

Nahid Jabeen 7/6/25

URL

URL: <https://www.youtube.com/watch?v=bsrdtXwjV3s>
[Zynq Vitis Example with PL Fabric GPIO and BRAM]

URL: <https://www.hackster.io/nikilthapa/zedboard-linux-uo-application-using-vitis-ide-883a43#:~:text=When%20Linux%20boots%20up%2C%20it,Debug%20Configurations%20%3E%20New%20Configuration%20%3E%20Debug>
[Zedboard: Linux UIO Application using Vitis IDE TODO]

ZedBoard using design_1_wrapper.xsa

URL: <https://www.youtube.com/watch?v=bsrdtXwjV3s>

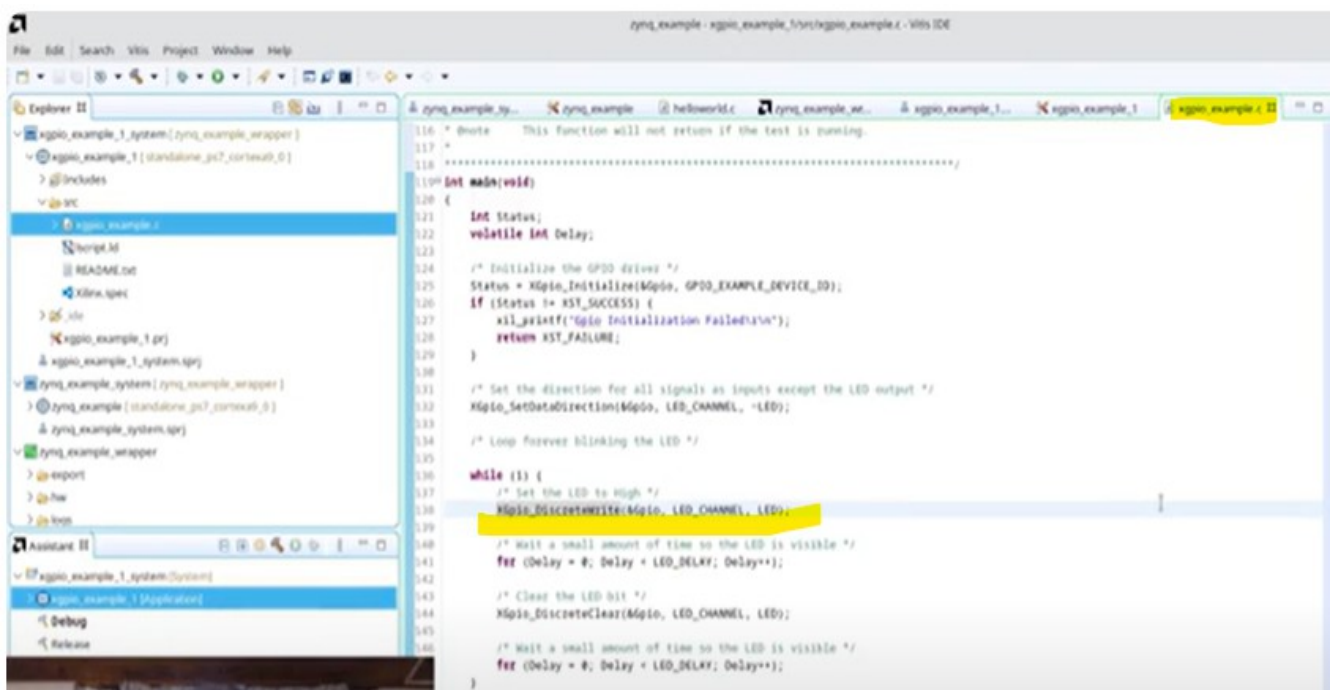
Understanding different stuff

BSP

C:\PROJECTS-NJK\Vitis-zed-using-borobhais-xsa\zed-platform\zynq_fsbl\zynq_fsbl_bsp

