How to connect Display ST7780v 1.3inch

1. Create Overlay file for NRF5340

   $zephyr/sample/display/lvgl/boards/nrf5340pdk_nrf5340_cpuapp.overlay

```
CONFIG_SPI=y
CONFIG_SPI_1=y

CONFIG_ST7789V=y

CONFIG_LVGL_DISPLAY_DEV_NAME="ST7789V"
CONFIG_LVGL_COLOR_DEPTH_16=y
CONFIG_ST7789V_RGB565=y
CONFIG_LVGL_HOR_RES_MAX=240
CONFIG_LVGL_VER_RES_MAX=240
CONFIG_LVGL_VDB_SIZE=10
CONFIG_LVGL_BITS_PER_PIXEL=16
CONFIG_LVGL_DPI=130
CONFIG_LVGL_COLOR_16_SWAP=y
```

2. Create configuration file nrf5340pdk_nrf5340_cpuapp.conf
   $zephyr/sample/display/lvgl/boards/nrf5340pdk_nrf5340_cpuapp.conf

```
/*
 * Copyright (c) 2019 Jan Van Winkel <jan.van_winkel@dxplore.eu>
 * Copyright (c) 2019 PHYTEC Messtechnik GmbH
 *
 * SPDX-License-Identifier: Apache-2.0
 */

&spi1 {
	status = "okay";
	cs-gpios = <&gpio0 10 GPIO_ACTIVE_LOW>;	/* D10 */

	st7789v@0 {
		compatible = "sitronix,st7789v";
		label = "ST7789V";
		spi-max-frequency = <20000000>;
		reg = <0>;
		cmd-data-gpios = <&gpio0 9 GPIO_ACTIVE_LOW>;
		reset-gpios = <&gpio0 8 GPIO_ACTIVE_LOW>;
		width = <240>;
```

```
                height = <240>;
                x-offset = <0>;
                y-offset = <0>;
                vcom = <0x19>;
                gctrl = <0x35>;
                vrhs = <0x12>;
                vdvs = <0x20>;
                mdac = <0x00>;
                gamma = <0x01>;
                colmod = <0x05>;
                lcm = <0x2c>;
                porch-param = [0c 0c 00 33 33];
                cmd2en-param = [5a 69 02 01];
                pwctrl1-param = [a4 a1];
                pvgam-param = [D0 04 0D 11 13 2B 3F 54 4C 18 0D 0B 1F 23];
                nvgam-param = [D0 04 0C 11 13 2C 3F 44 51 2F 1F 1F 20 23];
                ram-param = [00 F0];
                rgb-param = [CD 08 14];
        };
};
```

3. Add spi module in file nrf5340pdk_nrf5340_cpuapp.dts
   ($sdk_folder)\ncs\v1.4.1\zephyr\boards\arm\nrf5340dk_nrf5340\nrf5340pdk_nrf5340_cpuapp.dts

