OpenGL Matrix - January 2013 G-Truc Creation

Vendor	NVIDIA	AMD	Intel	Apple
Drivers version	310.70	12.11 beta 11	15.31.64.2885	10.8.2
Release date	18/12/2012	07/12/2012	16/12/2012 0	05/10/2012

OpenGL Extensions	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS X
AMD vertex shader viewport index	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	٧	Х	Х
AMD vertex shader layer	X	Χ	Χ	Χ	Χ	Χ	X	X	V	V	V	X	X
NV vertex buffer unified memory	V	V	V	V	V	Χ	X	X	X	Х	Χ	X	X
AMD transform feedback3 lines triangles	Χ	Χ	Χ	Χ	Χ	Χ	X	X	Χ	V	V	X	X
EXT texture sRGB decode	X	X	Χ	V	V	Χ	X	Χ	V	V	V	X	V
KHR texture compression astc ldr	X	Χ	Χ	X	Χ	Χ	X	X	X	Х	Χ	X	X
NV texture multisample	V	V	V	V	V	Χ	X	Χ	X	Χ	Χ	X	X
EXT texture mirror clamp	V	V	V	V	V	V	V	V	V	V	V	X	V
ARB robustness	V	V	V	V	V	Χ	X	Χ	X	Χ	Χ	X	X
AMD stencil operation extended	Χ	Χ	Χ	Χ	Χ	Χ	X	X	Χ	Χ	V	X	X
AMD sparse texture	X	X	Χ	Χ	Χ	Χ	X	Χ	X	Χ	V	X	X
ARB shading language include	V	V	V	V	V	Χ	X	X	Χ	Χ	X	X	X
AMD shader trinary minmax	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	X	X
ARB shader stencil export	X	Χ	Χ	Χ	Χ	Χ	X	X	V	V	V	X	X
NV shader buffer store	X	X	Χ	V	V	Χ	X	Χ	X	Χ	Χ	X	X
NV shader buffer load	V	V	V	V	V	Χ	X	Χ	X	Χ	Χ	X	X
NV shader atomic float	X	X	Χ	V	V	Χ	X	Χ	X	Χ	Χ	X	X
AMD seamless cubemap per texture	Χ	X	Χ	Χ	V	Χ	Χ	V	V	V	٧	X	X
AMD sample positions	X	Χ	Χ	Χ	X	V	V	V	V	V	V	X	X
AMD query buffer object	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	V	٧	X	X
AMD pinned memory	Χ	Χ	Χ	Χ	Χ	V	V	V	V	V	V	X	Χ
NV multisample coverage	V	V	V	V	V	Χ	Χ	Χ	Х	Χ	Χ	X	Χ
INTEL map texture	X	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	Χ	V	Х
EXT framebuffer multisample blit scaled	Χ	Χ	Χ	Χ	V	Χ	Χ	Χ	Χ	Χ	Χ	Х	V
NV explicit multisample	V	V	V	V	V	V	V	V	V	V	V	X	X

EXT direct state access	V	V	V	V	1	V	V	V	V	V	V	\	/	Х	X
EXT depth bounds test	V	V	V	V	1	V	Χ	Χ	Χ	Х	Х	١	/	Х	V
ARB debug output	V	V	V	V	1	V	V	V	V	V	V	\	/	Х	X
NV copy image	V	V	V	V	1	V	V	V	V	V	V	\	/	Χ	X
ARB cl event	Χ	Χ	Х	Х	2	X	Χ	Χ	Χ	Х	Х	>	(Χ	X
AMD blend minmax factor	X	Χ	Χ	X	2	X	Χ	Χ	Χ	X	V	\	/	Х	X
NV bindless texture	X	Χ	Χ	Х		V	Χ	Χ	Χ	Χ	X	>	(Χ	X
Support	38%	38	8%	38%	47%	56%	22%	229	% 2	15%	41%	47%	59%		3% 13%

OpenGL 4.3	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS X
GL ARB vertex attrib binding	٧	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	Х	Х
GL ARB texture view	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB texture storage multisample	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB texture query levels	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB texture buffer range	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB stencil texturing	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB shader storage buffer object	Χ	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB shader image size	X	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB robustness isolation	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB robust buffer access behavior	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB program interface query	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB multi draw indirect	Χ	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB invalidate subdata	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB internalformat query2	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB framebuffer no attachments	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB fragment layer viewport	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB explicit uniform location	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB ES3 compatibility	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL KHR debug	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB copy image	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB compute shader	X	Χ	Χ	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB clear buffer object	V	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X
GL ARB arrays of arrays	٧	V	V	V	V	Χ	Χ	Χ	Χ	Χ	Χ	X	X

