15-869 Renderer: Code Structure (tiled version of renderer)

Application input vertex buffer

Application input triangle indices

| 0 | 1 | 2 | 0 | 1 | 3 | 1 | 4 | 5 | 1 | 4 | 2 | ... |

while (!done)
free core grabs next 512 triangles

ProjectedTriangleInput::Input()

Core 0
vertex shade
project
clip
setup triangle

Core 1

Core N-1

...

Core 0 triangle buffer
input.triangleBuffer[0]
(holds triangle setup output data)

Core 0 vertex buffer
input.vertexOutputBuffer[0]
(holds vertex output data)

Core 0 tri indices
input.indexOutputBuffer[0]
(holds indices of vertices in vertexOutputBuffer)

" "

input.triangleBuffer[N-1]

input.vertexOutputBuffer[N-1]

input.indexOutputBuffer[N-1]

TiledRendererAlgorithm::RenderProjectedBatch()

TiledRendererAlgorithm::BinTriangles()

Core 0
classify input
triangles into
tile bins

Core 1
classify input
triangles into
tile bins

Core N-1
classify input
triangles into
tile bins

| ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? | ? |

while (!done)
free core grabs next tile

TiledRendererAlgorithm::ProcessBin()

Core 0
for each bin tri:
  rasterize
  shade
  depth-test
  frame-buffer

Core 1
for each bin tri:
  rasterize
  shade
  depth-test
  frame-buffer

Core N-1
for each bin tri:
  rasterize
  shade
  depth-test
  frame-buffer

TiledRendererAlgorithm::Finish()