Ray Tracing Optimization

Kashofer, Radschek, Wagner

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1 Profiling

2 Optimization

3 Future tasks

Rendering time

- original code: $45 \frac{sec}{Frame}$
- simple C-Code adaptions: $43 \frac{sec}{Frame}$
- replaced fix_mul16 by ci_mul looped functions: $36 \frac{sec}{Frame}$
- fix_mul16 calls ci_mul: $17 \frac{sec}{Frame}$

SW code structure

getClosestSphere is a main function and contains a lot of loops

$\rightarrow$ Transition looped functions from SW to HW to achive target speed

HW ressouces

- xyz Logic cells
- abc M9Ks
- uvw DSPs

→ Plenty Logic-cells (registers and LUTs), keep number of DSPs and M9Ks low

Overview

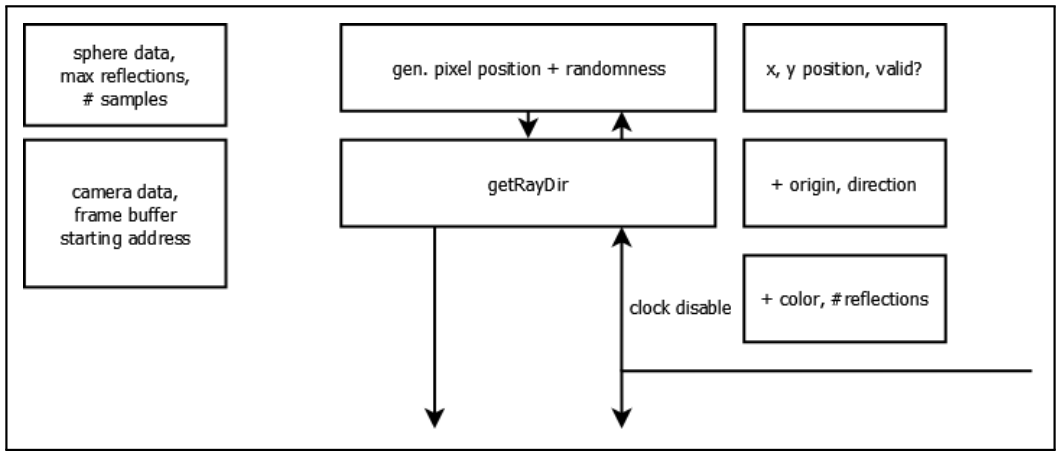
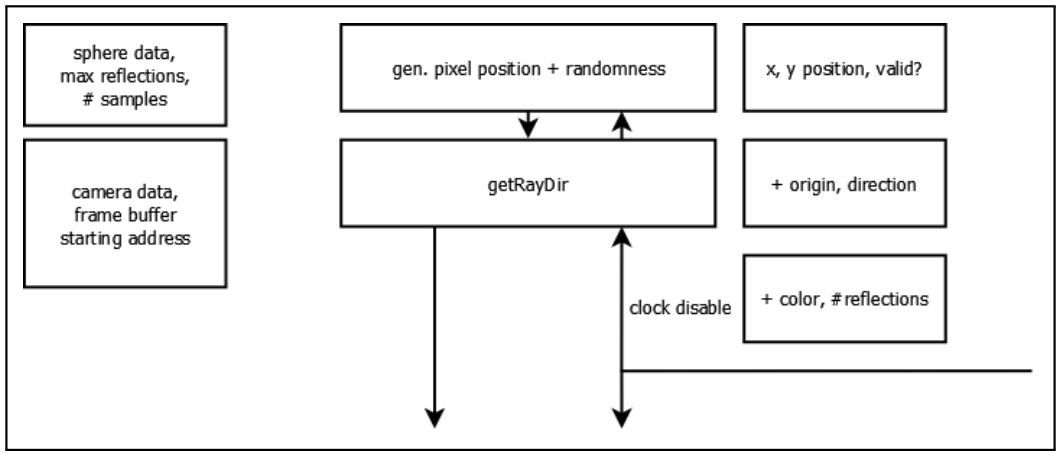


