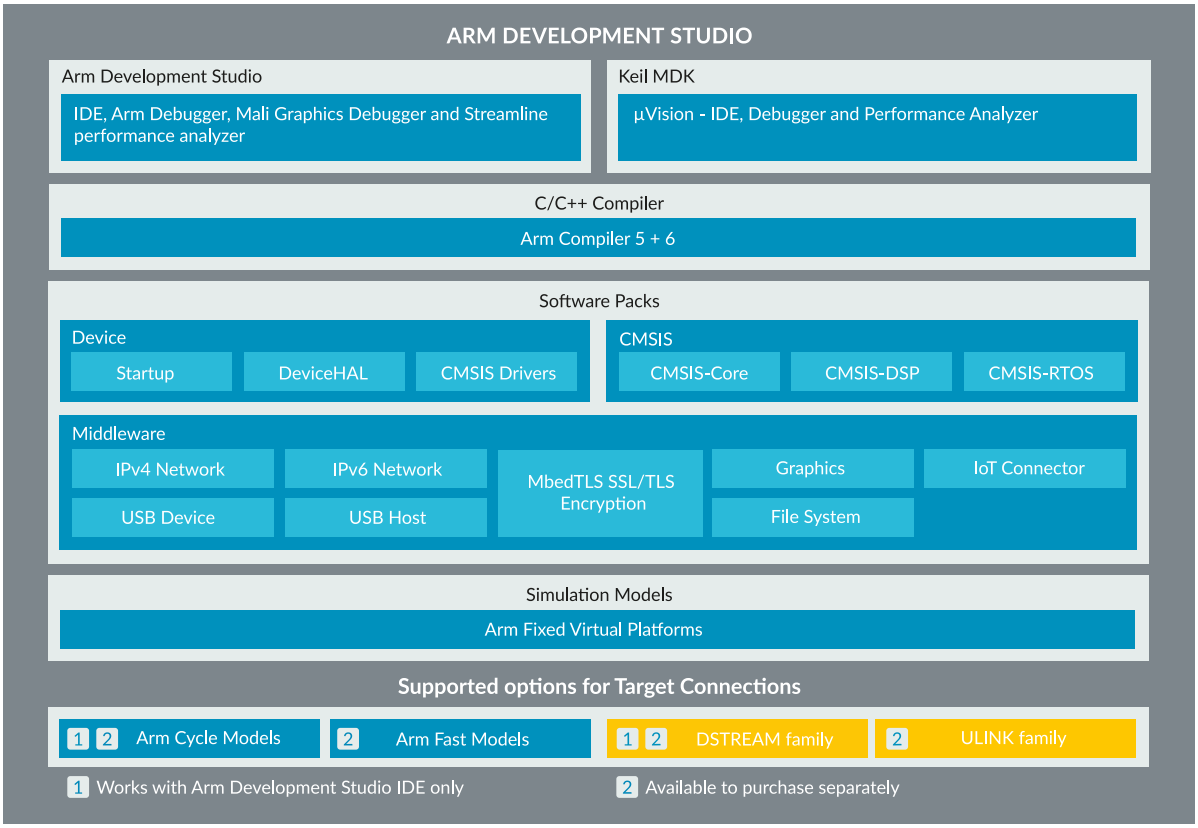
Arm® Development Studio

End-to-end development environment for all Arm-based systems

Arm Development Studio supports all types of software development projects from architecture exploration to the development of real-time applications and coding for edge devices. It accelerates system design and software development enabling you to get higher quality products to market faster and cost-effectively.

- Support for all Arm processors, including early support for Arm IP allowing earlier innovation
- Variety of tools for all stages of product development including architecture validation, developing for complex SoC processors, heterogenous multi-processor projects and microcontroller applications
- Leverage Arm's industry leading C /C++ compiler, debuggers, optimization tools, simulation models and platform connectivity as well as software packs.
- Access to a database of over 5,000 devices, royalty free middleware and real-time operating system (RTOS) integration
- Standardized software interfaces based on CMSIS for efficient code portability and reuse
- Easy-to-use IDEs enabling faster, error-free development
- Technical support available from Arm experts
- ISO certified development processes.