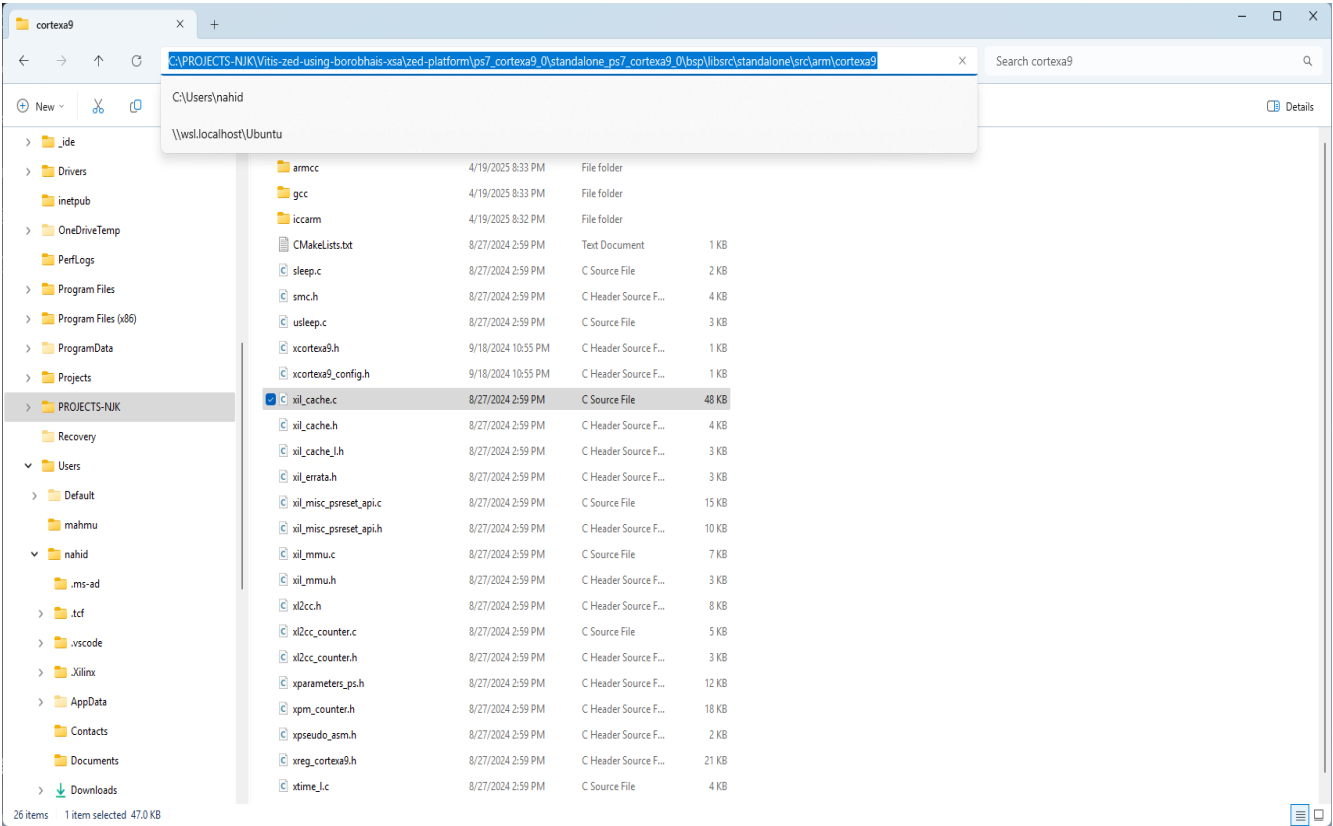
gpio

gpio discussion from the link and the file.

