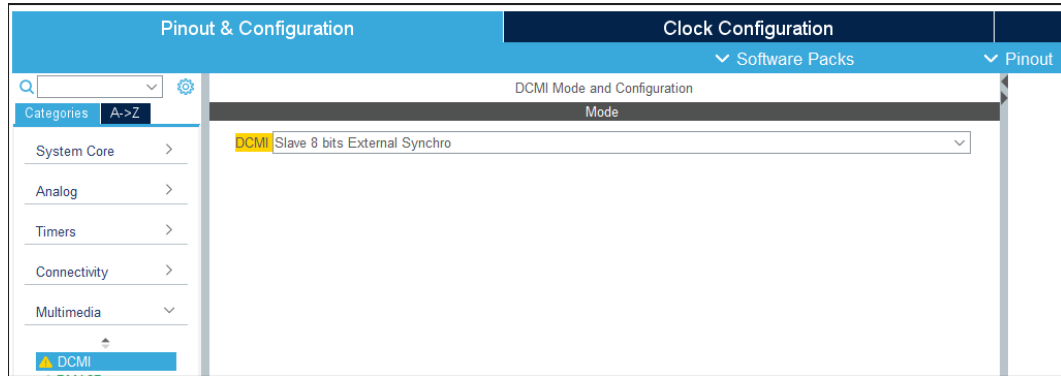
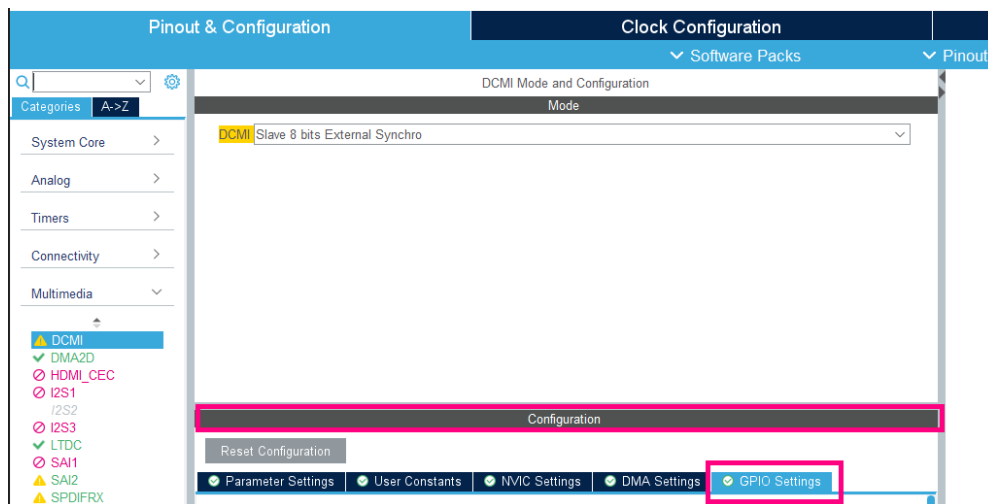


Configure the DCMi module on a STM32f746G-Discovery guide

1. Open a new STM32F746G-DISCO project from the STM32CubeIDE Board Selector.
2. In the *Pinout & Configuration* in the multimedia tab, select DCMi
3. Make sure that DCMi “Slave 8 bits External Synchro” is selected.



4. Select the *Configuration* tab and select *GPIO settings* tab.



5.

6. Select all the DCMi pins

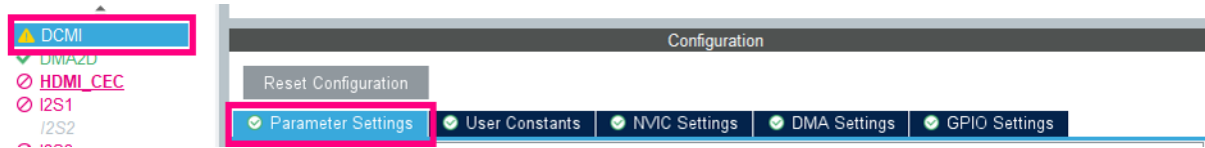
Pin Name	Signal on Pin	GPIO output I...	GPIO mode	GPIO Pull-up/...	Maximum out...	User Label	Modified
PA4	DCMi_HSYNC	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_HSYNC	<input checked="" type="checkbox"/>
PA6	DCMi_PIXCLK	n/a	Alternate Fun...	No pull-up an...	Low		<input type="checkbox"/>
PD3	DCMi_D5	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D5	<input checked="" type="checkbox"/>
PE5	DCMi_D6	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D6	<input checked="" type="checkbox"/>
PE6	DCMi_D7	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D7	<input checked="" type="checkbox"/>
PG9	DCMi_VSYNC	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_VSYNC	<input checked="" type="checkbox"/>
PH9	DCMi_D0	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D0	<input checked="" type="checkbox"/>
PH10	DCMi_D1	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D1	<input checked="" type="checkbox"/>
PH11	DCMi_D2	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D2	<input checked="" type="checkbox"/>
PH12	DCMi_D3	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D3	<input checked="" type="checkbox"/>
PH14	DCMi_D4	n/a	Alternate Fun...	No pull-up an...	Low	DCMi_D4	<input checked="" type="checkbox"/>

