RENESAS

BIG IDEAS FOR EVERY SPACE

# RA FAMILY

Industry-Leading Arm® Cortex®-M Family,
Delivering the Ultimate Promise of Security,
Connectivity and Intelligent IoT

2021.10

RENESAS RA

# INTRODUCING THE RA FAMILY

**Delivering the Ultimate Promise of IoT with Software Flexibility**

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## Strong Security

- Secure Crypto Engine (SCE) IP
- An extra level of embedded hardware security providing tamper detection and resistance to side-channel attacks
- Integrated Arm® v8-M TrustZone®

## Arm Core

- Based on Arm's next-generation Cortex-M23/M33 processor cores and Cortex-M4 core

## Flexible Software Solution

- Supported by an open and flexible ecosystem concept, the Flexible Software Package (FSP)
- Can be replaced and expanded by any other RTOS or middleware

## Best-in-Class Peripheral IP

- Excellent HMI capacitive touch technology
- The industry's highest code flash memory capacity
- Wide range of connectivity solutions

## What is the Renesas RA Family?

The flexible Renesas Advanced (RA) 32-bit MCUs are industry leading 32-bit MCUs with the Arm® Cortex®-M33, -M23 and -M4 processor cores and PSA Certified™ assurance. RA delivers key advantages compared to competitive Arm Cortex-M MCUs by providing stronger embedded security, superior CoreMark® performance, and ultra-low power operation. PSA Certified provides customers the confidence and assurance to quickly deploy secure IoT endpoint and edge devices, and smart factory equipment for Industry 4.0.

- Renesas Advanced: Innovative market-leading products based on Arm Cortex-M cores
- Ultimate promise of IoT security by further enhancing Renesas' popular Secure Crypto Engine (SCE) IP
- Best-in-class peripheral IP provided by Renesas
- Easy development of IoT edge applications using the new Flexible Software Package

RENESAS RA

Over 240MHz — High performance using Arm® Cortex®-M Cores

Up to 2MB — High Flash memory integration

Security — Renesas' leading security IP with options based on TrustZone

USB CAN-FD Ethernet — Broad connectivity

Scalable — 16pin-176pin packages
48MHz-200MHz performance
Feature and pin compatible

## RA Family Overview

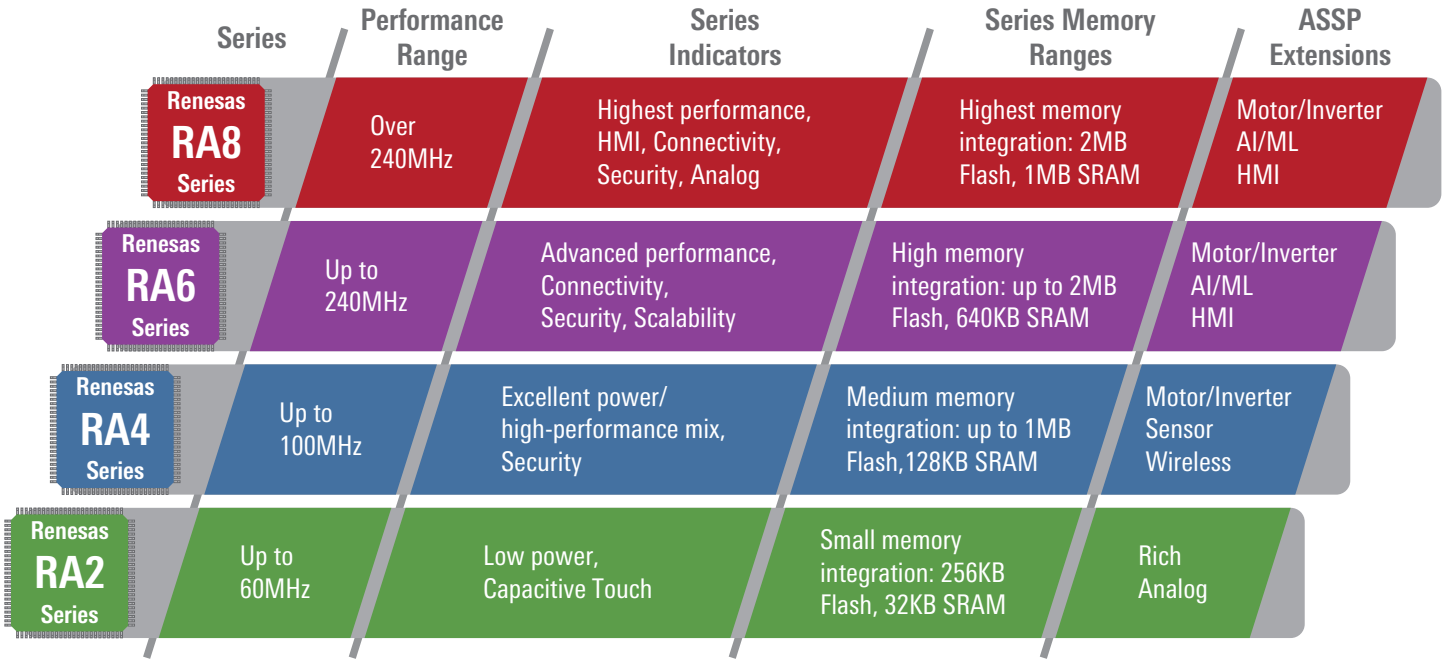
The Renesas RA Family lineup can be separated into four product series. Each of these series has a unique feature set, making it ideal for various applications and market needs.

The RA8 Series is the top-end product series, aiming for the highest integration and the highest performance. We position this category with over 240MHz single or dual core, with largest Flash and RAM integration to suit applications where performance really matters most.

The RA6 Series offers the widest integration of communication interfaces, with integrated Ethernet and TFT display drivers. Memory densities range from 256KB Flash to 2MB Flash. The RA6 Series offers up to 240MHz performance running on the Cortex-M4 or Cortex-M33 core with TrustZone. The RA6 Series supports full security integration, making these devices widely desired for security applications.

The RA4 Series bridges the needs of reasonably low power with the demand for connectivity. It offers up to 1MB Flash and a wide range of communication interfaces. The utilized core is the Cortex-M4 or Cortex-M33 with TrustZone and additional security IP integration. Memory densities range from 256KB Flash up to 1MB Flash. These devices provide a CPU frequency of up to 100MHz.

On the lower end is the RA2 Series, where the low power requirements of an application matter most for these device definitions. To achieve the best performance, special power-down modes are provided, making these devices well suited for battery-powered applications. The RA2 Series provides memory densities of up to 256KB embedded Flash and a wide single voltage supply range of 1.6 to 5.5V. These devices use the Cortex-M23 core at up to 48MHz.



# Target Applications and Markets

The Renesas RA Family targets various application fields. Due to its scalability, the RA Family offers parts which cover many different applications and customer needs.

The feature set of the Renesas RA Family is well suited for industrial applications due to its long product life with the 105° Celsius support. With dedicated analog feature integration like ADC, PGA, and comparators, combined with powerful and flexible timers, the RA Family is an ideal fit for motor control applications.

Features like connectivity peripherals, hardware-accelerated cryptography, and scalability make the whole RA Family a perfect fit for a customer within the Connectivity as well as the Building Automation application area.

Customers with Electricity Metering applications will like the scalability and long product life of the RA Family, in addition to the on-chip Secure Crypto Engine.

