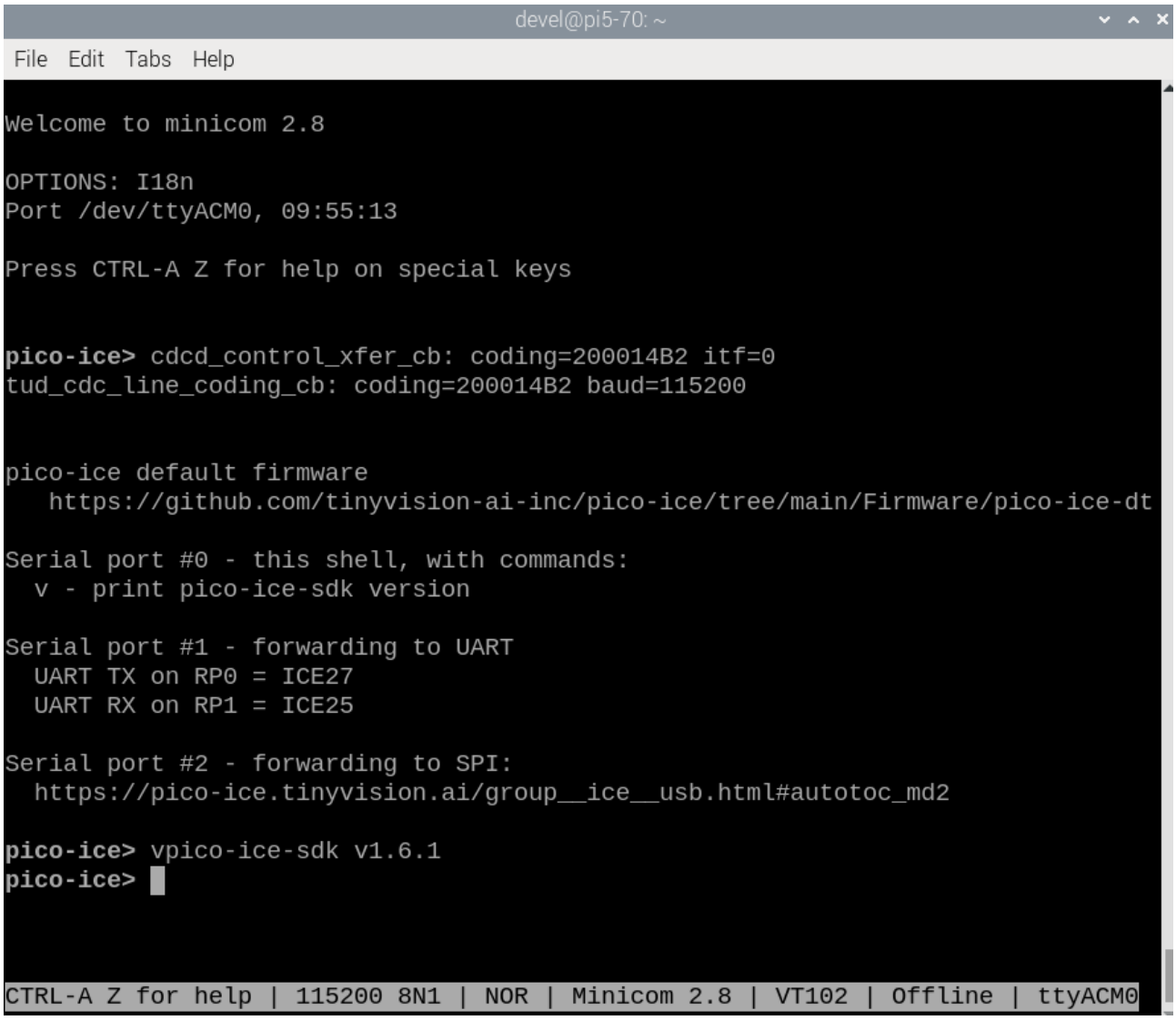
**********Default**********

Steps to add a UART to iCE40UP5K

08/10/24

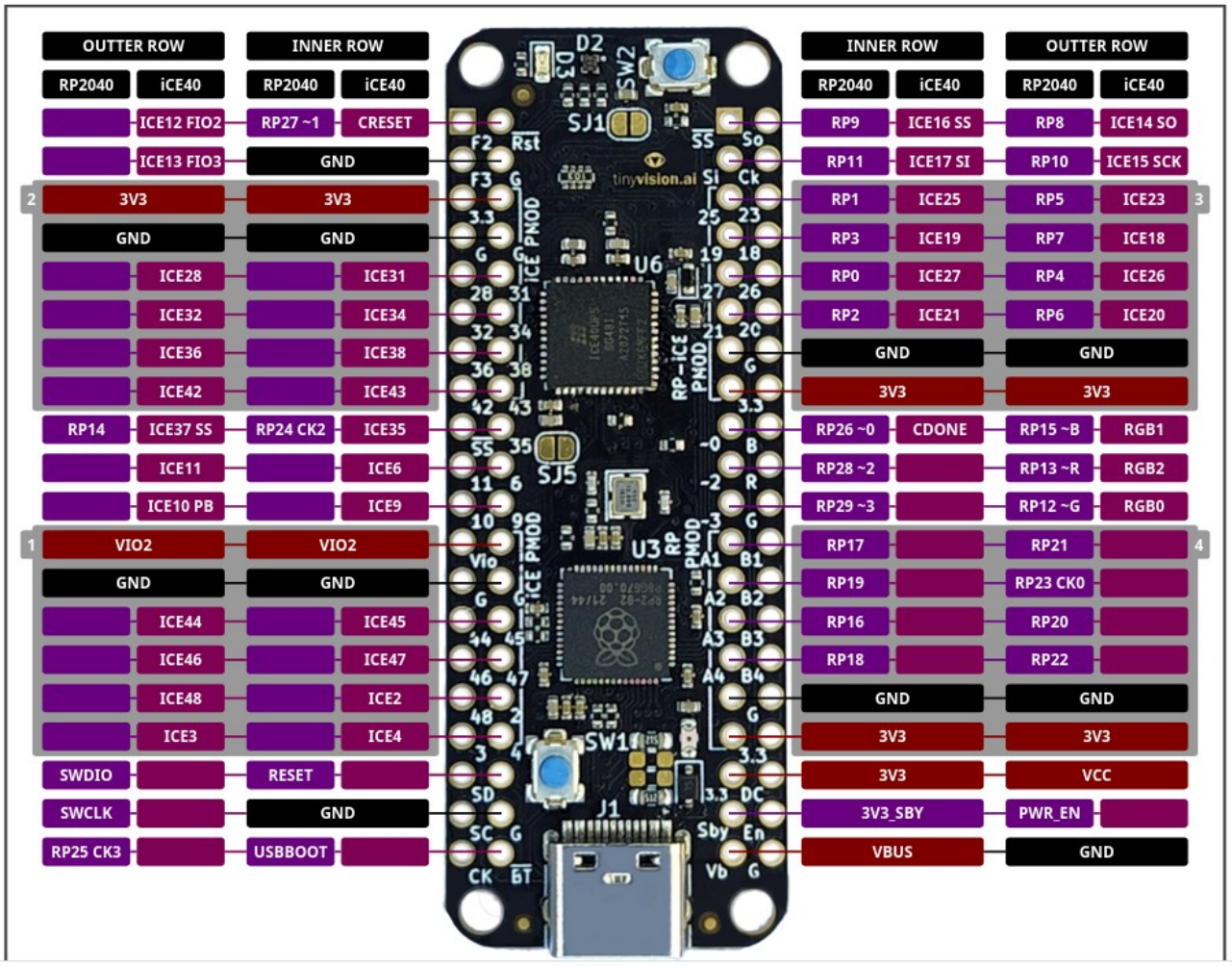
**********Default**********

pico_ice_default_firmware_v1.6.1.uf2 RP2040



minicom myusb0	sudo minicom -s
blu tx	ice25
red rx	ice27
/dev/ttyUSB0	/dev/ttyACM1

