Arm Development Studio

Product revision: 2022.1

Release Note

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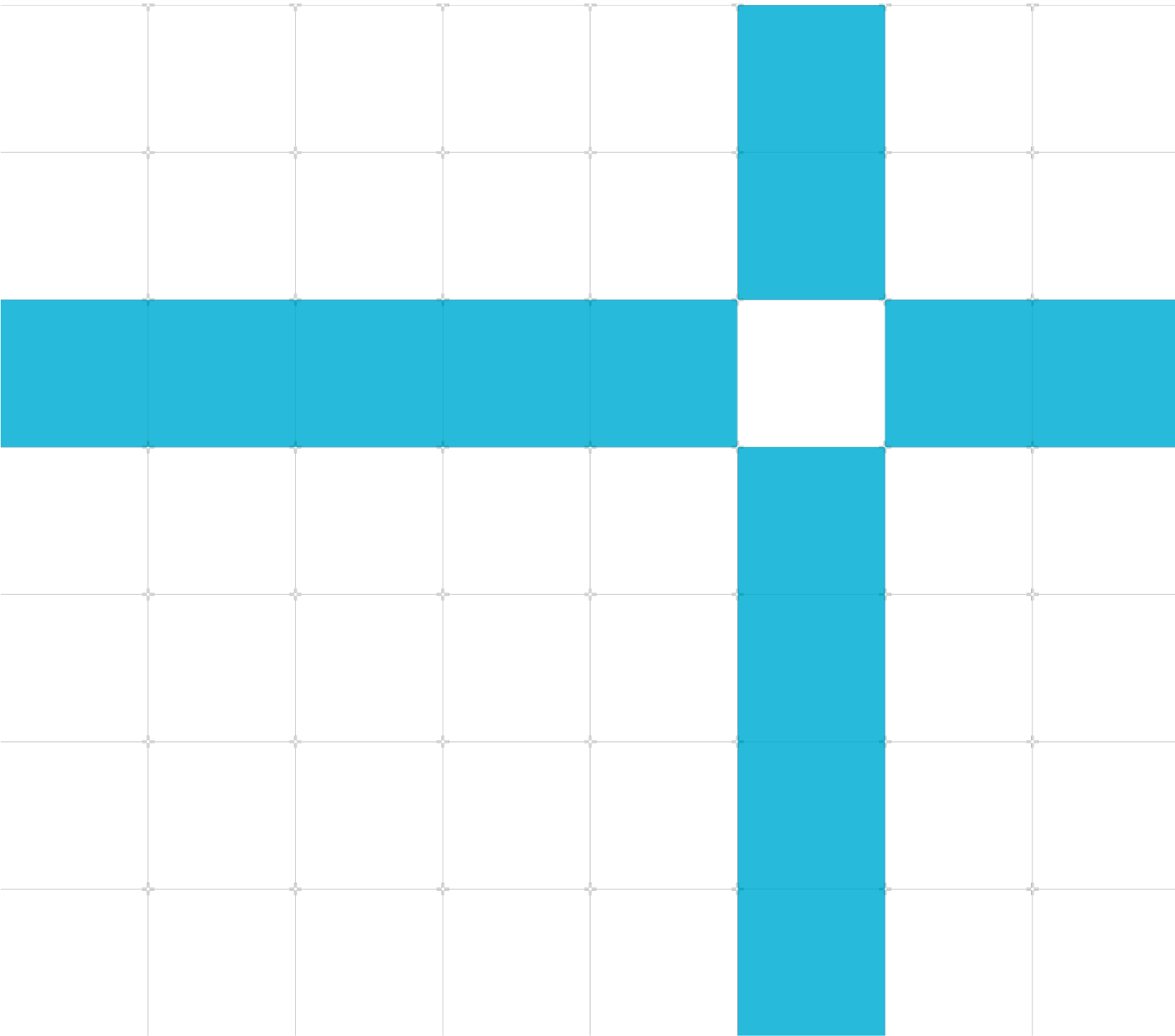
Document ID:
107629



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(LES-PRE-20349)

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Product status

The information in this document is Final, that is for a developed product.

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1 Release overview

The following sections describe the product that this release note describes and its quality status at time of release.

1.1 Product description

Arm Development Studio helps you build, code, debug, and optimize Arm-based projects quickly. From device bring-up to application debug to creating highly efficient micro-controller applications, Arm Development Studio enables you to bring better products to market ahead of the competition.

1.2 Product contents

1.2.1 Arm Development Studio IDE

Arm Development Studio IDE is an Eclipse-based graphical framework that allows you to create, configure, build, debug, and optimize Arm-based projects.

1.2.2 Arm Compiler

Arm Compiler for Embedded 6 enables you to build highly optimized embedded applications for the entire range of Arm processors, including Armv6-M, Armv7, Armv8, and Armv9-A architectures.

1.2.3 Arm Debugger

Arm Debugger is a graphical debugger supporting software development on Arm processor-based targets and Fixed Virtual Platforms (FVPs). The Arm Debugger includes support for SoC bring-up with platform configuration utilities using the Arm ULINK™ and DSTREAM debug probe families.

