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## Graphics Feature Status

- Canvas: Hardware accelerated
- Flash: Hardware accelerated
- Flash Stage3D: Hardware accelerated
- Flash Stage3D Baseline profile: Hardware accelerated
- Compositing: Hardware accelerated
- Multiple Raster Threads: Disabled
- Out-of-process Rasterization: Unavailable
- OpenGL: Enabled
- Hardware Protected Video Decode: Hardware accelerated
- Rasterization: Unavailable
- Skia Renderer: Disabled
- Video Decode: Unavailable
- Vulkan: Disabled
- WebGL: Hardware accelerated
- WebGL2: Unavailable

## Driver Bug Workarounds

- clear_uniforms_before_first_program_use
- decode_encode_srgb_for_generatemipmap
- disable_accelerated_vpx_decode
- disable_d3d11
- disable_discard_framebuffer
- disable_larger_than_screen_overlays
- disable_nv12_dynamic_textures
- exit_on_context_lost
- force_cube_complete
- msaa_is_slow
- scalarize_vec_and_mat_constructor_args
- disabled_extension_GL_KHR_blend_equation_advanced
- disabled_extension_GL_KHR_blend_equation_advanced_coherent

## Problems Detected

- Accelerated video decode interferes with GPU sandbox on older Intel drivers: 180695, 298968, 436968
  *Disabled Features: accelerated_video_decode*
- GPU rasterization should only be enabled on NVIDIA and Intel and AMD RX-R2 GPUs with DX11+ or any GPU using ANGLE's GL backend.: 1047002
  *Disabled Features: gpu_rasterization*
- Old Intel drivers cannot reliably support D3D11/WebGL2: 363721
  *Disabled Features: accelerated_webgl2*
- Some drivers are unable to reset the D3D device in the GPU process sandbox
  *Applied Workarounds: exit_on_context_lost*
- Clear uniforms before first program use on all platforms: 124764, 349137
  *Applied Workarounds: clear_uniforms_before_first_program_use*
- Always rewrite vec/mat constructors to be consistent: 398694
  *Applied Workarounds: scalarize_vec_and_mat_constructor_args*
- Old Intel drivers cannot reliably support D3D11: 363721
  *Applied Workarounds: disable_d3d11*
- ANGLE crash on glReadPixels from incomplete cube map texture: 518889
  *Applied Workarounds: force_cube_complete*
- On Intel GPUs MSAA performance is not acceptable for GPU rasterization: 527565
  *Applied Workarounds: msaa_is_slow*

- Framebuffer discarding can hurt performance on non-tilers: [570897](#)
  *Applied Workarounds: disable_discard_framebuffer*
- Disable KHR_blend_equation_advanced until cc shaders are updated: [661715](#)
  *Applied Workarounds: disable(GL_KHR_blend_equation_advanced),*
  *disable(GL_KHR_blend_equation_advanced_coherent)*
- Decode and Encode before generateMipmap for srgb format textures on Windows: [634519](#)
  *Applied Workarounds: decode_encode_srgb_for_generatemipmap*
- Accelerated VPx decoding is hanging on some videos.: [654111](#)
  *Applied Workarounds: disable_accelerated_vpx_decode*
- Overlay sizes bigger than screen aren't accelerated on some Intel drivers: [720059](#)
  *Applied Workarounds: disable_larger_than_screen_overlays*
- Dynamic texture map crashes on Intel drivers less than version 24: [890227](#)
  *Applied Workarounds: disable_nv12_dynamic_textures*
- Raster is using a single thread.
  *Disabled Features: multiple_raster_threads*

