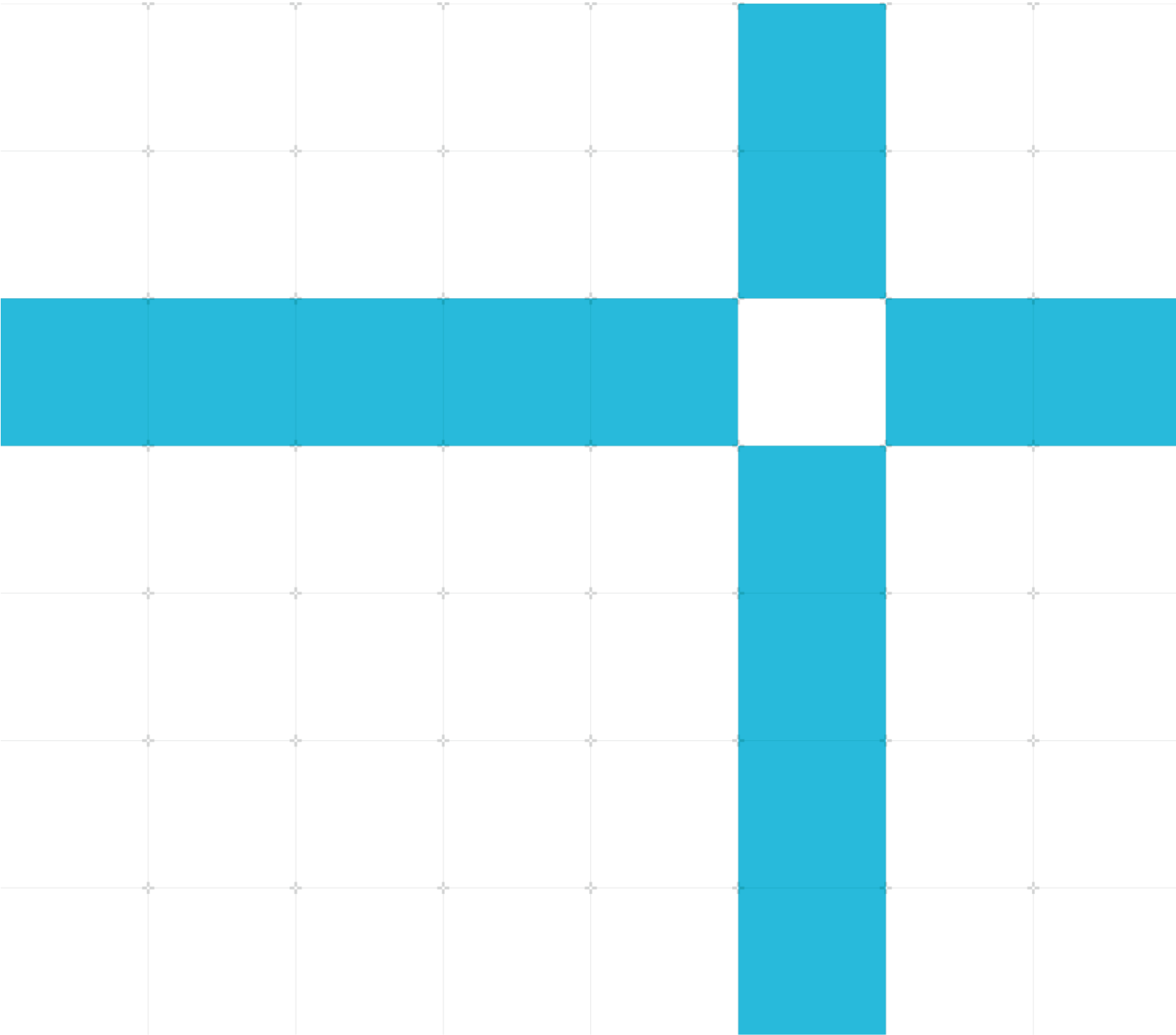
Arm® Mobile Studio 2022.3

Product revision: r22p3-00rel0

Release Note

Non-Confidential

Issue 00
DSHVE-DC-06003



Arm Mobile Studio 2022.3

Release Note

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To provide feedback on the document, fill the following survey:
https://developer.arm.com/documentation-feedback-survey.

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Contents

1 Release overview

The following sections describe the product and its quality status at time of release.

1.1 Product description

Arm Mobile Studio is a tool suite enabling Android application developers to detect performance bottlenecks in their Arm CPU software and Arm® Mali™ GPU rendering. Profiling is provided through analysis of performance counters from the hardware, and the target application's graphics API usage.

This release of Arm Mobile Studio includes:

- Streamline, for profiling application software and rendering performance.
- Performance Advisor, for automating initial data analysis and reporting in continuous integration deployments.
- Graphics Analyzer, for debugging and inspecting usage of graphics APIs.
- Mali Offline Compiler, for static analysis of shader programs and compute kernels.