1.2.4 Arm Fixed Virtual Platforms

Fixed Virtual Platforms (FVPs) provide the ideal combination of performance, flexibility and usability for development and debug at all levels of the software stack. Based on Arm Fast Models, a library of FVPs is supplied with Development Studio for Cortex-A, Cortex-R, Cortex-M, and Neoverse processors. In addition, Development Studio supports custom FVPs created using the Arm Fast Models package, using the Platform Configuration Editor (PCE).

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1.2.5 Arm Streamline

Arm Streamline is a system-wide performance profiler which can be used to analyze Linux, Android, RTOS, and bare-metal embedded systems. Streamline's visualization tools make it easy to identify performance bottlenecks in software running on Arm CPUs and data-plane workloads running on Arm Mali GPUs and other Arm IP. This is supplemented by a hot-spot software profiler which can identify the dominant functions and call paths in application software, enabling performance tuning of the entire system platform.

1.2.6 Arm Graphics Analyzer

Arm Graphics Analyzer allows you to capture and visualize OpenGL ES, Vulkan, and OpenCL API calls made by an application, including capture of application assets and generation of debug visualizations of the application framebuffers. This can be used to identify which API calls are responsible for rendering defects, and makes it easy to identify rendering inefficiencies and performance issues. Arm Graphics Analyzer was formerly known as Mali Graphics Debugger.

1.3 Release status

This is the REL release of the Arm Development Studio 2022.1 software.

1.4 Changes in this release

The following subsections describe differences from the previous release of Arm Development Studio.

1.4.1 Arm Development Studio IDE

The version of Eclipse on which Arm Development Studio IDE is based is updated in this release to Eclipse 4.22 (2021-12).

1.4.2 Arm Compiler

The Arm Compiler in this release of Development Studio is Arm Compiler for Embedded 6.18. For more details, see the Arm Compiler Release Notes.

Arm Compiler 5 is now a legacy product and has reached the end of Mainstream Support. It is no longer provided in Development Studio. Arm Compiler 5 can still be used for existing projects and for new projects for legacy Armv4, Armv5, or Armv6 targets - you can download it from the Arm Compiler 5 Downloads page, then add it as a toolchain into Development Studio. For all other new projects, Arm strongly recommends using Arm Compiler for Embedded 6 for non-safety projects and the latest Arm Compiler for Embedded FuSa (Functional Safety) for safety projects.

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1.4.3 Arm Debugger

For a complete list of supported devices, please see the Supported Devices page.

1.4.4 Arm Fixed Virtual Platforms

The Arm FVPs in this release of Development Studio are updated to a selection from Fast Models 11.18. For more details, see the Fast Models Release History.

The FVP_Base_Cortex-X1Cx2 model is added in this release.

The Cortex-M85 FVP is renamed from "FVP_MPS2_Olympus" to "FVP_MPS2_Cortex-M85" in this release.

1.4.5 Arm Streamline

Arm Streamline in this release of Development Studio is updated to version 8.1.0. For more details, see the Arm Mobile Studio Release Note.

1.4.6 Arm Graphics Analyzer

Arm Graphics Analyzer in this release of Development Studio is updated to version 5.11.1. For more details, see the Arm Mobile Studio Release Note.

1.4.7 Examples

Additions include:

- A bare-metal example demonstrating the support for Armv8.1-M and M-Profile Vector Extension (MVE) in Arm Compiler for Embedded 6, the Cortex-M55 FVP model and the Debugger.
- An RTX5 RTOS example for Cortex-M85
- Updated the examples that use CMSIS-Packs to CMSIS 5.9.0

1.5 Supported Host Platforms

The list of supported host platforms is available online, in the Hardware and host platform requirements section of the Getting Started Guide.

1.6 Known limitations

This section describes any issues known at the time of this release.

- Arm Debugger does not yet support the DWARF5 format for debug info. To debug at source level, applications must be built using the DWARF4 format.

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- The internal organization of some FVP models has changed in Fast Models 11.18. The debug configurations provided with the Arm Debugger for these FVP models have been updated accordingly, but are not compatible with FVPs from previous versions of Fast Models.
- It is the user's responsibility to install Windows drivers for the Olimex ARM-USB FTDI/JTAG devices. Following the advice from the manufacturer, the drivers can be downloaded from: https://www.olimex.com/Products/ARM/JTAG/_resources/OLIMEX-FTDI-drivers-2-12-04.zip.
- Arm Graphics Analyzer Linux target device detection via UDP broadcast on the local subnet is unreliable on Ubuntu 18.04 host machines. If your device is not detected you must connect directly by specifying the target device's IP address and port number.
- Arm Streamline has the following known issues:
  - 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. This can be worked around by setting the environment variable GDK_SCALE to 1 before launching Streamline. For ease of use, this can be set in the Streamline launch script.

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2 Support

For an in-depth introduction to Development Studio, system requirements and installation instructions, please see the online Getting Started Guide. A copy of the Getting started guide is also included in your installation of Development Studio and accessible from within the Arm Development Studio IDE.

If you are migrating from DS-5, see the DS-5 migration guide to help you transition quickly.

You can find tutorials, documentation and videos in the Development Studio Resources.

For technical support, see our Support page. You can also raise queries and support issues relating to Development Studio on the Arm Community website.

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3 Future changes planned

Subsequent releases of Arm Development Studio will remove built-in support for Cadence Virtual Debug as a connectable probe option. Users of Cadence Virtual Debug must contact their EDA partner/Cadence directly to obtain the latest version of the plugin.

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