Support	83%	83%		100%	100%	0%	0%	0%	0%	0%	0%		0%	0%
OpenGL 4.2	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS 2	Χ
GL ARB transform feedback instanced	Χ	Χ	Χ	V	V	V	V	V	٧	V	V	Χ	Χ	
GL ARB texture compression bptc	X	Χ	Χ	V	V	Χ	Χ	Χ	V	V	V	Χ	X	
GL ARB texture storage	V	٧	V	V	V	V	V	V	V	V	V	V	X	
GL ARB shading language packing	V	٧	V	V	V	V	V	V	٧	V	V	Х	X	
GL ARB shading language 420pack	V	V	V	V	V	V	V	V	٧	V	V	Χ	X	
GL ARB shader image load store	Χ	Χ	Χ	V	V	Χ	Χ	Χ	V	V	V	Χ	X	
GL ARB shader atomic counters	X	Χ	Χ	V	V	Χ	Χ	Χ	V	V	V	X	X	
GL ARB map buffer alignment	V	V	V	V	V	V	V	V	٧	V	V	V	X	
GL ARB internalformat query	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	٧	V	V	V	X	
GL ARB compressed texture pixel storage	V	V	V	V	V	V	V	V	V	V	V	Χ	X	
GL ARB base instance	X	Χ	Χ	V	V	Χ	Χ	Χ	V	V	V	V	X	
Support	58%	58%	58%	100%	100%	67%	67%	67%	100%	100%	100%		42%	0%
OpenGL 4.1	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS	Χ
GL ARB viewport array	1/											115 1000		
	V	V	V	V	V	V	V	V	V	V	V	X	Х	
GL ARB vertex attrib 64bit	X	X	X	V V	V V	V X	V X	V X	V V	V V				
	X X				•	V X V				•	V			
GL ARB vertex attrib 64bit	X X V	X	X	V	V	X	X	X	V	V	V V			
GL ARB vertex attrib 64bit GL ARB shader precision	X X V V	X X	X X	V V	V V	X V	X V	X	v V	V	V V V			
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects	X X V V	X X V	X X V	V V V	V V V	X V V	X V V	X V V	v v v	V V V	V V V			
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary	X X V V V	X X V V	X X V V	V V V V	V V V V	X V V V	X V V V	X V V	v V V V	V V V V	V V V V	X X X X X		0%
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility	X X V V V	X X V V	X X V V	V V V V	V V V V	X V V V	X V V V	X V V V	v V V V	V V V V	V V V V V	X X X X X	X X X X X	0%
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility	X X V V V 67%	X X V V V	X X V V	V V V V 100%	V V V V V	X V V V	X V V V V 83%	X V V V V	v V V V	V V V V	V V V V V 100%	X X X X X	X X X X X	
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility Support		X X V V V	X X V V V	V V V V 100%	V V V V V	X V V V V	X V V V V 83%	X V V V V	V V V V V	V V V V V	V V V V V 100%	X X X X V	X X X X X 17%	
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility Support OpenGL 4.0		X X V V V Tesla	X X V V V 67%	V V V V 100%	\text{V} \text{V} \text{V} \text{V} \text{V} \text{T00%}	X V V V V 83%	X V V V V 83%	X V V V V 83%	V V V V 100%	V V V V V Cayman	V V V V V 100%	X X X X V	X X X X X 17%	
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility Support OpenGL 4.0 GL ARB transform feedback3		X X V V V 67%	X X V V V 67%	V V V V 100%	V V V V 100% Kepler	X V V V V 83%	X V V V V 83% RV670 V	X V V V V 83% RV700 V	V V V V 100% Evergreen	V V V V V Cayman	V V V V V 100%	X X X X V HD 4000	X X X X X 17%	
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility Support OpenGL 4.0 GL ARB transform feedback3 GL ARB transform feedback2		X X V V 67% Tesla X	X X V V V 67%	V V V V 100% Fermi V	V V V V 100% Kepler V V	X V V V V 83%	X V V V 83% RV670 V	X V V V 83% RV700 V	V V V V 100% Evergreen V V	V V V V V Cayman	V V V V V 100%	X X X X V HD 4000 V	X X X X X 17%	
GL ARB vertex attrib 64bit GL ARB shader precision GL ARB separate shader objects GL ARB get program binary GL ARB ES2 compatibility Support OpenGL 4.0 GL ARB transform feedback3 GL ARB transform feedback2 GL ARB texture query lod		X X V V 67% Tesla X V	X X V V V 67%	V V V V 100% Fermi V V	V V V V V T 100% Kepler V V V	X V V V V 83%	X V V V V 83% RV670 V V	X V V V V 83% RV700 V V	V V V V 100% Evergreen V V	V V V V V T100%	V V V V 100% S.I. V	X X X X V HD 4000 V V	X X X X X 17%	