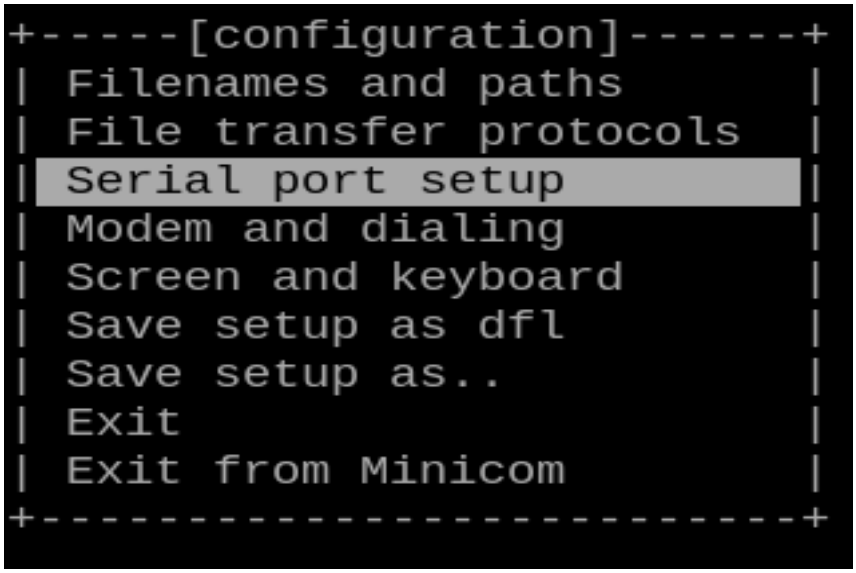
Pinout Diagram



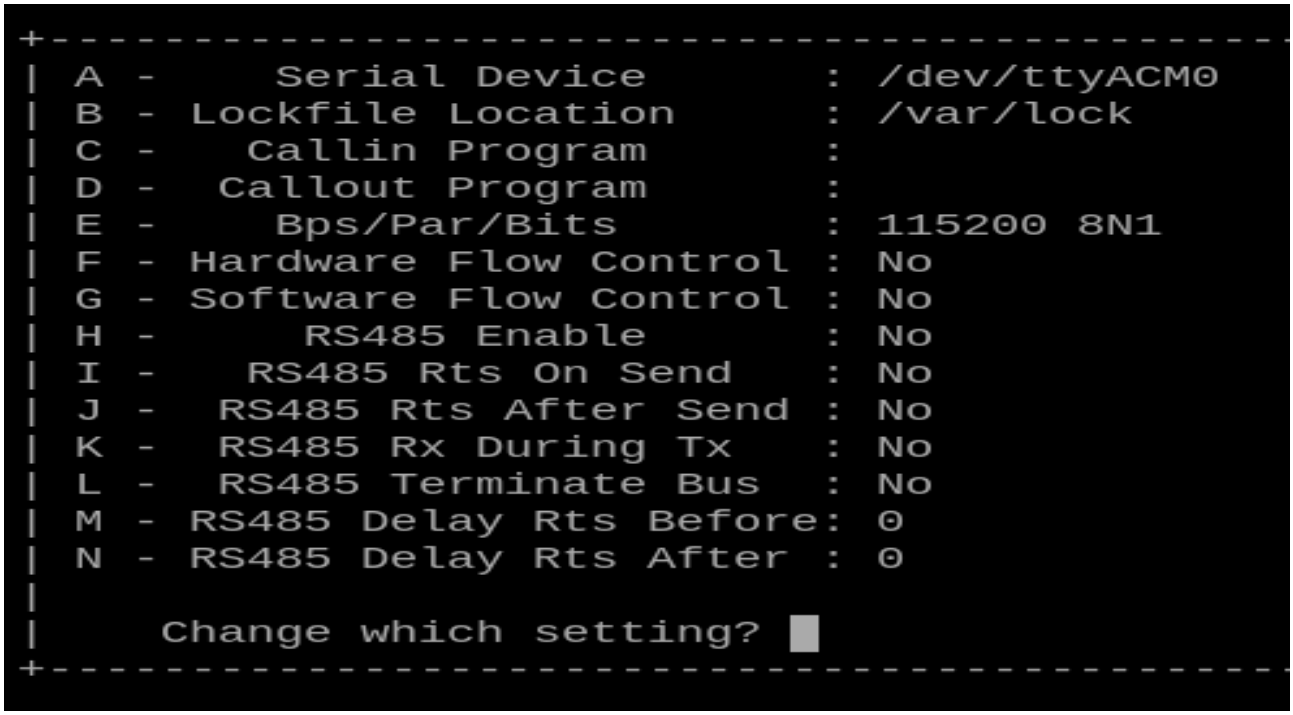
left
minicom myusb0
/dev/ttyUSB0

right
sudo minicom -s
/dev/ttyACM1

Change default /dev/ttyACM0 to dev/ttyACM1



Depress enter



Type A enter

```
+-----------------------------------------
| A -    Serial Device      : /dev/ttyACM1
| B - Lockfile Location     : /var/lock
| C -   Callin Program      :
| D -  Callout Program      :
| E -    Bps/Par/Bits       : 115200 8N1
| F - Hardware Flow Control : No
| G - Software Flow Control : No
| H -     RS485 Enable      : No
| I -   RS485 Rts On Send   : No
| J -  RS485 Rts After Send : No
| K -  RS485 Rx During Tx   : No
| L -  RS485 Terminate Bus  : No
| M - RS485 Delay Rts Before: 0
| N - RS485 Delay Rts After : 0
|
|    Change which setting?
+-----------------------------------------
```

Change 0 to 1

```
+-----[configuration]------+
| Filenames and paths      |
| File transfer protocols  |
| Serial port setup        |
| Modem and dialing        |
| Screen and keyboard      |
| Save setup as dfl        |
| Save setup as..          |
| Exit                     |
| Exit from Minicom        |
+--------------------------+
```

scroll to Exit enter

Typing in left terminal is displayed in right terminal.

The tx from left is connect pico-ice PMOD ICE_25 and rx is MOD ICE_27 see the pico-ice Pinout Diagram above.