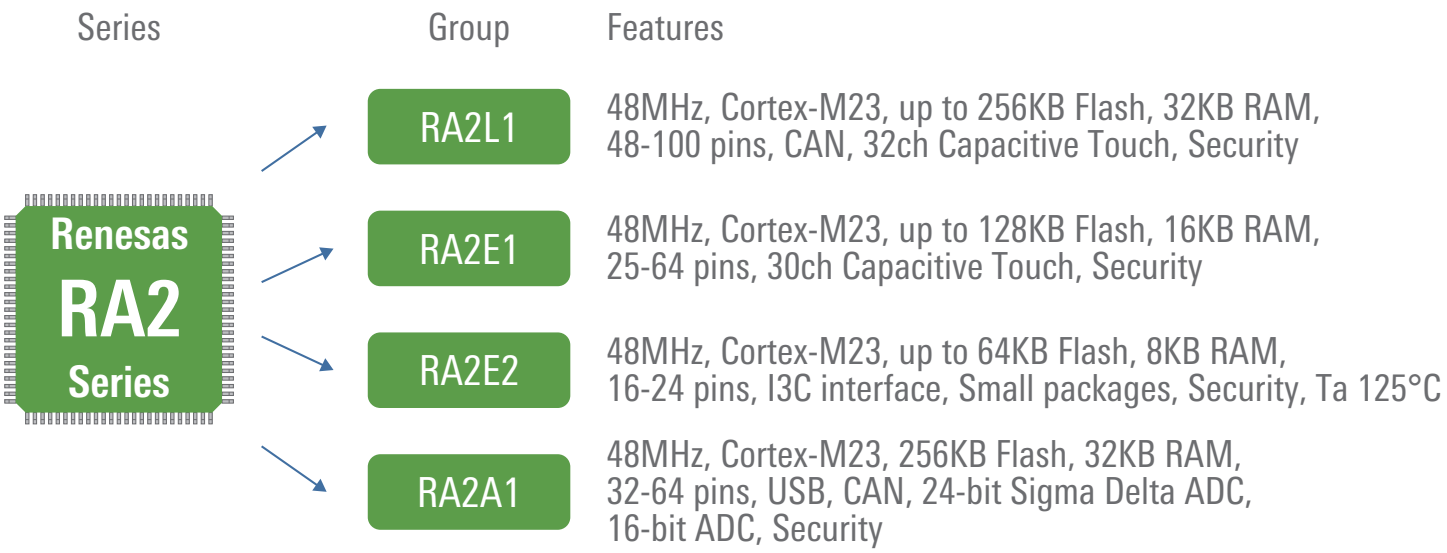
The integrated Capacitive Touch interface, combined with the scalability of the RA Family, make the RA Family an ideal fit for white goods applications, enabling innovative HMI designs.

| | Best Suitable Product Series | Application Examples | |
|---|---|---|---|
| Industrial Automation | RA2, RA4, RA6 | ▪ Robotics<br>▪ Door Openers<br>▪ AC Drive | ▪ AC Servo<br>▪ UPS<br>▪ Functional Safety |
| Building Automation | RA2, RA4, RA6 | ▪ Fire Panels<br>▪ HVAC<br>▪ Boiler Control | ▪ Vending Machines<br>▪ Motion Detection<br>▪ Monitoring Systems |
| Metering | RA4, RA6 | ▪ Electricity Meters<br>▪ Automated Meter Reading<br>▪ Network Cards | ▪ Flow Meters<br>▪ Power Meters |
| Home Appliance | RA2, RA4 | ▪ HVAC<br>▪ Air Cleaners<br>▪ Coffee Machines | ▪ Vacuum Cleaners<br>▪ Cleaning Robots<br>▪ White Goods |
| Connectivity | RA4, RA6 | ▪ ASi5 / IO-Link Gateways<br>▪ Communication Gateways<br>▪ Data Concentrators | ▪ Wired Ethernet<br>▪ Fleet Tracking |
| Security | RA4, RA6 | ▪ Fire Detectors<br>▪ Burglar Detection<br>▪ Panel Control | ▪ Door Openers<br>▪ Monitoring Systems<br>▪ Access Control |
| Motor Control | RA6 | ▪ Brushless DC Motors<br>▪ Induction Motors<br>▪ Stepper Motors | ▪ Magetic Encoders<br>▪ Optical Encoders<br>▪ Hall Sensors |
| Low Power | RA2, RA4 | ▪ IO-Link Sensors<br>▪ Heat Cost Allocators<br>▪ Portable Audio Devices | ▪ Smoke Detectors<br>▪ IoT Sensing Nodes<br>▪ Wearable Devices |
| HMI | RA2, RA6 | ▪ Voice Recognition<br>▪ Capacitive Touch Panels<br>▪ Printers | ▪ Vending Machines<br>▪ Home Appliances<br>▪ Medical Equipment |
| Wireless | RA4 | ▪ Wearable Devices<br>▪ Healthcare<br>▪ Panel Control | ▪ Gateway Units<br>▪ Door Openers<br>▪ Smart Home |

# RA2 Series

The RA2 Series is the RA Family's entry-level 32-bit MCU, offering excellent cost, performance, and ultra-low power consumption. It delivers up to 48MHz of CPU performance using an Arm® Cortex®-M23 core with up to 256KB of embedded flash memory and a wide single voltage supply range from 1.6V to 5.5V. With cutting-edge peripherals like high accuracy analog and capacitive touch sensing, the RA2 Series is ideal for system control or user interface applications such as healthcare devices, home appliances, office equipment, and measuring equipment.

## RA2 Series Product Groups




## RA2 Series Benefits

- Large product lineup is starting with 16 pin up to 100 pin and Flash memory size starting from 16KB up to 128KB, including some very small package options, including QFN, LGA, BGA and smallest WLCSP
- Best-in class Active/Standby power consumption for Arm® Cortex®-M23 microcontroller
- On-chip analog components include a high accuracy 16-bit ADC, 24-bit sigma-delta ADC, fast response 12-bit DAC, rail-to-rail low-offset operational amplifiers, and high-speed/low-power comparators
- Reduced cost with on-chip peripheral functions, including high precision (1.0%) high-speed oscillator, temperature sensor, multiple power supply interface ports, analog elements and background operation data flash supporting 1 million erase/program cycles
- Enhanced capacitive touch sensing unit (CTSU) with high sensitivity and high noise immunity that realizes intuitive, high-quality HMI designs
- Various communication interfaces such as USB, CAN and I3C, which support IoT applications

## RA4 Series

The RA4 Series bridges the need for reasonable low power with the demand for connectivity and performance. These MCUs deliver up to 100MHz of CPU performance using an Arm® Cortex®-M33 core or M4 core with up to 1MB of embedded flash memory. The series offers a wide set of peripherals, including USB, CAN, ADC, Bluetooth Low Energy 5.0, capacitive touch, segment LCD controller, and additional security IP integration, making it suitable for IoT, industrial equipment, home appliances, office equipment, healthcare products, and meters.

### RA4 Series Product Groups

| Series | Group | Features |
|---|---|---|
| RA4 Series | RA4M1 | 48MHz, Cortex-M4, 256KB Flash, 32KB RAM, 40-100 pins, USB, CAN, Security |
| | RA4M2 | 100MHz, Cortex-M33, up to 512KB Flash, 128KB RAM, 48-100 pins, USB, CAN, Advanced Security with TrustZone |
| | RA4M3 | 100MHz, Cortex-M33, up to 1MB Flash, 128KB RAM, 64-144 pins, USB, CAN, Advanced Security with TrustZone |
| | RA4E1 | 100MHz, Cortex-M33, up to 512KB Flash, 128KB RAM, 48-64 pins, USB, CAN, TrustZone |
| | RA4W1 | 48MHz, Cortex-M4, 512KB Flash, 96KB RAM, QFN56, Bluetooth 5.0, USB, CAN, Security |

### RA4 Series Benefits

- Secure element functionality providing better performance, unlimited secure key storage, key management, and lower BOM cost
- High-performance and low power at the same time with 81µA/MHz while running the CoreMark® algorithm from flash at 100MHz
- High-integration up to 1MB code flash memory with background operation and flash block SWAP operation for flexible and memory optimized firmware updates, 8KB data flash memory, and 128KB SRAM with Parity/ECC
- Rich connectivity with Bluetooth 5.0, USB 2.0 Full-Speed, CAN, SDHI, QSPI, and advanced analog

## RA6 Series

The RA6 Series offers the widest integration of communication interfaces as well as the best performance level. These MCUs aim for up to 240MHz of CPU performance using an Arm® Cortex®-M4 or M33 core and a memory range from 256KB to 2MB Flash. The series offers Ethernet, USB Full Speed and High Speed, QSPI, OctaSPI, CAN/CAN FD, and TFT display driver integration. The embedded Secure Crypto Engine is full of features you can leverage in your higher-level solutions with secure element services. The RA6 Series addresses a broad range of applications for IoT endpoints such as white goods, meters, and other industrial and consumer applications.