Industry leading Arm C/C++ Compiler

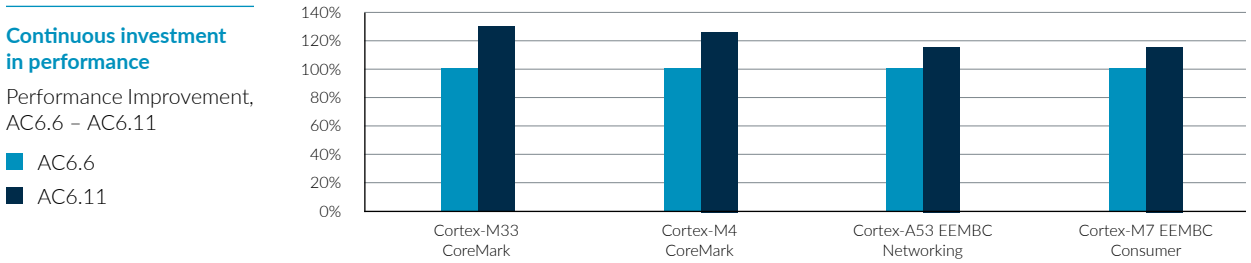
Trusted by thousands of developers, the Arm Compiler has been used to build code shipped in billions of devices. As it is developed alongside the Arm architecture, it enables the design of highly efficient products that best use all features of Arm Cortex processors and architectures, from Armv6-M to Armv8-A 64-bit.

Key advantages:

- Best-in-class code size using link-time optimization and Arm C microlib library
- Performance tuned for real-world applications, alongside simple benchmarks. Up to 30% faster than v6.6
- Leverage the newest language standards, like C++11 and C++14.

Continuous investment in performance

Performance Improvement, AC6.6 – AC6.11



Flexible debug for all scenarios

Built on Arm's advanced CoreSight™ Debug and Trace technology, the Arm Debugger enables debug across all tasks from hardware bring-up and OS porting to application development. Debug complex multi-core SoCs by connecting to individual processors or multiple processor configurations.

Key advantages:

- Pre-configured support for a large range of Arm-based devices
- Full RTOS aware debug, offering individual run control and complex breakpoints for specific tasks or threads
- Cycle accurate, non-intrusive instruction and data trace
- Command line debugger
- Inspect registers and perform low level bring-up.

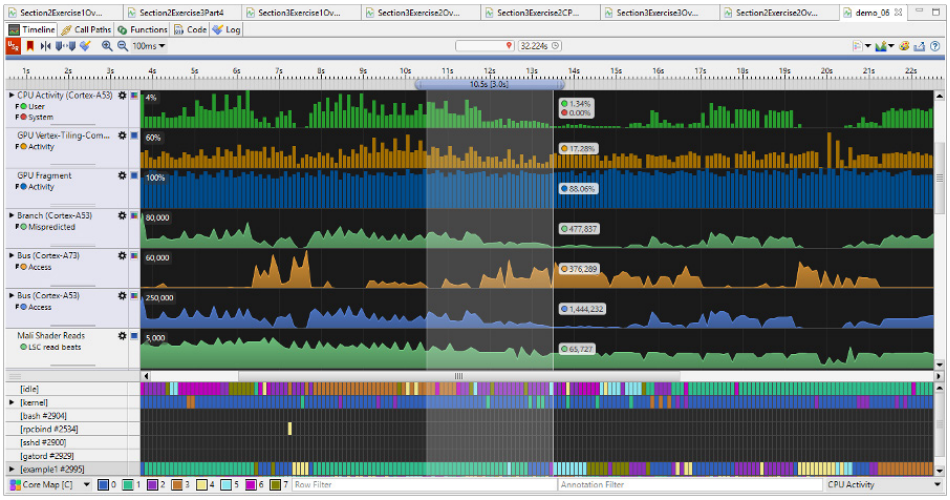
Performance analysis tools to optimize systems

Arm Streamline performance analyzer is a system-wide performance analysis tool to analyze Linux, Android and bare-metal embedded systems. Streamline's visualization tools make it easy to find performance bottlenecks in CPU, GPU and other Arm IP. This along with code profiling enables performance tuning of systems and code to the highest degree.

