OpenGL hardware matrix

Extensions exposed by OpenGL implementations

July 2017, G-Truc Creation

GF / Fermi: GeForce 400 series, GeForce 500 series GK / Kepler: GeForce 600 series, GeForce 700 series

GK110 / Kepler 110: GeForce 780 GM200 / Maxwell: GeForce 900 series GP102 / Pascal: GeForce 10 series

EG / Evergreen: Radeon HD 5000 series, Radeon HD 6000 series

N.I. / Northern Islands: Radeon HD 6900 series

S.I. / Southern Islands: Radeon HD 7000 series, Radeon R7 250X, Radeon R7 265, Radeon R9 280 C.I. / Sea Islands: Radeon HD 7790, Radeon R7 240, Radeon R7 250, Radeon R7 260, Radeon R9 270

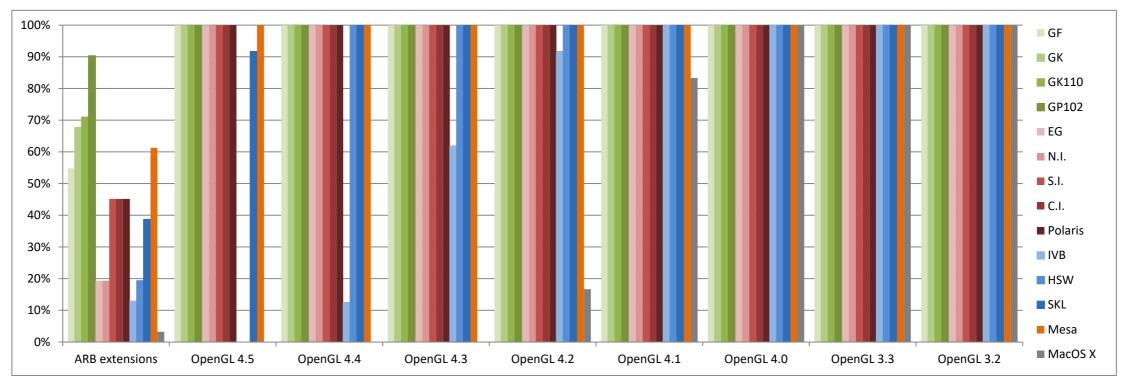
V.I. / Volcanic Islands: Radeon R9 285 / 290 / Fury Polaris: Radeon RX 400 series, Radeon RX 500 series

SNB / Sandy Bridge: HD, HD 2000 IVB / Ivy Bridge: HD4000, HD2500

HSW / Haswell: Iris 5X00 series, HD 4X00 series BSW / Broadwell: Iris 6X00 series, HD 5X00 series

SKL / Skulake: Iris and HD 500 series, Iris and HD 600 series

Vendor			NVIDIA	4				Αl	MD				Int	el		Mesa	Apple
Drivers version			384.80	0				17	.7.1			4229	4332	4703	4729	git	10.11.3
Platforms	GF	GK	GK110	GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polaris	IVB	HSW	BDW	SKL	Mesa	MacOS X
ARB extensions	55%	68%	71%	90%	90%	19%	19%	45%	45%	45%	45%	13%	19%	19%	39%	619	6 3%
OpenGL 4.5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	25%	92%	100%	6 0%
OpenGL 4.4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	13%	100%	100%	100%	100%	6 0%
OpenGL 4.3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	62%	100%	100%	100%	100%	6 0%
OpenGL 4.2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	92%	100%	100%	100%	100%	6 17%
OpenGL 4.1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	6 83%
OpenGL 4.0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	6 100%
OpenGL 3.3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	6 100%
OpenGL 3.2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	6 100%



Nomenclature:

Supported

Not supported

Support added from previous report

OpenGL Extensions	GF	GK	GK110	GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polai	ris IVB	HSW	BDW	SKL	Mesa	MacOS X
KHR texture compression astc sliced 3d	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	X
KHR texture compression astc ldr	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	X
KHR texture compression astc hdr	X	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	V	V	X
KHR no error	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	X
KHR blend equation advanced	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	X
KHR blend equation advanced coherent	X	Χ	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X	Χ	V	V	X
ARB transform feedback overflow query	V	V	V	V	V	V	V	V	V	V	V	V	V	٧	V	V	X
ARB texture filter minmax	X	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	X
ARB_robustness	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	Χ	X
ARB sparse texture clamp	X	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	X
ARB sparse texture2	X	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х
ARB sparse texture	V	V	V	V	V	X	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	X
ARB sparse buffer	V	V	V	V	V	Χ	Χ	V	V	V	V	Χ	Χ	Χ	Χ	V	X
ARB shader viewport layer array	X	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X	Χ	Χ	V	X
ARB shading language include	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V
ARB shader stencil_export	X	Χ	Χ	Χ	Χ	V	V	V	V	V	V	X	X	Χ	V	V	X
ARB shader group vote	V	V	V	V	V	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	V	X
ARB shader draw parameters	V	V	V	V	V	X	Χ	V	V	V	V	X	X	Χ	V	V	X
ARB shader clock	X	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	X
ARB shader ballot	X	V	V	V	V	Χ	Χ	V	V	V	V	X	X	Χ	Χ	V	X
ARB shader atomic counter ops	X	Χ	Х	Χ	Х	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	V	X
ARB seamless cubemap per texture	X	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	X
ARB sample locations	X	Χ	Х	V	V	X	Χ	Χ	Χ	Χ	Χ	X	Χ	Χ	Χ	Χ	X
ARB robustness isolation	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	X	X

ARB_post_depth_coverage	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	X	
ARB pipeline statistics query	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	X	V	X	
ARB_parallel_shader_compile	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	
ARB gpu shader int64	V	V	V	V	V	X	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X	V	X	
ARB_fragment_shader_interlock	X	Х	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X	
ARB ES3 2 compability	V	V	V	V	V	X	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X	V	X	
ARB_debug_output	V	V	V	V	V	V	V	V	٧	٧	V	V	٧	V	V	V	X	
ARB indirect parameters	V	V	V	V	V	X	Х	V	V	V	V	Χ	V	V	V	V	X	
ARB compute variable group size	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	X	
ARB compatibility	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	
ARB_cl_event	X	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X	Χ	Χ	Χ	Χ	X	
ARB bindless texture	X	V	V	V	V	X	X	V	٧	V	V	Χ	Χ	Χ	V	V	X	
ARB gl spirv	X	V	V	V	V	X	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	X	
Support	549	% 66°	% 69%	% 86%	6 86%	6 17 %	% 179	6 40%	40%	40%	6 40 ⁹	6 119	6 20%	6 20°	% 43%	,)	65%	3%
OpenGL Extensions	GF	GK	GM100	0 GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polar	is IVB	HSW	BDW	/ SKL	Mesa	MacOS	Χ
WGL EXT colorspace	V	V	V	V	V	X	X	Х	X	Х	Х	Х	Х	X	Х	Х	Х	
WGL FXT swap control tear	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	Χ	X	

OpenGL Extensions	GF	GK	GM10	0 GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polar	is IVB	HSW	BDW	SKL	Mesa	MacOS X
WGL EXT colorspace	٧	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Х
WGL EXT swap control tear	V	V	V	V	V	V	٧	V	٧	V	V	V	V	٧	V	Χ	Χ
EXT_window_rectangles	V	V	V	V	V	X	Χ	Χ	Χ	Х	Х	Χ	Χ	Χ	Χ	Х	Χ
EXT texture compression dxt1	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V
EXT texture compression s3tc	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	V
EXT texture sRGB decode	V	V	V	V	V	V	٧	V	V	V	V	V	V	٧	V	V	V
EXT texture mirror clamp	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	V
EXT texture filter minmax	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
EXT shader integer mix	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X
EXT_shader_image_load_formatted	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
EXT_shader_framebuffer_fetch	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	Χ	X
EXT_sparse_texture2	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
EXT_raster_multisample	X	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
EXT_post_depth_coverage	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	X	Χ	Χ	Χ	Χ
EXT_polygon_offset_clamp	V	V	V	V	V	V	V	V	V	V	V	Χ	V	V	V	X	Χ
EXT_framebuffer_multisample_blit_scaled	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	X	Χ	Χ	V	V
EXT_direct_state_access	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	Χ	Χ
EXT_depth_bounds_test	V	V	V	V	V	X	Χ	V	V	V	V	Χ	X	Χ	Χ	Χ	V
EXT clip_control	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	Χ	Χ
NV_viewport_array2	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV vertex buffer unified memory	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV uniform buffer unified memory	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV_texture_multisample	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
NV_texture_barrier	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	V
NV_shader_thread_shuffle	Χ	V	V	V	V	X	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV shader thread group	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV shader buffer store	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV shader buffer load	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV shader atomic fp16 vector	X	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV_shader_atomic_float64	Χ	Χ	Χ	Χ	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV_shader_atomic_float	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X
NV shader atomic int64	X	Χ	V	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV_sample_mask_override_coverage	X	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	X	Χ	Χ	Χ	X
NV_sample_locations	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	X