### RA6 Series Product Groups

| Series | Group | Features |
|---|---|---|
| RA6 Series | RA6M1 | 120MHz, Cortex-M4, 512KB Flash, 256KB RAM, 64-100 pins, USB, CAN, Security |
| | RA6M2 | 120MHz, Cortex-M4, up to 1MB Flash, 384KB RAM, 100-145 pins, USB, CAN, Ethernet, Security |
| | RA6M3 | 120MHz, Cortex-M4, up to 2MB Flash, 640KB RAM, 100-176 pins, USB, CAN, Ethernet with IEEE 1588 PTP Control, TFT, Security |
| | RA6M4 | 200MHz, Cortex-M33, up to 1MB Flash, 256KB RAM, 64-144 pins, USB, CAN, Ethernet, OctaSPI, Advanced Security with TrustZone |
| | RA6M5 | 200MHz, Cortex-M33, up to 2MB Flash, 512KB RAM, 100-176 pins, USB, CAN FD, Ethernet, OctaSPI, Advanced Security with TrustZone |
| | RA6E1 | 200MHz, Cortex-M33, up to 1MB Flash, 256KB RAM, 48-100 pins, USB, CAN, Ethernet, TrustZone |
| | RA6T1 | 120MHz, Cortex-M4, up to 512KB Flash, 64KB RAM, 64-100 pins, USB, CAN, ADC with S/H, Timer, PGA, High Speed Comparators |

### RA6 Series Benefits

- Secure element functionality providing better performance, unlimited secure key storage, key management, and lower BOM cost
- High-performance and low-power with 99µA/MHz while running the CoreMark® algorithm from flash at 200MHz
- High-integration up to 2MB code flash memory with background operation, Dual-bank, and flash block SWAP operation for extremely flexible and memory optimized firmware updates, 8KB Data flash memory, and 512KB SRAM with Parity/ECC
- Rich connectivity with Ethernet MAC controller, CAN FD, USB 2.0 High-Speed and Full-Speed, SDHI, Quad and Octa SPI, and advanced analog with three sample and hold per ADC, PGA and high-speed comparators

## Functional Safety Solution for Industrial Automation

In the industrial equipment field, the importance of "functional safety," which aims to maintain safety even when malfunctions occur, is increasingly recognized as a way to prevent the adverse effect of breakdowns and accidents on plant operation, the adverse effect of injuries to personnel on society, and the associated economic losses.

The European Union's Machinery Directive requires that equipment meet functional safety standards.

In response to the need for functional safety certification in a range of industrial fields, Renesas provides an RA Functional Safety Library designed to reduce the burden on customers at the development and functional safety certification stages.

This RA Functional Safety Library consists of the Self-diagnostic library itself, a safety manual, and a user guide that includes IEC 61508 SIL3 certification document by TÜV Rheinland.

## IEC 60730 Safety Classes Support

The IEC/UL 60730 is the harmonized safety standard for household appliances.

It describes requirements for automatic controls including heating and air-conditioning applications. Renesas offers for the RA Family a self-test library to fulfill Class B requirements of the IEC 60730 standard, as this is the most commonly used requirement.

The related Appendix H lists all the specific faults that must be tested and details the need to place the equipment into a safe state for any single point failure.

In response to the need of designing IEC/UL 60730 certified applications, Renesas provides an RA Family IEC 60730 Self-Test Library designed to reduce the burden on customers developing their own solutions. The package comes with the sample code and the certification done by VDE.

## Integrated Hardware-based Security

In the rapidly growing area of IoT and highly-connected devices, increasing consumer awareness and government legislation is forcing embedded device manufacturers to take the topic of security seriously.  Already under the constraints of needing to create cost- and energy-efficient solutions, developers nowadays are required to design and implement security with limited additional time and budget.

The RA Family was designed with security in mind, with scalable hardware-based security features including:

- Isolated cryptographic operations with integrated Secure Crypto Engines
- Unlimited secure key storage
- Hardware-enforced isolation using Arm® TrustZone® technology
- Side-channel protections available

The Flexible Software Package provides integrated, easy-to-configure support for these features, and a collection of Application Projects enables you to easily incorporate them into your design.

The RA Family has achieved the following certifications, providing assurance of these security capabilities and giving you confidence in your product's security.

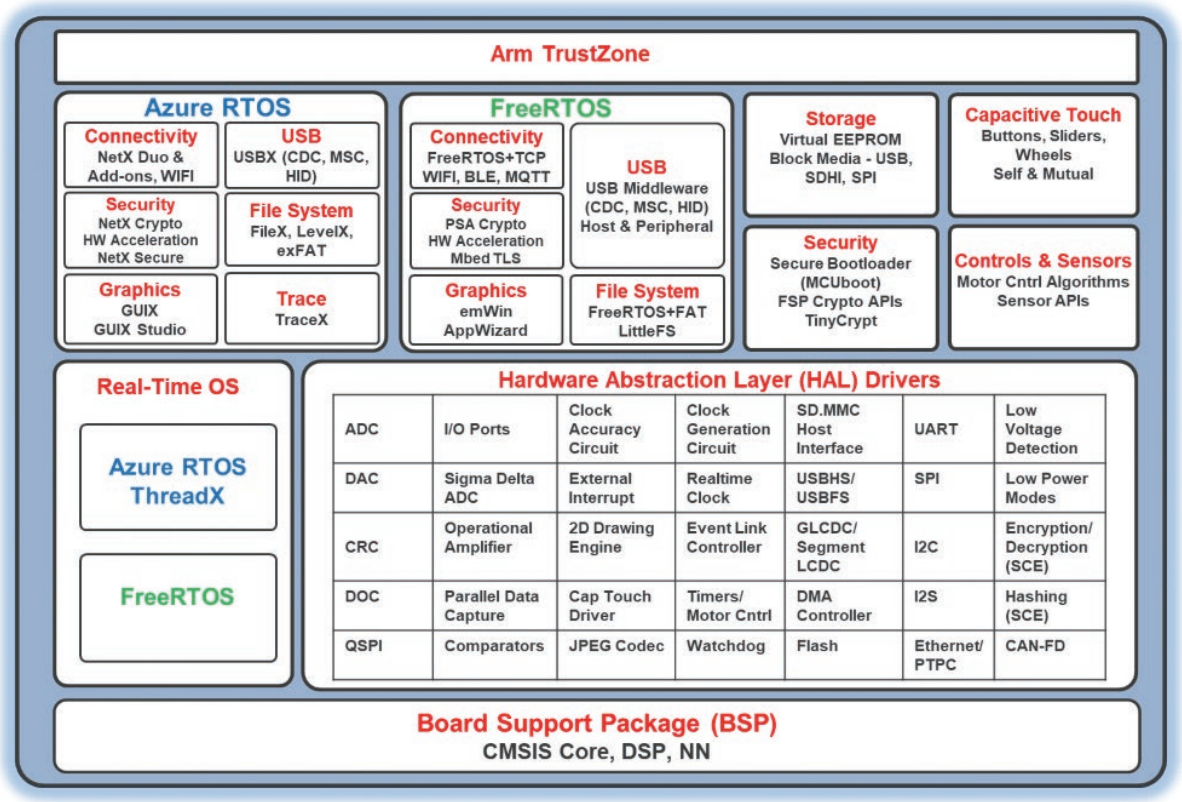
- PSA Certified Level 1 and Level 2
- SESIP
- NIST CAVP

# Flexible Software Package

The Renesas Flexible Software Package (FSP) is an enhanced software package designed to provide easy-to-use, scalable, high-quality software for embedded system designs using Renesas RA Family Microcontrollers. With the support of new Arm® TrustZone® and other advanced security features, FSP provides a quick and versatile way to build secure, connected IoT devices using production-ready drivers, Azure® RTOS, FreeRTOS™, and other middleware stacks.

FSP uses an open software ecosystem and provides flexibility in using bare-metal programming, included Azure RTOS or FreeRTOS, your preferred RTOS, legacy code, and third-party ecosystem solutions.