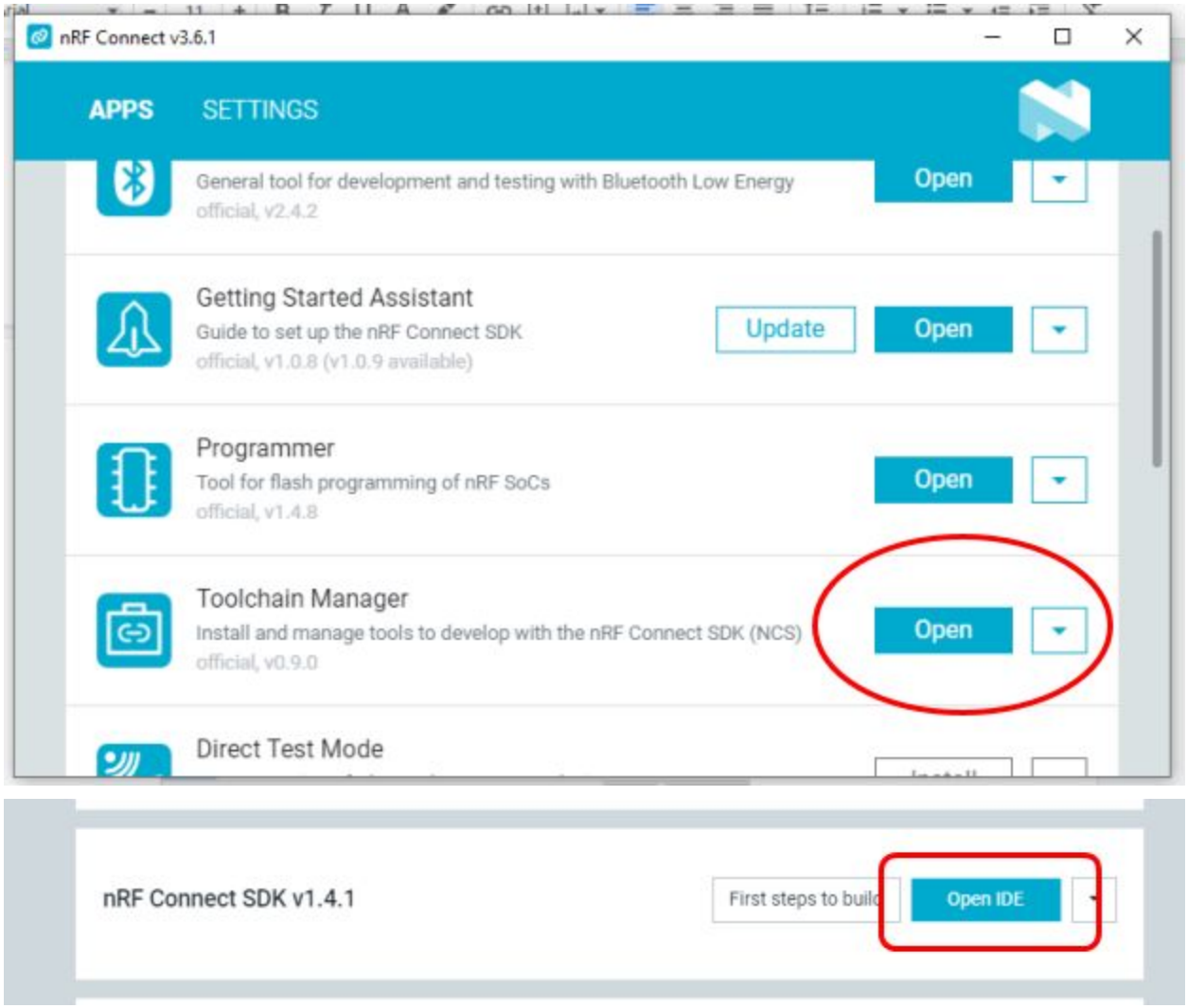
```
#include <nordic/nrf5340_cpuapp_qkaa_eng_a.dtsi>
#include "nrf5340_cpuapp_common.dts"

/ {
        model = "Nordic NRF5340 PDK NRF5340 Application";
        compatible = "nordic,nrf5340-pdk-nrf5340-cpuapp";

        chosen {
                zephyr,sram = &sram0_image;
                zephyr,flash = &flash0;
                zephyr,code-partition = &slot0_partition;
                zephyr,sram-secure-partition = &sram0_s;
                zephyr,sram-non-secure-partition = &sram0_ns;
        };
};

&spi1 {
        compatible = "nordic,nrf-spim";
        status = "okay";
        sck-pin = <11>;
        miso-pin = <12>;
```

