

Synthesis Report for 'yuv_filter'

General Information

Date: Tue Nov 2 10:42:00 2021
Version: 2021.1.1 (Build 3286242 on Wed Jul 28 13:10:47 MDT 2021)
Project: yuv_filter.prj
Solution: solution3 (Vivado IP Flow Target)
Product family: zynq
Target device: xc7z020-clg400-1

Performance Estimates

- Timing

- Summary

Clock	Target	Estimated	Uncertainty
ap_clk	10.00 ns	7.271 ns	2.70 ns

- Latency

- Summary

Latency (cycles)		Latency (absolute)		Interval (cycles)		Type
min	max	min	max	min	max	
40023	2457623	0.400 mns	24.576 mns	40015	2457615	dataflow

- Detail

- Instance

Instance	Module	Latency (cycles)		Latency (absolute)		Interval (cycles)		Type
		min	max	min	max	min	max	
rgb2yuv_1_U0	rgb2yuv_1	40014	2457614	0.400 mns	24.576 mns	40014	2457614	no
entry_proc_U0	entry_proc	0	0	0 ns	0 ns	0	0	no
yuv_scale_U0	yuv_scale	40009	2457609	0.400 mns	24.576 mns	40009	2457609	no
yuv2rgb_1_U0	yuv2rgb_1	40012	2457612	0.400 mns	24.576 mns	40012	2457612	no

- Loop

N/A

Utilization Estimates

- Summary

Name	BRAM_18K	DSP	FF	LUT	URAM
DSP	-	-	-	-	-
Expression	-	-	0	12	-
FIFO	-	-	1287	884	-
Instance	-	11	962	1803	-
Memory	-	-	-	-	-
Multiplexer	-	-	-	18	-
Register	-	-	2	-	-
Total	0	11	2251	2717	0
Available	280	220	106400	53200	0
Utilization (%)	0	5	2	5	0

- Detail

- **Instance**

Instance	Module	BRAM_18K	DSP	FF	LUT	URAM
entry_proc_U0	entry_proc	0	0	3	47	0
rgb2yuv_1_U0	rgb2yuv_1	0	6	445	640	0
yuv2rgb_1_U0	yuv2rgb_1	0	4	338	664	0
yuv_scale_U0	yuv_scale	0	1	176	452	0
Total	4	0	11	962	1803	0

- **DSP**

N/A

- **Memory**

N/A

- **FIFO**

Name	BRAM_18K	FF	LUT	URAM	Depth	Bits	Size:D*B
U_scale_c_U	0	99	0	-	3	8	24
V_scale_c_U	0	99	0	-	3	8	24
Y_scale_c_U	0	99	0	-	3	8	24
p_scale_channels_ch1_U	0	99	0	-	2	8	16
p_scale_channels_ch2_U	0	99	0	-	2	8	16
p_scale_channels_ch3_U	0	99	0	-	2	8	16
p_scale_height_U	0	99	0	-	2	16	32
p_scale_width_U	0	99	0	-	2	16	32
p_yuv_channels_ch1_U	0	99	0	-	2	8	16
p_yuv_channels_ch2_U	0	99	0	-	2	8	16
p_yuv_channels_ch3_U	0	99	0	-	2	8	16
p_yuv_height_U	0	99	0	-	2	16	32
p_yuv_width_U	0	99	0	-	2	16	32
Total	0	1287	0	0	29	136	296

- **Expression**

Variable Name	Operation	DSP	FF	LUT	Bitwidth P0	Bitwidth P1
ap_idle	and	0	0	2	1	1
ap_sync_ready	and	0	0	2	1	1
entry_proc_U0_ap_start	and	0	0	2	1	1
rgb2yuv_1_U0_ap_start	and	0	0	2	1	1
ap_sync_entry_proc_U0_ap_ready	or	0	0	2	1	1
ap_sync_rgb2yuv_1_U0_ap_ready	or	0	0	2	1	1
Total		6	0	12	6	6

- **Multiplexer**

Name	LUT	Input Size	Bits	Total Bits
ap_sync_reg_entry_proc_U0_ap_ready	9	2	1	2
ap_sync_reg_rgb2yuv_1_U0_ap_ready	9	2	1	2
Total	18	4	2	4

- **Register**

Name	FF	LUT	Bits	Const Bits
ap_sync_reg_entry_proc_U0_ap_ready	1	0	1	0
ap_sync_reg_rgb2yuv_1_U0_ap_ready	1	0	1	0