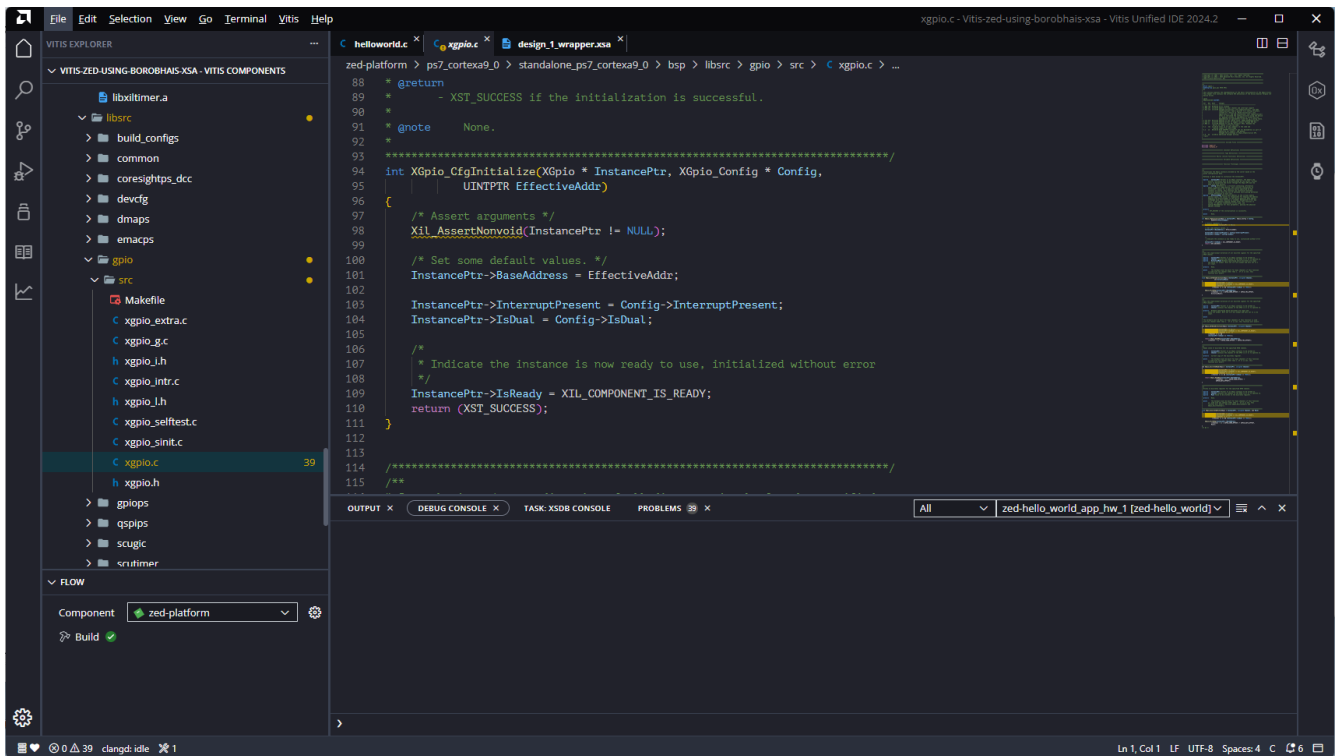


gpio in my workspace

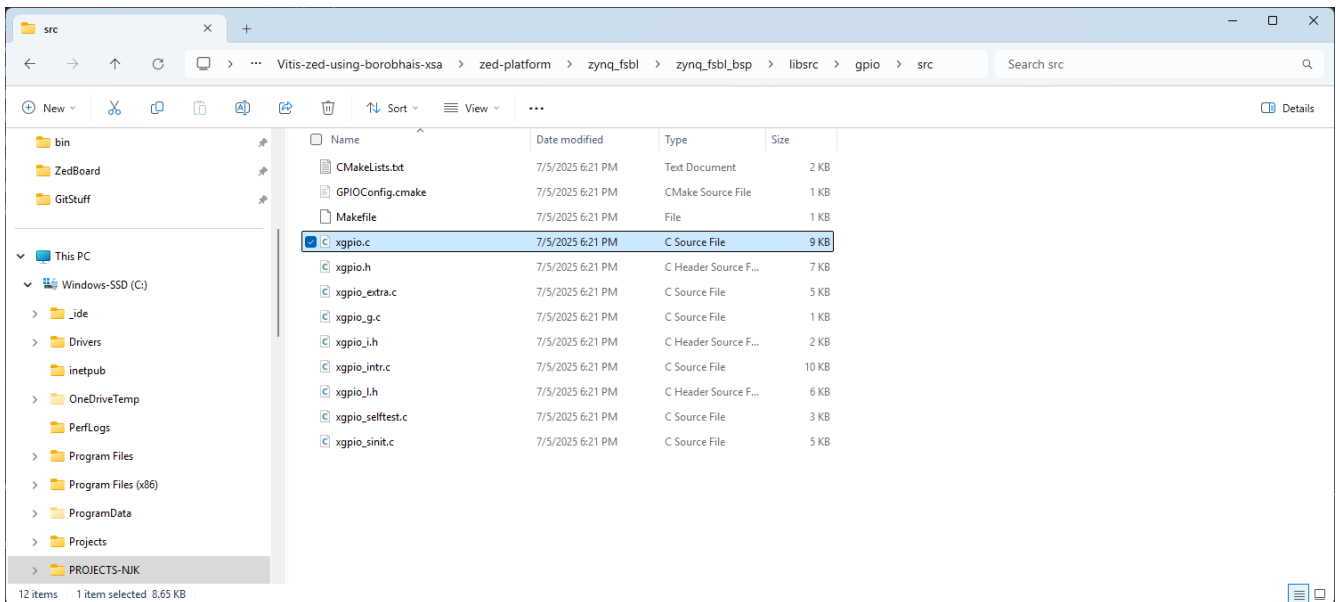
C:\PROJECTS-NJK\Vitis-zed-using-borobhais-xsa\zed-platform\zynq_fsbl\zynq_fsbl_bsp\libsrc\gpio\src