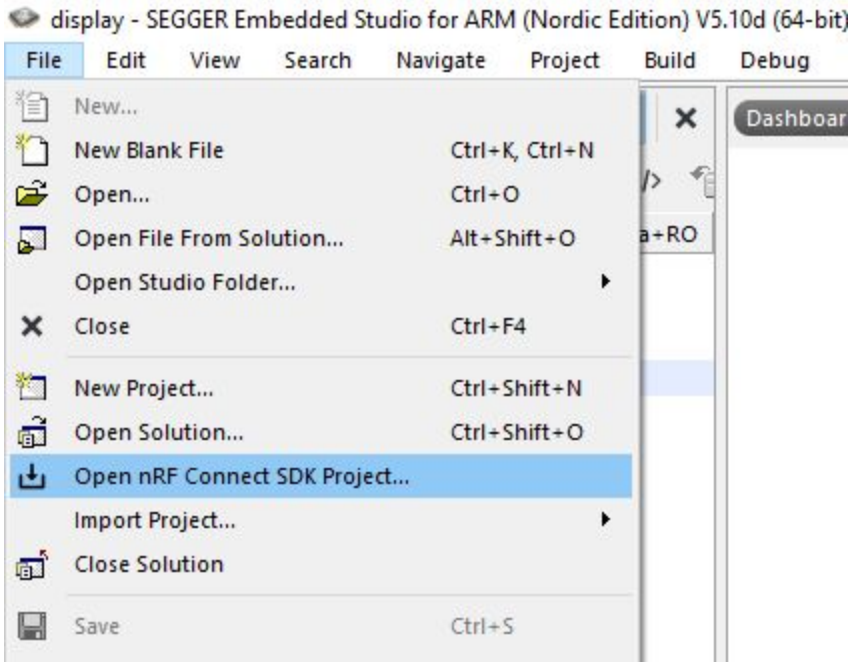
```
        mosi-pin = <13>;
};
```

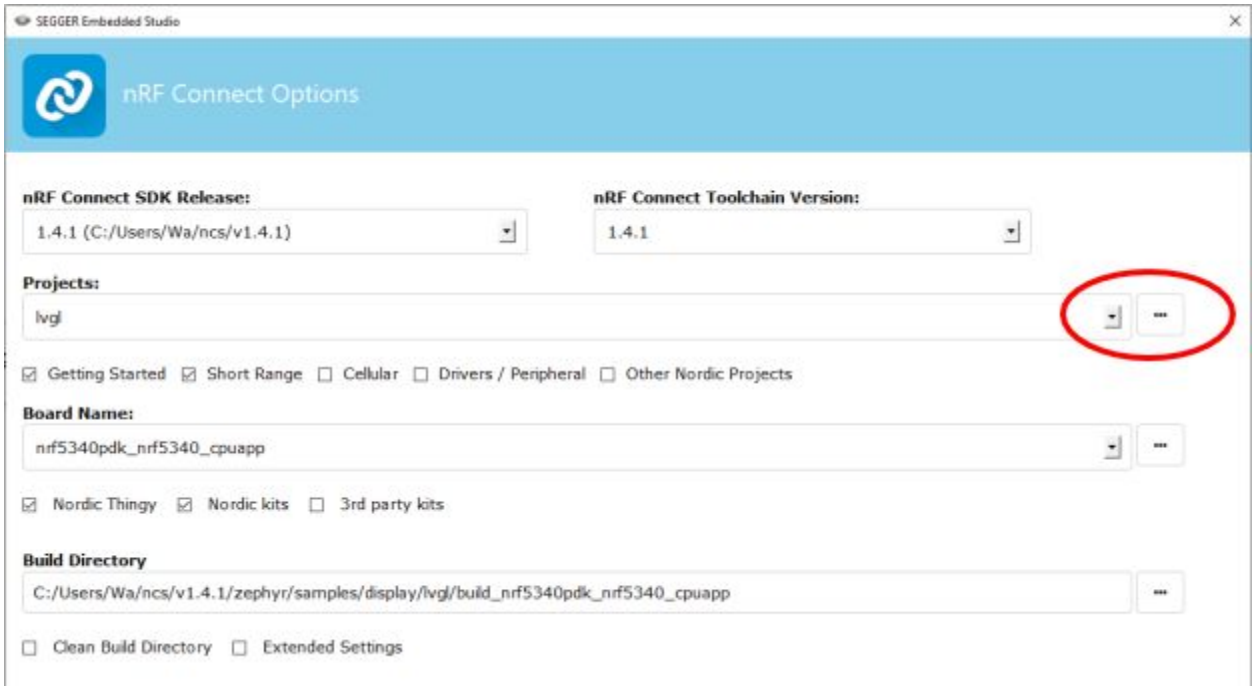
4. Connect NRF5340 and Display follow the table

NRF5340	Display
P0.8	RESET or RES
P0.9	DC or RS
P0.10	CS
P0.11	SCK
P0.13	SDA
3.3V	VCC and Vio
GND	GND