7. Set the GPIO pull-up/pull-down to “No pull-up and no pull-down

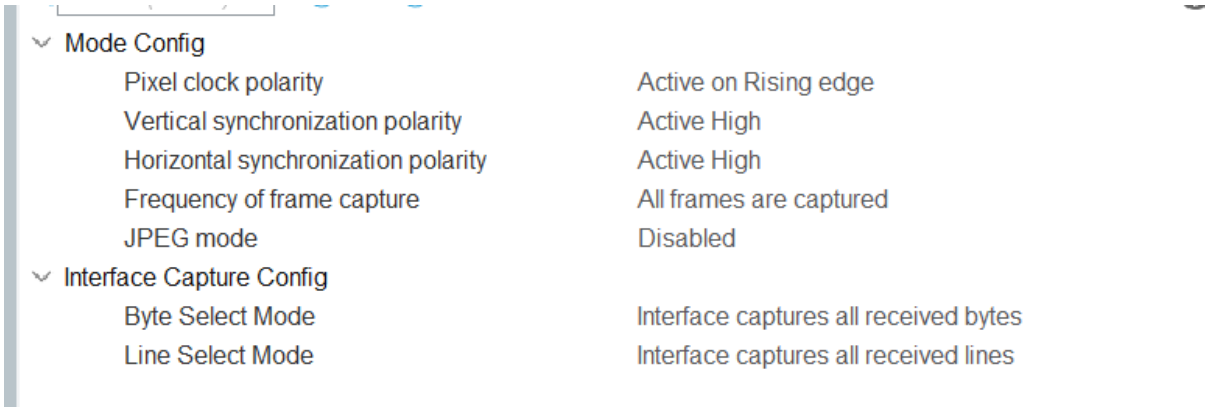
GPIO Pull-up/Pull-down

No pull-up and no pull-down

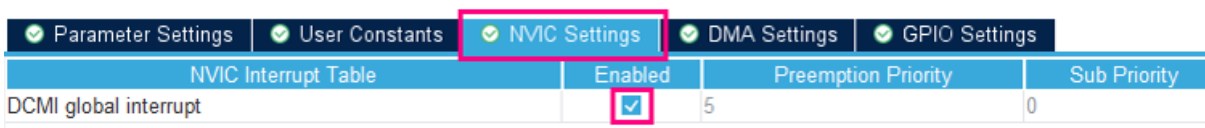
8. Select Parameter settings



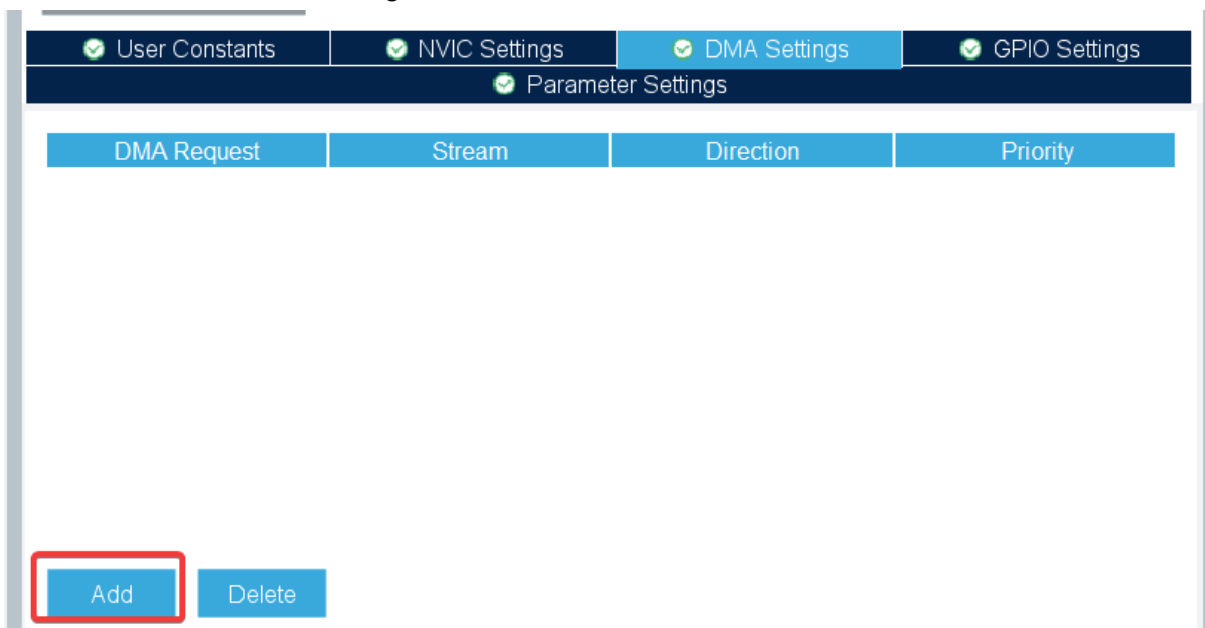
9. Set the configurations like in the picture