GPIO from Vitis



GPIO from Filesystem

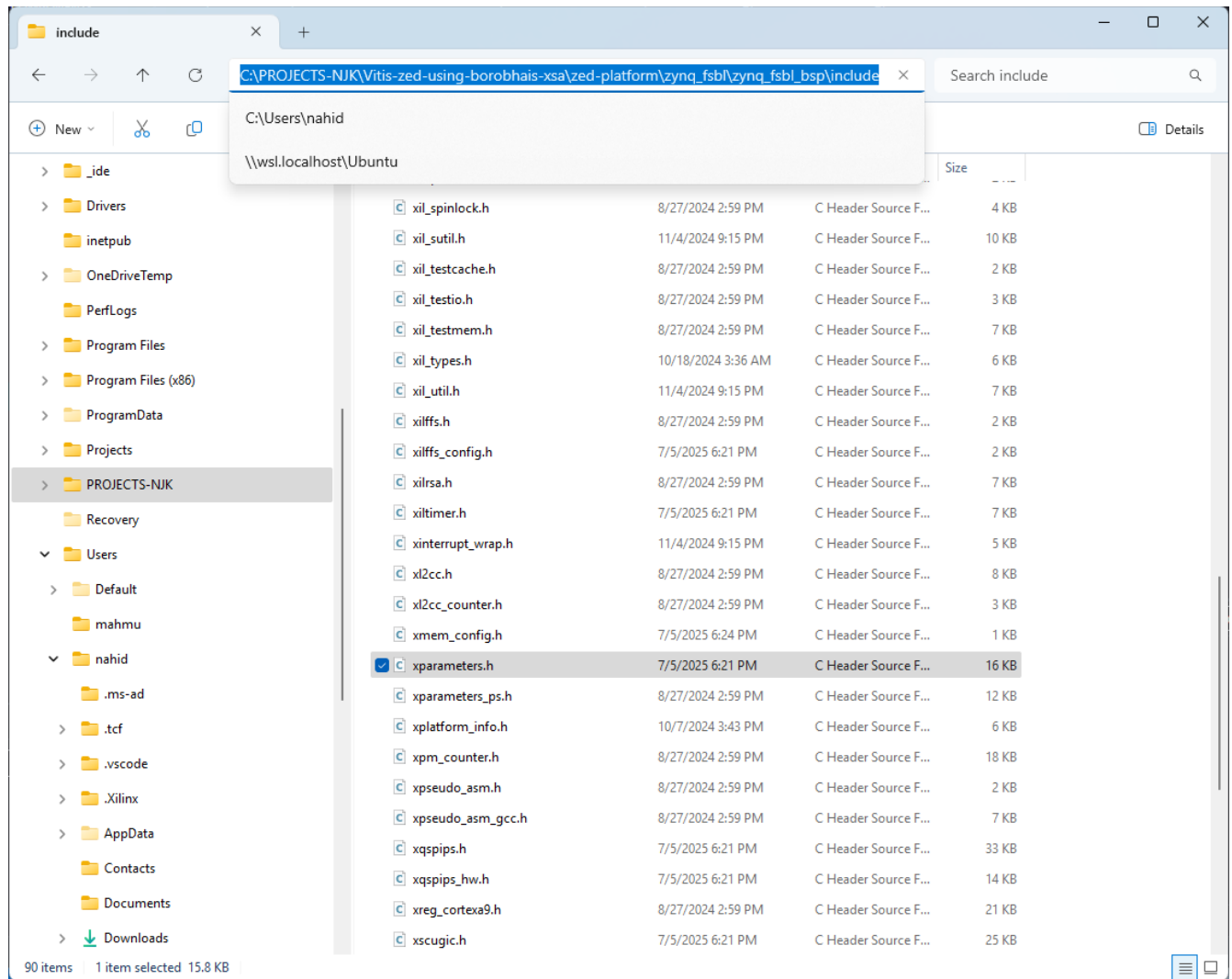


xparameters.h

xparameters.h discussion for all defines from the link

xparameters.h in my workspace

xparameter.h reflects the addresses from the **design_1_wrapper.xsa** file



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xparameters.h

FileEditView

```
#define XPAR_GEM0_INTERRUPTS 0x4010
#define XPAR_GEM0_INTERRUPT_PARENT 0xf8f01000
#define XPAR_GEM0_REF_CLK 0x0
#define XPAR_GEM0_PHY_MODE "rgmii-id"

/* Canonical definitions for peripheral GEM0 */
#define XPAR_XEMACPS_0_BASEADDR 0xe000b000
#define XPAR_XEMACPS_0_HIGHADDR 0xe000bfff
#define XPAR_XEMACPS_0_COMPATIBLE "xlnx,zynq-gem"
#define XPAR_XEMACPS_0_DMA_COHERENT 0x0
#define XPAR_XEMACPS_0_INTERRUPTS 0x4016
#define XPAR_XEMACPS_0_INTERRUPT_PARENT 0xf8f01000
#define XPAR_XEMACPS_0_PHY_MODE "rgmii-id"
#define XPAR_XEMACPS_0_REF_CLK 0x0

#define XPAR_XGPIO_NUM_INSTANCES 2

/* Definitions for peripheral AXI_GPIO_0 */
#define XPAR_AXI_GPIO_0_COMPATIBLE "xlnx,axi-gpio-2.0"
#define XPAR_AXI_GPIO_0_BASEADDR 0x41200000
#define XPAR_AXI_GPIO_0_HIGHADDR 0x4120ffff
#define XPAR_AXI_GPIO_0_INTERRUPT_PRESENT 0x0
#define XPAR_AXI_GPIO_0_IS_DUAL 0x1
#define XPAR_AXI_GPIO_0_GPIO_WIDTH 0x8

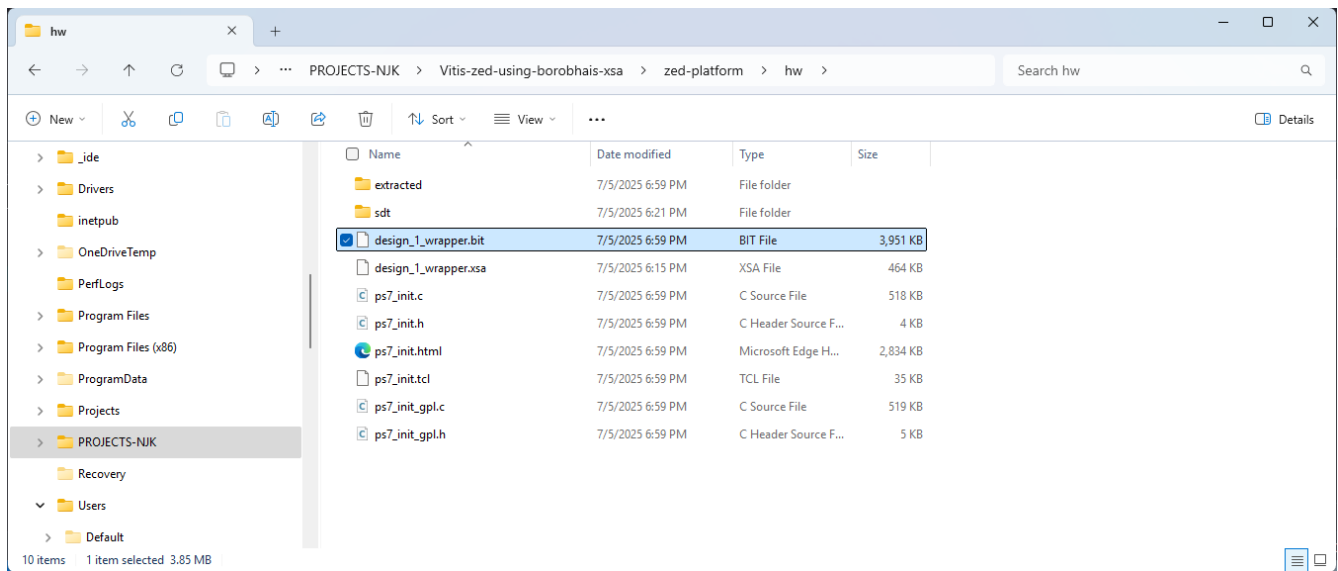
/* Canonical definitions for peripheral AXI_GPIO_0 */
#define XPAR_XGPIO_0_BASEADDR 0x41200000
#define XPAR_XGPIO_0_HIGHADDR 0x4120ffff
#define XPAR_XGPIO_0_COMPATIBLE "xlnx,axi-gpio-2.0"
#define XPAR_XGPIO_0_GPIO_WIDTH 0x8
#define XPAR_XGPIO_0_INTERRUPT_PRESENT 0x0
#define XPAR_XGPIO_0_IS_DUAL 0x1

/* Definitions for peripheral AXI_GPIO_1 */
#define XPAR_AXI_GPIO_1_COMPATIBLE "xlnx,axi-gpio-2.0"
#define XPAR_AXI_GPIO_1_BASEADDR 0x41210000
#define XPAR_AXI_GPIO_1_HIGHADDR 0x4121ffff
#define XPAR_AXI_GPIO_1_INTERRUPT_PRESENT 0x0
#define XPAR_AXI_GPIO_1_IS_DUAL 0x0
#define XPAR_AXI_GPIO_1_GPIO_WIDTH 0x5

/* Canonical definitions for peripheral AXI_GPIO_1 */
#define XPAR_XGPIO_1_BASEADDR 0x41210000
#define XPAR_XGPIO_1_HIGHADDR 0x4121ffff
#define XPAR_XGPIO_1_COMPATIBLE "xlnx,axi-gpio-2.0"
```