5. Compile and upload

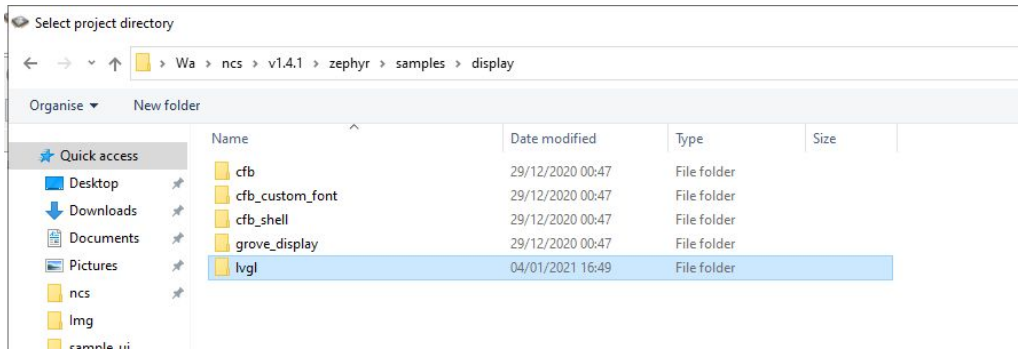

nRF Connect v3.6.1
APPS
SETTINGS
General tool for development and testing with Bluetooth Low Energy
official, v2.4.2
Open
Getting Started Assistant
Guide to set up the nRF Connect SDK
official, v1.0.8 (v1.0.9 available)
Update
Open
Programmer
Tool for flash programming of nRF SoCs
official, v1.4.8
Open
Toolchain Manager
Install and manage tools to develop with the nRF Connect SDK (NCS)
official, v0.9.0
Open
Direct Test Mode
nRF Connect SDK v1.4.1
First steps to build
Open IDE

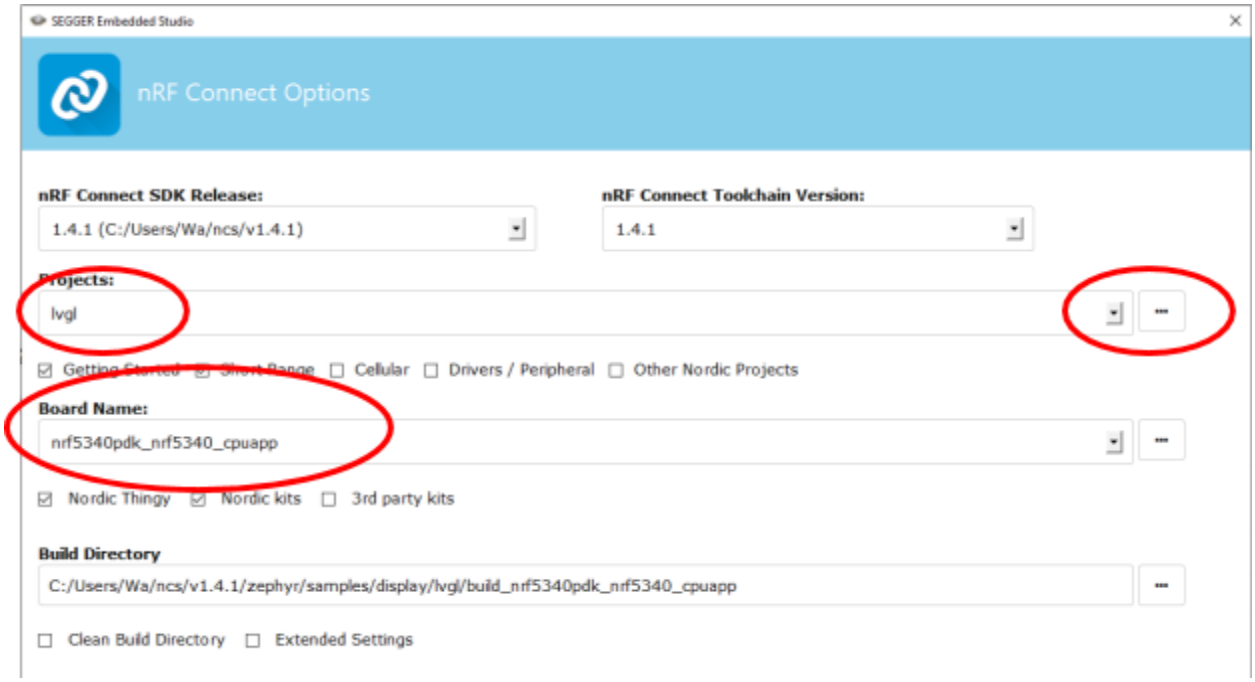

display - SEGGER Embedded Studio for ARM (Nordic Edition) V5.10d (64-bit)
File
Edit
View
Search
Navigate
Project
Build
Debug
New...
New Blank File Ctrl+K, Ctrl+N
Open... Ctrl+O
Open File From Solution... Alt+Shift+O
Open Studio Folder...
Close Ctrl+F4
New Project... Ctrl+Shift+N
Open Solution... Ctrl+Shift+O
Open nRF Connect SDK Project...
Import Project...
Close Solution
Save Ctrl+S
Dashboar
a+RO