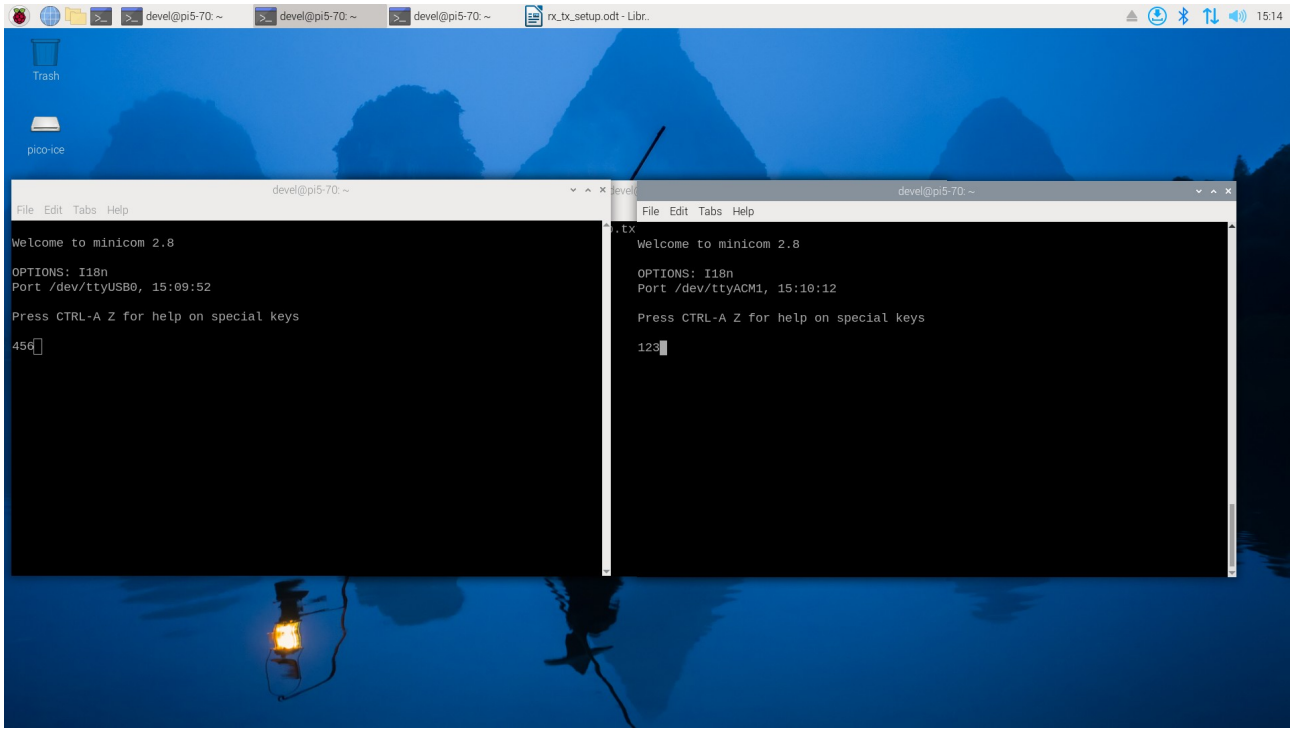
With minor changes to the top.sv to detect the toggle of ICE_25 the blinking green led of the pico-ice show a spec of red.

```
diff --git a/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky/top.sv
b/pico-ice-sdk/examples/ice_makefile_blinky/top.sv
index 8c90cb5..88f0a17 100644
--- a/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky/top.sv
+++ b/pico-ice-sdk/examples/ice_makefile_blinky/top.sv
@@ -4,28 +4,17 @@ module top (
   output LED_R,
   output LED_G,
   output LED_B,
-  input ICE_25,
 );

   localparam N = 22;

   reg [N:0] counter;
-  reg in1;
-  always @(posedge CLK) begin
-    counter <= counter + 1;
-  end

-
   always @(posedge CLK) begin
-    if (ICE_25 == 0)
-    begin
-      in1 <= 1'b0;
-    end
-    else
-      in1 <= 1'b1;
+    counter <= counter + 1;
   end
```

