



OpenGL ES 2.0 Emulator Errata

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Abstract

This document describes known errata in the EAC release of OpenGL ES 2.0 Emulator version 1.1. This is a working document throughout the product lifecycle and, as such, the content may be modified as new information is uncovered.

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General suggestion for additions and improvements are also welcome.

CONTENTS

1	Preface	4
1.1	Change Control	4
1.2	Scope	4
1.3	Terms and Abbreviations	4
2	Categorization of Errata	5
2.1	Errata Summary	5
3	Category 1 Errata	6
4	Category 2 Errata	7
5	Category 3 Errata	8
5.1	<code>EGL_MATCH_NATIVE_PIXMAP</code> attribute not supported.	8
5.2	<code>eglQuerySurface</code> returns the original size of a resized native window.	8
5.3	<code>WGL_PBUFFER_LOST_ARB</code> pbuffer memory lost not checked.	9
5.4	Use of back buffer is always enabled and cannot be disabled.	9
5.5	Shader compiler errors reported by the emulator cannot be easily mapped onto the original source code.	9
5.6	List of EGL configurations returned by <code>eglChooseConfig</code> is not sorted.	10
5.7	Incorrect error code returned instead of <code>EGL_BAD_MATCH</code> .	10
5.8	<code>eglMakeCurrent</code> succeeds with incompatible surface and context.	10

1 PREFACE

1.1 Change Control

Issue	Date	Change
1.0	Aug 2008	Errata for version 1.0 EAC
1.1	Sep 2009	Errata for version 1.1 EAC

1.2 Scope

This document describes the errata discovered in the implementation of OpenGL ES 2.0 Emulator version 1.1, categorized by level of severity. Each description includes:

- the conditions under which erroneous behavior occurs
- the implications of the erratum with respect to typical applications
- the application and limitations of a 'work-around' where possible

1.3 Terms and Abbreviations

This document uses the following terms and abbreviations:

Term	Description
OpenGL	3D graphics library
OpenGL ES	3D graphics library for embedded systems
Cat	Category

2 CATEGORIZATION OF ERRATA

Errata recorded in this document are split into three groups:

- Category 1** Features which are impossible to work around and severely restricts the use of the software in all or the majority of applications rendering the software unusable.
- Category 2** Features which contravene the specified behavior and may limit or severely impair the intended use of specified features but does not render the software unusable in all or the majority of applications.
- Category 3** Features that were not the originally intended behavior but should not cause any problems in applications.

2.1 Errata Summary

The following tables summarize all errata associated with this product.

OpenGL ES 2.0 Emulator version 1.1 Errata Summary

ID	Cat	Summary of Erratum
4932	Cat 3	EGL_MATCH_NATIVE_PIXMAP attribute not supported.
4935	Cat 3	eglQuerySurface returns the original size of a resized native window.
5966	Cat 3	WGL_PBUFFER_LOST_ARB pbuffer memory lost not checked.
5968	Cat 3	Use of back buffer is always enabled and cannot be disabled.
5979	Cat 3	Shader compiler errors reported by the emulator cannot be easily mapped onto the original source code.
8516	Cat 3	List of EGL configurations returned by eglChooseConfig is not sorted.
8517	Cat 3	Incorrect error code returned instead of EGL_BAD_MATCH.
8518	Cat 3	eglMakeCurrent succeeds with incompatible surface and context.

3 CATEGORY 1 ERRATA

No Category 1 errata.

4 CATEGORY 2 ERRATA

No Category 2 errata.

5 CATEGORY 3 ERRATA

5.1 EGL_MATCH_NATIVE_PIXMAP attribute not supported.

Status

Fault status: Cat 3
Platforms affected: Windows

Description

The attribute `EGL_MATCH_NATIVE_PIXMAP` is not supported by `eglChooseConfig`.

Implications

The EGL 1.3 specification says that the attribute `EGL_MATCH_NATIVE_PIXMAP` was introduced to make it easier to choose an `EGLConfig` to match a native pixmap. This attribute is accepted by the emulator, but is ignored other than to validate the provided handle.

