

Tools Used To Program The SDIO Development Card #1

This Expansion Development Kit (EDK) is a development-learning tool that enables developers to quickly get up-to-speed on the complete hardware and software development process for a SDIO module.

The SDIO Development Card #1 demonstrates how to communicate with a Palm handheld via the SD interface to load a sample Palm OS application onto the Palm handheld. This sample Palm OS application then demonstrates how to use the SDIO Palm OS API to communicate with the SDIO Development Card #1 sample hardware.

The SDIO Development Card #1 includes versatile, programmable components that are suitable for initial prototyping/experimentation. The programmable components on-board include a Microchip PICMicro® MCU, an ultra-low power Xilinx® CoolRunner® XPLA3 CPLD, plus on-board Flash memory for storage of drivers/applications. This card is available for purchase from Expansion Parts Store.

The SDIO Development Card #1 Design

Features:

- PICMicro PIC16F877 MCU (implemented)
- XCR3128XL CoolRunner CPLD (implemented)
- 128K x 8 FLASH memory (implemented)
- Temperature sensor (implemented)
- Control LED (implemented)
- Switch control (support not implemented)
- TIA/EIA-232 compatible serial port (support not implemented)

Applications:

- SDIO prototype/bench module development
- SDIO application development for Palm handhelds
- Training/Learning vehicle for SDIO technology

Reference Books:

ISBN: 0130998516
Real World FPGA Design with
Verilog
by Ken Coffman
Prentice Hall 1999

ISBN: 0792381661
The Verilog Hardware Description
Language
4th Edition by Thomas & Moorby
Kluwer Academic Publishing 1998

PluggedIn Program Support:

- Business Questions to pluggedin@palm.com
- Technical Questions to hardware@palm.com with Subject: SDIO ...

For SD Card Association members, all of the technical information (firmware for the hardware and the sample Palm OS software) will be available for download from the PluggedIn Program's Expansion Development Kits (EDK) web page.

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Palm Tools:

Login to the PluggedIn Program <https://pluggedin.palm.com/>

SDIO Drivers & SDIO SDK:

- Access the link from the Expansion Slot page.

Firmware/Software:

- Access the link from the EDK page. (SD Card Association members only)

Hardware:

- SDIO Extender Card (\$50)
Useful to connect to your prototype, not required for the SDIO Development Card #1
- SDIO Development Card #1 (\$250)
- [HotSync® Cable-Serial for m500](#)

To Order:

Access the link to the Expansion Parts Store.

Microchip Tools:

This tool is a must, because the SDIO card is primarily intended to allow you to experiment with the interaction between the PIC code and the Palm OS application code. You should focus your attention on the PIC's firmware, since it illustrates one way to create a product that connects to the SD interface.

The Microchip MP-LAB® software (free of charge) and MPLAB-ICD (In-circuit Debugger programmer) (purchase from the manufacture or their distributors) <http://www.microchip.com/14010/helper.htm> are required for programming the PICMicro MCU.

<http://www.microchip.com>

PIC16LF877L

Can be programmed by the MPLAB ICD, it works for all "LF" parts.

<http://www.microchip.com/10/tools/picmicro/icds/mplabgcd/index.htm>

MPLAB ICD In-Circuit Debugger Evaluation Kit

DV164001 ICD Module (no power supply) (\$99)

or

DV164003 ICD Deluxe Developers Kit (power supply + demo board) (\$189)

To Order:

Digi-Key 800 DIGIKEY (800-344-4539)

For Support:

Microchip Developer Tools 800-755-2345

480-786-7627

Online support requires registration.

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Xilinx Tools:

This tool is optional, because it is not necessary to experiment with the CPLDs firmware that implements the SDIO specification. The CPLD was used in the SDIO card design because it provides an inexpensive way to implement the SDIO specification in a low-volume product. In a real product this specification could be implemented in hardware. Because the SDIO card is primarily intended to allow you to experiment with the interaction between the PIC code and the Palm OS application code, you need not change the programming of the CPLD.

The Xilinx ISE WebPACK software (free of charge) and JTAG programmer (purchase from the manufacture or their distributors) are required for programming the CPLD

<http://www.xilinx.com> .

<http://www.xilinx.com/>

SUPPORT

Software

WebPACK

*** register ***

Download

Design Configurations

CPLD Design

CoolRunner Design Only

- Design Entry
- XPLA Fitter
- XPLA Programming
- MXE Simulator
- State CAD
- HDL Bencher
- Capture Libs.

The 7 downloads = 63.2MB

To Order:

<http://www.xilinx.com/> select Hardware/Cables

Programming Cables

Parallel Cable III (\$95)

For Support:

WebPACK

support.xilinx.com