10. Enable the DCMI global interrupt in the DCMI Configuration window



11. Go to the DMA settings



12. Choose DCMI and copy the configuration below

Configuration

Reset Configuration

✔ Parameter Settings
✔ User Constants
✔ NVIC Settings
✔ DMA Settings
✔ GPIO Settings

DMA Request	Stream	Direction	Priority
DCMI	DMA2 Stream 1	Peripheral To Memory	High

Add
Delete

DMA Request Settings

Mode
Circular ▼

Use Fifo
✔

Threshold
Full ▼

Increment Address
☐

Data Width
Word ▼

Burst Size
Single ▼

Peripheral

Memory

✔

13. Go to GPIO in System Core and copy the following configuration for PH13

☐ Show only Modified Pins

Pin ...	Signal o...	GPIO ou...	GPIO m...	GPIO Pu...	Maximu...	User La...	Modified
PH2	n/a	n/a	Input mo...	No pull-u...	n/a	NC2	✔
PH13	n/a	Low	Output P...	No pull-u...	High	DCMI_P...	✔
PH15	n/a	n/a	Input mo...	No pull-u...	n/a	TP3	✔
PI2	n/a	Low	Output P...	No pull-u...	Low	ARDUIN...	✔
PI3	n/a	Low	Output P...	No pull-u...	Low	ARDUIN...	✔
PI12	n/a	High	Output P...	No pull-u...	Low	LCD_DI...	✔
PI13	n/a	n/a	External ...	No pull-u...	n/a	LCD_INT	✔
PJ12	n/a	n/a	Input mo...	No pull-u...	n/a	OTG_F...	✔
PK3	n/a	High	Output P...	No pull-u...	Low	LCD_B...	✔

PH13 Configuration :