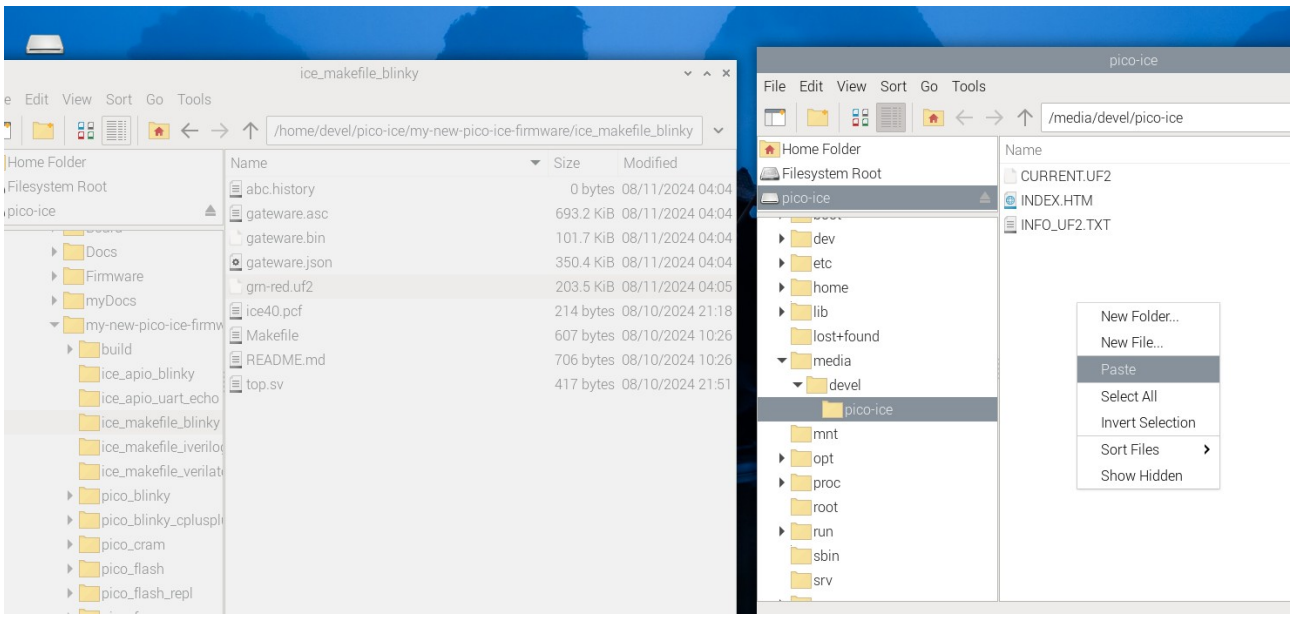


xx
steps to program the pico-ice ice40UP5K

devel@pi5-70:~/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky $.
~/OSS_CAD_SUITE.sh
/usr/local/
devel@pi5-70:~/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky $ make clean
rm -f *.json *.asc *.bin *.uf2
devel@pi5-70:~/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky $ make
/usr/local//bin/yosys -q -p "read_verilog -sv top.sv; synth_ice40 -top top -json gateware.json"
/usr/local//bin/nextpnr-ice40 -q --randomize-seed --up5k --package sg48 --pcf ice40.pcf --json gateware.json --asc gateware.asc
/usr/local//bin/icepack gateware.asc gateware.bin

devel@pi5-70:~/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky $ bin2uf2 -o grn-red.uf2 gateware.bin

Drag-Drop the grn-red.uf2 file on the pico-ice.


ice_makefile_blinky
Edit View Sort Go Tools
/home/devel/pico-ice/my-new-pico-ice-firmware/ice_makefile_blinky
Home Folder
Filesystem Root
pico-ice
Docs
Firmware
myDocs
my-new-pico-ice-firmw
build
ice_apio_blinky
ice_apio_uart_echo
ice_makefile_blinky
pico_blinky
pico_cram
pico_flash
pico_flash_repl
Name
Size
Modified
abc.history 0 bytes 08/11/2024 04:04
gateware.asc 693.2 KiB 08/11/2024 04:04
gateware.bin 101.7 KiB 08/11/2024 04:04
gateware.json 350.4 KiB 08/11/2024 04:04
grn-red.uf2 203.5 KiB 08/11/2024 04:05
ice40.pcf 214 bytes 08/10/2024 21:18
Makefile 607 bytes 08/10/2024 10:26
README.md 706 bytes 08/10/2024 10:26
top.sv 417 bytes 08/10/2024 21:51
pico-ice
File Edit View Sort Go Tools
/media/devel/pico-ice
Home Folder
Filesystem Root
pico-ice
dev
etc
home
lib
lost+found
media
devel
pico-ice
mnt
opt
proc
root
run
sbin
srv
Name
CURRENT.UF2
INDEX.HTM
INFO_UF2.TXT
New Folder...
New File...
Paste
Select All
Invert Selection
Sort Files
Show Hidden