

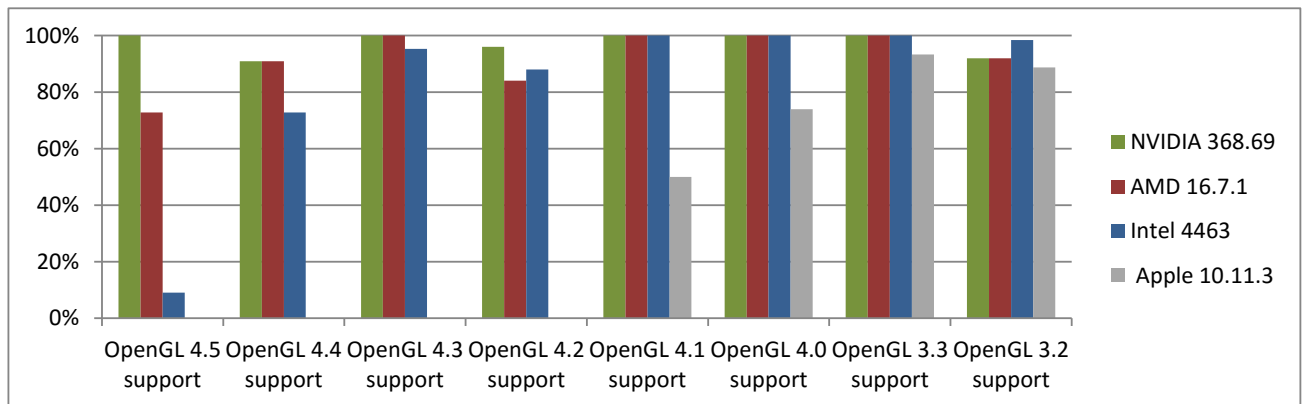
# OpenGL drivers status

Bug reports with reproduction cases

**July 2016, G-Truc Creation**

Vendor	NVIDIA	AMD	Intel Windows	Apple OSX
Release date	06/07/2016	08/07/2016	17/06/2016	22/03/2016
Drivers version	368.69	16.7.1	4463	10.11.3
Samples versions	<u>4.5.3.0</u>	<u>4.5.3.0</u>	<u>4.5.3.0</u>	<u>4.5.3.0</u>

Summary	NVIDIA 368.69	AMD 16.7.1	Intel 4463	Apple 10.11.3
OpenGL 4.5 support	100%	73%	9%	0%
OpenGL 4.4 support	91%	91%	73%	0%
OpenGL 4.3 support	100%	100%	95%	0%
OpenGL 4.2 support	96%	84%	88%	0%
OpenGL 4.1 support	100%	100%	100%	50%
OpenGL 4.0 support	100%	100%	100%	74%
OpenGL 3.3 support	100%	100%	100%	93%
OpenGL 3.2 support	92%	92%	98%	89%



ARB extensions	NVIDIA	AMD	Intel Windows	Apple OSX
query-statistics-arb	Pass	Unsupported	Unsupported	Unsupported
transform-feedback-arb	Pass	Pass	Unsupported	Unsupported
buffer-sparse-arb	Pass	Pass	Unsupported	Unsupported
glsl-vote-arb	Pass	Pass	Unsupported	Unsupported
multi-draw-indirect-count-arb	Pass	Pass	Unsupported	Unsupported
multi-draw-indirect-arb	Pass	Pass	Unsupported	Unsupported
texture-bindless-arb	Pass	Pass	Unsupported	Unsupported
texture-cube-arb	Pass	Pass	Pass	Unsupported
texture-sparse-arb	Pass	Pass	Unsupported	Unsupported
Pass	6	6	1	0
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	0	0	0
Unsupported	0	0	5	6
Sub-Total	6	6	6	6

