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Khronos DevU
Vulkan Tutorial

Seoul 2016

Why we are here

- **The Khronos Group is meeting in Seoul next week**
  - Many Vulkan experts are coming to Seoul for the meeting
- **And Seoul is home to many advanced game developers, so…**
- **A good opportunity to talk about Vulkan!**

- **Much thanks to Samsung and NVIDIA local staff for their help!**

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Schedule - Morning

- **Wifi: SSID JWMarriott_Conference, PSW DEVU1021**
- **T-shirts held up in Customs – Sorry! We hope to have them today.**
- **All presentation materials will be posted at**

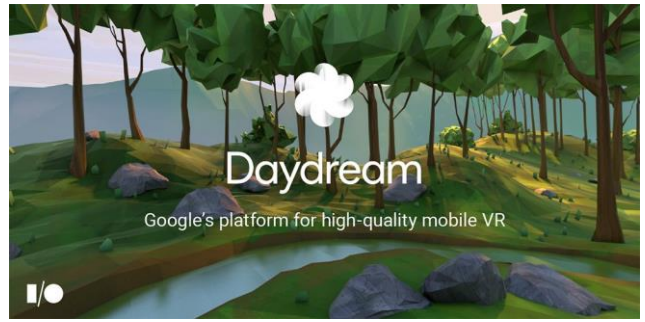
https://www.khronos.org/developers/library/2016-Vulkan-DevU-Seoul

Time	Topic	Speaker(s)
9:00-9:15	Introduction	Tom Olson, ARM
9:15-10:45	Getting Started with Vulkan, part I	Hyokeun Lee / Minwook Kim, Samsung
10:45-11:00	BREAK	
11:00-12:30	Getting Started with Vulkan, part II	Hyokeun Lee, Samsung
12:30-13:30	LUNCH	

Schedule - Afternoon

Time	Topic	Speaker(s)
13:30-15:45	Case Study: Vulkan Game Development for Android	Soowan Park / Joonyong Park, Samsung
15:45-16:00	BREAK	
16:00-16:25	SPIR-V Tools (GLSLang, SPIR2CROSS, etc)	John Kessenich
16:25-16:40	C/C++ with Vulkan-HPP	Markus Tavenrath, NVIDIA
16:40-17:00	Vulkan Multithreading	Jiho Choi, NVIDIA
17:00-17:15	Pipeline Caches and Optimization	Bill Licea-Kane, Qualcomm
17:15-17:25	Performance Benefits of Using Vulkan	Cort Stratton, Google
17:25-17:35	Summary and Wrap-up	Tom Olson, ARM
17:35-17:50	BREAK	
17:50-19:00	Q&A / Panel / Beer	Everyone
19:00-21:00	Reception and Discussions	Everyone

Why Vulkan?



- **Vulkan is needed**
  - Older APIs don't fit modern hardware or modern use cases
- **Vulkan is cross-platform**
  - One API for desktop and mobile
  - One API for Windows, Linux, Android

Windows 7 Windows 10 SteamOS redhat ubuntu

- **Vulkan is an open standard**
  - Created by the whole industry, working together
  - Responsive to developer needs
- **Vulkan is here**
  - Desktop drivers and tools are shipping today
  - Available in some mobile devices
  - Will ship in large volume in Android N

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The key principle of Vulkan: *Explicit Control*

- **Application tells the driver what it is going to do**
  - *In enough detail* that driver doesn't have to guess
  - *When* the driver needs to know it

You have to supply a LOT of information!

And, you have to supply it early

- **In return, driver promises to do**
  - *What* the application asks for
  - *When* it asks for it
  - *Very quickly*

Efficient, predictable performance

- ***No driver magic – no surprises***