



Linux OpenGL ES DDK package
Linux OpenGL ES DDK package (GX910)
Base and device driver
Errata Notice

This document contains all errata known at the date of issue in releases up to and including revision r0p2 of Linux OpenGL ES DDK package

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General suggestion for additions and improvements are also welcome.

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Introduction

Scope

This document describes errata categorised by level of severity. Each description includes:

- the current status of the defect
- where the implementation deviates from the specification and 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

Categorisation of Errata

Errata recorded in this document are split into three levels of severity:

Category 1 Behavior that is impossible to work around and that severely restricts the use of the product in all, or the majority of applications, rendering the device unusable.

Category 2 Behavior that contravenes the specified behavior and that might limit or severely impair the intended use of specified features, but does not render the product unusable in all or the majority of applications.

Category 3 Behavior that was not the originally intended behavior but should not cause any problems in applications.

Change Control

08 okt 2008: Changes in Document v1

Page	Status	ID	Cat	Summary
8	New	602917	Cat 1	Writeable mapping of arbitrary memory
9	New	603067	Cat 1	Write of the value 1 to any kernel address on invalid input
11	New	602920	Cat 2	Incorrect Mali-200 IRQ mask value
13	New	602966	Cat 3	Incorrect register values shown during crash reporting
14	New	603068	Cat 3	Incorrect device driver configuration could cause module crash on startup

Errata Summary Table

The errata associated with this product affect product versions as below.

A cell shown thus **X** indicates that the defect affects the revision shown at the top of that column.

ID	Cat	Summary of Erratum	r0p1	r0p2
602917	Cat 1	Writeable mapping of arbitrary memory	X	
603067	Cat 1	Write of the value 1 to any kernel address on invalid input	X	
602920	Cat 2	Incorrect Mali-200 IRQ mask value	X	
602966	Cat 3	Incorrect register values shown during crash reporting	X	
603068	Cat 3	Incorrect device driver configuration could cause module crash on startup	X	

Errata - Category 1

602917: Writeable mapping of arbitrary memory

Status

Affects: product Linux OpenGL ES DDK package.

Fault status: Cat 1, Present in: r0p1, Fixed in r0p2.

Description

The device driver exposes an interface to make external memory buffers accessible by the Mali hardware. There is no validation of the address of external memory buffers, so all addresses are accepted. As the hardware can be configured to write to such a buffer, any address on the system can be written to.

Implications

A user can instruct Mali to write to any memory location on the system.

Workaround

none

603067: Write of the value 1 to any kernel address on invalid input

Status

Affects: product Linux OpenGL ES DDK package.

Fault status: Cat 1, Present in: r0p1, Fixed in r0p2.

Description

The input validation for the Mali Geometry Processor suspend response call incorrectly continues to handle the request when it detects invalid input.

Implications

The invalid input is used as a pointer to a kernel object. The device driver reads from this pointer and then writes the value 1, followed by adding the current timer tick to a neighboring variable. This could let a user craft an hostile request where the device driver is asked to write to any memory address on the system.

Workaround

none

Errata - Category 2

602920: Incorrect Mali-200 IRQ mask value

Status

Affects: product Linux OpenGL ES DDK package.

Fault status: Cat 2, Present in: r0p1, Fixed in r0p2.

Description

The Mali-200 device driver uses a variable to track which IRQs are valid. If the Mali-200 hardware watchdog is triggered this variable is used to check if the interrupt is valid or not. This variable is incorrectly set to instruct the driver that the hardware watchdog is invalid.

Implications

If the hardware watchdog is triggered, the driver finds the IRQ to be invalid and kills the job.

Workaround

none

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Errata - Category 3

602966: Incorrect register values shown during crash reporting

Status

Affects: product Linux OpenGL ES DDK package.

Fault status: Cat 3, Present in: r0p1, Fixed in r0p2.

Description

The device driver reads from an incorrect register when checking the AXI bus error status after a Mali Geometry Processor crash.

Implications

The AXI bus error status included in a crash report can't be used to diagnose a Mali Geometry Processor job crash as it contains invalid data.

Workaround

none

603068: Incorrect device driver configuration could cause module crash on startup

Status

Affects: product Linux OpenGL ES DDK package.

Fault status: Cat 3, Present in: r0p1, Fixed in r0p2.

Description

The device driver allocates a page directory on start-up, which it frees on shutdown. If the driver detects an incorrect configuration during start-up - before it has allocated the page directory - it still tries to free it.

Implications

Freeing a non-allocated page directory causes a kernel fault in the device driver. The device driver becomes a stale module on the system requiring a system reboot for the device driver to be usable again.

Workaround

none

Errata - Documentation

There are no Errata in this Category

Errata – Driver Software

There are no Errata in this Category