NV path rendering shared edge	X	Х	Χ	V	V	X	Х	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV path rendering	V	V	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV multisample coverage	V	V	V	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV internalformat sample query	X	X	X	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV geometry shader passthrough	X	X	X	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV framebuffer mixed samples	X	X	X	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV fragment shader interlock	X	X	X	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV fragment coverage to color	X	X	X	V	V	X	X	X	X	X	X	X	X	X	X	X	X
NV fill rectangle	X	X	X	V	V	X	X	Χ	X	X	X	Χ	X	X	Х	X	X
NV explicit multisample	V	V	V	V	V	V	V	V	V	V	V	Х	Χ	Χ	Х	Χ	Χ
NV draw vulkan image	X	V	V	V	V	Х	Χ	Χ	Χ	Х	Χ	Х	Χ	Χ	Χ	Х	Χ
NV depth buffer float	V	V	V	V	V	V	V	V	V	V	V	Х	Χ	Χ	Х	Х	X
NV copy image	V	V	V	V	V	V	V	V	V	V	V	X	Χ	Χ	Χ	Χ	X
NV_command_list	Х	Χ	Х	V	V	Χ	Χ	Χ	Χ	Х	Χ	Х	Χ	Χ	Χ	Х	Χ
NV conservative raster pre snap triangles	Χ	Χ	Χ	X	V	X	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV conservative raster dilate	Х	Χ	Х	V	V	Х	Х	Χ	Χ	Х	Χ	Χ	Χ	Χ	Х	Х	X
NV conservative raster	Χ	Χ	Х	V	V	X	Χ	Χ	Χ	X	Χ	Χ	Χ	Χ	Χ	Χ	X
NV clip space w scaling	Χ	Χ	Х	Х	V	X	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	Х	Χ
NV bindless texture	Χ	V	V	V	V	X	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV bindless multi draw indirect count	V	V	V	V	V	Х	Х	Χ	Χ	Х	Χ	Χ	Χ	Χ	Х	Χ	X
NV bindless multi draw indirect	V	V	V	V	V	X	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	Χ	Χ
NV blend equation advanced	V	V	V	V	V	Х	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	Х	Χ
INTEL multi rate fragment shader	Х	Χ	Х	Х	Х	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	V	X	X
INTEL map texture	X	Χ	Х	Х	Х	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	Х	X
INTEL fragment shader ordering	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	X	V	V	V	X	X
INTEL conservative rasterization	Х	Χ	Х	Х	Х	Χ	Χ	Х	Χ	Х	Χ	Х	Х	Χ	V	Х	X
ANGLE texture compression dxt5	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Х	V	X
ANGLE texture compression dxt3	Χ	Χ	Х	Х	Χ	Χ	Χ	Χ	Χ	Х	Χ	Χ	Χ	Χ	Χ	V	X
AMD vertex shader viewport index	Χ	Χ	Х	Х	Χ	V	V	V	V	V	V	Χ	V	V	V	X	X
AMD vertex shader layer	Χ	Χ	Х	Х	Χ	V	V	V	V	V	V	Х	V	V	V	V	X
AMD transform feedback4	Χ	Χ	Х	Х	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	X
AMD transform feedback3 lines triangles	Χ	Χ	Х	Х	Χ	Χ	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ
AMD stencil operation extended	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD_sparse_texture_pool	Χ	Χ	Х	Х	Χ	Χ	Χ	Х	V	V	V	X	Χ	Χ	Χ	Х	Χ
AMD sparse texture	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD shader trinary minmax	Χ	Χ	Х	Х	Х	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	V	X
AMD shader stencil value export	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Х	X
AMD shader stencil export	Χ	Χ	Х	Х	Χ	V	V	V	V	V	V	X	Χ	Χ	Χ	Х	Χ
AMD seamless cubemap per texture	Χ	V	V	V	V	V	V	V	V	V	V	X	Χ	Χ	Χ	V	X
AMD sample positions	Χ	Х	Х	Х	Χ	V	V	V	V	V	V	X	Χ	Χ	Χ	Х	Х
AMD query buffer object	Χ	Χ	Χ	Χ	Χ	V	V	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD_pinned_memory	Χ	Χ	Х	Χ	Χ	V	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ
AMD performance monitor	X	Χ	Χ	Χ	Χ	V	V	V	V	V	V	X	Χ	Χ	Χ	V	X
AMD occlusion query event	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	V	Χ	Χ	Χ	Χ	X	X
AMD interleaved elements	Χ	Χ	X	X	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD_gpu_shader_half_float	X	Χ	Х	Х	Χ	Χ	Χ	Х	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD_gpu_shader_half_float2	Χ	Χ	X	X	Χ	Χ	Χ	Χ	Χ	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD gpu shader int64	X	Χ	Х	Х	X	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD gcn shader	Χ	Χ	X	X	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	Χ
AMD_framebuffer_sample_positions	X	Χ	Х	Х	Χ	Χ	Χ	V	V	V	V	X	Χ	Χ	Χ	Χ	X