%	100%	100%	17%	0%
OpenGL 4.5	NVIDIA	AMD	Intel Windows	Apple OSX
caps	Pass	Pass	Unsupported	Unsupported
clip-control	Pass	Pass	Unsupported	Unsupported
culling	Pass	Pass	Unsupported	Unsupported
direct-state-access	Pass	Pass	Unsupported	Unsupported
fbo-multisample-explicit	Pass	Pass	Unsupported	Unsupported
query-conditional	Pass	Pass	Unsupported	Unsupported
texture-barrier	Pass	Pass	Pass	Unsupported
texture-derivative	Pass	Pass	Unsupported	Unsupported
Pass	8	8	1	0
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	0	0	0
Unsupported	0	0	7	8
Sub-Total	8	8	8	8
%	100%	91%	73%	0%

OpenGL 4.4	NVIDIA	AMD	Intel Windows	Apple OSX
atomic-counter	Pass	Pass	Pass	Unsupported
buffer-storage	Pass	Pass	Pass	Unsupported
buffer-type	Pass	Pass	Pass	Unsupported
caps	Fail	Fail	Fail	Unsupported
fbo-depth-stencil	Pass	Pass	Pass	Unsupported
fbo-without-attachment	Pass	Pass	Pass	Unsupported
interface-matching	Pass	Pass	Fail	Unsupported
query-occlusion	Pass	Pass	Pass	Unsupported
sampler-wrap	Pass	Pass	Pass	Unsupported
texture-compressed	Pass	Pass	Fail	Unsupported
transform-feedback	Pass	Pass	Pass	Unsupported
Pass	10	10	8	0
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	1	1	3	0
Unsupported	0	0	0	11
Sub-Total	11	11	11	11
%	91%	91%	73%	0%

OpenGL 4.3	NVIDIA	AMD	Intel Windows	Apple OSX
atomic-counter	Pass	Pass	Pass	Unsupported
caps	Pass	Pass	Pass	Unsupported
debug	Pass	Pass	Pass	Unsupported
draw-vertex-attrib-binding	Pass	Pass	Pass	Unsupported
draw-without-vertex-attrib	Pass	Pass	Pass	Unsupported
fbo-invalidate	Pass	Pass	Pass	Unsupported
fbo-srgb-decode	Pass	Pass	Pass	Unsupported
fbo-without-attachment	Pass	Pass	Pass	Unsupported
image-sampling	Pass	Pass	Pass	Unsupported
image-store	Pass	Pass	Pass	Unsupported

interface-matching	Pass	Pass	Fail	Unsupported
multi-draw-indirect	Pass	Pass	Pass	Unsupported
program-compute	Pass	Pass	Pass	Unsupported
program-compute-image	Pass	Pass	Pass	Unsupported
program-subroutine	Pass	Pass	Pass	Unsupported
query-conditional	Pass	Pass	Pass	Unsupported
query-occlusion	Pass	Pass	Pass	Unsupported
texture-buffer	Pass	Pass	Pass	Unsupported
texture-copy	Pass	Pass	Pass	Unsupported
texture-storage	Pass	Pass	Pass	Unsupported
texture-view	Pass	Pass	Pass	Unsupported
Pass	21	21	20	0
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	0	1	0
Unsupported	0	0	0	0
Sub-Total	21	21	21	0
%	100%	100%	95%	0%

