How to flash binary on NXP i.MXRT

NXP

Linux

1. First we need to update the firmware on the device.
    1. Install the JLink GDB server.
        - Download it from here: https://www.segger.com/downloads/jlink/#J-LinkSoftwareAndDocumentationPack.
        - For example, on 64 bit Ubuntu, download this file: https://www.segger.com/downloads/jlink/JLink_Linux_x86_64.deb
    2. Download the file: https://www.segger.com/downloads/jlink/OpenSDA_MIMXRT1050-EVK-Hyperflash
    3. Hold the reset button (the one next to the USB power connector).
        - For an illustration, see this page or this picture: 
    4. While still holding the reset button, connect the USB cable from your host machine to the device.
    5. Release the reset button.
    6. An additional drive will appear in your host's file explorer. Drop the downloaded file (`49_OpenSDA_MIMXRT1050-EVK-Hyperflash.bin`) there.
    7. Wait a bit - the drive will be disconnected from the system, and you should see this happen in the file explorer.
    8. Reboot the device.
    9. Check with lsusb if segger appeared: `lsusb | grep -i segger`. It should show something like this: `Bus 003 Device 009: ID 1366:0105 SEGGER`
2. Download the GNU Arm Embedded Toolchain: https://developer.arm.com/tools-and-software/open-source-software/developer-tools/gnu-toolchain/gnu-rm/downloads
3. Next, follow the steps listed in the following link to flash and run the demo:
    1. In one shell, start the GDB server `JLinkGDBServer -device MCIMXRT1052 -if SWD -scriptfile /path/to/evkbimxrt1050_sdram_init.jlinkscript`
        - If you get an error that says `Connecting to target...ERROR: Could not find core in Coresight setup`, try these steps:
            1. make sure no debug connection is active.
            2. power-on the board, and wait until it goes into WAIT mode (you won't be able to access it in this state)
            3. Press the SW02 button on the board for 2 seconds, then release it.
            4. the board should now restart, and somehow the SW02 press has set the CPU into a state which prevents entering WAIT mode.
            5. Check if you are able to debug the board again. Source: https://mcuoneclipse.com/2019/01/02/regaining-debug-access-of-nxp-i-mx-rt1064-evk-executing-wfi/
        - If you still have problems, the following can help you collect more information:
            1. Run `JLinkExe -device MCIMXRT1052 -if SWD`

        2. Type `connect` and then enter, and then hit enter again.

    2. In another shell, start the application on the device with gdb `/path/to/gcc-arm-none-eabi-8-2018-q4-major-linux/bin/arm-none-eabi-gdb -x /path/to/jlink_gdbcommands /path/to/demo_binary.elf`

4. You should now see the application running on the device. If you don't, try the following steps to get debug output from the device:

    1. Run `ls /dev/ttyACM*`. You should see e.g. `/dev/ttyACM0`.
    2. Before you run `JLinkGDBServer`, run `sudo minicom -D /dev/ttyACM0` in another shell (using the appropriate device name from the previous step). Any output that is produced as a result of running `JLinkGDBServer` and `arm-none-eabi-gdb` will now be displayed.