Key advantages:

- System wide performance counter analysis enabling identification of performance bottlenecks, multi-threading issues and inefficient resource usage
- CPU sampling allows process, thread, function call and line by line granularity of CPU time, which identifies inefficient code

- Per core visualization of performance metrics and thread activity for optimal code parallelization
- Linux and bare-metal support allow performance analysis from Cortex-M to the latest Cortex-A CPU
- Correlate software execution and power consumption data to identify energy inefficiencies.



Models to start software development early

Fast and functionally accurate simulation platforms to enable software development in the absence of hardware.

Key advantages:

- Develop bare-metal and Linux software without the need for a hardware target
- Pre-built platforms (Fixed Virtual Platforms), which include latest Arm processors, memory and peripherals
- Debug and profile custom virtual platforms based on Arm Fast Models.

Optimized graphics giving a better user experience

Trace OpenGL ES, Vulkan and OpenCL API calls in applications and understand complex frame effects to identify and optimize graphics code. Tracing all API calls in the application makes it easy to pinpoint performance issues and graphics defects.

Key advantages:

- Trace all API calls to give visibility of system assets including framebuffers, textures and shaders
- Render scenes drawcall by drawcall to see exactly how they are composed, which provides quick detection of graphics' defects
- Drive data capture via command line which ensures easy inclusion into build systems. This secures performance analysis as an integrated part of development
- Test the same content on multiple devices automatically using the trace replay feature
- Integrates with the Mali Offline Compiler which gives shader cycle counts and performance statistics per shader.

Microcontroller development suite Keil® MDK is bundled with Arm Development Studio

Based on the popular Windows®-based µVision® IDE, Development Studio featuring Keil MDK development suite is the ideal tool for Cortex-M based microcontroller projects.

Key advantages:

- Software packs extend applications with easy-to-use software components
- Royalty-free real-time operating system (RTOS) integration
- Event Recorder and Component Viewer to show run-time behaviour of software components
- Standardized software interfaces based on CMSIS for efficient code portability and reuse.

Debug probes to finetune code performance

Development Studio supports a wide range of target connection methods and includes highly optimized support for the ULINK and DSTREAM families of debug probes. The ULINK family is dedicated to microcontroller debug as well as selected heterogeneous Cortex-A/M debug. Whereas the DSTREAM family has high-speed stream and trace capability, which is ideal for complex multi-core debugging and includes support for the full range of Arm processors. Development Studio also supports third party probes.

Key advantages:

- Software debug and optimization of any Arm-based hardware target
- Varying capabilities for different needs.

KEY:

- ☐ Debugger, Performance Analysis, Fixed Virtual Platforms and Mali Graphics Debugger
- ■ Compiler

Development Studio editions	Bronze	Silver	Gold
Arm Processor Support			
Cortex-A/R Armv8		☐	☐ ■
Cortex-A Armv8 (selected cores*)	☐	☐	☐ ■
Cortex-A/R Armv7	☐	☐ ■	☐ ■
Cortex-M Armv6/7/8	☐ ■	☐ ■	☐ ■
Previous Arm architectures*	☐ ■	☐ ■	☐ ■

* See full list on developer.arm.com/development-studio

Keil MDK	Essential edition	Professional edition	Professional edition
Middleware		✓	✓
CMSIS-RTOS RTX with full source code	✓	✓	✓

Learn more:

arm.com/development-studio

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