OpenGL 4.2	NVIDIA	AMD	Intel Windows	Apple OSX
atomic-counter	Pass	Pass	Pass	Unsupported
buffer-uniform	Pass	Pass	Pass	Unsupported
caps	Pass	Pass	Pass	Unsupported
clipping	Pass	Pass	Pass	Unsupported
debug-output	Pass	Pass	Fail	Unsupported
draw-base-instance	Pass	Pass	Pass	Unsupported
draw-image-space-rendering	Pass	Pass	Pass	Unsupported
fbo	Pass	Pass	Pass	Unsupported
image-load	Pass	Pass	Pass	Unsupported
image-store	Pass	Pass	Pass	Unsupported
image-unpack	Pass	Pass	Pass	Unsupported
interface-matching	Pass	Pass	Pass	Unsupported
memory-barrier	Pass	Pass	Pass	Unsupported
picking	Pass	Pass	Pass	Unsupported
primitive-line-aa	Pass	Poor	Pass	Unsupported
sampler-fetch	Pass	Fail	Fail	Unsupported
sampler-gather	Pass	Pass	Pass	Unsupported
test-depth-conservative	Pass	Pass	Pass	Unsupported
texture-array	Pass	Pass	Pass	Unsupported
texture-compressed	Pass	Pass	Pass	Unsupported
texture-conversion	Pass	Fail	Pass	Unsupported
texture-cube	Poor	Poor	Poor	Unsupported
texture-pixel-store	Pass	Pass	Pass	Unsupported
texture-storage	Pass	Pass	Pass	Unsupported
transform-feedback-instanced	Pass	Pass	Pass	Unsupported
Pass	24	21	22	0
Ok but not conform	0	0	0	0
Poor	1	2	1	0
Fail	0	2	2	0
Untested	0	0	0	0

Sub-Total	25	25	25	0
%	96%	84%	88%	0%

OpenGL 4.1	NVIDIA	AMD	Intel Windows	Apple OSX
buffer-uniform-array	Pass	Pass	Pass	Fail
caps	Pass	Pass	Pass	Fail
fbo-layered	Pass	Pass	Pass	Pass
primitive-instanced	Pass	Pass	Pass	Pass
primitive-tessellation-2	Pass	Pass	Pass	Fail
primitive-tessellation-5	Pass	Pass	Pass	Fail
program-64	Pass	Pass	Pass	Pass
program-binary	Pass	Pass	Pass	Unsupported
program-separate	Pass	Pass	Pass	Fail
Pass	7	7	7	3
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	0	0	3
Untested	0	0	0	0
Sub-Total	7	7	7	6
%	100%	100%	100%	50%

OpenGL 4.0	NVIDIA	AMD	Intel Windows	Apple OSX
blend-rtt	Pass	Pass	Pass	Pass
buffer-uniform-array	Pass	Pass	Pass	Fail
caps	Pass	Pass	Pass	Fail
draw-indirect	Pass	Pass	Pass	Pass
fbo-layered	Pass	Pass	Pass	Pass
fbo-multisample	Pass	Pass	Pass	Pass
fbo-rtt	Pass	Pass	Pass	Pass
fbo-rtt-texture-array	Pass	Pass	Pass	Pass
fbo-shadow	Pass	Pass	Pass	Fail
primitive-instanced	Pass	Pass	Pass	Fail
primitive-smooth-shading	Pass	Pass	Pass	Pass
primitive-tessellation	Pass	Pass	Pass	Pass
program-64	Pass	Pass	Pass	Pass
program-subroutine	Pass	Pass	Pass	Fail
program-varying-blocks	Pass	Pass	Pass	Pass
program-varying-structs	Pass	Pass	Pass	Pass
sampler-array	Pass	Pass	Pass	Pass
sampler-fetch	Pass	Pass	Pass	Pass
texture-buffer-rgb	Pass	Pass	Pass	Pass
texture-cube	Pass	Pass	Pass	Pass
texture-derivative	Ok	Pass	Pass	Pass
transform-feedback-object	Pass	Pass	Pass	Pass
transform-feedback-stream	Pass	Pass	Pass	Fail
Pass	22	23	23	17
Ok but not conform	1	0	0	0
Poor	0	0	0	0
Fail	0	0	0	6
Untested	0	0	0	0