SEGGER Embedded Studio
nRF Connect Options
nRF Connect SDK Release:
1.4.1 (C:/Users/Wa/ncs/v1.4.1)
nRF Connect Toolchain Version:
1.4.1
Projects:
lvgl
Getting Started
Short Range
Cellular
Drivers / Peripheral
Other Nordic Projects
Board Name:
nrf5340pdk_nrf5340_cpuapp
Nordic Thingy
Nordic kits
3rd party kits
Build Directory
C:/Users/Wa/ncs/v1.4.1/zephyr/samples/display/lvgl/build_nrf5340pdk_nrf5340_cpuapp
Clean Build Directory
Extended Settings

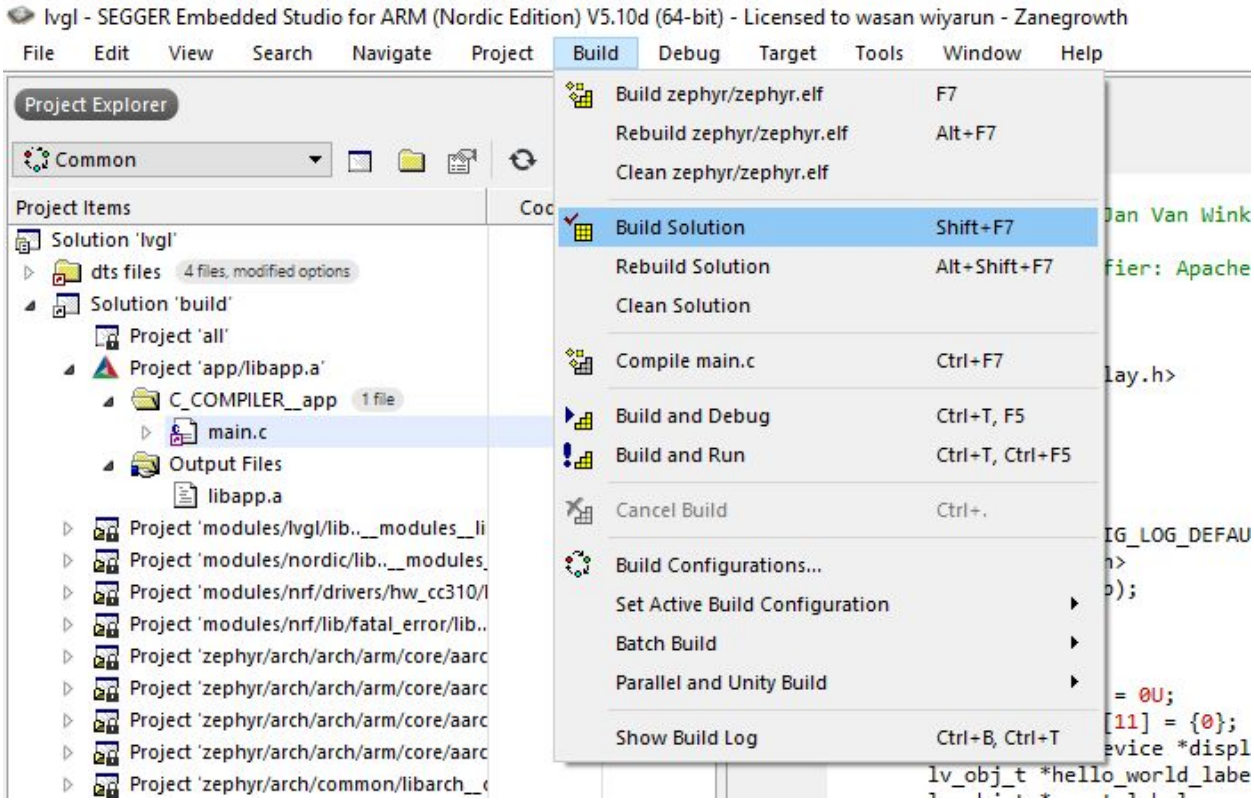
Please select project name lvgl from

($sdk_folder)\ncs\v1.4.1\zephyr\samples\display\lvgl

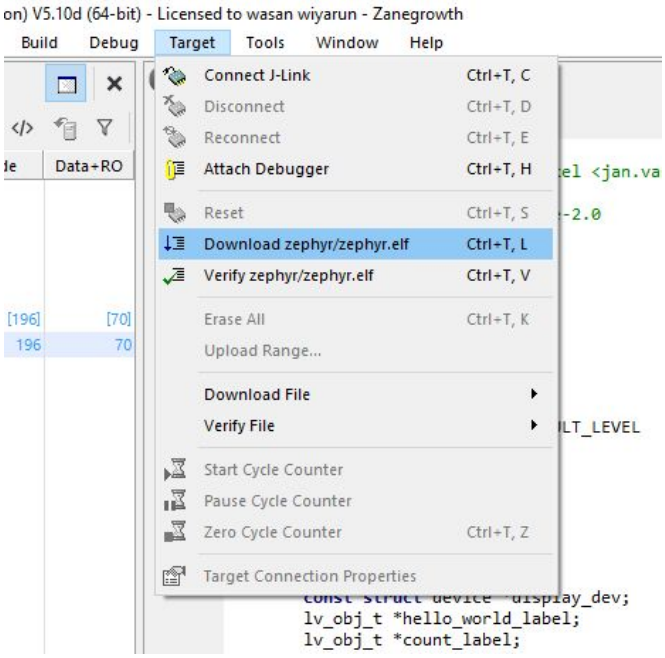