GL ARB tessellation shader	X	Χ	Χ	V	V	Χ	Χ	Χ	V	V	٧	V	X	
GL ARB shader subroutine	X	Χ	Χ	V	V	Χ	Χ	Χ	V	V	٧	V	X	
GL ARB sample shading	X	Χ	V	V	V	Х	V	V	v	V	V	V	X	
GL ARB gpu shader5	X	Χ	X	V	V	Х	Χ	Х	V	V	V	V	X	
GL ARB gpu shader fp64	X	Χ	Χ	V	V	Х	Χ	Χ	V	V	V	V	X	
GL ARB draw indirect	X	Χ	Χ	V	V	Х	Χ	Χ	V	V	V	V	X	
GL ARB draw buffers blend	X	Χ	V	V	V	V	V	V	v	V	V	V	X	
Support	0%	8%	46%	100%	100%	31%	54%	62%	100%	ú 100%	100%)	100%	0%
OpenGL 3.3	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS	Χ
GL ARB vertex type 2 10 10 10 rev	V	٧	V	V	V	٧	V	V	V	V	V	V	X	
GL ARB timer query	V	V	V	V	V	٧	V	V	V	V	V	V	V	
GL ARB texture swizzle	V	V	V	V	V	V	V	V	V	V	V	V	X	
GL ARB texture rgb10 a2ui	V	V	V	V	V	٧	V	V	V	V	V	V	X	
GL ARB shader bit encoding	V	V	V	V	V	٧	V	V	V	V	V	V	V	
GL ARB sampler objects	V	V	V	V	V	٧	V	V	V	V	٧	V	X	
GL ARB occlusion query2	V	V	V	V	V	٧	V	V	V	V	٧	V	V	
GL ARB instanced arrays	V	V	V	V	V	٧	V	V	V	V	V	V	V	
GL ARB explicit attrib location	V	V	V	V	V	V	V	V	V	V	V	V	X	
GL ARB blend func extended	V	V	V	V	V	٧	V	V	V	V	V	V	X	
Support	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	MacOS	X
GL ARB vertex array bgra	V	V	V	V	V	V	V	V	V	V	V	V	V	
GL ARB texture multisample	V	V	V	V	V	٧	V	V	V	V	V	V	V	
GL ARB sync	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	
GL ARB provoking vertex	V	V	V	V	V	V	V	V	V	V	V	V	V	
GL ARB geometry shader4	V	V	V	V	V	٧	V	V	V	V	V	V	V	
GL ARB fragment coord conventions	V	٧	V	V	V	V	V	V	V	V	V	V	V	
GL ARB depth clamp	V	٧	V	V	V	٧	V	V	V	V	V	V	V	
GL ARB draw elements base vertex	V	٧	V	V	V	٧	V	V	V	V	V	V	V	
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100%	100%

OpenGL 3.1	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS X
GL ARB uniform buffer object	V	V	V	٧	V	V	V	٧	V	V	V	V	V
GL EXT texture snorm	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	٧	V	V	V	V
GL ARB texture buffer object	V	V	V	V	V	V	V	V	V	V	V	V	V
GL NV primitive restart	V	٧	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
GL ARB copy buffer	V	V	V	V	V	V	V	V	V	V	V	V	V
GL ARB compatibility	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% 10
OpenGL 3.0	G80	Tesla	GT21X	Fermi	Kepler	R600	RV670	RV700	Evergreen	Cayman	S.I.	HD 4000	MacOS X
GL ARB vertex array object	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
GL ARB texture rg	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
GL EXT texture integer	V	V	V	V	V	V	V	V	V	V	V	V	V

Openal 3.0	Gou	i esia	GIZIX	гении	kepiei	NOUU	KV0/0	K V / UU	Lvergreen	Cayman	٥.١.	110 4000	IVIACOS A
GL ARB vertex array object	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL EXT transform feedback	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL ARB texture rg	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL EXT texture shared exponent	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL EXT texture integer	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL ARB texture float	V	٧	V	V	V	V	V	V	٧	V	V	V	V
GL ARB texture compression rgtc	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL EXT texture array	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL EXT packed float	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL EXT packed depth stencil	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL ARB map buffer range	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL ARB half float vertex	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL ARB half float pixel	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL EXT gpu shader4	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL ARB framebuffer sRGB	V	٧	V	V	V	V	V	V	٧	V	V	V	V
GL ARB framebuffer object	V	٧	V	V	V	V	V	V	V	V	V	V	V
GL ARB depth buffer float	٧	٧	V	V	V	V	V	V	V	V	٧	V	V
GL NV conditional render	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL ARB color buffer float	V	٧	V	V	V	V	V	V	٧	V	٧	V	V
Support	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	MacOS X
GL EXT texture sRGB	V	٧	V	V	V	٧	V	V	٧	V	V	V	V
GL ARB pixel buffer object	V	٧	V	V	V	٧	V	V	٧	V	V	V	V
Support	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	MacOS X
GL ARB vertex shader	V	V	V	V	V	V	V	V	٧	٧	V	V	V
GL ARB texture non power of two	V	V	V	V	V	V	V	V	V	V	V	V	V
GL EXT stencil two side	V	V	V	V	V	٧	V	V	٧	V	V	V	V
GL ARB shading language 100	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL ARB shader objects	V	V	V	V	V	V	V	V	٧	V	V	V	V
GL ARB point sprite	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
GL ARB draw buffers	V	V	V	V	V	V	V	V	V	V	V	V	V
GL EXT blend equation separate	V	٧	V	V	V	٧	V	V	٧	V	V	V	V
Support	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		100% 100%