



Mali GPU Performance Analysis Tool Release Note

Media Processing Division

Document Number: PR389-PRDC-011021
Date of Issue: 15th September 2009
Product: Mali GPU Performance Analysis Tool
Product Version: 2.2

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Abstract

This document contains notes relating to the version 2.2 release of the Mali GPU Performance Analysis Tool.

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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<http://www.arm.com>

<http://www.malideveloper.com>

Feedback

ARM limited welcomes feedback on both the product, and the documentation. Please contact malidevelopers@arm.com regarding any issues with the installation and content of this release.

Feedback on this document

If you have any comments on or about this document, please send email to errata@arm.com giving:

- The document title
- The documents number
- The page number(s) to which your comments refer
- A concise explanation of your comments

General suggestion for additions and improvements are also welcome.

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1 PREFACE

Mali GPU Performance Analysis Tool is a tool for viewing performance statistics of Mali Drivers on a Desktop system. Currently the supported platforms are Windows XP and Redhat Enterprise Linux 4. The performance statistics of Mali Drivers are exposed through Instrumented builds of the driver. For more details on how to build instrumented Mali drivers, please refer to the appropriate Mali DDK Release Note and User Guide.

This document contains general release information about the Mali GPU Performance Analysis Tool version 2.2 and covers the following topics:

- Deliverables summary
- Known issues

1.1 Change Control

Issue	Date	Change
1.0	July-31, 2009	Release notes for beta release of Mali GPU Performance Analysis Tool version 2.2
2.0	September-15, 2009	Release notes for EAC release of Mali GPU Performance Analysis Tool version 2.2

1.2 References

This document refers to the following documents.

Ref.	Document No.	Title
1.	PR389-PRDC-011020	Mali GPU Performance Analysis Tool Errata
2.	DUI 0502A	Mali GPU Performance Analysis Tool User Guide

Table 1: Table of References

1.3 Intended Audience

This document is written for developers who wish to use the Mali GPU Performance Analysis Tool to analyze and optimize their platform for Mali GPUs.

2 GLOSSARY

The following terminology is used in this manual.

TERM	MEANING
DDK	Driver Development Kit
EAC	Early Access
GPU	Graphics Processing Unit
MRI	Mali Remote Interface

3 PRODUCT DELIVERABLES

3.1 Files

The deliverables are individually downloadable parts which can be downloaded from <https://silver.arm.com>. The names and description of various deliverables that can be downloaded are as detailed in Table -2.

Deliverable Names	Description
Mali_GPU_Performance_Analysis_Tool_RHEL4_v2.2.tar.gz	Tar Gzipped package for Mali GPU Performance Analysis Tool for Linux
Mali_GPU_Performance_Analysis_Tool_WinXP_v2.2.exe	Windows Installer for Mali GPU Performance Analysis Tool
Mali GPU Performance Analysis Tool User Guide.pdf	User guide for Mali GPU Performance Analysis Tool
Mali GPU Performance Analysis Tool Release Note.pdf	This document
Mali GPU Performance Analysis Tool Errata.pdf	Errata for the Mali GPU Performance Analysis Tool

Table -2: List of Parts in the Deliverable

4 DOCUMENTATION

Documents are supplied as “Adobe PDF” (Portable Document Format) files. These files are readable on most common computer platforms and operating systems using an appropriate file reader. A suitable file reader can be downloaded from the Adobe site at <http://www.adobe.com/>. Select “Acrobat” and download the reader for your computer platform/operating system.

The Red Hat Linux system contains an inbuilt PDF reader which can be used to open the PDF files. Go to Applications > Graphics > PDF Viewer or type ‘gpdf’ on a linux terminal to open the viewer.

4.1 Mali GPU Performance Analysis Tool Release Note

This document contains general release information about the Mali GPU Performance Analysis Tool product.

4.2 Mali GPU Performance Analysis Tool Errata document

The errata document describes the errata discovered in the Mali GPU Performance Analysis Tool, categorised by level of severity. Each description includes:

- where the implementation deviates from the specification
- the conditions under which erroneous behaviour occurs
- the implications of the erratum with respect to typical applications
- the application and limitations of a ‘work-around’ where possible

4.3 Mali GPU Performance Analysis Tool User Guide

This document provides information on how to use the Mali GPU Performance Analysis Tool product.