Workaround

Applications should work as expected even if the chosen `EGLConfig` does not match the pixmap format because rendering is done to an internal buffer and then copied to the pixmap, including any necessary pixel format conversions. If an 8-bit per channel `EGLConfig` is desired (to ensure the same color precision as the native pixmap), then `EGL_RED_SIZE`, `EGL_GREEN_SIZE` and `EGL_BLUE_SIZE` should be explicitly passed to `eglChooseConfig`.

5.2 `eglQuerySurface` returns the original size of a resized native window.

Status

Fault status: Cat 3
Platforms affected: Windows and Linux

Description

The values of `EGL_WIDTH` and `EGL_HEIGHT`, as returned by `eglQuerySurface`, are determined at the time `eglCreateWindowSurface` is called, and are not updated if the window is later resized.

Implications

Applications that wish to respond to window resize events cannot use EGL to determine the new window size.

Workaround

If window resizes are not expected or if a non-resizable window is used, no action is required. Applications that wish to respond to changes in window size must use the native windowing API to determine the new size of the window.

5.3 WGL_PBUFFER_LOST_ARB pbuffer memory lost not checked.

Status

Fault status: Cat 3
Platforms affected: Windows

Description

Pbuffers and pixmaps are supported via the use of the `WGL_ARB_pbuffer` extension (see http://www.opengl.org/registry/specs/ARB/wgl_pbuffer.txt). This specifies a `WGL_PBUFFER_LOST_ARB` query can be made to check for loss of memory due to a display mode change. The OpenGL ES 2.0 Emulator does not query `WGL_PBUFFER_LOST_ARB`.

Implications

The OpenGL ES 2.0 Emulator will not detect pbuffer memory lost due to a display mode change.

Workaround

Don't change display modes while running the OpenGL ES 2.0 Emulator.

5.4 Use of back buffer is always enabled and cannot be disabled.

Status

Fault status: Cat 3
Platforms affected: Windows and Linux

Description

`eglChooseConfig` translates the EGL attribute list into an attribute list suitable for the underlying OpenGL graphics driver. In addition to this, it adds another attribute to the list. This additional attribute asks the underlying OpenGL graphics driver to return only those configurations which allow use of the back buffer. Hence use of back buffer is always enabled and applications cannot disable it.

Implications

Use of the back buffer is always enabled and cannot be disabled.

Workaround

None

5.5 Shader compiler errors reported by the emulator cannot be easily mapped onto the original source code.

Status

Fault status: Cat 3
Platforms affected: Windows and Linux

Description

Due to translation of shader language from ESSL to GLSL for use by the underlying OpenGL graphics driver and the concatenation of strings input to `glShaderSource`, error line numbers may not match the original source code.

Implications

Shader compiler errors reported by the emulator cannot be directly mapped back to original shader source code line numbers.

Workaround

On Windows, make sure the `malisc` compiler is installed and on the path as the code is sent unmodified to `malisc`, so line numbers are correct. Note that separate strings submitted to `glShaderSource` are concatenated before sending to `malisc`. On Linux, there is no workaround.

5.6 List of EGL configurations returned by `eglChooseConfig` is not sorted.

Status

Fault status: Cat 3

Platforms affected: Linux

Description

The list of configurations returned by `eglChooseConfig` is not sorted.

Implications

Applications must not rely upon sorting of configurations by `eglChooseConfig`.

Workaround

None

5.7 Incorrect error code returned instead of `EGL_BAD_MATCH`.

Status

Fault status: Cat 3

Platforms affected: Linux

Description

Sometimes, instead of `EGL_BAD_MATCH`, EGL returns an incorrect error code. This happens because the Linux version of EGL is implemented on top of GLX which does not have an error code corresponding to `EGL_BAD_MATCH` and EGL is not always able to detect the real cause of the error.

Implications

Applications will sometimes see an incorrect error code instead of `EGL_BAD_MATCH`.

Workaround

None

5.8 `eglMakeCurrent` succeeds with incompatible surface and context.

Status

Fault status: Cat 3

Platforms affected: Linux

Description

`eglMakeCurrent` succeeds even if the draw or read surface is not compatible with context. The Linux version of EGL is implemented on top of GLX. The GLX layer did not detect this incompatibility on some platforms. The problem may not exist on all platforms.

Implications

On some platforms, applications cannot rely upon `eglMakeCurrent` to detect incompatibility between surface and context.

Workaround

None