The combination of the flexible open architecture of the FSP plus the wide choice of 3rd party solutions as part of the Arm ecosystem increases the range of choice for application development. This means that developers can choose the software model that best suits their needs while utilizing Renesas's excellent Arm-based silicon solutions as well as speed up the implementation time of complex areas like connectivity and security.




## Benefits

- Provides an easy-to-use, scalable, high-quality software for embedded system designs using the Renesas RA Family of Arm microcontrollers
- Includes best-in-class HAL drivers with high performance and low memory footprint
- Middleware stacks with Azure RTOS and FreeRTOS integration are included to ease the implementation of complex modules like communication and security
- The e² studio IDE provides support with intuitive configurators and intelligent code generation to make programming and debugging easier and faster
- Uses an open software ecosystem and provides flexibility in using bare-metal programming, included Azure RTOS and FreeRTOS, your preferred RTOS, legacy code, and third-party ecosystem solutions
- Integrated package with all required components for easy setup and starting development (single installer with e² studio, CMSIS packs, tool chain and Segger J-Link drivers)
- Complete source code available through GitHub

# Development Environment

The RA family development environment offers flexibility in terms of different supported on-chip debuggers, IDEs, and compilers. Customers can use the Renesas e² studio, Keil MDK and IAR Embedded Workbench. All tools can use the RA configurators for FSP driver and middleware selection and configuration, in addition to pin mapping and clock tree configuration.

## Overview

| | Renesas e² studio | IAR Systems Embedded Workbench for Arm | Keil Microcontroller Development Kit |
|---|---|---|---|
| **Compilers** | - GCC v9 or later<br>- IAR v8.50 or later *<br>- Arm® v6.12 or later * | - IAR v8.50 or later * | - Arm v6.12 or later * |
| **Debugger probes** | - Renesas E2/E2 Lite<br>- SEGGER J-Link | - IAR I-Jet<br>- SEGGER J-Link | - SEGGER J-Link<br>- Keil ULINK (limited support) |
| **Smart Configurator** | Built-in<br>- BSP<br>- Clock<br>- Pin<br>- Drivers<br>- Interrupts | Supplied as RASC<br>- BSP<br>- Clock<br>- Pin<br>- Drivers<br>- Interrupts | Supplied as RASC<br>- BSP<br>- Clock<br>- Pin<br>- Drivers<br>- Interrupts |
| **Application specific configurator** | - QE for Capacitive Touch<br>- QE for BLE<br>- QE for AFE<br>- Motor Control Workbench | Under consideration | Under consideration |

*: Compiler needs to be purchased and licensed directly from third-party.

## Benefits

The eclipse-based e² studio along with a GCC compiler and SEGGER J-Link debugger is the primary development solution for RA MCUs and Flexible Software Package (FSP). e² studio offers a complete development flow from initial project generators, graphical FSP configuration and comprehensive debugger options.

As the RA MCU family includes TrustZone-enabled devices, new configuration options ensure that a development engineer can concentrate on the application rather than the underlying technology.

Renesas recognizes that Arm based MCUs benefit from a wide ecosystem, so we have worked with Keil and IAR Systems to develop the RA Smart Configurator (RASC) that inherits all the FSP configurator options from e² studio to extend the rich development options into the MDK and EWARM IDEs. To complement the powerful SEGGER J-Link probes, RA MCUs have been ported to the Renesas E2 and E2 Lite debuggers.

Production programming options are available from Renesas (RFP and PG-FP6) in addition to numerous third-party solutions such as SEGGER Flasher. Please contact your preferred partner to request RA production device programing support.

# Development Boards

RA MCU development boards come in three different flavors. The Evaluation Kit (EK), referred to as "Regular" board provides the best platform to discover and develop using all features of the selected RA MCU group. The "Special" category offers solution kits supporting specific features of the selected MCU, like motor control and capacitive touch. The third category which is listed as "Entry" features the Fast Prototyping Board (FPB) which offers a very low cost option to get started with the RA Family without compromise. All development boards enable users to effortlessly evaluate the features of different RA MCU Groups and develop embedded systems applications using the Flexible Software Package (FSP) and e² studio IDE. Users can utilize rich on-board features along with their choice of popular ecosystem add-ons to bring their big ideas to life.

## Overview

| Series | Group | Kit Name | Category | MP Kit Orderable Part Number |
|---|---|---|---|---|
| RA6 | RA6M5 | EK-RA6M5 | Regular | RTK7EKA6M5S00001BE |
| | RA6M4 | EK-RA6M4 | Regular | RTK7EKA6M4S00001BE |
| | RA6M3 | EK-RA6M3 | Regular | RTK7EKA6M3S00001BU |
| | | EK-RA6M3G | Regular | RTK7EKA6M3S01001BU |
| | RA6T1 | RA6T1 Motor RSSK | Special | RTK0EMA170S00020BJ |
| | RA6M2 | EK-RA6M2 | Regular | RTK7EKA6M2S00001BU |
| | | RA6M2 Touch RSSK | Special | RTK0EG0021S01001BJ |
| | RA6M1 | EK-RA6M1 | Regular | RTK7EKA6M1S00001BU |
| | RA6E1 | FPB-RA6E1 | Entry | RTK7FPA6E1S00001BE |

| Series | Group | Kit Name | Category | MP Kit Orderable Part Number |
|---|---|---|---|---|
| RA4 | RA4M3 | EK-RA4M3 | Regular | RTK7EKA4M3S00001BE |
| | RA4M2 | EK-RA4M2 | Regular | RTK7EKA4M2S00001BE |
| | RA4M1 | EK-RA4M1 | Regular | RTK7EKA4M1S00001BU |
| | RA4W1 | EK-RA4W1 | Regular | RTK7EKA4W1S00000BJ |
| | RA4E1 | FPB-RA4E1 | Entry | RTK7FPA4E1S00001BE |
| RA2 | RA2A1 | EK-RA2A1 | Regular | RTK7EKA2A1S00001BU |
| | RA2E1 | EK-RA2E1 | Regular | RTK7EKA2E1S00001BE |
| | | FPB-RA2E1 | Entry | RTK7FPA2E1S00001BE |
| | RA2L1 | EK-RA2L1 | Regular | RTK7EKA2L1S00001BE |
| | | RA2L1 Touch RSSK | Special | RTK0EG0022S01001BJ |
| | RA2E2 | EK-RA2E2 | Regular | RTK7EKA2E2S00001BE |

## Key Features

### Ecosystem and System Control Access

- USB Full Speed Host & Device
- Multiple Power Sources, 2A max. LDO Current
- Multiple Debug Modes (On-board, Out, In)
- Multiple User LEDs and Buttons
- Popular Ecosystem Expansion Connectors
  - MikroElektronika™ mikroBUS, SparkFun® Qwiic®, SeeedGrove® system, Digilent Pmod™
- Boot Configuration

### Special Feature Access

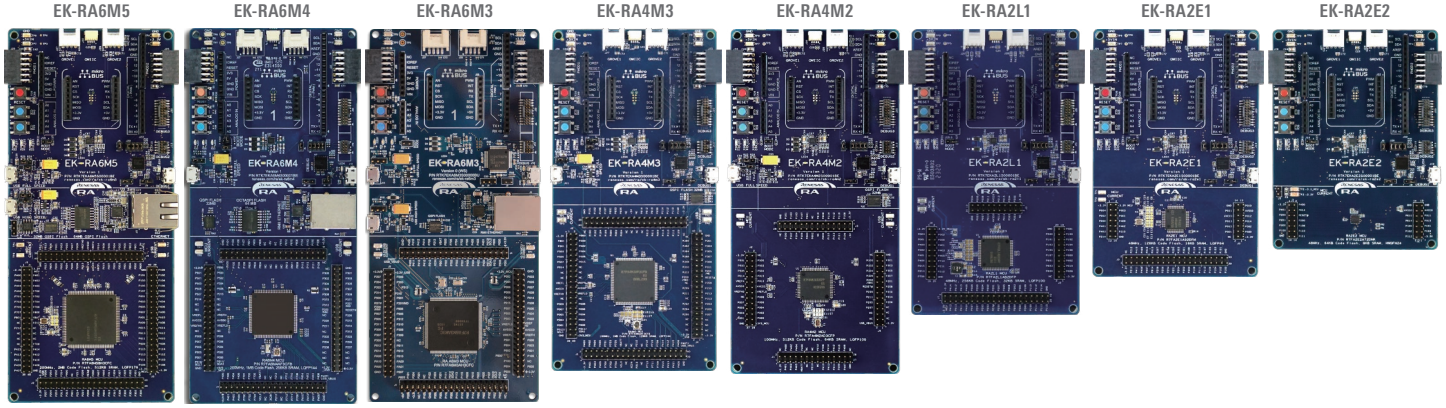
- Ethernet
- Octo-SPI and Quad-SPI
- CAN Flexible Data-rate (FD)
- USB High-Speed Host & Device