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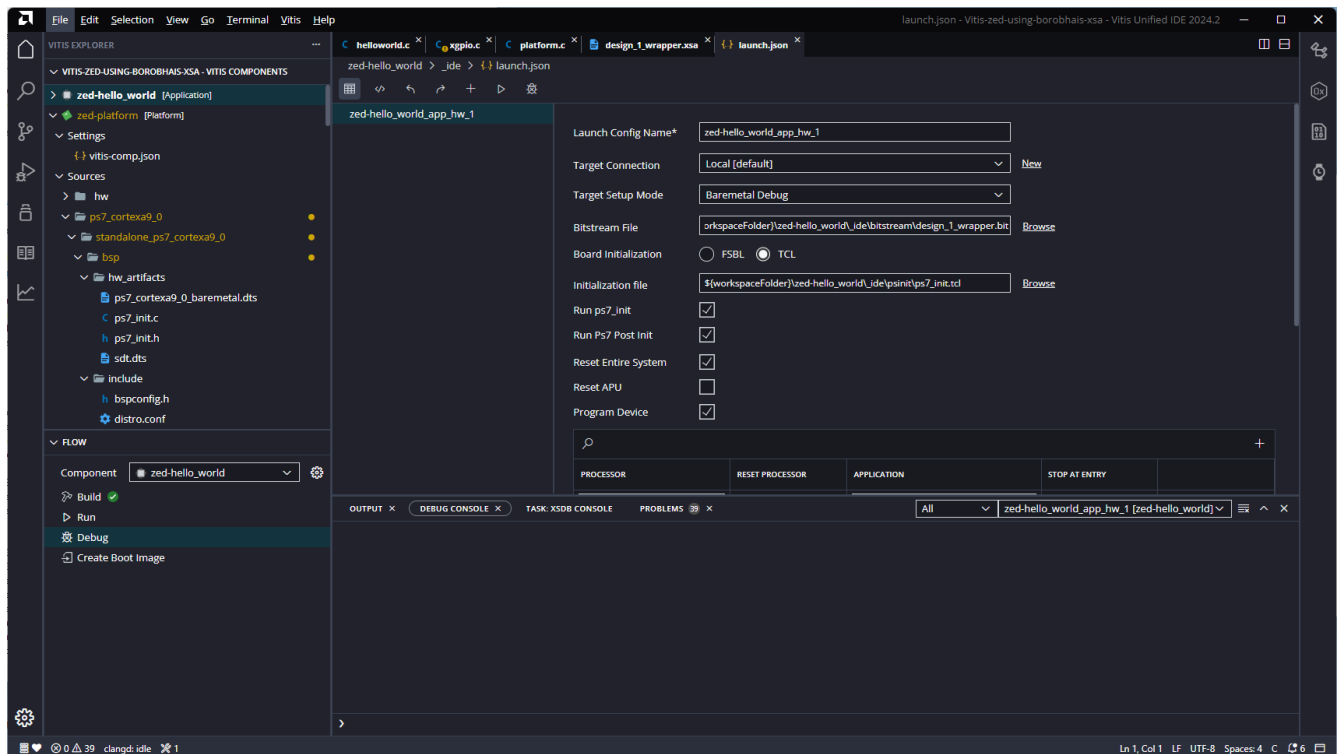
design_1_wrapper.bit generated from design_1_wrapper.xsa