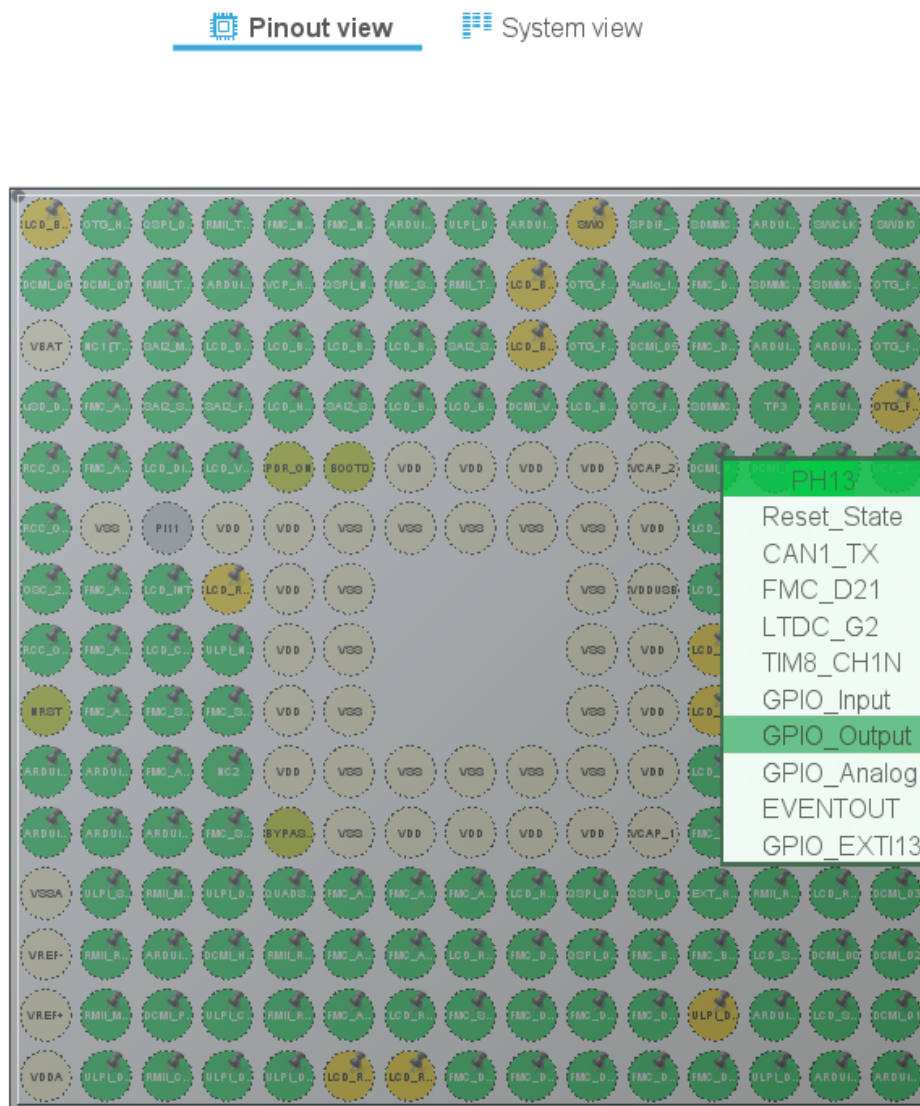
GPIO output level
Low ▼

GPIO mode
Output Push Pull ▼

GPIO Pull-up/Pull-down
No pull-up and no pull-down ▼

Maximum output speed
High ▼

Note: if PH13 doesn't appear, make sure that it's set to GPIO output in the Pinout View like the following picture:



TFBGA216 (Top view)

14. The configuration step is complete, now we have to add some files to the project.

15. Go to

`C:\Users\YOUR_USER\STM32Cube\Repository\STM32Cube_FW_F7_V1.xx.
0\Drivers\BSP`

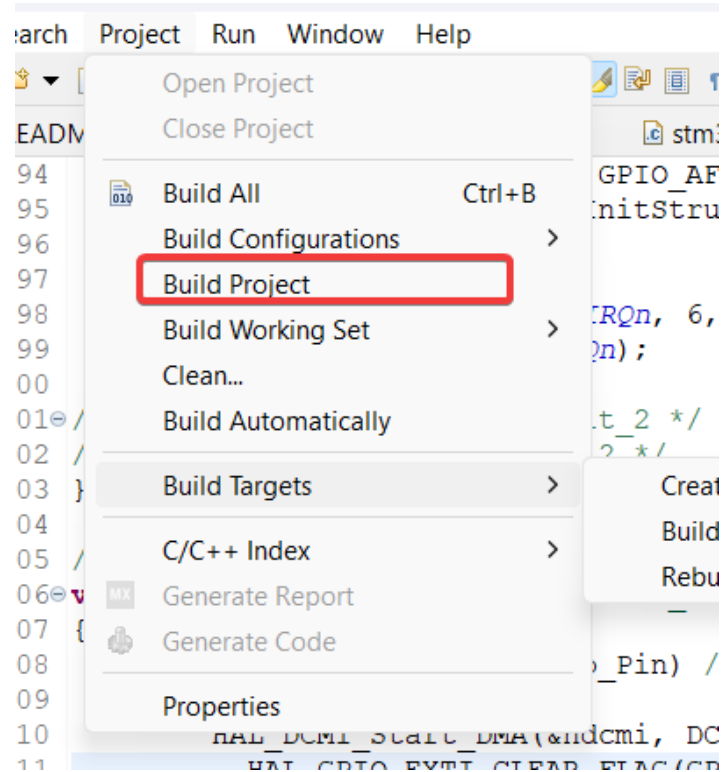
16. Copy from the \STM32746G-Discovery folder the following files and add them to the Core/Src folder of your project:

- `stm32746g_discovery.c`
- `stm32746g_discovery_sdram.c`

17. From the same folder, add the following files in the Core/Inc folder of your project:

- `stm32746g_discovery.h`
- `stm32746g_discovery_sdram.h`

18. Copy the `ov5640.c` and `ov5640.h` from the BSP\Components folder and add them into the Core\Inc and Core\Src file respectively
19. Copy `camera.h` from the BSP\Component\Common folder to the Src\Inc folder
20. Modify `ov9655.h` by replacing `#include "../Common/camera.h"` by `#include "camera.h"`
21. Copy `fonts24.c` from BSP\Utilities\Fonts folder to the Src folder.
22. Build the project and make sure that there are no errors or warnings



23. Go to the `main.c` file and copy the code between the comments indicated in `boilerplate.txt`. Search for the USER CODE BEGIN in the `main.c` and paste the corresponding USER CODE BEGIN from `boilerplate.txt`