machdyne / kolibri Public

Kolibri FPGA Dongle

machdyne.com/product/kolibri-fpga-dongle/

View license

4 stars 0 forks

Star Watch

Code Issues Pull requests Actions Projects Security Insights

main

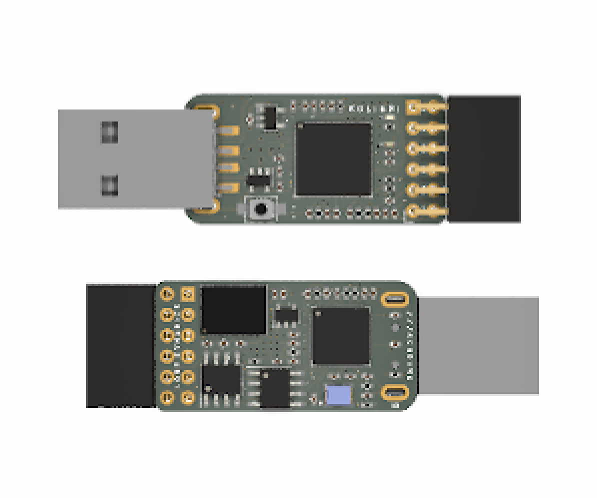
inc fix issue with uart after reset … last week 11

View code

README.md

Kolibri FPGA Dongle

Kolibri is a USB FPGA dongle designed by Lone Dynamics Corporation.



This repo contains schematics, example firmware, gateware and documentation.

Find more information on the Kolibri product page.

Blinky

Building the blinky example requires Yosys, nextpnr-ice40 and IceStorm.

Assuming they are installed, you can simply type `make` to build the gateware, which will be written to output/blinky.bin. You can then connect the device to your computer and use the latest version of ldprog to write the gateware to the device.

Programming

The RP2040 firmware, FPGA SRAM and flash can be programmed over the USB connector.

Configure the FPGA SRAM:

```
$ ldprog -Ks blinky.bin
```

Program the flash:

```
$ ldprog -Kf blinky.bin
```

Firmware

Kolibri ships with RP2040 firmware based on the Müsli firmware which allows it to communicate with ldprog. The firmware also provides a USB CDC bridge to a UART on the FPGA (default: 115200 8N1).

The firmware is responsible for initializing the system, configuring and outputting the system clock, and either configuring the FPGA or telling the FPGA to configure itself from flash.

The system clock (CLK_RP) is 48MHz by default.

The firmware can be updated by holding down the BOOT button, connecting the device to your computer, and then dragging and dropping a new UF2 file to the device filesystem.

The firmware can be built from source or you can use the latest `kolibri.uf2` binary from the firmware directory.

Default RP2040 to FPGA IO mapping

Signal	RP2040	FPGA
RP_GPIO0	UART0 TX	UART RX
RP_GPIO1	UART0 RX	UART TX
RP_GPIO2	UART0 CTS	UART RTS
RP_GPIO3	UART0 RTS	UART CTS
RP_GPIO4	SPI0 RX	SPI TX
RP_GPIO5	SPI0 CS	SPI CS
RP_GPIO6	SPI0 SCK	SPI SCK
RP_GPIO7	SPI0 TX	SPI RX

Note: SPI isn't currently used.

SOC

Zucker is an experimental RISC-V SOC that supports Kolibri.

Releases

No releases published

Packages

No packages published

Languages

● **C** 79.4% ● **CMake** 12.1% ● **OpenSCAD** 6.1% ● **Makefile** 1.4% ● **Verilog** 1.0%