Figure: Pipepline 1

Overview



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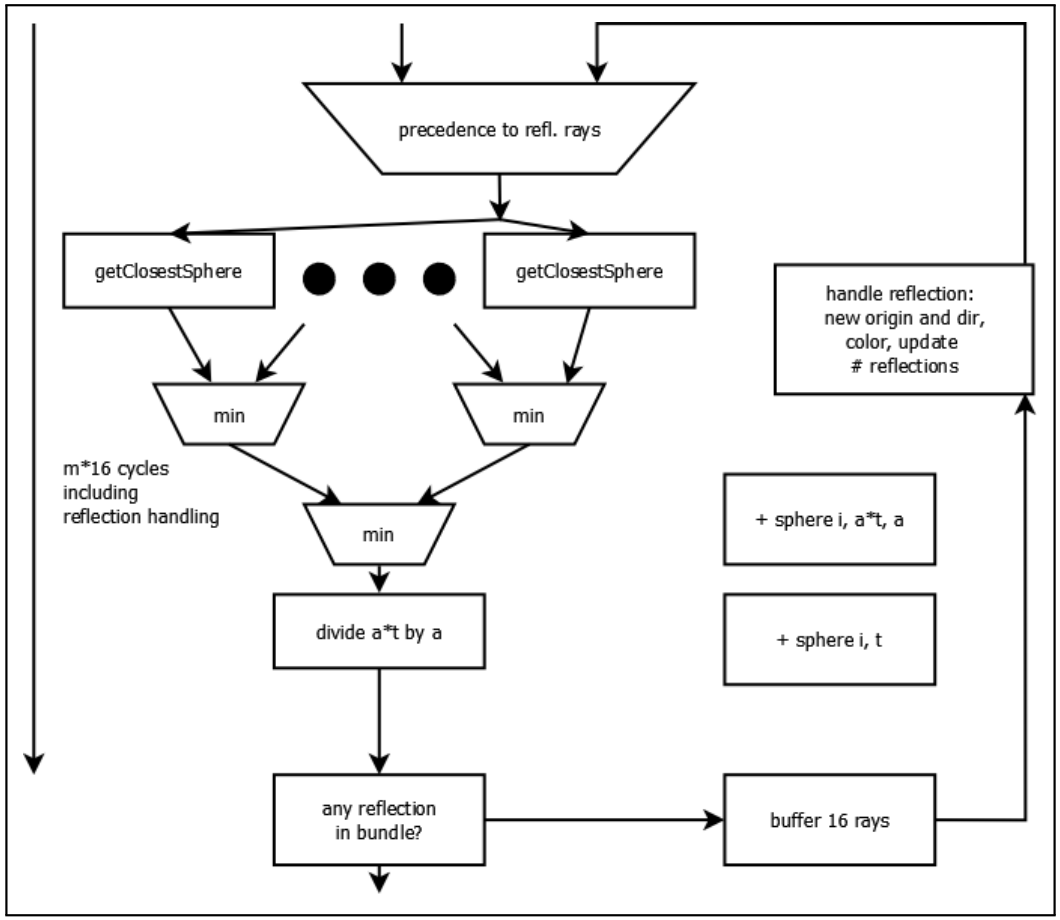

Figure: Pipepline 2

Overview

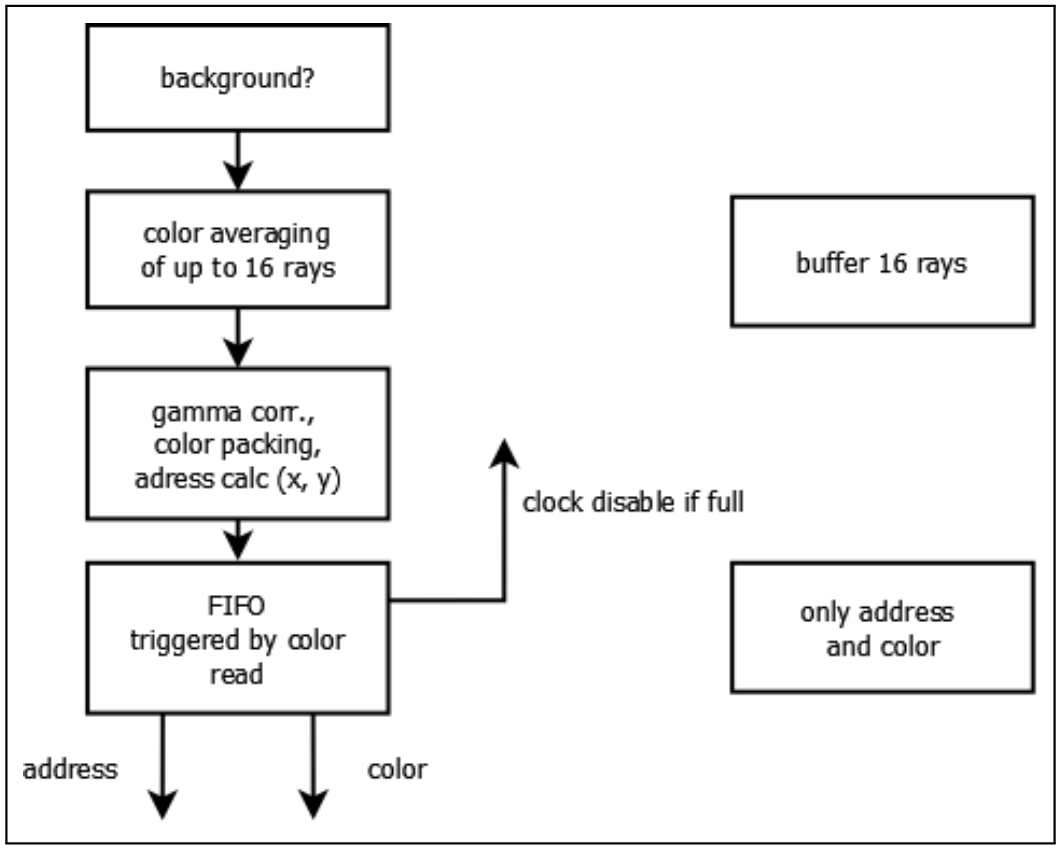

Figure: Pipepline 3

Future tasks

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