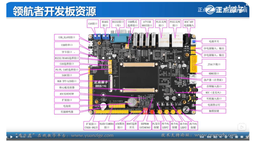
function

1. when user press pl_key[0] once, beep start and led[0] turn on;
and when user press pl_key[0] again, it stop beep and led[0] turn off

2. key pl_key[1] is the volume control, the beep voice will go down and led[1] light will go weaker when press key pl_key[1];
it have 6 levels of beep volume (0,20%, 40%, 60%, 80%, 100%)



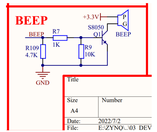
D:\FPGA_study\projects\0001_project_beep

hardware

IO:

系统时钟（50MHz）			
sys_clk	input	U18	系统时钟，频率：50Mhz
PL复位按键			
sys_rst_n	input	N16	PL复位复位，低电平有效
2个PL功能按键			
key[0]	input	L14	PL按键KEY0
key[1]	input	A16	PL按键KEY1
蜂鸣器			
beep	output	W14	蜂鸣器
3个PL LED灯			
led[0]	output	H15	（底板）PL_LED0
led[1]	output	L15	（底板）PL_LED1

有源蜂鸣器(active buzzer)

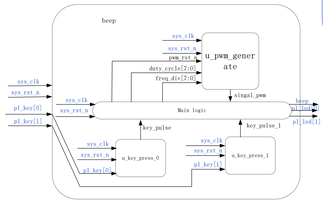


BEEP was controlled by beep signal

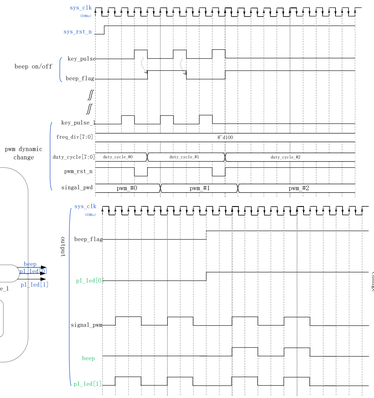
desgin

top

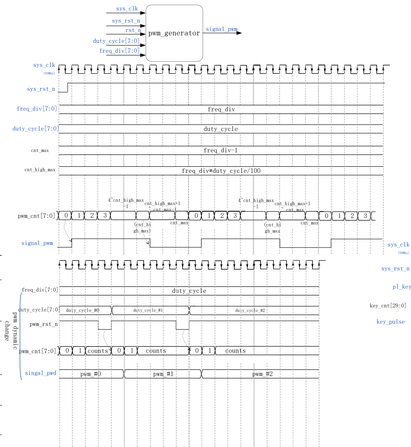
modules



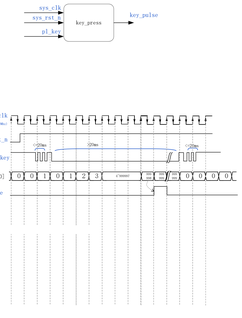
main logic waveform



module pwm_generator:

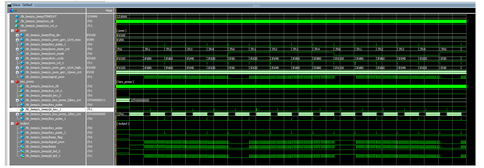


module key_press



simulation

overall



details of pwm change