Simplified.

Digi-Key M2S010-MKR-KIT SmartFusion2 Maker Board User Guide
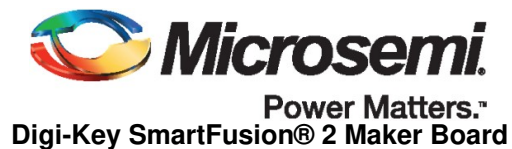
Digi-Key SmartFusion® 2 Maker Board

Contents

M2S010-MKR-KIT SmartFusion2 Maker Board

Digi-Key SmartFusion2 Maker Board
Kit Contents—M2S010-MKR-KIT

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1	Digi-Key Maker Board
1	Quick start card
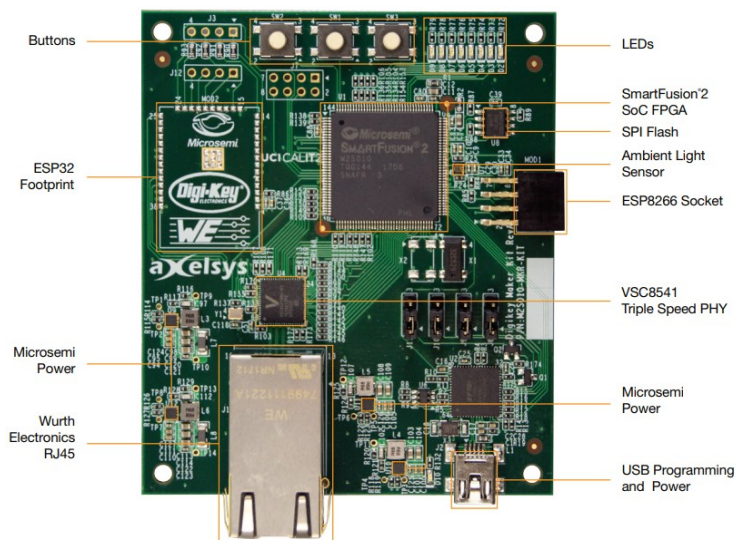
Digi-Key SmartFusion® 2 Maker Board

Digi-Key's Maker Board provides designers with a low-cost evaluation board to access the SmartFusion2 system-on-chip (SoC) FPGA. This device integrates a 12K LE flash-based FPGA fabric, a 166 MHz ARM Cortex-M3 processor, DSP blocks, SRAM, eNVM, and general purpose GPIO interfaces all on a single chip.

The Digi-Key SmartFusion2 Maker Board (M2S010-MKR-KIT) supports a USB port for JTAG programming, UART communications, and powering the board. The board also features an SPI flash, a 50 MHz clock source, 8 user LEDS, 2 user pushbuttons, a light sensor, and the VSC8541 PHY for 100 Mbps/1 Gbps Ethernet. There are also two unpopulated laid out connections—these pinouts support an ESP8266 and an ESP32 Wi-Fi/Bluetooth module (not included). The pinout is set up for programming and communication to the SmartFusion2 SoC FPGA. The board can be used with Microsemi's Libero SoC v11.8 software or more recent versions of it. SoftConsole, an IDE for C/C++ programming of the ARM Cortex-M3 is available. The kit is powered through an LX7167A power module and includes integrated FlashPro5 programming hardware.

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Pin Labels

LEDs (Red)

Function	FPGA Pin	Pin Name	Level
LED0	117	DDRIO37NB0	Active Low
LED1	118	DDRIO37PB0	Active Low
LED2	122	DDRIO43NB0	Active Low
LED3	123	DDRIO43PB0	Active Low
LED4	124	DDRIO44NB0	Active Low
LED5	125	DDRIO44PB0	Active Low
LED6	128	DDRIO47NB0	Active Low
LED7	129	DDRIO47PB0	Active Low

