

ORCA with MXP extensions

In this document ROOT shall represent the root of the archive provided.

Memory Map

Since each peripheral does not actual fill it's allotted space, it's address space is mirrored as many times as necessary to fill the allotted space.

Instruction

Peripheral	Address Range
instr BRAM	0x0000 0000 - 0x0000 2000

Data

Peripheral	Address Range
instr BRAM	0x0000 0000 - 0x0000 2000
eNVM*	0x0000 2000 - 0x0FFF FFFF
MXP Scratchpad	0x1000 0000 - 0x1FFF FFFF
MXP Instruction	0x2000 0000 - 0x2FFF FFFF
UART	0x3000 0000 - 0x3FFF FFFF
SPI	0x4000 0000 - 0x4FFF FFFF
i2s	0x4500 0000 - 0x5FFF FFFF

* Block Rams Hide the first 8kB of eNVM, and are initialized with the first 8kB of eNVM

Software Generation

First set your path to use the correct risc-v toolchain. Run the command **source env.sh**

In ROOT/software you can run **make clean all**, this will eventually generate an intel-hex file named **test.hex** that will be used to update the eNVM of the SmartFusion2 device.

Programming Device

Note to Guy: this part may be automated before we are done

- Make sure your device is plugged in and your VM has control of the device.
- From the ROOT directory run `sh program.sh` to program the bitstream with the software.