## ANGLE Features

- **disable_program_caching_for_transform_feedback** (Frontend workarounds): Disabled
  *On some GPUs, program binaries don't contain transform feedback varyings*
- **lose_context_on_out_of_memory** (Frontend workarounds): Enabled: true
  *Some users rely on a lost context notification if a GL_OUT_OF_MEMORY error occurs*
- **scalarize_vec_and_mat_constructor_args** (Frontend workarounds) [398694](#): Enabled: true
  *Always rewrite vec/mat constructors to be consistent*
- **sync_framebuffer_bindings_on_tex_image** (Frontend workarounds): Disabled
  *On some drivers TexImage sometimes seems to interact with the Framebuffer*
- **add_dummy_texture_no_render_target** (D3D workarounds) [anglebug:2152](#): Disabled
  *On some drivers when rendering with no render target, two bugs lead to incorrect behavior*
- **allow_clear_for_robust_resource_init** (D3D workarounds) [941620](#): Enabled: true
  *Some drivers corrupt texture data when clearing for robust resource initialization.*
- **call_clear_twice** (D3D workarounds) [655534](#): Disabled
  *Using clear() may not take effect*
- **depth_stencil_blit_extra_copy** (D3D workarounds) [anglebug:1452](#): Disabled
  *Bug in some drivers triggers a TDR when using CopySubresourceRegion from a staging texture to a depth/stencil*
- **disable_b5g6r5_support** (D3D workarounds): Disabled
  *Textures with the format DXGI_FORMAT_B5G6R5_UNORM have incorrect data*
- **dont_translate_uniform_block_to_structured_buffer** (D3D workarounds): Disabled
  *Fails to allocate ShaderResourceView for StructuredBuffer on some drivers*
- **emulate_isnan_float** (D3D workarounds) [650547](#): Disabled
  *Using isnan() on highp float will get wrong answer*
- **emulate_tiny_stencil_textures** (D3D workarounds): Disabled
  *1x1 and 2x2 mips of depth/stencil textures aren't sampled correctly*
- **expand_integer_pow_expressions** (D3D workarounds): Enabled: true
  *The HLSL optimizer has a bug with optimizing 'pow' in certain integer-valued expressions*
- **flush_after_ending_transform_feedback** (D3D workarounds): Disabled
  *Some drivers sometimes write out-of-order results to StreamOut buffers when transform feedback is used to repeatedly write to the same buffer positions*
- **force_atomic_value_resolution** (D3D workarounds) [anglebug:3246](#): Disabled
  *On some drivers the return value from RWByteAddressBuffer.InterlockedAdd does not resolve when used in the .yzw components of a RWByteAddressBuffer.Store operation*
- **get_dimensions_ignores_base_level** (D3D workarounds): Disabled
  *Some drivers do not take into account the base level of the texture in the results of the HLSL GetDimensions builtin*
- **mrt_perf_workaround** (D3D workarounds): Enabled: true
  *Some drivers have a bug where they ignore null render targets*
- **pre_add_texel_fetch_offsets** (D3D workarounds): Disabled
  *HLSL's function texture.Load returns 0 when the parameter Location is negative, even if the sum of Offset and Location is in range*

- **rewrite_unary_minus_operator** (D3D workarounds): Disabled
  *Evaluating unary minus operator on integer may get wrong answer in vertex shaders*
- **select_view_in_geometry_shader** (D3D workarounds): Disabled
  *The viewport or render target slice will be selected in the geometry shader stage for the ANGLE_multiview extension*
- **set_data_faster_than_image_upload** (D3D workarounds): Disabled: false
  *Set data faster than image upload*
- **skip_vs_constant_register_zero** (D3D workarounds): Disabled
  *In specific cases the driver doesn't handle constant register zero correctly*
- **use_instanced_point_sprite_emulation** (D3D workarounds): Disabled: false
  *Some D3D11 renderers do not support geometry shaders for pointsprite emulation*
- **use_system_memory_for_constant_buffers** (D3D workarounds) 593024: Disabled
  *Copying from staging storage to constant buffer storage does not work*
- **zero_max_lod** (D3D workarounds): Disabled
  *Missing an option to disable mipmaps on a mipmapped texture*

## Version Information

| | |
|---|---|
| **Data exported** | 2020-06-14T11:00:38.762Z |
| **Chrome version** | Chrome/83.0.4103.97 |
| **Operating system** | Windows NT 10.0.19041 |
| **Software rendering list URL** | https://chromium.googlesource.com/chromium/src/+/326d148b9655369b8 |
| **Driver bug list URL** | https://chromium.googlesource.com/chromium/src/+/326d148b9655369b8 |
| **ANGLE commit id** | a4b21cf26074 |
| **2D graphics backend** | Skia/83 c3d05a789930913af94174961bc6f90894196f62 |
| **Command Line** | "C:\Program Files (x86)\Google\Chrome\Application\chrome.exe" --flag-switches-begin --flag-switches-end --enable-audio-service-sandbox |