Push Buttons

Function	FPGA Pin	Pin Name
USER_PB1	143	DDRIO59PB0/GB0
USER_PB2	144	DDRIO63PB0

ESP8266 Module

Pin Number	Function	FPGA Pin	Pin Name
2	TXO	83	MSIO1NB2/USB_DIR_B
3	GPIO2	81	MSIO0NB2/USB_DATA7_B
4	CHPD	90	MSIO3NB2/USB_DATA1_B
5	GPIO0	93	MSIO5NB2/USB_DATA5_B
6	RST	88	MSIO3PB2/USB_DATA0_B
7	RXI	82	MSIO1PB2/USB_XCLK_B

ESP32 Wi-Fi-BT-BLE Module

Pin Number	Function	FPGA Pin	Pin Name
3*	BT_EN	19	MSIO79NB7
6	IO34	8	MSIO71PB7
7	IO35	9	MSIO72NB7
24	IO2	20	MSIO79PB7/GB1
25	IO0	7	MSIO71NB7
30	IO18	10	MSIO73NB7
31	IO19	13	MSIO76NB7
34*	RXD0	4	MSIO67PB7
35*	TXD0	3	MSIO67NB7
36	IO22	14	MSIO76PB7
37	IO23	15	MSIO77NB7

*Set jumpstart to Wi-Fi module to activate pin.

Software and Licensing
Libero® SoC Design Suite offers high productivity with its comprehensive, easy-to-learn, easyto-adopt development tools for designing with Microsemi's low power Flash FPGAs and SoC.
The suite integrates industry standard Synopsys Synplify Pro® synthesis and Mentor Graphics ModelSim® simulation with best-in-class constraints management and debug capabilities.
Download the latest Libero SoC release
www.microsemi.com/products/fpga-soc/design-resources/design-software/liberosoc#downloads
Generate a Libero SoC Silver license for your board
www.microsemi.com/products/fpga-soc/design-resources/licensing
Download the SoftConsole IDE installation files for Linux and Windows at
www.microsemi.com/products/fpga-soc/design-resources/design-software/softconsole#downloads
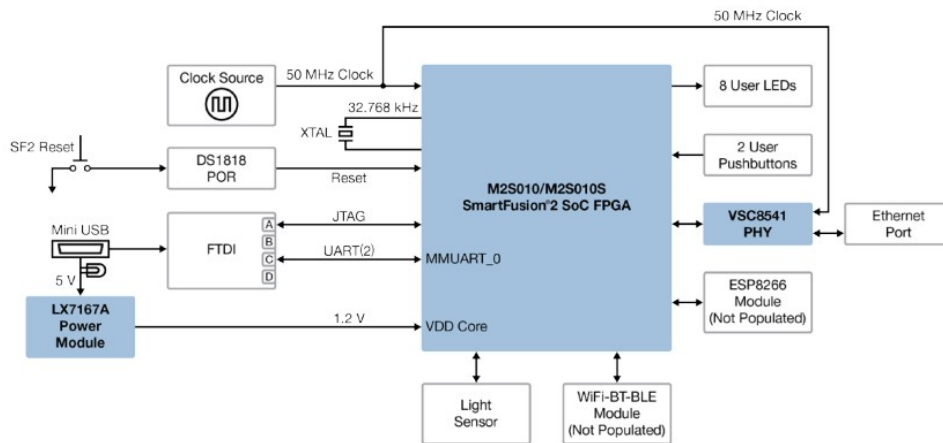**Documentation Resources**
For more step by step instructions about the Digi-Key Maker board, including user's guides, tutorials, and design examples, see the documentation at **www.digikey.com/smartfusion2-makerboard**
Included Demo Design
When the Digikey SmartFusion2 Maker Board is powered on, all 8 LEDs will flash on and off repeatedly. Once user button 1 is pressed, the ambient light sensor will be continuously read.
The result of the light sensor reading will be shown visually across the 8 LEDs as a bar graph.

Board Schematic

Documents / Resources

Digi-Key M2S010-MKR-KIT SmartFusion2 Maker Board [pdf] User Guide
M2S010-MKR-KIT SmartFusion2 Maker Board, M2S010-MKR-KIT, SmartFusion2 Maker Board,
Maker Board, Board

References

- **Microsemi | Semiconductor & System Solutions | Power Matters**
- **Microsemi | Semiconductor & System Solutions | Power Matters**
- **User Manual**