At Vitis IDE this design_1_wrapper.bit is created and used.

Debug session

We can use this I> from the zed-hello_world_app_hw_1 to start debug on the board

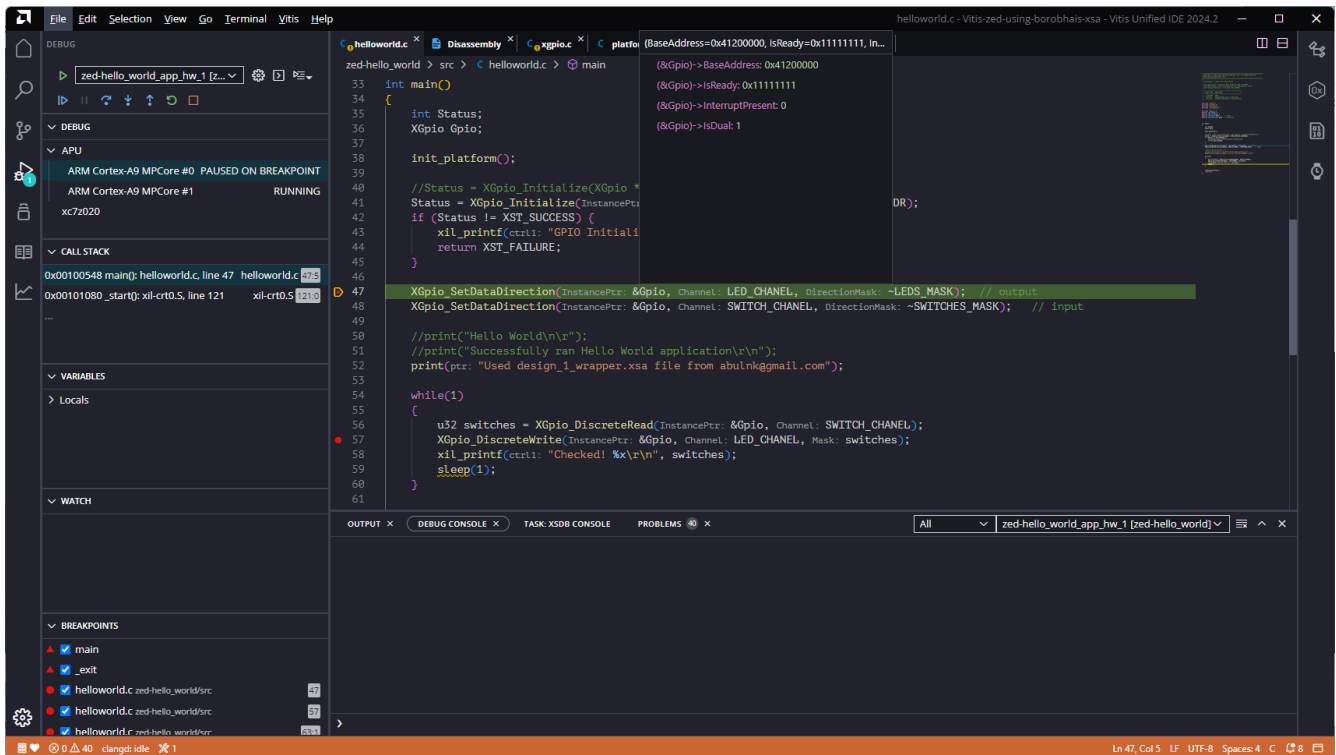


```
COM3 - PuTTY
Hello World
Successfully ran Hello World applicationHello World
Successfully ran Hello World applicationUsed design_1_wrapper.xsa file from abul
nk@gmail.comHello World
Successfully ran Hello World applicationUsed design_1_wrapper.xsa file from abulnk@gmail.comHello World
Successfully ran Hello World applicationUsed design_1_wrapper.xsa file from abulnk@gmail.com
```