Sub-Total	23	23	23	23
%	100%	100%	100%	74%

OpenGL 3.3	NVIDIA	AMD	Intel Windows	Apple OSX
blend-index	Pass	Pass	Pass	Pass
blend-rtt	Pass	Pass	Pass	Pass
buffer-type	Pass	Pass	Pass	Pass
caps	Pass	Pass	Pass	Fail
draw-instanced-array	Pass	Pass	Pass	Pass
query-conditional	Pass	Pass	Pass	Pass
query-counter	Pass	Pass	Pass	Unsupported
query-occlusion	Pass	Pass	Pass	Pass
query-timer	Pass	Pass	Pass	Pass
sampler-anisotropy-ext	Pass	Pass	Pass	Pass
sampler-filter	Pass	Pass	Pass	Pass
sampler-object	Pass	Pass	Pass	Pass
sampler-wrap	Pass	Pass	Pass	Pass
texture-integer-rgb10a2ui	Pass	Pass	Pass	Pass
texture-rect	Pass	Pass	Pass	Pass
texture-swizzle	Pass	Pass	Pass	Pass
Pass	16	16	16	14
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	0	0	1
Untested	0	0	0	0
Sub-Total	16	16	16	15
%	100%	100%	100%	93%

OpenGL 3.2	NVIDIA	AMD	Intel Windows	Apple OSX
buffer-uniform	Pass	Pass	Pass	Fail
buffer-uniform-shared	Pass	Pass	Pass	Pass
buffer-update	Pass	Pass	Pass	Pass
caps	Pass	Pass	Pass	Fail
draw-base-vertex	Pass	Pass	Pass	Pass
draw-image-space	Pass	Pass	Pass	Pass
draw-instanced	Pass	Pass	Pass	Pass
draw-multiple	Pass	Pass	Pass	Pass
draw-range-arrays	Pass	Pass	Pass	Pass
draw-range-elements	Pass	Pass	Pass	Pass
draw-without-vertex-attrib	Pass	Pass	Pass	Pass
fbo	Pass	Pass	Pass	Pass
fbo-blend	Pass	Pass	Pass	Pass
fbo-blend-points	Pass	Pass	Pass	Fail
fbo-blit	Pass	Pass	Pass	Pass
fbo-depth	Pass	Pass	Pass	Pass
fbo-depth-multisample	Pass	Pass	Pass	Fail
fbo-depth-stencil	Pass	Pass	Pass	Pass
fbo-integer	Pass	Pass	Pass	Pass
fbo-integer-blit	Pass	Pass	Pass	Pass
fbo-layered	Pass	Pass	Pass	Pass

fbo-multisample	Pass	Pass	Pass	Pass
fbo-multisample-explicit	Pass	Pass	Pass	Pass
fbo-multisample-integer	Pass	Pass	Pass	Pass
fbo-rtt	Pass	Pass	Pass	Pass
fbo-rtt-texture-array	Pass	Pass	Pass	Pass
fbo-shadow	Pass	Pass	Pass	Fail
fbo-srgb	Pass	Pass	Pass	Pass
fbo-srgb-blend	Poor	Pass	Pass	Fail
glsl-builtin-blocks	Pass	Pass	Pass	Pass
glsl-cast-fail	Fail	Pass	Fail	Pass
glsl-discard	Pass	Pass	Pass	Pass
glsl-input-struct	Fail	Pass	Pass	Pass
glsl-precision	Pass	Pass	Pass	Pass
primitive-front-face	Pass	Pass	Pass	Pass
primitive-line-msaa	Pass	Poor	Pass	Pass
primitive-point	Pass	Pass	Pass	Pass
primitive-point-clip	Ok	Pass	Pass	Pass
primitive-point-quad	Pass	Pass	Pass	Pass
primitive-shading	Fail	Fail	Pass	Pass
primitive-sprite	Pass	Pass	Pass	Fail
program	Pass	Pass	Pass	Pass
program-uniform	Pass	Pass	Pass	Pass
query-conditional	Pass	Pass	Pass	Pass
query-occlusion	Pass	Pass	Pass	Pass
sync	Pass	Pass	Pass	Pass
test-scissor	Pass	Pass	Pass	Pass
texture-2d	Pass	Pass	Pass	Pass
texture-3d	Pass	Pass	Pass	Pass
texture-buffer	Pass	Pass	Pass	Pass
texture-compressed-ext	Pass	Pass	Pass	Pass
texture-cube	Fail	Fail	Pass	Pass
texture-derivative	Pass	Pass	Pass	Pass
texture-fetch	Pass	Fail	Pass	Pass
texture-format	Pass	Pass	Pass	Pass
texture-integer	Pass	Pass	Pass	Pass
texture-lod	Pass	Pass	Pass	Pass
texture-offset	Pass	Fail	Pass	Pass
texture-pixel-store	Pass	Pass	Pass	Pass
texture-streaming	Pass	Pass	Pass	Pass
transform-feedback-interleave	Pass	Pass	Pass	Pass
transform-feedback-separate	Pass	Pass	Pass	Pass
Pass	56	57	61	55
Ok but not conform	1	0	0	0
Poor	1	1	0	0
Fail	4	4	1	7
Untested	0	0	0	0
Sub-Total	62	62	62	62
%	92%	92%	98%	89%