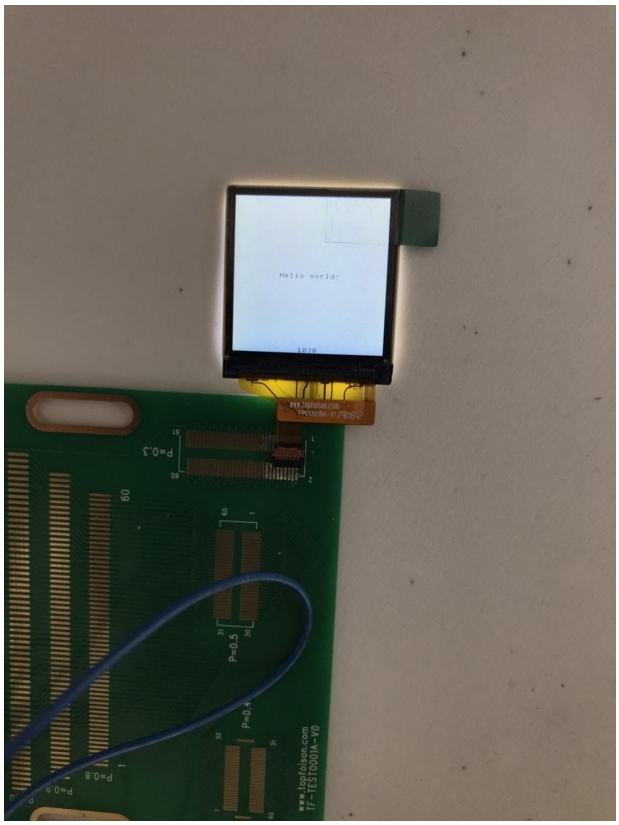
6. Build



7. **Upload**


on) V5.10d (64-bit) - Licensed to wasan wiyarun - Zanegrowth
Build
Debug
Target
Tools
Window
Help
Connect J-Link Ctrl+T, C
Disconnect Ctrl+T, D
Reconnect Ctrl+T, E
Attach Debugger Ctrl+T, H
Reset Ctrl+T, S
Download zephyr/zephyr.elf Ctrl+T, L
Verify zephyr/zephyr.elf Ctrl+T, V
Erase All Ctrl+T, K
Upload Range...
Download File
Verify File
Start Cycle Counter
Pause Cycle Counter
Zero Cycle Counter Ctrl+T, Z
Target Connection Properties
Data+RO
[196] [70]
196 70
const struct device *display_dev;
lv_obj_t *hello_world_label;
lv_obj_t *count_label;

Output


Hello world!