Or

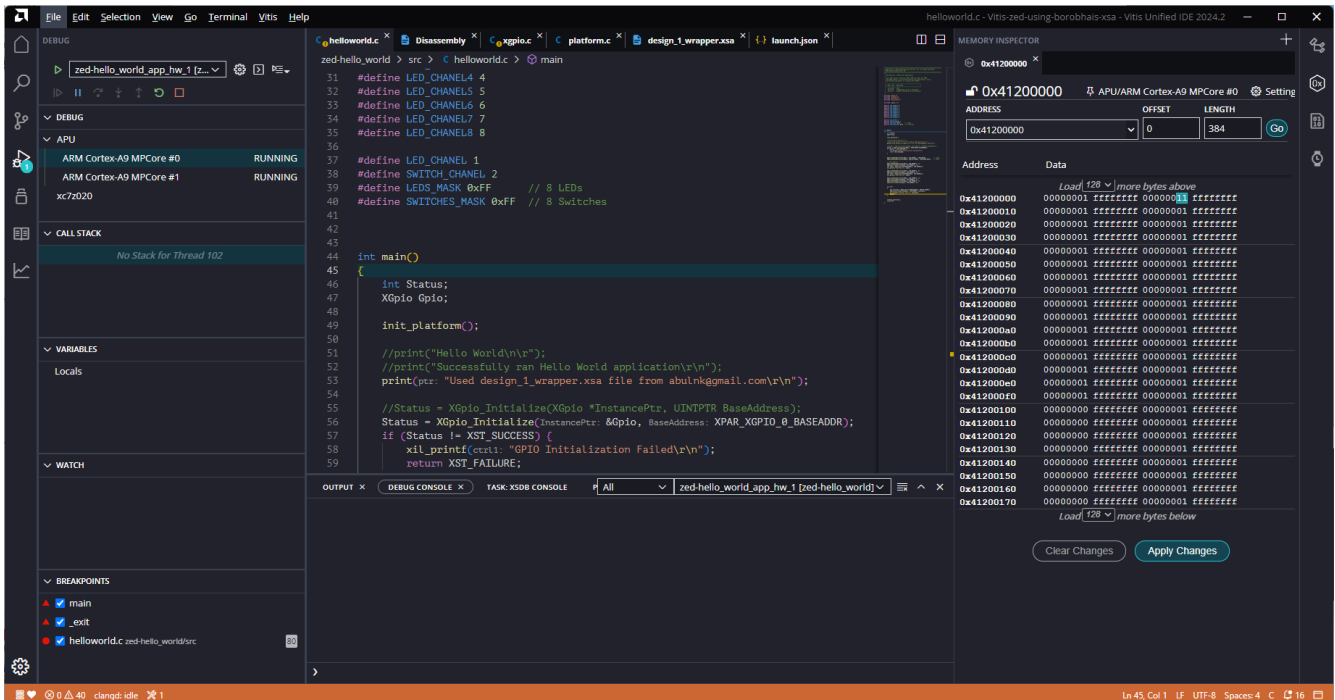
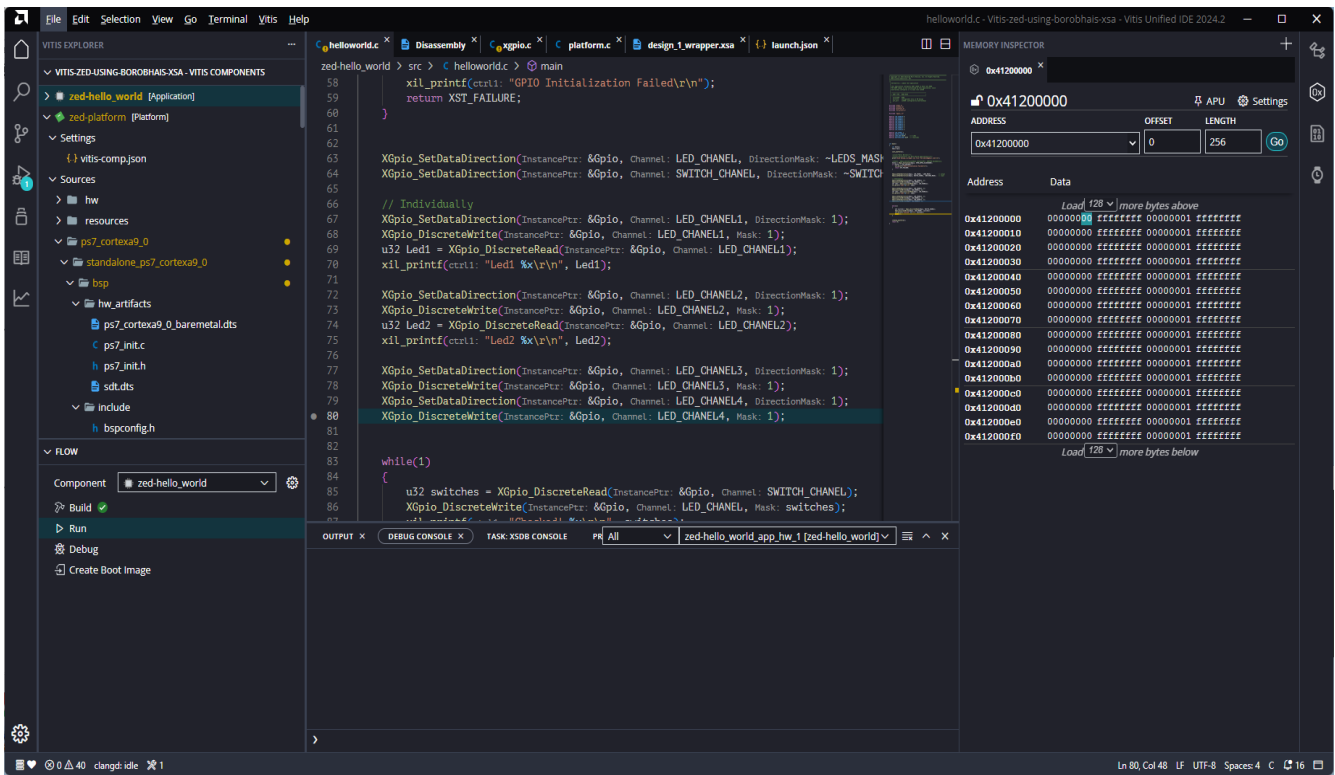
Use the Run I> from under Component [Build, **Run**, Debug, Create Boot Image] to start Debug on the board