## Driver Information

| | |
|---|---|
| **Initialization time** | 3391 |
| **In-process GPU** | false |
| **Passthrough Command Decoder** | true |
| **Sandboxed** | true |
| **GPU0** | VENDOR= 0x8086, DEVICE=0x2a02, SUBSYS=0x30c0103c, REV=12 *ACTIVE* |
| **GPU1** | VENDOR= 0x1414, DEVICE=0x008c |
| **Optimus** | false |
| **AMD switchable** | false |
| **Desktop compositing** | Aero Glass |
| **Direct composition** | false |
| **Supports overlays** | false |
| **YUY2 overlay support** | NONE |
| **NV12 overlay support** | NONE |
| **Diagonal Monitor Size of \\.\DISPLAY1** | 14.0" |
| **Driver D3D12 feature level** | Not supported |
| **Driver Vulkan API version** | Not supported |
| **Driver vendor** | ANGLE |
| **Driver version** | 8.14.10.2697 |

| | |
|---|---|
| **GPU CUDA compute capability major version** | 0 |
| **Pixel shader version** | 3.0 |
| **Vertex shader version** | 3.0 |
| **Max. MSAA samples** | 1 |
| **Machine model name** | |
| **Machine model version** | |
| **GL_VENDOR** | Google Inc. |
| **GL_RENDERER** | ANGLE (Mobile Intel(R) 965 Express Chipset Family (Microsoft Corporation - WDDM 1.1) Direct3D9Ex vs_3_0 ps_3_0) |
| **GL_VERSION** | OpenGL ES 2.0.0 (ANGLE 2.1.0.a4b21cf26074) |
| **GL_EXTENSIONS** | GL_ANGLE_client_arrays GL_ANGLE_explicit_context GL_ANGLE_explicit_context_gles1 GL_ANGLE_framebuffer_blit GL_ANGLE_framebuffer_multisample GL_ANGLE_instanced_arrays GL_ANGLE_memory_size GL_ANGLE_multi_draw GL_ANGLE_pack_reverse_row_order GL_ANGLE_program_cache_control GL_ANGLE_request_extension GL_ANGLE_robust_client_memory GL_ANGLE_texture_compression_dxt3 GL_ANGLE_texture_compression_dxt5 GL_ANGLE_texture_usage GL_ANGLE_translated_shader_source GL_CHROMIUM_bind_generates_resource GL_CHROMIUM_bind_uniform_location GL_CHROMIUM_color_buffer_float_rgb GL_CHROMIUM_color_buffer_float_rgba GL_CHROMIUM_copy_texture GL_CHROMIUM_lose_context GL_CHROMIUM_sync_query GL_EXT_blend_minmax GL_EXT_color_buffer_half_float GL_EXT_debug_marker GL_EXT_float_blend GL_EXT_frag_depth GL_EXT_occlusion_query_boolean GL_EXT_read_format_bgra GL_EXT_robustness GL_EXT_shader_texture_lod GL_EXT_texture_compression_dxt1 GL_EXT_texture_filter_anisotropic GL_EXT_texture_format_BGRA8888 GL_EXT_texture_storage GL_EXT_unpack_subimage GL_KHR_debug GL_KHR_parallel_shader_compile GL_NV_fence GL_NV_pack_subimage GL_NV_read_stencil GL_OES_EGL_image GL_OES_EGL_image_external GL_OES_depth32 GL_OES_element_index_uint GL_OES_get_program_binary GL_OES_packed_depth_stencil GL_OES_rgb8_rgba8 GL_OES_standard_derivatives GL_OES_surfaceless_context GL_OES_texture_border_clamp GL_OES_texture_float GL_OES_texture_half_float GL_OES_texture_half_float_linear GL_OES_vertex_array_object GL_WEBGL_video_texture |
| **Disabled Extensions** | GL_KHR_blend_equation_advanced GL_KHR_blend_equation_advanced_coherent |
| **Disabled WebGL Extensions** | |
| **Window system binding vendor** | Google Inc. (adapter LUID: 00000000000098d5) |
| **Window system binding version** | 1.4 (ANGLE 2.1.0.a4b21cf26074) |
| **Window system binding extensions** | EGL_EXT_create_context_robustness EGL_ANGLE_d3d_share_handle_client_buffer EGL_ANGLE_d3d_texture_client_buffer |