1.1.1 Component versions

This release of Arm Mobile Studio includes the following tool versions:

- Streamline 8.2
- Performance Advisor 8.2
- Graphics Analyzer 5.11.1
- Mali Offline Compiler 7.7

1.2 Release status

This is the REL quality release of the Arm Mobile Studio 2022.3 (r22p3-00rel0) software.

1.3 Changes in this release

This release of Arm Mobile Studio contains the following changes.

1.3.1 Mobile Studio

Mobile Studio has the following product-wide changes:

- No changes in this release.

1.3.2 Streamline

Streamline has the following changes:

- Cortex-X3 and Cortex-A715 are supported as profiler targets.
- Mali driver scheduling event trace is supported as a data source and is presented as a custom activity map at the bottom of the Timeline view. This feature requires a recent device that has the Android Perfetto service and a compatible Mali device driver.
- The Arm Mobile Studio Integration for Unity package, available on GitHub, now supports software counter annotations emitting 63-bit counter values to Streamline.
- Fix: The gator annotation collector has improved stability for applications with multiple threads generating annotations.
- Fix: The gator data collector no longer errors with a "Message too big" error on devices with a large Linux vmimage file.

1.3.3 Performance Advisor

Performance Advisor has the following changes:

- Fix: Unity games using the Vulkan API now reliably generate annotations when using the provided lightweight interceptor.

1.3.4 Graphics Analyzer

Graphics Analyzer has the following changes:

- No changes in this release.

1.3.5 Mali Offline Compiler

Mali Offline Compiler has the following changes:

- Immortalis-G715, Mali-G715, and Mali-G615 are now supported as compiler targets.
- Arm GPUs implementing the Bifrost architecture, or newer, have been updated to the r39p0 driver compiler backend.
- Shader ray query performance feedback is now present in reports if shaders use ray queries.
- Vertex shader performance reports for Arm GPUs implementing the Bifrost architecture, or newer, now report a recommended memory partitioning for attribute streams. To reduce geometry memory bandwidth by minimizing the redundant data fetch during the position-only binning phase, use the recommended stream layout.
- All performance reports for Arm GPUs implementing the Valhall architecture now report a single arithmetic cost, based on a microarchitecture-aware cost model. Component costs per arithmetic instruction type are still available using the `--detailed` command line option.
- Vulkan shaders compiled directly from GLSL source may now use entry points other than `main()` by specifying the `--name` command line option.

- Fix: OpenCL kernels with an indeterminate longest path due to the presence of complex control flow now correctly report an “N/A” cost in performance reports.

1.4 Known issues in this release

This release of Arm Mobile Studio contains the following known issues.

1.4.1 Streamline

Streamline has the following known issues:

- SDDAP-11607: macOS host installs do not show Arm disassembly views.
- SDDAP-8095: Streamline does not yet support the DWARF5 format for debug info. Applications must be built using the DWARF4 format.
- SDDAP-11426: Linux host installs using NVIDIA drivers can experience areas of the UI rendering as black rectangles when using monitor scaling. A workaround for this issue is to set the environment variable GDK_SCALE to 1 before launching Streamline. For ease of use, this can be set in the Streamline launch script.

1.4.2 Performance Advisor

Performance Advisor has the following known issues:

- SDDAP-11663: The Vulkan lightweight interceptor can cause intermittent application startup failures, for example, causing rendering to produce a black screen.
- MGD-5164: Vulkan screenshots can be very slow to capture.
- MGD-5164: Vulkan screenshots do not always capture the correct swap chain image.
- MGD-5216: OpenGL ES screenshots only capture images for the first context that uses eglSwapBuffers() in the application.

1.4.3 Mali Offline Compiler

Mali Offline Compiler has the following known issues:

- OSC-578: Ray tracing pipeline shader stages are not yet supported for Immortalis-G715, Mali-G715, or Mali-G615.

2 Support

To help you get started we provide a number of quick-start guides available online:

- Getting Started Guides on developer.arm.com

Technical support for Arm Mobile Studio Starter Edition is provided via our developer forums:

- Developer forums on community.arm.com

Technical support for Arm Mobile Studio Professional Edition is provided via our support team:

- Support portal on developer.arm.com

2.1 Host OS support

This release has been developed for the following host operating systems:

Table 2-1: Host operating system used in developing this release

Operating system	Version
Windows	10 or newer
macOS	10.13 (High Sierra) or newer
Ubuntu Linux	18.04 (Bionic Beaver) or newer

2.2 Target OS support

This release has been developed for the following target operating systems:

Table 2-2: Target operating system used in developing this release

Feature	Version
Streamline	Android 8 or newer
Performance Advisor OpenGL ES	Android 8 or newer with manual annotation Android 10 or newer to use the Lightweight Interceptor
Performance Advisor Vulkan	Android 9 or newer
Graphics Analyzer OpenGL ES	Android 8 or newer
Graphics Analyzer Vulkan	Android 9 or newer