### Native MCU Pin Access

- RA MCU
- Prototyping-Friendly Male Pin Headers
- MCU Current Consumption
- USB Current Consumption

## Benefits

The kits are based on a novel architecture that provides an unparalleled combination of standardization and flexibility. The kit design helps users shorten the learning curve and accelerate development, providing more time for differentiating innovation or taking products to market faster. The kits also feature multiple debugging modes that allow users to debug the RA microcontroller on the kit or their custom board. The kits are also compatible with popular ecosystems. The expansion ports allow users to conveniently enhance the functionality of the kits by simultaneously connecting several third-party add-ons to implement custom functionality necessary to put together a variety of sophisticated, real-world end-applications.




Examples of RA MCU Evaluation Kits

# RA Partners

Renesas enables a comprehensive partner ecosystem to deliver an array of software and hardware building blocks that will work out-of-the-box with Renesas RA Family MCUs. The Renesas RA ecosystem will help accelerate development of IoT applications, including core technologies such as security, safety, connectivity, and HMI among others.

## KEY TECHNOLOGIES

Security & Safety
Connectivity & Cloud
Artificial Intelligence & Machine Learning
Human Machine Interface
Sensing & Control
Application Specific/Emerging
Tools & User Experience

## STRATEGIC PARTNERSHIP

Develop Plug & Play S/W Building Blocks
Complement & Expand Renesas Offering
Accelerate Customer Development
Multi-Region Support

## GLOBAL ECOSYSTEM

## ENABLEMENT AT SCALE

Market Ready Promotion & Launches
Excellent Out-Of-Box Experience
Joint Promotion with Partners

## CUSTOMER CENTRICITY

Close Collaboration with Customers
Priority on Time-to-Market
Market Driven Use Cases
Focus on Problem Solving

## Partner Overview

The partner overview shown might not be complete since the partner network is extending almost daily. For best reference and latest data we recommend checking our webpage at:
www.renesas.com/ra-partners

**Security & Safety**
Cypherbridge, SMARTAXIOM, SEGGER, Veridify Security, Ubiquitous AI Corporation, 0x5 HEX-Five, eps, wolfSSL, Crypto Quantique, IAR SYSTEMS, SECURE THINGZ, Orchestrating a brighter world NEC, ECO-LUX

**Connectivity & Cloud**
reloc, Microsoft Azure, silex technology, AltoBeam, one, Proassist, Alibaba Cloud, AliOS Things, pelion an arm company, clarinox, HUAWEI, Ubiquitous AI Corporation

**Artificial Intelligence (AI)**
ignitarium Spark On., Qeexo, one

**Human Machine Interface (HMI)**
NEWTECH INTL SOL, sensory, Cyberon Leading Speech Solution Provider, HGI, DSP CONCEPTS, Algorithm Specialist TMC, Advanced Media, Inc., FDI, Pachira, SEGGER, Qt, TES Electronic Solutions, TOSHIBA, CapExt, TOUCH, 文曜科技, CRIWARE, KDDI, KDDI Research

**Sensing & Control**
BFG ENGINEERING, Desk Top Lab

**Application Specific/Emerging**
NTX Embedded, ORBSTAR, Serious, TATA ELXSI, GT&T, MBS, SWI SYS, CS Lab create software, pelion an arm company

**Tools & User Experience**
SEGGER, CapExt, RTOS, DTS INSIGHT, AlphaProject, arm KEIL, MINATO, Flash Support Group, eForce, uQuest, IAR SYSTEMS, SECURE THINGZ, percepio, GRAPE SYSTEMS, HOKUTO ELECTRONIC, asmis, KMC, Ubiquitous AI Corporation, MIKROE

