primary_descriptor_buffer (pdcb)

interface_clk — buffer_load_clk
buffer_read_clk — compute_clk

primary_descriptor_init → **buffer_load_init**
primary_descriptor_valid → **buffer_load_valid**   **buffer_read_advance**
primary_descriptor_data → **buffer_load_data**   **buffer_read_data**
primary_descriptor_info → **buffer_load_info**   **buffer_read_info**

descriptor_compute_pipeline (dcp)

compute_clk → descriptor_clk   match_info_clk → match_clk

(!first | (first & dcp_ready)) & descriptor_valid
descriptor_ready   **match_info_ready** ← match_info_ready

advance
descriptor_valid   **match_info_valid** → match_info_valid

LK LF ID Desc[]

descriptor_primary_data   **match_info** → match_info
descriptor_primary_info
descriptor_secondary_data
descriptor_secondary_info

secondary_descriptor_buffer

interface_clk — queue_write_clk
queue_read_clk — compute_clk

secondary_descriptor_depleted ← **queue_depleted**   **descriptor_valid**
secondary_descriptor_space_available ← **queue_space_available**   descriptor_advance
secondary_descriptor_valid → **queue_wren**   keypoint_advance
secondary_descriptor_data → **queue_datain**   descriptor_dataout
secondary_descriptor_info

advance

last_kp & last & advance

LF ID Desc[]

Last Keypoint	Last Desc	First Desc	KeypointID	Desc[i]

cluster_descriptor_engine

SIMD - 1

LP	L	F	ID	Descriptor
1	1	0	k	Desc[63]
⋮				
0	0	0	k	Desc[2]
0	0	0	k	Desc[1]
0	0	1	k	Desc[0]
0	1	0	1	Desc[63]
⋮				
0	0	0	1	Desc[2]
0	0	0	1	Desc[1]
0	0	1	1	Desc[0]
0	1	0	0	Desc[63]
⋮				
0	0	0	0	Desc[2]
0	0	0	0	Desc[1]
0	0	1	0	Desc[0]

SIMD - 8

LP	L	F	ID	Descriptor			
1	1	0	k	Desc[63]	Desc[62]	⋯	Desc[56]
0	0	0	k	Desc[23]	Desc[22]	⋯	Desc[16]
0	0	0	k	Desc[15]	Desc[14]	⋯	Desc[8]
0	0	1	k	Desc[7]	Desc[6]	⋯	Desc[0]
0	1	0	1	Desc[63]	Desc[62]	⋯	Desc[56]
0	0	0	1	Desc[23]	Desc[22]	⋯	Desc[16]
0	0	0	1	Desc[15]	Desc[14]	⋯	Desc[8]
0	0	1	1	Desc[7]	Desc[6]	⋯	Desc[0]
0	1	0	0	Desc[63]	Desc[62]	⋯	Desc[56]
0	0	0	0	Desc[23]	Desc[22]	⋯	Desc[16]
0	0	0	0	Desc[15]	Desc[14]	⋯	Desc[8]
0	0	1	0	Desc[7]	Desc[6]	⋯	Desc[0]

SIMD - 64

LP	L	F	ID	Descriptor			
1	1	1	k	Desc[63]	Desc[62]	⋯	Desc[0]
0	1	1	1	Desc[63]	Desc[62]	⋯	Desc[0]
0	1	1	0	Desc[63]	Desc[62]	⋯	Desc[0]