

BASIC SOFTWARE ARCHITECTURE

The HV7131Gp Camera API has following functions:

1. hv7131gp_init: initialization of the camera that returns only if a frame interrupt is received.
2. hv7131gp_init_configure: initial configuration. This function is also called by init function, but could be used like a reset function.
3. hv7131gp_configure_time_divisor: time divisor configuration.
4. hv7131gp_configure_resolution: resolution configuration.
5. hv7131gp_window_set: window size and position configuration.
6. hv7131gp_hblank_set: HBLANK value configuration.
7. hv7131gp_vblank_set: VBLANK value configuration.
8. hv7131gp_configure_safe: configuration of resolution and window with size check (max. 19200 pixels).
9. hv7131gp_configure: high level configure function.
10. hv7131gp_capture: capturing the first available picture.
11. hv7131gp_reg_write: low level function to write on the camera register with i2c communication.
12. hv7131gp_reg_read: low level function to read the camera register with i2c communication.
13. hv7131gp_get_width: returns the picture width.
14. hv7131gp_get_height: returns the picture height.
15. hv7131gp_get_size: returns the picture size.
16. hv7131gp_get_Y_average: returns the luminance mean value.
17. hv7131gp_set_sleep_status: set camera in sleep status.
18. hv7131gp_set_active_status: set camera in active status.

If debug symbol is defined, following three additional functions are also available:

19. hv7131gp_get_fdh: returns HSB part of the frame duration.
20. hv7131gp_get_fdl: returns LSB part of the frame duration.
21. hv7131gp_get_fl: returns 1 if, during the actual frame elaboration, another frame is lost.

Description of source files:

1. <main.c>: this file contains a simple application of HV7131GP camera. Using serial communication is possible to receive the raw frame from Flex, and to configure camera by sending certain packet from the pc-side.
2. <hv7131gp.c> and <hv7131gp.h>: API source files.
3. <i2c.c> and <i2c.h>: these files contain the functions to implement i2c communication.
4. <hv7131gp_reg.h>: this file contains the list of all the registers of hv7131gp.
5. <hv7131gp_time_out_def.h>: this file contains an enumeration to control various timeout for init function.
6. <check.s>: this file manages traps.
7. <conf.oil>: is the Erika configuration file.