# RA Family Selection Guide

| Series | Group | Orderable Part Number | CPU | Max. Freq (MHz) | Code Flash (KB) | Data Flash (KB) | SRAM (KB) | Package Type | Pin Count | I/O Ports | Operating Voltage Range (V) | Operating Temperature Range (°C) | System | | | | Timers | | | | | | | Analog | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | External Memory Bus (bit) | Floating Point Unit | DMA/ DTC | External Interrupt Pins | 32-bit High Res Timer (ch) | 32-bit Enhanced Timer (ch) | 32-bit GP Timer (ch) | 16-bit Timer | AGT | WDT | RTC | 24-bit Sigma-Delta ADC (ch) | 16-bit ADC (ch) | 14-bit ADC (ch) | 12-bit ADC (ch) | 12-bit DAC (ch) | 8-bit DAC (ch) |
| RA2 | RA2A1 | R7FA2A1AB2CBT#AC0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | BGA | 36 | 22 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 3 | 2 | 2 | Yes | 2 | 5 | 0 | 0 | 1 | 2 |
| | | R7FA2A1AB3CFJ#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 32 | 20 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 4 | 2 | 2 | Yes | 2 | 5 | 0 | 0 | 1 | 2 |
| | | R7FA2A1AB3CFM#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 64 | 49 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 8 | 17 | 0 | 0 | 1 | 2 |
| | | R7FA2A1AB3CNE#AC0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | QFN | 48 | 33 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 6 | 12 | 0 | 0 | 1 | 2 |
| | | R7FA2A1AB3CNF#AC0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | QFN | 40 | 25 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 4 | 2 | 2 | Yes | 4 | 8 | 0 | 0 | 1 | 2 |
| | RA2L1 | R7FA2L1AB3CFP#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 100 | 85 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 1 | 0 |
| | | R7FA2L1AB3CFN#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 80 | 69 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 17 | 1 | 0 |
| | | R7FA2L1AB3CFM#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 64 | 53 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1AB3CFL#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 48 | 37 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1AB3CNE#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | QFN | 48 | 37 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1A93CFP#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 100 | 85 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 1 | 0 |
| | | R7FA2L1A93CFN#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 80 | 69 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 17 | 1 | 0 |
| | | R7FA2L1A93CFM#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 64 | 53 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1A93CFL#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 48 | 37 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1A93CNE#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | QFN | 48 | 37 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1AB2DFP#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 100 | 85 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 1 | 0 |
| | | R7FA2L1AB2DFN#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 80 | 69 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 17 | 1 | 0 |
| | | R7FA2L1AB2DFM#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 64 | 53 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1AB2DFL#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | LQFP | 48 | 37 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1AB2DNE#AA0 | Arm Cortex-M23 | 48 | 256 | 8 | 32 | QFN | 48 | 37 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1A92DFP#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 100 | 85 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 1 | 0 |
| | | R7FA2L1A92DFN#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 80 | 69 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 17 | 1 | 0 |
| | | R7FA2L1A92DFM#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 64 | 53 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1A92DFL#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | LQFP | 48 | 37 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | | R7FA2L1A92DNE#AA0 | Arm Cortex-M23 | 48 | 128 | 8 | 32 | QFN | 48 | 37 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 1 | 0 |
| | RA2E1 | R7FA2E1A93CFM#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A93CFK#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A93CFL#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 48 | 40 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A93CNE#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | QFN | 48 | 40 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A93CFJ#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 32 | 26 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A93CNH#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | QFN | 32 | 26 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A93CBU#AC0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | BGA | 64 | 56 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A93CLM#AC0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LGA | 36 | 30 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 6 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 12 | 0 | 0 |
| | | R7FA2E1A93CBV#HC0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | WLCSP | 25 | 25 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 7 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E1A73CFM#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A73CFK#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A73CFL#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 48 | 40 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A73CNE#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | QFN | 48 | 40 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A73CFJ#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 32 | 26 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A73CNH#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | QFN | 32 | 26 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A73CBU#AC0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | BGA | 64 | 56 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A73CLM#AC0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LGA | 36 | 30 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 6 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 12 | 0 | 0 |
| | | R7FA2E1A73CBV#HC0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | WLCSP | 25 | 25 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 7 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E1A53CFL#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | LQFP | 48 | 40 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A53CNE#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | QFN | 48 | 40 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A53CFJ#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | LQFP | 32 | 26 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A53CNH#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | QFN | 32 | 26 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A53CLM#AC0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | LGA | 36 | 30 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 6 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 12 | 0 | 0 |
| | | R7FA2E1A53CBV#HC0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | WLCSP | 25 | 21 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 7 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E1A92DFM#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A92DFK#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A92DFL#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 48 | 40 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A92DNE#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | QFN | 48 | 40 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A92DFJ#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LQFP | 32 | 26 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A92DNH#AA0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | QFN | 32 | 26 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A92DBU#AC0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | BGA | 64 | 56 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A92DLM#AC0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | LGA | 36 | 30 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 6 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 12 | 0 | 0 |
| | | R7FA2E1A92DBV#HC0 | Arm Cortex-M23 | 48 | 128 | 4 | 16 | WLCSP | 25 | 25 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 7 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E1A72DFM#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A72DFK#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 64 | 56 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A72DFL#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 48 | 40 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A72DNE#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | QFN | 48 | 40 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A72DFJ#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LQFP | 32 | 26 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A72DNH#AA0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | QFN | 32 | 26 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A72DBU#AC0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | BGA | 64 | 56 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A72DLM#AC0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | LGA | 36 | 30 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 6 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 12 | 0 | 0 |
| | | R7FA2E1A72DBV#HC0 | Arm Cortex-M23 | 48 | 64 | 4 | 16 | WLCSP | 25 | 25 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 7 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E1A52DFL#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | LQFP | 48 | 40 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A52DNE#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | QFN | 48 | 40 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 13 | 0 | 0 |
| | | R7FA2E1A52DFJ#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | LQFP | 32 | 26 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A52DNH#AA0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | QFN | 32 | 26 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 4 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 0 | 0 |
| | | R7FA2E1A52DLM#AC0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | LGA | 36 | 30 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 6 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 12 | 0 | 0 |
| | | R7FA2E1A52DBV#HC0 | Arm Cortex-M23 | 48 | 32 | 4 | 16 | WLCSP | 25 | 21 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 7 | 0 | 0 | 1 | 6 | 2 | 2 | Yes | 0 | 0 | 0 | 8 | 0 | 0 |
| | RA2E2 | R7FA2E2A32DBY#HC0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A32DNJ#AA0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A32DNK#AA0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A33CBY#HC0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A33CNJ#AA0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A33CNK#AA0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A34CBY#HC0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A34CNJ#AA0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A34CNK#AA0 | Arm Cortex-M23 | 48 | 16 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A52DBY#HC0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A52DNJ#AA0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A52DNK#AA0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A53CBY#HC0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A53CNJ#AA0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A53CNK#AA0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A54CBY#HC0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A54CNJ#AA0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A54CNK#AA0 | Arm Cortex-M23 | 48 | 32 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A72DBY#HC0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A72DNJ#AA0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A72DNK#AA0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 85 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A73CBY#HC0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A73CNJ#AA0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A73CNK#AA0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 105 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |
| | | R7FA2E2A74CBY#HC0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | WLCSP | 16 | 12 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 4 | 0 | 0 |
| | | R7FA2E2A74CNJ#AA0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | HWQFN | 20 | 16 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 7 | 0 | 0 |
| | | R7FA2E2A74CNK#AA0 | Arm Cortex-M23 | 48 | 64 | 2 | 8 | HWQFN | 24 | 20 | 1.6 to 5.5 | -40 to 125 | No | No | 0/1 | 8 | 0 | 0 | 0 | 6 | 2 | 2 | No | 0 | 0 | 0 | 8 | 0 | 0 |

| Analog | | | | | Communication | | | | | | | | | | | | | | HMI | | | Security | | Suggested Kits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High-Speed Analog Comparator (ch) | Low-Power Analog Comparator (ch) | PGA (ch) | OPAMP (ch) | Temp. Sensor (ch) | Ethernet | USBFS (ch) | USBHS (ch) | CAN (ch) | CAN FD (ch) | SCI (ch) | SPI (ch) | I2C (ch) | I3C (ch) | SSI | QSPI | OSPI | SDHI | IrDA | Wireless | Segment LCD | Graphic LCD | Capacitive Touch (ch) | ECC SRAM | Encryption | |
| 1 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 9 | Yes | | |
| 1 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/256) | EK-RA2A1 |
| 1 | 2 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 26 | Yes | | |
| 1 | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 16 | Yes | | |
| 1 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/256) | EK-RA2L1 |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 32 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | Yes | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | 128-bit Unique ID<br>TRNG<br>AES(128/256) | EK-RA2E1 |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 30 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 20 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 11 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 14 | No | | |
| 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | 128-bit Unique ID<br>TRNG<br>AES(128/256) | EK-RA2E2 |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | No | No | No | No | No | No | | |

