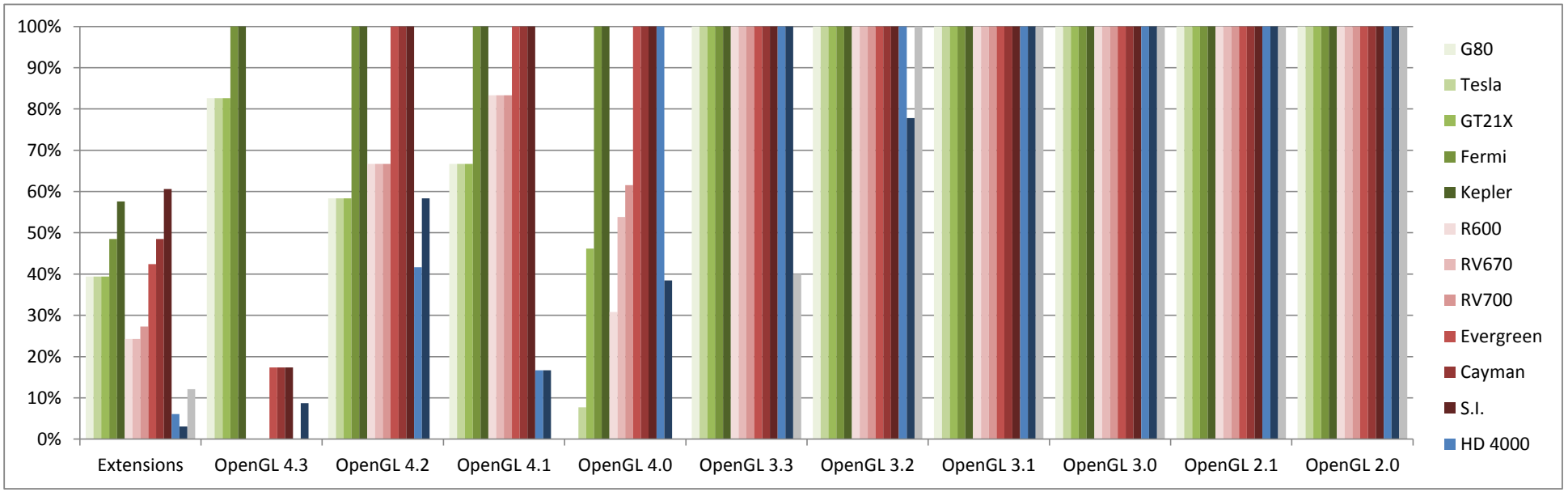
OpenGL hardware matrix

Extensions exposed by OpenGL implementations

January 2013, G-Truc Creation

Vendor	NVIDIA								AMD			Intel	Mesa	Apple
Drivers version	313.95 beta								13.02 beta			15.31.64.2885	9.1 branch	10.8.2
Release date	28/01/2013								18/01/2013			16/12/2012	22/01/2013	05/10/2012
Platforms	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
Extensions	39%	39%	39%	48%	58%	24%	24%	27%	42%	48%	61%	6%	3%	12%
OpenGL 4.3	83%	83%	83%	100%	100%	0%	0%	0%	17%	17%	17%	0%	9%	0%
OpenGL 4.2	58%	58%	58%	100%	100%	67%	67%	67%	100%	100%	100%	42%	58%	0%
OpenGL 4.1	67%	67%	67%	100%	100%	83%	83%	83%	100%	100%	100%	17%	17%	0%
OpenGL 4.0	0%	8%	46%	100%	100%	31%	54%	62%	100%	100%	100%	100%	38%	0%
OpenGL 3.3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	40%
OpenGL 3.2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	78%	100%
OpenGL 3.1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OpenGL 3.0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OpenGL 2.1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OpenGL 2.0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



Nomenclature:

Supported

Not supported

OpenGL Extensions	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
AMD_vertex_shader_viewport_index	X	X	X	X	X	X	X	X	V	V	V	X	X	X
AMD_vertex_shader_layer	X	X	X	X	X	X	X	X	V	V	V	X	X	X
NV_vertex_buffer_unified_memory	V	V	V	V	V	X	X	X	X	X	X	X	X	X
AMD_transform_feedback3_lines_triangles	X	X	X	X	X	X	X	X	X	V	V	X	X	X
EXT_texture_sRGB_decode	X	X	X	V	V	X	X	X	V	V	V	X	X	V
KHR_texture_compression_astc_ldr	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NV_texture_multisample	V	V	V	V	V	X	X	X	X	X	X	X	X	X
EXT_texture_mirror_clamp	V	V	V	V	V	V	V	V	V	V	V	X	X	V
ARB_robustness	V	V	V	V	V	X	X	X	X	X	X	X	X	X
AMD_stencil_operation_extended	X	X	X	X	X	X	X	X	X	X	V	X	X	X
AMD_sparse_texture	X	X	X	X	X	X	X	X	X	X	V	X	X	X
ARB_shading_language_include	V	V	V	V	V	X	X	X	X	X	X	X	X	X
AMD_shader_trinary_minmax	X	X	X	X	X	X	X	X	X	X	V	X	X	X
ARB_shader_stencil_export	X	X	X	X	X	X	X	X	V	V	V	X	X	X
NV_shader_buffer_store	X	X	X	V	V	X	X	X	X	X	X	X	X	X
NV_shader_buffer_load	V	V	V	V	V	X	X	X	X	X	X	X	X	X
NV_shader_atomic_float	X	X	X	V	V	X	X	X	X	X	X	X	X	X
AMD_seamless_cubemap_per_texture	X	X	X	X	V	X	X	V	V	V	V	X	X	X
AMD_sample_positions	X	X	X	X	X	V	V	V	V	V	V	X	X	X
AMD_query_buffer_object	X	X	X	X	X	X	X	X	V	V	V	X	X	X
AMD_pinned_memory	X	X	X	X	X	V	V	V	V	V	V	X	X	X
NV_multisample_coverage	V	V	V	V	V	X	X	X	X	X	X	X	X	X
INTEL_map_texture	X	X	X	X	X	X	X	X	X	X	X	V	X	X
EXT_framebuffer_multisample_blit_scaled	X	X	X	X	V	X	X	X	X	X	X	X	X	V
NV_explicit_multisample	V	V	V	V	V	V	V	V	V	V	V	X	X	X
EXT_direct_state_access	V	V	V	V	V	V	V	V	V	V	V	X	X	X
EXT_depth_bounds_test	V	V	V	V	V	X	X	X	X	X	V	X	X	V

ARB_debug_output	V	V	V	V	V	V	V	V	V	V	V	X	V	X
NV_copy_image	V	V	V	V	V	V	V	V	V	V	V	X	X	X
ARB_compatibility	V	V	V	V	V	V	V	V	V	V	V	V	X	X
ARB_cl_event	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AMD_blend_minmax_factor	X	X	X	X	X	X	X	X	X	V	V	X	X	X
NV_bindless_texture	X	X	X	X	V	X	X	X	X	X	X	X	X	X
Support	39%	39%	39%	48%	58%	24%	24%	27%	42%	48%	61%	6%	3%	12%

OpenGL 4.3	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_vertex_attrib_binding	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_texture_view	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_texture_storage_multisample	V	V	V	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_texture_query_levels	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_texture_buffer_range	V	V	V	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_stencil_texturing	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_shader_storage_buffer_object	X	X	X	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_shader_image_size	X	X	X	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_robustness_isolation	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_robust_buffer_access_behavior	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_program_interface_query	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_multi_draw_indirect	X	X	X	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_invalidate_subdata	V	V	V	V	V	X	X	X	X	X	X	X	V	X
GL_ARB_internalformat_query2	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_framebuffer_no_attachments	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_fragment_layer_viewport	V	V	V	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_explicit_uniform_location	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_ES3_compatibility	V	V	V	V	V	X	X	X	X	X	X	X	V	X
GL_KHR_debug	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_copy_image	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_compute_shader	X	X	X	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_clear_buffer_object	V	V	V	V	V	X	X	X	X	X	X	X	X	X
GL_ARB_arrays_of_arrays	V	V	V	V	V	X	X	X	X	X	X	X	X	X
Support	83%	83%	83%	100%	100%	0%	0%	0%	17%	17%	17%	0%	9%	0%

OpenGL 4.2	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_transform_feedback_instanced	X	X	X	V	V	V	V	V	V	V	V	X	V	X
GL_ARB_texture_compression_bptc	X	X	X	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_texture_storage	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_shading_language_packing	V	V	V	V	V	V	V	V	V	V	V	X	V	X
GL_ARB_shading_language_420pack	V	V	V	V	V	V	V	V	V	V	V	X	X	X
GL_ARB_shader_image_load_store	X	X	X	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_shader_atomic_counters	X	X	X	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_map_buffer_alignment	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_internalformat_query	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_conservative_depth	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_compressed_texture_pixel_storage	V	V	V	V	V	V	V	V	V	V	V	X	X	X
GL_ARB_base_instance	X	X	X	V	V	X	X	X	V	V	V	V	V	X
Support	58%	58%	58%	100%	100%	67%	67%	67%	100%	100%	100%	42%	58%	0%