Total	2	0	2	0
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Interface

- Summary

RTL Ports	Dir	Bits	Protocol	Source Object	C Type
in_channels_ch1_address0	out	22	ap_memory	in_channels_ch1	array
in_channels_ch1_ce0	out	1	ap_memory	in_channels_ch1	array
in_channels_ch1_d0	out	8	ap_memory	in_channels_ch1	array
in_channels_ch1_q0	in	8	ap_memory	in_channels_ch1	array
in_channels_ch1_we0	out	1	ap_memory	in_channels_ch1	array
in_channels_ch1_address1	out	22	ap_memory	in_channels_ch1	array
in_channels_ch1_ce1	out	1	ap_memory	in_channels_ch1	array
in_channels_ch1_d1	out	8	ap_memory	in_channels_ch1	array
in_channels_ch1_q1	in	8	ap_memory	in_channels_ch1	array
in_channels_ch1_we1	out	1	ap_memory	in_channels_ch1	array
in_channels_ch2_address0	out	22	ap_memory	in_channels_ch2	array
in_channels_ch2_ce0	out	1	ap_memory	in_channels_ch2	array
in_channels_ch2_d0	out	8	ap_memory	in_channels_ch2	array
in_channels_ch2_q0	in	8	ap_memory	in_channels_ch2	array
in_channels_ch2_we0	out	1	ap_memory	in_channels_ch2	array
in_channels_ch2_address1	out	22	ap_memory	in_channels_ch2	array
in_channels_ch2_ce1	out	1	ap_memory	in_channels_ch2	array
in_channels_ch2_d1	out	8	ap_memory	in_channels_ch2	array
in_channels_ch2_q1	in	8	ap_memory	in_channels_ch2	array
in_channels_ch2_we1	out	1	ap_memory	in_channels_ch2	array
in_channels_ch3_address0	out	22	ap_memory	in_channels_ch3	array
in_channels_ch3_ce0	out	1	ap_memory	in_channels_ch3	array
in_channels_ch3_d0	out	8	ap_memory	in_channels_ch3	array
in_channels_ch3_q0	in	8	ap_memory	in_channels_ch3	array
in_channels_ch3_we0	out	1	ap_memory	in_channels_ch3	array
in_channels_ch3_address1	out	22	ap_memory	in_channels_ch3	array
in_channels_ch3_ce1	out	1	ap_memory	in_channels_ch3	array
in_channels_ch3_d1	out	8	ap_memory	in_channels_ch3	array
in_channels_ch3_q1	in	8	ap_memory	in_channels_ch3	array
in_channels_ch3_we1	out	1	ap_memory	in_channels_ch3	array
in_width	in	16	ap_none	in_width	pointer
in_height	in	16	ap_none	in_height	pointer
out_channels_ch1_address0	out	22	ap_memory	out_channels_ch1	array
out_channels_ch1_ce0	out	1	ap_memory	out_channels_ch1	array
out_channels_ch1_d0	out	8	ap_memory	out_channels_ch1	array
out_channels_ch1_q0	in	8	ap_memory	out_channels_ch1	array
out_channels_ch1_we0	out	1	ap_memory	out_channels_ch1	array
out_channels_ch1_address1	out	22	ap_memory	out_channels_ch1	array
out_channels_ch1_ce1	out	1	ap_memory	out_channels_ch1	array
out_channels_ch1_d1	out	8	ap_memory	out_channels_ch1	array
out_channels_ch1_q1	in	8	ap_memory	out_channels_ch1	array
out_channels_ch1_we1	out	1	ap_memory	out_channels_ch1	array
out_channels_ch2_address0	out	22	ap_memory	out_channels_ch2	array
out_channels_ch2_ce0	out	1	ap_memory	out_channels_ch2	array
out_channels_ch2_d0	out	8	ap_memory	out_channels_ch2	array
out_channels_ch2_q0	in	8	ap_memory	out_channels_ch2	array

out_channels_ch2_we0	out	1	ap_memory	out_channels_ch2	array
out_channels_ch2_address1	out	22	ap_memory	out_channels_ch2	array
out_channels_ch2_ce1	out	1	ap_memory	out_channels_ch2	array
out_channels_ch2_d1	out	8	ap_memory	out_channels_ch2	array
out_channels_ch2_q1	in	8	ap_memory	out_channels_ch2	array
out_channels_ch2_we1	out	1	ap_memory	out_channels_ch2	array
out_channels_ch3_address0	out	22	ap_memory	out_channels_ch3	array
out_channels_ch3_ce0	out	1	ap_memory	out_channels_ch3	array
out_channels_ch3_d0	out	8	ap_memory	out_channels_ch3	array
out_channels_ch3_q0	in	8	ap_memory	out_channels_ch3	array
out_channels_ch3_we0	out	1	ap_memory	out_channels_ch3	array
out_channels_ch3_address1	out	22	ap_memory	out_channels_ch3	array
out_channels_ch3_ce1	out	1	ap_memory	out_channels_ch3	array
out_channels_ch3_d1	out	8	ap_memory	out_channels_ch3	array
out_channels_ch3_q1	in	8	ap_memory	out_channels_ch3	array
out_channels_ch3_we1	out	1	ap_memory	out_channels_ch3	array
out_width	out	16	ap_vld	out_width	pointer
out_width_ap_vld	out	1	ap_vld	out_width	pointer
out_height	out	16	ap_vld	out_height	pointer
out_height_ap_vld	out	1	ap_vld	out_height	pointer
Y_scale	in	8	ap_none	Y_scale	scalar
U_scale	in	8	ap_none	U_scale	scalar
V_scale	in	8	ap_none	V_scale	scalar
ap_clk	in	1	ap_ctrl_hs	yuv_filter	return value
ap_rst	in	1	ap_ctrl_hs	yuv_filter	return value
ap_start	in	1	ap_ctrl_hs	yuv_filter	return value
ap_done	out	1	ap_ctrl_hs	yuv_filter	return value
ap_ready	out	1	ap_ctrl_hs	yuv_filter	return value
ap_idle	out	1	ap_ctrl_hs	yuv_filter	return value