# RA Family Selection Guide

| Series | Group | Orderable Part Number | CPU | Max. Freq (MHz) | Code Flash (KB) | Data Flash (KB) | SRAM (KB) | Package Type | Pin Count | I/O Ports | Operating Voltage Range (V) | Operating Temperature Range (°C) | System | | | | Timers | | | | | | | Analog | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | External Memory Bus (bit) | Floating Point Unit | DMA/ DTC | External Interrupt Pins | 32-bit High Res Timer (ch) | 32-bit Enhanced Timer (ch) | 32-bit GP Timer (ch) | 16-bit Timer | AGT | WDT | RTC | 24-bit Sigma-Delta ADC (ch) | 16-bit ADC (ch) | 14-bit ADC (ch) | 12-bit ADC (ch) | 12-bit DAC (ch) | 8-bit DAC (ch) |
| RA4 | RA4M1 | R7FA4M1AB2CLJ#AC0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | LGA | 100 | 84 | 1.6 to 5.5 | -40 to 85 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 6 | 2 | 2 | Yes | 0 | 0 | 25 | 0 | 1 | 2 |
| | | R7FA4M1AB3CFL#AA0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | LQFP | 48 | 36 | 1.6 to 5.5 | -40 to 105 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 4 | 0 | 2 | Yes | 0 | 0 | 14 | 0 | 1 | 2 |
| | | R7FA4M1AB3CFM#AA0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | LQFP | 64 | 52 | 1.6 to 5.5 | -40 to 105 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 6 | 2 | 2 | Yes | 0 | 0 | 18 | 0 | 1 | 2 |
| | | R7FA4M1AB3CFP#AA0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | LQFP | 100 | 84 | 1.6 to 5.5 | -40 to 105 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 6 | 2 | 2 | Yes | 0 | 0 | 25 | 0 | 1 | 2 |
| | | R7FA4M1AB3CNB#AC0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | QFN | 64 | 52 | 1.6 to 5.5 | -40 to 105 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 6 | 2 | 2 | Yes | 0 | 0 | 18 | 0 | 1 | 2 |
| | | R7FA4M1AB3CNE#AC0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | QFN | 48 | 36 | 1.6 to 5.5 | -40 to 105 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 4 | 0 | 2 | Yes | 0 | 0 | 14 | 0 | 1 | 2 |
| | | R7FA4M1AB3CNF#AC0 | Arm Cortex-M4 | 48 | 256 | 8 | 32 | QFN | 40 | 28 | 1.6 to 5.5 | -40 to 105 | No | Single | 4/1 | 15 | 0 | 0 | 2 | 2 | 0 | 2 | Yes | 0 | 0 | 11 | 0 | 1 | 2 |
| | RA4W1 | R7FA4W1AD2CNG#AA0 | Arm Cortex-M4 | 48 | 512 | 8 | 96 | QFN | 56 | 34 | 1.8 to 3.6 | -40 to 85 | No | Single | 4/1 | 12 | 0 | 0 | 4 | 3 | 2 | 2 | Yes | 0 | 0 | 8 | 0 | 1 | 2 |
| | RA4M2 | R7FA4M2AD3CFP#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 128 | LQFP | 100 | 78 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 12 | 2 | 0 |
| | | R7FA4M2AD3CFM#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 128 | LQFP | 64 | 44 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 7 | 2 | 0 |
| | | R7FA4M2AD3CFL#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 128 | LQFP | 48 | 30 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 4 | 2 | 0 |
| | | R7FA4M2AD3CNE#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 128 | QFN | 48 | 30 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 4 | 2 | 0 |
| | | R7FA4M2AC3CFP#AA0 | Arm Cortex-M33 | 100 | 384 | 8 | 128 | LQFP | 100 | 78 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 12 | 2 | 0 |
| | | R7FA4M2AC3CFM#AA0 | Arm Cortex-M33 | 100 | 384 | 8 | 128 | LQFP | 64 | 44 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 7 | 2 | 0 |
| | | R7FA4M2AC3CFL#AA0 | Arm Cortex-M33 | 100 | 384 | 8 | 128 | LQFP | 48 | 30 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 4 | 2 | 0 |
| | | R7FA4M2AC3CNE#AA0 | Arm Cortex-M33 | 100 | 384 | 8 | 128 | QFN | 48 | 30 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 4 | 2 | 0 |
| | | R7FA4M2AB3CFP#AA0 | Arm Cortex-M33 | 100 | 256 | 8 | 128 | LQFP | 100 | 78 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 12 | 2 | 0 |
| | | R7FA4M2AB3CFM#AA0 | Arm Cortex-M33 | 100 | 256 | 8 | 128 | LQFP | 64 | 44 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 7 | 2 | 0 |
| | | R7FA4M2AB3CFL#AA0 | Arm Cortex-M33 | 100 | 256 | 8 | 128 | LQFP | 48 | 30 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 4 | 2 | 0 |
| | | R7FA4M2AB3CNE#AA0 | Arm Cortex-M33 | 100 | 256 | 8 | 128 | QFN | 48 | 30 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 4 | 2 | 0 |
| | RA4M3 | R7FA4M3AF3CFB#AA0 | Arm Cortex-M33 | 100 | 1024 | 8 | 256 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA4M3AF3CFP#AA0 | Arm Cortex-M33 | 100 | 1024 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA4M3AF3CFM#AA0 | Arm Cortex-M33 | 100 | 1024 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 2 | 0 |
| | | R7FA4M3AE3CFB#AA0 | Arm Cortex-M33 | 100 | 768 | 8 | 256 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA4M3AE3CFP#AA0 | Arm Cortex-M33 | 100 | 768 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA4M3AE3CFM#AA0 | Arm Cortex-M33 | 100 | 768 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 2 | 0 |
| | | R7FA4M3AD3CFB#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 256 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | RA4E1 | R7FA4E10D2CFM#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 128 | LQFP | 64 | 44 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 2 | 5 | 2 | Yes | 0 | 0 | 0 | 9 | 1 | 0 |
| | | R7FA4E10D2CNE#AA0 | Arm Cortex-M33 | 100 | 512 | 8 | 128 | QFN | 48 | 30 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 2 | 5 | 2 | Yes | 0 | 0 | 0 | 7 | 1 | 0 |
| | | R7FA4E10B2CFM#AA0 | Arm Cortex-M33 | 100 | 256 | 8 | 128 | LQFP | 64 | 44 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 2 | 5 | 2 | Yes | 0 | 0 | 0 | 9 | 1 | 0 |
| | | R7FA4E10B2CNE#AA0 | Arm Cortex-M33 | 100 | 256 | 8 | 128 | QFN | 48 | 30 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 2 | 5 | 2 | Yes | 0 | 0 | 0 | 7 | 1 | 0 |
| RA6 | RA6M1 | R7FA6M1AD2CLJ#AC0 | Arm Cortex-M4 | 120 | 512 | 8 | 256 | LGA | 100 | 76 | 2.7 to 3.6 | -40 to 85 | 8 | Single | 8/1 | 14 | 4 | 4 | 5 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 2 | 0 |
| | | R7FA6M1AD3CFM#AA0 | Arm Cortex-M4 | 120 | 512 | 8 | 256 | LQFP | 64 | 40 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 14 | 4 | 3 | 4 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 2 | 0 |
| | | R7FA6M1AD3CFP#AA0 | Arm Cortex-M4 | 120 | 512 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 14 | 4 | 4 | 5 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 2 | 0 |
| | | R7FA6M1AD3CNB#AC0 | Arm Cortex-M4 | 120 | 512 | 8 | 256 | QFN | 64 | 40 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 14 | 4 | 3 | 4 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 10 | 2 | 0 |
| | RA6M2 | R7FA6M2AD2CLK#AC0 | Arm Cortex-M4 | 120 | 512 | 32 | 384 | LGA | 145 | 110 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M2AD3CFB#AA0 | Arm Cortex-M4 | 120 | 512 | 32 | 384 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M2AD3CFP#AA0 | Arm Cortex-M4 | 120 | 512 | 32 | 384 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 4 | 4 | 5 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 2 | 0 |
| | | R7FA6M2AF2CLK#AC0 | Arm Cortex-M4 | 120 | 1024 | 32 | 384 | LGA | 145 | 110 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M2AF3CFB#AA0 | Arm Cortex-M4 | 120 | 1024 | 32 | 384 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M2AF3CFP#AA0 | Arm Cortex-M4 | 120 | 1024 | 32 | 384 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 4 | 4 | 5 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 2 | 0 |
| | RA6M3 | R7FA6M3AF2CBG#AC0 | Arm Cortex-M4 | 120 | 1024 | 64 | 640 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 24 | 2 | 0 |
| | | R7FA6M3AF2CLK#AC0 | Arm Cortex-M4 | 120 | 1024 | 64 | 640 | LGA | 145 | 110 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M3AF3CFB#AA0 | Arm Cortex-M4 | 120 | 1024 | 64 | 640 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M3AF3CFC#AA0 | Arm Cortex-M4 | 120 | 1024 | 64 | 640 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 24 | 2 | 0 |
| | | R7FA6M3AF3CFP#AA0 | Arm Cortex-M4 | 120 | 1024 | 64 | 640 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 4 | 4 | 5 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 2 | 0 |
| | | R7FA6M3AH2CBG#AC0 | Arm Cortex-M4 | 120 | 2048 | 64 | 640 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 24 | 2 | 0 |
| | | R7FA6M3AH2CLK#AC0 | Arm Cortex-M4 | 120 | 2048 | 64 | 640 | LGA | 145 | 110 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M3AH3CFB#AA0 | Arm Cortex-M4 | 120 | 2048 | 64 | 640 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M3AH3CFC#AA0 | Arm Cortex-M4 | 120 | 2048 | 64 | 640 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 4 | 4 | 6 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 24 | 2 | 0 |
| | | R7FA6M3AH3CFP#AA0 | Arm Cortex-M4 | 120 | 2048 | 64 | 640 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 4 | 4 | 5 | 0 | 2 | 2 | Yes | 0 | 0 | 0 | 19 | 2 | 0 |
| | RA6M4 | R7FA6M4AD3CFM#AA0 | Arm Cortex-M33 | 200 | 512 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 2 | 0 |
| | | R7FA6M4AD3CFP#AA0 | Arm Cortex-M33 | 200 | 512 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M4AD3CFB#AA0 | Arm Cortex-M33 | 200 | 512 | 8 | 256 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M4AE3CFM#AA0 | Arm Cortex-M33 | 200 | 768 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 2 | 0 |
| | | R7FA6M4AE3CFP#AA0 | Arm Cortex-M33 | 200 | 768 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M4AE3CFB#AA0 | Arm Cortex-M33 | 200 | 768 | 8 | 256 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | | R7FA6M4AF3CFM#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 2 | 0 |
| | | R7FA6M4AF3CFP#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M4AF3CFB#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 256 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 22 | 2 | 0 |
| | RA6M5 | R7FA6M5AH2CBG#AC0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5AH3CFC#AA0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5AH3CFB#AA0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 25 | 2 | 0 |
| | | R7FA6M5AH3CFP#AA0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M5AG2CBG#AC0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5AG3CFC#AA0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5AG3CFB#AA0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 25 | 2 | 0 |
| | | R7FA6M5AG3CFP#AA0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M5BH2CBG#AC0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5BH3CFC#AA0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5BH3CFB#AA0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 25 | 2 | 0 |
| | | R7FA6M5BH3CFP#AA0 | Arm Cortex-M33 | 200 | 2048 | 8 | 512 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M5BG2CBG#AC0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5BG3CFC#AA0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5BG3CFB#AA0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 25 | 2 | 0 |
| | | R7FA6M5BG3CFP#AA0 | Arm Cortex-M33 | 200 | 1536 | 8 | 512 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | | R7FA6M5BF2CBG#AC0 | Arm Cortex-M33 | 200 | 1024 | 8 | 512 | BGA | 176 | 133 | 2.7 to 3.6 | -40 to 85 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5BF3CFC#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 512 | LQFP | 176 | 133 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 29 | 2 | 0 |
| | | R7FA6M5BF3CFB#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 512 | LQFP | 144 | 110 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 25 | 2 | 0 |
| | | R7FA6M5BF3CFP#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 512 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | 16/8 | Single | 8/1 | 16 | 0 | 0 | 4 | 6 | 6 | 2 | Yes | 0 | 0 | 0 | 20 | 2 | 0 |
| | RA6T1 | R7FA6T1AB3CFM#AA0 | Arm Cortex-M4 | 120 | 256 | 8 | 64 | LQFP | 64 | 40 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 14 | 4 | 3 | 4 | 0 | 2 | 2 | No | 0 | 0 | 0 | 10 | 2 | 0 |
| | | R7FA6T1AB3CFP#AA0 | Arm Cortex-M4 | 120 | 512 | 8 | 64 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 14 | 4 | 4 | 5 | 0 | 2 | 2 | No | 0 | 0 | 0 | 19 | 2 | 0 |
| | | R7FA6T1AD3CFM#AA0 | Arm Cortex-M4 | 120 | 256 | 8 | 64 | LQFP | 64 | 40 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 14 | 4 | 3 | 4 | 0 | 2 | 2 | No | 0 | 0 | 0 | 10 | 2 | 0 |
| | | R7FA6T1AD3CFP#AA0 | Arm Cortex-M4 | 120 | 512 | 8 | 64 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 105 | No | Single | 8/1 | 14 | 4 | 4 | 5 | 0 | 2 | 2 | No | 0 | 0 | 0 | 19 | 2 | 0 |
| | RA6E1 | R7FA6E10F2CFP#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 1 | 0 |
| | | R7FA6E10F2CFM#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 7 | 1 | 0 |
| | | R7FA6E10F2CNE#AA0 | Arm Cortex-M33 | 200 | 1024 | 8 | 256 | QFN | 48 | 28 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 1 | 3 | 6 | 2 | Yes | 0 | 0 | 0 | 5 | 1 | 0 |
| | | R7FA6E10D2CFP#AA0 | Arm Cortex-M33 | 200 | 512 | 8 | 256 | LQFP | 100 | 76 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 11 | 1 | 0 |
| | | R7FA6E10D2CFM#AA0 | Arm Cortex-M33 | 200 | 512 | 8 | 256 | LQFP | 64 | 42 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 2 | 4 | 6 | 2 | Yes | 0 | 0 | 0 | 7 | 1 | 0 |
| | | R7FA6E10D2CNE#AA0 | Arm Cortex-M33 | 200 | 512 | 8 | 256 | QFN | 48 | 28 | 2.7 to 3.6 | -40 to 85 | No | Single | 8/1 | 16 | 0 | 0 | 1 | 3 | 6 | 2 | Yes | 0 | 0 | 0 | 5 | 1 | 0 |