| | EGL_ANGLE_surface_d3d_texture_2d_share_handle EGL_ANGLE_query_surface_pointer EGL_ANGLE_window_fixed_size EGL_NV_post_sub_buffer EGL_KHR_create_context EGL_EXT_device_query EGL_KHR_image EGL_KHR_image_base EGL_KHR_gl_texture_2D_image EGL_KHR_gl_renderbuffer_image EGL_KHR_get_all_proc_addresses EGL_ANGLE_flexible_surface_compatibility EGL_ANGLE_create_context_webgl_compatibility EGL_CHROMIUM_create_context_bind_generates_resource EGL_EXT_pixel_format_float EGL_KHR_surfaceless_context EGL_ANGLE_display_texture_share_group EGL_ANGLE_create_context_client_arrays EGL_ANGLE_program_cache_control EGL_ANGLE_robust_resource_initialization EGL_ANGLE_create_context_extensions_enabled EGL_ANDROID_blob_cache EGL_ANDROID_recordable EGL_ANGLE_create_context_backwards_compatible EGL_KHR_create_context_no_error |
|---|---|
| **Direct rendering version** | unknown |
| **Reset notification strategy** | 0x8252 |
| **GPU process crash count** | 0 |
| **gfx::BufferFormats supported for allocation and texturing** | R_8: not supported, R_16: not supported, RG_88: not supported, BGR_565: not supported, RGBA_4444: not supported, RGBX_8888: not supported, RGBA_8888: not supported, BGRX_8888: not supported, BGRA_1010102: not supported, RGBA_1010102: not supported, BGRA_8888: not supported, RGBA_F16: not supported, YVU_420: not supported, YUV_420_BIPLANAR: not supported, P010: not supported |

## Compositor Information

| Tile Update Mode | One-copy |
|---|---|
| Partial Raster | Enabled |

## GpuMemoryBuffers Status

| **R_8** | Software only |
|---|---|
| **R_16** | Software only |
| **RG_88** | Software only |
| **BGR_565** | Software only |
| **RGBA_4444** | Software only |
| **RGBX_8888** | GPU_READ, SCANOUT |
| **RGBA_8888** | GPU_READ, SCANOUT |
| **BGRX_8888** | Software only |
| **BGRA_1010102** | Software only |
| **RGBA_1010102** | Software only |
| **BGRA_8888** | Software only |
| **RGBA_F16** | Software only |
| **YVU_420** | Software only |
| **YUV_420_BIPLANAR** | Software only |
| **P010** | Software only |

## Display(s) Information

| | |
|---|---|

| Info | Display[2528732444] bounds=[0,0 1280x800], workarea=[0,0 1280x760], scale=1, rotation=0, panel_rotation=0 external. |
|---|---|
| Color space (sRGB/no-alpha) | {primaries:BT709, transfer:IEC61966_2_1, matrix:RGB, range:FULL} |
| Buffer format (sRGB/no-alpha) | BGRX_8888 |
| Color space (sRGB/alpha) | {primaries:BT709, transfer:IEC61966_2_1, matrix:RGB, range:FULL} |
| Buffer format (sRGB/alpha) | BGRA_8888 |
| Color space (WCG/no-alpha) | {primaries:BT709, transfer:IEC61966_2_1, matrix:RGB, range:FULL} |
| Buffer format (WCG/no-alpha) | BGRX_8888 |
| Color space (WCG/alpha) | {primaries:BT709, transfer:IEC61966_2_1, matrix:RGB, range:FULL} |
| Buffer format (WCG/alpha) | BGRA_8888 |
| Color space (HDR/no-alpha) | {primaries:BT709, transfer:IEC61966_2_1, matrix:RGB, range:FULL} |
| Buffer format (HDR/no-alpha) | BGRX_8888 |
| Color space (HDR/alpha) | {primaries:BT709, transfer:IEC61966_2_1, matrix:RGB, range:FULL} |
| Buffer format (HDR/alpha) | BGRA_8888 |
| SDR white level in nits | 80 |
| Bits per color component | 8 |
| Bits per pixel | 24 |
| Refresh Rate in Hz | 60 |

## Video Acceleration Information

| Encode h264 baseline | 0x0 to 3840x2176 pixels, and/or 30.000 fps |
|---|---|
| Encode h264 main | 0x0 to 3840x2176 pixels, and/or 30.000 fps |
| Encode h264 high | 0x0 to 3840x2176 pixels, and/or 30.000 fps |

## Vulkan Information

## Device Performance Information

| Total Physical Memory (Gb) | 3 |
|---|---|
| Total Disk Space (Gb) | 47 |
| Hardware Concurrency | 2 |
| System Commit Limit (Gb) | 4 |
| D3D11 Feature Level | 10_0 |
| Has Discrete GPU | yes |
| Intel GPU Generation | unknown |
| Software Rendering | No |