OpenGL 4.1	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_viewport_array	V	V	V	V	V	V	V	V	V	V	V	X	X	X
GL_ARB_vertex_attrib_64bit	X	X	X	V	V	X	X	X	V	V	V	X	X	X
GL_ARB_shader_precision	X	X	X	V	V	V	V	V	V	V	V	X	X	X
GL_ARB_separate_shader_objects	V	V	V	V	V	V	V	V	V	V	V	X	X	X
GL_ARB_get_program_binary	V	V	V	V	V	V	V	V	V	V	V	X	X	X
GL_ARB_ES2_compatibility	V	V	V	V	V	V	V	V	V	V	V	V	V	X
Support	67%	67%	67%	100%	100%	83%	83%	83%	100%	100%	100%	17%	17%	0%

OpenGL 4.0	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_transform_feedback3	X	X	X	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_transform_feedback2	X	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_texture_query_lod	X	X	V	V	V	X	X	V	V	V	V	V	X	X
GL_ARB_texture_gather	X	X	V	V	V	X	V	V	V	V	V	V	X	X
GL_ARB_texture_cube_map_array	X	X	V	V	V	X	V	V	V	V	V	V	V	X
GL_ARB_texture_buffer_object_rgb32	X	X	X	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_tessellation_shader	X	X	X	V	V	X	X	X	V	V	V	V	X	X

GL_ARB_shader_subroutine	X	X	X	V	V	X	X	X	V	V	V	V	X	X
GL_ARB_sample_shading	X	X	V	V	V	X	V	V	V	V	V	V	X	X
GL_ARB_gpu_shader5	X	X	X	V	V	X	X	X	V	V	V	V	X	X
GL_ARB_gpu_shader_fp64	X	X	X	V	V	X	X	X	V	V	V	V	X	X
GL_ARB_draw_indirect	X	X	X	V	V	X	X	X	V	V	V	V	X	X
GL_ARB_draw_buffers_blend	X	X	V	V	V	V	V	V	V	V	V	V	V	X
Support	0%	8%	46%	100%	100%	31%	54%	62%	100%	100%	100%	100%	38%	0%

OpenGL 3.3	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_vertex_type_2_10_10_10_rev	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_timer_query	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_swizzle	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_texture_rgb10_a2ui	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_shader_bit_encoding	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_sampler_objects	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_occlusion_query2	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_instanced_arrays	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_explicit_attrib_location	V	V	V	V	V	V	V	V	V	V	V	V	V	X
GL_ARB_blend_func_extended	V	V	V	V	V	V	V	V	V	V	V	V	V	X
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	40%

OpenGL 3.2	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_vertex_array_bgra	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_multisample	V	V	V	V	V	V	V	V	V	V	V	V	X	V
GL_ARB_sync	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_seamless_cube_map	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_provoking_vertex	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_geometry_shader4	V	V	V	V	V	V	V	V	V	V	V	V	X	V
GL_ARB_fragment_coord_conventions	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_depth_clamp	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_draw_elements_base_vertex	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	78%	100%

OpenGL 3.1	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_uniform_buffer_object	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_texture_snorm	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_rectangle	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_buffer_object	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_NV_primitive_restart	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_draw_instanced	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_copy_buffer	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

OpenGL 3.0	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_vertex_array_object	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_transform_feedback	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_rg	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_texture_shared_exponent	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_texture_integer	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_float	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_compression_rgtc	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_texture_array	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_packed_float	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_packed_depth_stencil	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_map_buffer_range	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_half_float_vertex	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_half_float_pixel	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_gpu_shader4	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_framebuffer_sRGB	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_framebuffer_object	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_depth_buffer_float	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_NV_conditional_render	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_color_buffer_float	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

OpenGL 2.1	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X

GL_EXT_texture_sRGB	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_pixel_buffer_object	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

OpenGL 2.0	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	Mesa	MacOS X
GL_ARB_vertex_shader	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_texture_non_power_of_two	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_stencil_two_side	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_shading_language_100	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_shader_objects	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_point_sprite	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_fragment_shader	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_ARB_draw_buffers	V	V	V	V	V	V	V	V	V	V	V	V	V	V
GL_EXT_blend_equation_separate	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%