| Analog | | | | | Communication | | | | | | | | | | | | | | HMI | | | Security | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High-Speed Analog Comparator (ch) | Low-Power Analog Comparator (ch) | PGA (ch) | OPAMP (ch) | Temp. Sensor (ch) | Ethernet | USBFS (ch) | USBHS (ch) | CAN (ch) | CAN FD (ch) | SCI (ch) | SPI (ch) | I2C (ch) | I3C (ch) | SSI | QSPI | OSPI | SDHI | IrDA | Wireless | Segment LCD | Graphic LCD | Capacitive Touch (ch) | ECC SRAM | Encryption | Suggested Kits |
| 0 | 2 | 0 | 4 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | No | No | Yes | No | 27 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/256)<br>GHASH | EK-RA4M1 |
| 0 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 15 | Yes | | |
| 0 | 2 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | Yes | No | 24 | Yes | | |
| 0 | 2 | 0 | 4 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | No | No | Yes | No | 27 | Yes | | |
| 0 | 2 | 0 | 3 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | Yes | No | 24 | Yes | | |
| 0 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 15 | Yes | | |
| 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 10 | Yes | | |
| 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | No | Bluetooth 5.0 | Yes | No | 11 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/256)<br>GHASH | EK-RA4W1 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 12 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>ECC/RSA(4K)/DSA<br>SHA224/SHA256<br>GHASH<br>Tamper Detection<br>Arm TrustZone | EK-RA4M2 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 4 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 1 | 1 | 0 | 0 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 4 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 4 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 4 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 6 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 20 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>ECC/RSA(4K)/DSA<br>SHA224/SHA256<br>GHASH<br>Tamper Detection<br>Arm TrustZone | EK-RA4M3 |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 6 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 6 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 6 | 1 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 0 | Yes | 128-bit Unique ID<br>TRNG<br>Arm TrustZone | FPB-RA4E1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 0 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 0 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 0 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 7 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 12 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>3DES/ARC4<br>ECC/RSA/DSA<br>SHA1/SHA224/SHA256/MD5<br>GHASH | EK-RA6M1 |
| 6 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 7 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | Yes | No | No | No | 7 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 7 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 12 | Yes | | |
| 6 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 7 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | Yes | No | No | No | 7 | Yes | | |
| 6 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 18 | Yes | | EK-RA6M2 |
| 6 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 18 | Yes | | |
| 6 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 12 | Yes | | |
| 6 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 18 | Yes | | |
| 6 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 18 | Yes | | |
| 6 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | No | 12 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 2 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 13 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>3DES/ARC4<br>ECC/RSA/DSA<br>SHA1/SHA224/SHA256/MD5<br>GHASH | EK-RA6M3 |
| 6 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 18 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 18 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 2 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 13 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | Yes | 12 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 2 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 13 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 18 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 18 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 2 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 2 | 1 | 0 | 2 | Yes | No | No | Yes | 13 | Yes | | |
| 6 | 0 | 6 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 2 | Yes | No | No | Yes | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>ECC/RSA(4K)/DSA<br>SHA224/SHA256<br>GHASH<br>Tamper Detection<br>Arm TrustZone | EK-RA6M4 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 8 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 7 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>ECC/RSA(4K)/DSA<br>SHA224/SHA256<br>GHASH<br>Tamper Detection<br>Arm TrustZone | EK-RA6M5 |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 12 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 20 | Yes | | |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 10 | 2 | 3 | 0 | 1 | 1 | 1 | 1 | No | No | No | No | 12 | Yes | | |
| 6 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | Yes | No | No | No | 0 | No | 128-bit Unique ID<br>TRNG<br>AES(128/192/256)<br>3DES/ARC4<br>ECC/RSA/DSA<br>SHA1/SHA224/SHA256/MD5<br>GHASH | RSSK RA6T1 |
| 6 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | Yes | No | No | No | 0 | No | | |
| 6 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | Yes | No | No | No | 0 | No | | |
| 6 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | Yes | No | No | No | 0 | No | | |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 6 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 0 | Yes | 128-bit Unique ID<br>TRNG<br>Arm TrustZone | FPB-RA6E1 |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 0 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 0 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 6 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | No | No | No | No | 0 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | No | No | No | No | 0 | Yes | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | No | No | No | No | 0 | Yes | | |

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