## Diagnostics

| 0 | |
|---|---|
| **b3DAccelerationEnabl** | true |
| **b3DAccelerationExists** | true |
| **bAGPEnabled** | true |
| **bAGPExistenceValid** | true |
| **bAGPExists** | true |
| **bCanRenderWindow** | true |
| **bDDAccelerationEnabl** | true |
| **bDriverBeta** | false |
| **bDriverDebug** | false |
| **bDriverSigned** | false |
| **bDriverSignedValid** | false |
| **bNoHardware** | false |
| **dwBpp** | 32 |
| **dwDDIVersion** | 10 |
| **dwHeight** | 800 |
| **dwRefreshRate** | 60 |
| **dwWHQLLevel** | 0 |
| **dwWidth** | 1280 |
| **iAdapter** | 0 |
| **lDriverSize** | 5508224 |
| **lMiniVddSize** | 0 |
| **szAGPStatusEnglish** | Enabled |
| **szAGPStatusLocalized** | Activé |
| **szChipType** | Mobile Intel(R) 965 Express Chipset Family |
| **szD3DStatusEnglish** | Enabled |
| **szD3DStatusLocalized** | Activé |
| **szDACType** | Internal |
| **szDDIVersionEnglish** | 10 |
| **szDDIVersionLocalized** | 10 |
| **szDDStatusEnglish** | Enabled |
| **szDDStatusLocalized** | Activé |
| **szDXVAHDEnglish** | Not Supported |
| **szDXVAModes** | ModeMPEG2_A ModeMPEG2_C ModeWMV9_B ModeVC1_B |
| **szDescription** | Mobile Intel(R) 965 Express Chipset Family (Microsoft Corporation - WDDM 1.1) |
| **szDeviceId** | 0x2A02 |
| **szDeviceIdentifier** | {D7B78E66-6942-11CF-0579-CA10ADC2C535} |
| **szDeviceName** | \\.\DISPLAY1 |
| **szDisplayMemoryEngli** | 358 MB |
| **szDisplayMemoryLoca** | 358 MB |
| **szDisplayModeEnglish** | 1280 x 800 (32 bit) (60Hz) |

| | |
|---|---|
| szDisplayModeLocaliz | 1280 x 800 (32 bit) (60Hz) |
| szDriverAssemblyVers | 8.15.10.2697 |
| szDriverAttributes | Final Retail |
| szDriverDateEnglish | 01/10/2012 02:00:00 |
| szDriverDateLocalized | 10/1/2012 02:00:00 |
| szDriverLanguageEngl | English |
| szDriverLanguageLoca | Anglais |
| szDriverModelEnglish | WDDM 1.1 |
| szDriverModelLocalize | WDDM 1.1 |
| szDriverName | igdumd64.dll,igd10umd64.dll |
| szDriverNodeStrongNa | oem10.inf:5f63e5343c30a465:i965GM0:8.15.10.2697:pci\ven_8086&dev_ |
| szDriverSignDate | Unknown |
| szDriverVersion | 8.14.0010.2697 |
| szKeyDeviceID | Enum\PCI\VEN_8086&DEV_2A02&SUBSYS_30C0103C&REV_0C |
| szKeyDeviceKey | \Registry\Machine\System\CurrentControlSet\Control\Video\{77161C52-3A0F-11EA-91B6-81DE3574F962}\0000 |
| szManufacturer | Intel Corporation |
| szMiniVdd | inconnu |
| szMiniVddDateEnglish | Unknown |
| szMiniVddDateLocalize | inconnu |
| szMonitorMaxRes | Unknown |
| szMonitorName | Generic PnP Monitor |
| szNotesEnglish | No problems found. |
| szNotesLocalized | Aucun problème n'a été détecté. |
| szOverlayEnglish | Not Supported |
| szRankOfInstalledDriv | 00E32001 |
| szRegHelpText | Unknown |
| szRevision | Unknown |
| szRevisionId | 0x000C |
| szSubSysId | 0x30C0103C |
| szTestResultD3D7Engl | Not run |
| szTestResultD3D7Loca | Non exécuté |
| szTestResultD3D8Engl | Not run |
| szTestResultD3D8Loca | Non exécuté |
| szTestResultD3D9Engl | Not run |
| szTestResultD3D9Loca | Non exécuté |
| szTestResultDDEnglish | Not run |

| szTestResultDDLocaliz | Non exécuté |
|---|---|
| szVdd | inconnu |
| szVendorId | 0x8086 |

## Log Messages

- [3380:7072:0614/125924.844:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/125925.062:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/125925.062:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/125925.062:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/125925.062:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/125944.239:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- GpuProcessHost: The info collection GPU process exited normally. Everything is okay.
- [3380:7072:0614/130018.133:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/130018.137:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.
- [3380:7072:0614/130038.580:ERROR:gl_surface_egl.cc(750)] : EGL Driver message (Error) eglQueryDeviceAttribEXT: Bad attribute.