AMD depth clamp separate	Y	Χ	Χ	X	X	V	V	V	V	V	V	Χ	Χ	Χ	V	Y	X	
AMD blend minmax factor	^ V	X	X	X	X	X	V	V	V	V	V	X	X	X	X	X	X	
ATI texture mirror once	V	\ \	V	V	V	V	V	V	V	V	V	Y	Y	X	X	Y	V	
Support	409	% 48%	•	6 719	V	•	24%	•	•		•	7%	15%	- 11	^	, , , , , , , , , , , , , , , , , , ,	27%	7%
Зарроге		70 107	307	, , ,	, , ,	0 22/	21/0	1070	12/0	1370	13/0	, ,,,	15/0	13/0	23/0	,	2770	, , ,
OpenGL 4.5	GF	GK	GM100	GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polari	s IVB	HSW	BDW	SKL	Mesa	MacO	S X
KHR context flush control	V	V	V	V	V	V	V	V	V	٧	V	Χ	Χ		V	V	X	
KHR robust buffer access behavior	V	V	V	V	V	V	V	٧	V	٧	V	Χ	Χ	V	V	V	X	
KHR robustness	٧	V	V	V	V	V	٧	٧	٧	٧	٧	Χ	Χ	Χ	Χ	V	X	
ARB ES3 1 compatibility	V	V	V	V	V	V	V	٧	٧	٧	V	Χ	Χ	Χ	V	V	X	
ARB clip control	V	V	V	V	V	V	V	٧	٧	٧	٧	Χ	Χ	V	V	V	X	
ARB conditional render inverted	V	V	V	V	V	V	V	٧	٧	٧	٧	Χ	Χ	Χ	V	V	X	
ARB cull distance	V	V	V	V	V	V	V	٧	٧	V	V	Χ	Χ	Χ	V	V	X	
ARB_derivative_control	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	V	V	X	
ARB_direct_state_access	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	V	V	X	
ARB get texture sub image	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	V	V	X	
ARB shader texture image samples	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	Χ	V	V	X	
ARB_texture_barrier	V	V	V	V	V	V	V	V	V	V	V	Χ	Χ	V	V	V	X	
Support	1009	% 100%	% 100%	6 100 ⁹	6 100%	6 100%	100%	100%	100%	100%	100%	0%	0%	25%	92%		100%	0%
OpenGL 4.4	GF	GK	GM100	GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polari	s IVB	HSW	BDW	SKL	Mesa	MacOS	S X
ARB_buffer_storage	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	
ARB_clear_texture	V	V	V	V	V	V	V	V	V	V	V	Χ	V	V	V	V	X	
ARB_enhanced_layouts	V	V	V	V	V	V	V	V	V	V	V	Χ	V	V	V	V	X	
ARB multi bind	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	X	
ARB query buffer object	V	V	V	V	V	V	V	V	V	V	V	Х	V	V	V	V	X	
ARB texture mirror clamp to edge	V	V	V	V	V	V	V	V	V	V	V	Х	V	V	V	V	X	
ARB_texture_stencil8	V	V	V	V	V	V	V	V	V	V	V	Х	V	V	V	V	X	
ARB vertex type 10f 11f 11f rev	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	X	
Support	1009	% 100%	% 100%	6 100%	6 100%	6 100%	100%	100%	100%	100%	100%	13%	100%	100%	100%) <u> </u>	100%	0%
OpenGL 4.3	GF	GK			GP102		N.I.	S.I.	C.I.	V.I.	Polari		HSW	BDW		Mesa	MacOs	5 X
ARB vertex attrib binding	V	V	V	V	V	V	V		V	V	V	V	V		V	V	X	
ARB texture view	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	X	
ARB texture storage multisample	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	
ARB texture query levels	V	V	V	V	V	V	V	V	V	V	V	X	V		V	V	X	
ARB texture buffer range	V	V	V	V	V	V	V	V	V	V	V	V	V		V	V	X	
ARB stencil texturing	V	V	V	V	V	V	V	V	V	V	V	V	V		V V	V	X	
ARB shader storage buffer object	V	V	V	V	V	V	V	V	V	V	V	V	V		V	V	X	
ARB shader image size	V	V	V	V	V		V		V	V	V	V		V	V	V	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
ARB program interface query ARB multi draw indirect	V	V	V	V	V	V	V	V	V	V	V	V	V		V	V	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
ARB invalidate subdata	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
ARB_internalformat_query2	V	V	V	V	V	V	V	V	V	V	V	V	V		V	V	^ v	
ARB framebuffer no attachments	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB fragment layer viewport	V	V	V	V	V	V	V	V	V	V	V	X	V		V	V	Y	
ARB explicit uniform location	V	V	V	V	V	V	V	V	V	V	V	X	V		V	V	Y	
ARB_ES3_compatibility	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	
KHR debug	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	
ARB copy image	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	
AND copy image	V	•	V			V	V	V	V	V	V	V	V	V	V		^	