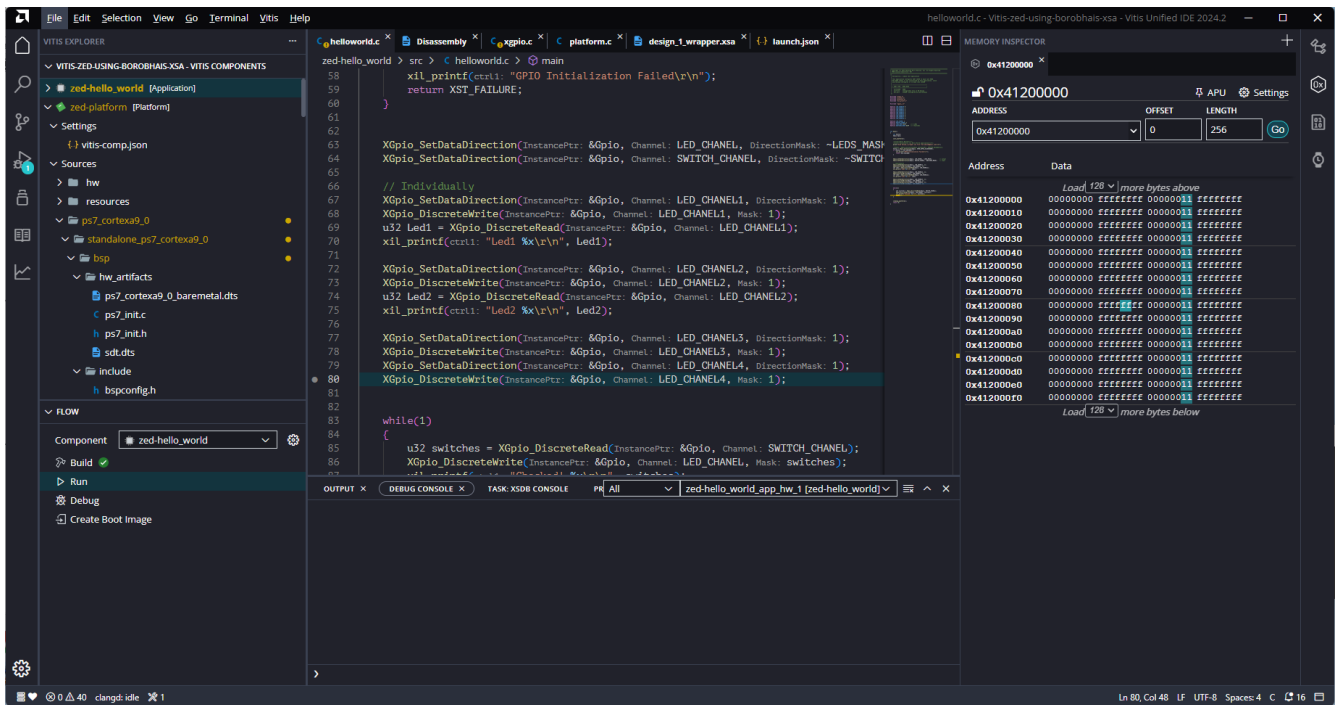
Add some code



```
COM3 - PuTTY
Checked! 0
Checked! 0
Checked! 0
Checked! 0
Checked! 0
Checked! 0
Checked! 0
Used design_1_wrapper.xsa file from abulnk@gmail.comLed1 0
Led2 1
Used design_1_wrapper.xsa file from abulnk@gmail.com
Led1 0
Led2 1
```







system-user.dtsi TODO

jabeen@Nice2behere:/opt/petalinuxUser/templates/project/common/project-spec/meta-user/meta-xilinx-tools/recipes-bsp/u-boot-device-tree/files\$ ls -ltr
total 12

```
-rw-r--r-- 1 jabeen jabeen 36 Apr 11 16:57 system-user.dtsi
drwxr-xr-x 3 jabeen jabeen 4096 Apr 11 16:57 ..
drwxr-xr-x 2 jabeen jabeen 4096 Apr 11 16:57 .
jabeen@Nice2behere:/opt/petalinuxUser/templates/project/common/project-spec/meta-user/meta-
xilinx-tools/recipes-bsp/u-boot-device-tree/files$ cat system-user.dtsi
/include/ "system-conf.dtsi"
/ {
};
```