An Introduction to Vulkan

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Schedule

PART 1:
- Setup: 10 min (Starts at 09:00)
- Lecture: 20 min (Starts at 09:10)
- Coding Session: 90 min (Starts at 09:30)

PART 2:
- Lecture: 15 min (Starts at 11:00)
- Coffee Break: 25 min (Starts at 11:15)
- Coding Session: 80 min (Starts at 11:40)

Lunch Break: 13:00 – 14:00

PART 3:
- Lecture: 15 min (Starts at 14:00)
- Coding Session: 65 min (Starts at 14:15)
- Coffee Break: 30 min (Starts at 15:20)

PART 4:
- Lecture: 20 min (Starts at 15:50)
- Coding Session: 70 min (Starts at 16:10)
- Closing: 10 min (Starts at 17:20)
CLOSING

- Rendering Multiple Objects
- Further Resources
CLOSING

- Rendering Multiple Objects
- Further Resources
Multiple Objects / Parallel Processing of Draw Calls
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

HOST

Draw Obj 1
Frame 1

Draw Obj 2
Frame 1
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

HOST

Draw Obj 1
Frame 1

Draw Obj 2
Frame 1

Draw Obj 3
Frame 1
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

HOST

- Draw Obj 1
  - Frame 1
- Draw Obj 2
  - Frame 1
- Draw Obj 3
  - Frame 1
- Draw Obj 1
  - Frame 2
Multiple Objects / Parallel Processing of Draw Calls

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Multiple Objects / Parallel Processing of Draw Calls

- **Device/Queue**
  - Draw Obj 1
    - Frame 2
  - Draw Obj 3
    - Frame 1
  - Draw Obj 2
    - Frame 1

- **Host**
  - Draw Obj 2
    - Frame 2
Multiple Objects / Parallel Processing of Draw Calls

- Draw Obj 3
  - Frame 1
- Draw Obj 1
  - Frame 2
- Draw Obj 2
  - Frame 2
- Draw Obj 3
  - Frame 2
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

Draw Obj 1
Frame 2

Draw Obj 2
Frame 2

Draw Obj 3
Frame 2

Uniform Buffer

HOST

Draw Obj 1
Frame 3

Draw Obj 1
Frame 2
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

- Draw Obj 2
  - Frame 2
- Draw Obj 3
  - Frame 2
- Draw Obj 1
  - Frame 3

Uniform Buffer

HOST

- Draw Obj 2
  - Frame 3
- Draw Obj 1
  - Frame 3
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

Uniform Buffer

HOST

Draw Obj 1
Frame 3

Draw Obj 2
Frame 3

Draw Obj 3
Frame 2

Draw Obj 3
Frame 3
Multiple Objects / Parallel Processing of Draw Calls

- Draw Obj 1
  - Frame 3
- Draw Obj 2
  - Frame 3
- Draw Obj 3
  - Frame 3

Uniform Buffer

DEVICE/QUEUE

HOST
Multiple Objects / Parallel Processing of Draw Calls

Device/Queue

Uniform Buffer

Host

Draw Obj 2
Frame 3

Draw Obj 3
Frame 3
Multiple Objects / Parallel Processing of Draw Calls

DEVICE/QUEUE

HOST

Uniform Buffer
Uniform Buffer
Uniform Buffer

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Multiple Objects / Parallel Processing of Draw Calls

- Draw Obj 1
  - Frame 3

- Draw Obj 2
  - Frame 3

- Draw Obj 3
  - Frame 3
CLOSING

- Rendering Multiple Objects
- Further Resources
CLOSING

- Rendering Multiple Objects
- Further Resources
Watch out for extended edition (currently available as preprint):

**Vulkan All the Way**
Transitioning to a Modern Low-Level Graphics API in Academia
Further Resources

The Road to Vulkan Paper
Teaching Modern Low-Level APIs in Introductory Graphics Courses
Johannes Unterguggenberger • Bernhard Kerbl • Michael Wimmer

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