

Mesa: State of the Project

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Agenda

- What happened since last XDC?
- What's up for the next Mesa release?
- And after that?



Where were we?

- Mesa 8.0.4 (July 10, 2012)
 - OpenGL 3.0 (on some hardware)
 - 4 years behind the OpenGL 3.0 spec release (August 2008)



Where did we go?

- Mesa 9.0 (October 8, 2012)
 - OpenGL 3.1
 - Pile of extensions from 3.2, 3.3, and 4.x
 - Added Clover (OpenCL) state tracker
 - 3.5 years behind the OpenGL 3.1 spec release (March 2009)



Where did we go?

- Mesa 9.1 (February 22, 2013)
 - OpenGL ES 3.0
 - Small handful of new extensions
 - Removed some old NVIDIA assembly shader extensions
 - 6 months behind the OpenGL ES 3.0 spec release (August 2012)
 - One of the first shipping implementations



What else happened?

- Shift in release cycle timing
 - 2012 / 2013 were the “six month” cycle years
 - 2013 / 2014 will be the “three month” cycle years
 - Distros got tired of wait for new features to be released, so they just shipped “random” points on master
- Slight change in stable branch policy
 - No longer mark patches “NOTE: This is a candidate...”
 - Instead “Cc: mesa-stable@...”
 - Unmarked patches can be sent to mesa-stable after landing on master
 - Carl Worth has taken over stable branch management
 - And stable releases have been much more regular
 - Isn't it time for 9.2.1???



Where are we going now?

- Mesa 10.0
 - OpenGL 3.3 – The only thing missing is geometry shaders :)
 - GL_ARB_separate_shader_objects
 - GL_ARB_shader_atomic_counters
 - GL_ARB_gpu_shader5
 - GL_ARB_texture_gather
 - Others?
- Most likely release date: November 27th, 2013
 - mesa-10.0 branch should be no later than November 1st



Historical Progress

	Spec Release	Mesa supports	Gap (years)
2.1	08/02/06	04/27/07	0.7
3.0	08/11/08	02/12/12	3.5
3.1	03/24/09	02/22/13	3.9
3.2	08/03/09	11/27/13*	4.3
3.3	03/11/10	11/27/13*	3.7
4.0	03/11/10		
4.1	07/26/10		
4.2	08/08/11		

*Projected. :)



And then?

- Mesa 10.1 (February ??, 2014)
 - ?
- My observations:
 - Nobody seems to want tessellation shaders
 - Nobody seems to want double precision
 - Most people don't even know what “shader subroutines” are
 - Everybody wants compute shaders
- Most likely release date: mid-February 2014
 - Probably make mesa-10.1 branch mid-January



Oh OpenGL 4.x...

- OpenGL 4.0 is 3.3 plus...
 - GL_ARB_texture_query_lod (supported since 9.2)
 - GL_ARB_draw_buffers_blend (supported since 7.11)
 - GL_ARB_draw_indirect
 - GL_ARB_gpu_shader5 (should be 10.0)
 - GL_ARB_gpu_shader_fp64
 - GL_ARB_sample_shading
 - GL_ARB_shader_subroutine
 - GL_ARB_tessellation_shader
 - GL_ARB_texture_buffer_object_rgb32 (supported since 9.1)
 - GL_ARB_texture_cube_map_array (supported since 9.1)
 - GL_ARB_texture_gather (should be in 10.0)
 - GL_ARB_transform_feedback2 (supported since 8.0)
 - GL_ARB_transform_feedback3 (supported since 9.0)



Oh OpenGL 4.x...

- OpenGL 4.1 is 4.0 plus...
 - GL_ARB_ES2_compatibility (supported since 7.9-ish)
 - GL_ARB_get_program_binary (supported since 9.1)
 - “Increases in the required supported sizes for textures and renderbuffers.”
 - GL_ARB_separate_shader_objects (should be in 10.0)
 - GL_ARB_vertex_attrib_64bit
 - GL_ARB_viewport_array



Oh OpenGL 4.x...

- OpenGL 4.2 is 4.1 plus...
 - GL_ARB_texture_compression_bptc
 - GL_ARB_compressed_texture_pixel_storage
 - GL_ARB_shader_atomic_counters (should be in 10.0)
 - GL_ARB_texture_storage (supported since 8.0)
 - GL_ARB_transform_feedback_instanced (supported since 9.0)
 - GL_ARB_shader_image_load_store
 - GL_ARB_conservative_depth (supported since 8.0)
 - GL_ARB_shading_language_420pack (supported since 9.2)
 - GL_ARB_internal_format_query (supported since 9.1)
 - GL_ARB_map_buffer_alignment (supported since 9.1)



Oh OpenGL 4.x...

- All Mesa is missing is...
 - GL_ARB_draw_indirect
 - GL_ARB_gpu_shader_fp64 / GL_ARB_vertex_attrib_64bit
 - *Big pile of work!*
 - GL_ARB_shader_subroutine
 - *Big pile of work!*
 - GL_ARB_sample_shading
 - GL_ARB_tessellation_shader
 - *Big pile of work!*
 - GL_ARB_viewport_array
 - GL_ARB_texture_compression_bptc
 - GL_ARB_compressed_texture_pixel_storage
 - GL_ARB_shader_image_load_store
 - *Big pile of work!*



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