Extensions	NVIDIA	AMD	Intel Windows	Apple OSX
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400-sampler-array-nv	Pass	Unsupported	Unsupported	Unsupported
430-direct-state-access-ext	Pass	Pass	Pass	Unsupported
430-perf-monitor-amd	Unsupported	Pass	Unsupported	Unsupported
430-performance-query-intel	Unsupported	Unsupported	Pass	Unsupported
440-sampler-wrap-ext	Pass	Pass	Unsupported	Unsupported
500-blend-op-amd	Unsupported	Pass	Unsupported	Unsupported
500-buffer-pinned-amd	Unsupported	Pass	Unsupported	Unsupported
500-conservative-raster-nv	Pass	Unsupported	Unsupported	Unsupported
500-fbo-layered-amd	Unsupported	Pass	Fail	Unsupported
500-fbo-layered-nv	Pass	Unsupported	Unsupported	Unsupported
500-fbo-multisample-amd	Unsupported	Pass	Unsupported	Unsupported
500-fill-rectangle-nv	Pass	Unsupported	Unsupported	Unsupported
500-primitive-bindless-nv	Pass	Unsupported	Unsupported	Unsupported
500-primitive-shading-nv	Pass	Unsupported	Unsupported	Unsupported
500-sample-location-nv	Pass	Unsupported	Unsupported	Unsupported
500-sample-location-grid-nv	Pass	Unsupported	Unsupported	Unsupported
500-shader-blend-intel	Unsupported	Fail	Pass	Unsupported
500-shader-blend-nv	Pass	Unsupported	Unsupported	Unsupported
500-shader-group-nv	Pass	Unsupported	Unsupported	Unsupported
500-shader-invocation-nv	Pass	Unsupported	Unsupported	Unsupported
500-test-depth-clamp-amd	Unsupported	Pass	Unsupported	Unsupported
500-texture-bindless-nv	Pass	Unsupported	Unsupported	Unsupported
500-texture-sparse-amd	Unsupported	Fail	Unsupported	Unsupported
500-texture-sparse-ext	Pass	Unsupported	Unsupported	Unsupported
Pass	15	8	3	0
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	2	1	0
Untested	0	0	0	0
Sub-Total	15	10	4	0
%	100%	80%	75%	0%

OpenGL ES 3.0	NVIDIA	AMD	Intel Windows	Apple OSX
es-300-draw-elements	Fail	Unsupported	Pass	Unsupported
es-300-fbo-srgb	Fail	Unsupported	Fail	Unsupported
Pass	0	0	0	0
Ok but not conform	0	0	0	0
Workaround	0	0	0	0
Fail	1	0	1	0
Untested	0	0	0	0
Sub-Total	1	0	1	0
%	100%	0%	100%	0%

OpenGL ES 2.0	NVIDIA	AMD	Intel Windows	Apple OSX
es-200-draw-elements	Pass	Unsupported	Pass	Unsupported
Pass	1	0	1	0
Ok but not conform	0	0	0	0
Poor	0	0	0	0
Fail	0	0	0	0
Untested	0	0	0	0

Sub-Total	1	0	1	0
%	100%	0%	100%	0%