5 REQUIRED PLATFORM

The Mali GPU Performance Analysis Tool has been tested on the platforms listed below. ARM Limited recommends the use of Mali GPU Performance Analysis Tool on these platforms only.

1. Microsoft® Windows XP™ Professional Service Pack 3
2. Redhat Enterprise GNU/Linux release 4, revision 2.6.9-55.ELsmp

6 INSTALLATION

6.1 Installation Procedure

For a description on how to install the Mali GPU Performance Analysis Tool see the Mali GPU Performance Analysis Tool User Guide 4.3, Section 1.2.1 for Windows Installation procedure and Section 1.2.2 for Linux Installation procedure.

7 DIFFERENCES FROM PREVIOUS RELEASES

7.1 Notable changes since the GX610-SW-98004-r3p0-00rel0 release

Change	Description
Linux port of Mali GPU Performance Analysis Tool	The Mali GPU Performance Analysis Tool has been ported and thoroughly tested on GNU/Linux platform. With this the application developers / Mali developers can use Mali GPU Performance Analysis Tool on Linux platforms for optimizing their platforms.
Separate packaging of Mali GPU Performance Analysis tool	The Mali GPU Performance Analysis Tool is now available as a separate installer instead of being bundled with other Mali GPU tools.
Graphs with the same units are scaled with the same factors	Previously the graphs on the graph display with same units did not scale in relation to each other. Currently the graphs with same basic units are scaled appropriately so as to allow relative comparison.
Feature for zooming in /out in framebuffer	A new feature has been added which allows zooming in and out of framebuffer using mouse scrolls and with menu contexts. This feature is useful for comparison of image quality in different runs.
Manual auto-scaling feature does not exist	Previously there was a feature of manually enabling / disabling of auto-scaling in graph displays. With auto-scaling automatically turned on for graphs with same basic units, this feature is redundant.
Fix for graphs going out of range	Previously the graphs used to go out of visible bounds / range in the graph display. This bug has been fixed.
Fix for graphs jumping at certain intervals	Previously the graphs used to jump at certain intervals when the H/W frequency value was changed. When scaling the frequency, it makes the graph appear stationary but actual graph values change proportionately with respect to range.
Actual minimum / maximum values display	Previously there was no way to view the minimum and maximum values of graphs in the graph display. The legends at the top of graph display were editable fields, and were not real min/max values. This was confusing to many users. This has been fixed by removing the editing feature of min/ max ranges and using these fields for displaying actual minimum / maximum values.
Average value display	A new feature has been added which shows the average values in the legend for the graph display.
Y axis markings display	Previously the Y / vertical axis for the graph display was nonexistent. Now though one can drag and drop multiple graphs on the display but graph which was dropped first gets the preference to display the markings on Y axis.

7.2 Notable changes since the beta release

No notable changes since 2.2 beta release have taken place except that extensive testing has been done on various ARM platforms.

8 KNOWN ISSUES AND LIMITATIONS

Issues related to this release are documented in the Mali GPU Performance Analysis Tool Errata document (See section 4.2).

In addition to the errata described in these documents there are a few issues and limitations that may not be obvious and which deserve mention:

1. The Mali GPU Linux drivers by default do not have support for Mali Remote Interface (MRI), which is required for Mali GPU Performance Analysis Tool to connect with an application running on a target platform, linked with instrumented Mali GPU Linux drivers. In short the online mode of Mali GPU Performance Analysis Tool will not work with Mali GPU Linux drivers. To enable the MRI support, the Mali GPU Linux drivers need slight modifications. The licensees of Mali GPU Linux may contact support-mali@arm.com for assistance on enabling of MRI layer. It should be noted that support of the product will only be provided by ARM if such support is covered by a current contract with the recipient.
2. When using the Instrumented Drivers' network feature the drivers will stall at the first eglSwapBuffers and allow Mali GPU Performance Analysis Tool to connect. If Mali GPU Performance Analysis Tool disconnects from the drivers they will continue rendering frames without network communication. At this point they will not allow another connection from Mali GPU Performance Analysis Tool so to achieve this you must restart the application you are analysing
3. When Mali GPU Performance Analysis Tool first connects to the Instrumented Drivers the drivers will render the first frame. This can cause connecting to be quite slow for applications that have a complex first frame
4. Stress testing instrumented drivers with forced memory allocation failures could trigger assertion failures. Please note that instrumented drivers are not intended for such scenarios.

Please contact malidevelopers@arm.com regarding any issues with the installation and content of this release.