



### ARM M-series microprocessor (Cyclic Executive):

The point of interest of Cortex-M processors is the MCU market. The first processor of this set was released more than 13 years ago. Since then, the popularity of M-processors has clearly risen: now, Cortex-M is known as an industry standard. The ARM processors of this type find their implementation in FPGA, integrated memories, clocks, etc. Different members of the set have different improved features: some of them demonstrate higher performance, others are more energy efficient. Of course, each of the designed controllers is tailored to a particular segment of the market.

The areas of application of M-category ARM processors are:

- Motion Sense Devices.
- Smartwatches.
- Smart Lighting.
- Automotive, Retail & Healthcare Industries.
- Energy Grids.

### **ARM R-series microprocessor (RTOS):**

Cortex-R processors primarily target real-time solutions. They find application in controllers, networking equipment, media players, and other similar devices. Furthermore, this type of ARM processor provides great support for the automotive industry.

Cortex-R processors have a lot in common with high-end microcontrollers, but at the same time have the ability to fulfill more scalable tasks.

The areas of application of Cortex-M ARM processors include:

- Industrial, Automotive, & Enterprise purposes.
- Cameras.
- Mobile Handsets.
- Data Storage.

### **ARM A-series microprocessor (Linux + RT extensions):**

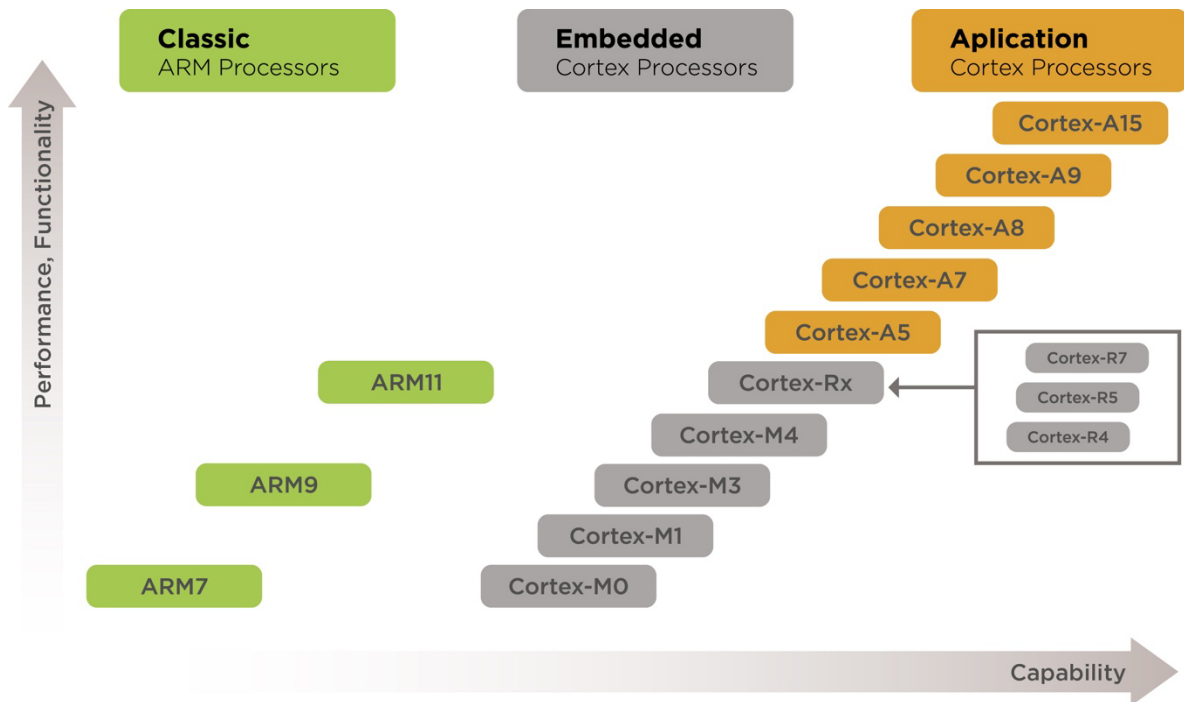
The Cortex-A category of processors is dedicated to Linux and Android devices. Any devices – starting from smartwatches and tablets and continuing with networking equipment – can be supported by Cortex-A processors.

Some technical information:

- The ARMv7-A architecture forms the basis of the A5, A7, A8, A9, A12, A15, and A17 processors.
- The set of common features for A-processors includes a media processing engine (NEON), a tool for security purposes (Trustzone), and various supported instruction sets (ARM, Thumb, DSP etc).
- The main features of Cortex-A processors are top performance and brilliant power efficiency closely bundled to provide users with the best service possible.

Nothing describes the ARM Cortex-A processors better than their applications and potential usage:

- Smart Devices and Wearables.
- Automotive Systems.
- Servers & Networks.
- Satellite Receivers.
- Home Gateways.



Source: <https://sirinsoftware.com/blog/the-arm-processor-a-r-and-m-categories-and-their-specifics/>