ARB campute shader V
ARB arrays of arrays
Support 100% 100% 100% 100% 100% 100% 100% 10
OpenGL 4.2
ARB transform feedback instanced V
ARB transform feedback instanced V
ARB texture compression bptc
ARB shading language packing V V V V V V V V V V V V V V V V V V V
ARB shading language 420pack V
ARB shader image load store V<
ARB shader atomic counters V </td
ARB map buffer alignment V
ARB internal format query V
ARB conservative depth V
ARB compressed texture pixel storage V
ARB base instance V
Support 100%
OpenGL 4.1 GF GK GM100 GM200 GP102 EG N.I. S.I. C.I. V.I. Polaris IVB HSW BDW SKL Mesa MacOS X ARB viewport array V
ARB viewport array V
ARB viewport array V
ARB vertex attrib 64bit V
ARB shader precision V
ARB separate shader objects V
ARB get program binary V
ARB ES2 compatibility V
Support 100%
OpenGL 4.0 GF GK GM100 GM200 GP102 EG N.I. S.I. C.I. V.I. Polaris IVB HSW BDW SKL Mesa MacOS X ARB transform feedback3 V
ARB transform_feedback3 V
ARB transform_feedback3 V
ARB transform feedback2 V
ARB texture query lod V
ARB texture gather V V V V V V V V V V V V V V V V V V V
ARB texture cube map array V V V V V V V V V V V V V V V V V V V
ARB texture cube map array V V V V V V V V V V V V V V V V V V V
ARB tessellation shader V V V V V V V V V V V V V V V V V V V
ARB shader subroutine V V V V V V V V V V V V V V V V V V V
ARB sample shading V V V V V V V V V V V V V V V V V V V
ARB_gpu_shader5 V V V V V V V V V V V V V V V V V V V
ARB gpu shader fp64 V V V V V V V V V V V V V V V V V V V
ARB draw indirect V V V V V V V V V V V V V V V V V V V
ARB draw buffers blend V V V V V V V V V V V V V V V V V V V
Support 100% 100% 100% 100% 100% 100% 100% 100
OpenGL 3.3 GF GK GM100 GM200 GP102 EG N.I. S.I. C.I. V.I. Polaris IVB HSW BDW SKL Mesa MacOS X
ARB vertex type 2 10 10 10 rev
ARB timer query V V V V V V V V V V V V V V V V V V V
ARB texture swizzle V V V V V V V V V V V V V V V V V V
ARB texture rgb10 a2ui V V V V V V V V V V V V V V V V V V V

ARB shader bit encoding	V	V	V	V	V	٧	٧	٧	V	V	V	٧	V	٧	V	V	V	
ARB sampler objects	V	٧	V	V	V	٧	٧	٧	V	٧	٧	V	٧	V	V	٧	V	
ARB occlusion query2	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB instanced arrays	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB explicit attrib location	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB_blend_func_extended	V	٧	V	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%	6 100%		100%	100%
OpenGL 3.2	GF	GK	GM100	GM200	GP102	EG	N.I.	S.I.	C.I.	V.I.	Polari	IVB	HSW	BDW	SKL	Mesa	N	lacOS X
ARB_vertex_array_bgra	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB_texture_multisample	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB_sync	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB seamless cube map	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB_provoking_vertex	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB geometry shader4	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB fragment coord conventions	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB_depth_clamp	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	
ARB draw elements base vertex	V	V	V	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%	6 100%		100%	100%