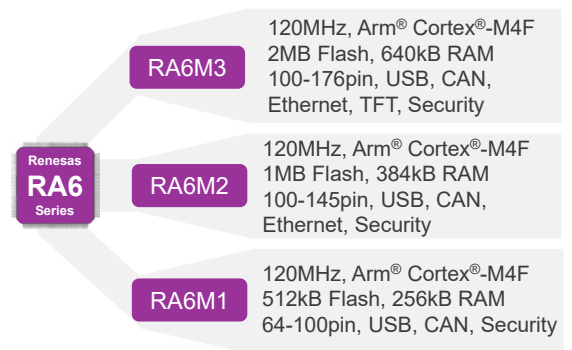


# 32-BIT MCU FAMILY

## RENESAS RA6M3 GROUP

### 120MHz with USB HS, Ethernet and TFT controller

The Renesas RA6M3 group uses the high-performance Arm® Cortex®-M4F core and offers a TFT controller with 2D accelerator and JPEG decoder. In addition RA6M3 offers Ethernet MAC with individual DMA and USB High Speed interface to ensure high data throughput. The RA6M2 is built on a highly efficient 40nm process and is supported by an open and flexible ecosystem concept—the Flexible Software Package (FSP), built on FreeRTOS—and is expandable to use other RTOSes and middleware. The RA6M3 is suitable for IoT application requiring TFT, Ethernet, Security, large embedded RAM and USB HS.



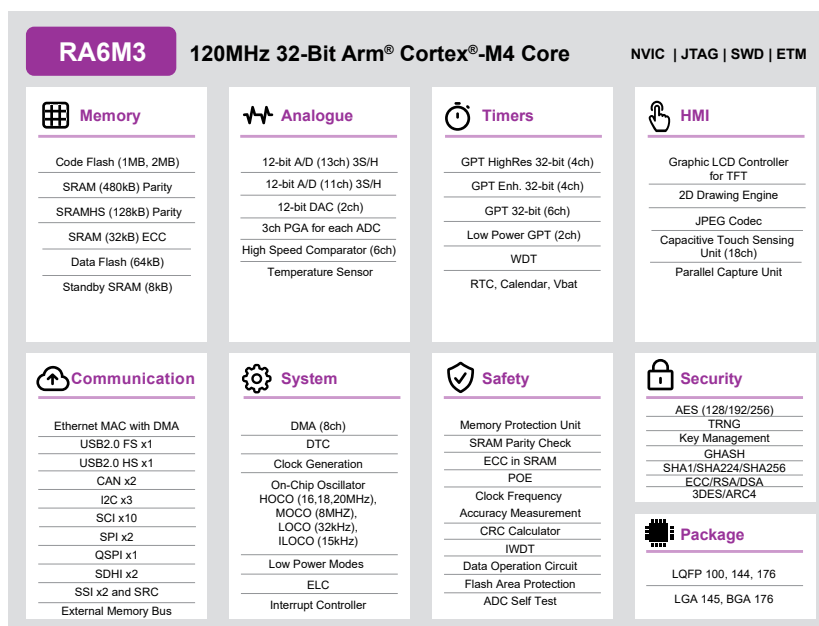
### Target Applications

- HMI (small/mid size TFT)
- Applications with demand for High Speed USB and Wired Ethernet Applications
- Security (Fire Detection, Burglar Detection, Panel Control)
- Industry (Robotics, Door Openers, Sewing Machines, Vending Machines, UPS)
- HVAC (Heating, Air Conditioning, Boiler Control)
- General Purpose

### Key Features

- 120MHz Arm® Cortex®-M4F
- 1MB-2MB Flash Memory and 640kB SRAM
- 64kB DataFlash to store data as in EEPROM
- Scalable from 100pin to 176pin Packages
- Ethernet Controller with DMA
- TFT Controller /2D Accelerator/ JPEG Decoder
- Capacitive Touch Sensing Unit
- USB2.0 Full Speed / USB High Speed
- CAN 2.0B
- SCI (UART, Simple SPI, Simple I²C)
- SPI/ I²C Multimaster Interface / SDHI

### Block Diagram



# RENESAS RA6M3 GROUP

## Benefits

- Integrated Crypto Module with several cryptography accelerators and Key management support
- Ethernet MAC with own DMA to ensure maximum data throughput
- Integrated TFT controller with 2D drawing accelerator and JPEG decoder to enable single chip HMI designs
- USB High Speed connectivity (in addition to USB FS) to ensure max. flexibility.

## Tools and Support

### Integrated Development Environment (IDE)

- Renesas e<sup>2</sup> studio
- Keil MDK

### Compiler

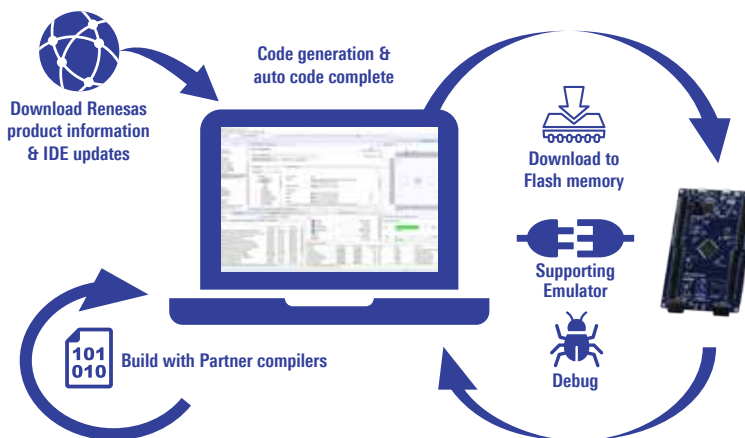
- GNU, Arm Compiler version 6

### Emulator

- Segger J-Link
- Renesas E2 emulator, E2 Lite emulator

### Flash Memory Programmer

- Renesas PG-FP6
- Third party solutions



## Evaluation Kit

- Full MCU evaluation including On-Chip debugger
  - Part name: **RTK7EKA6M3S00001BU**
- Full MCU evaluation with TFT including On-Chip debugger
  - Part name: **RTK7EKA6M3S01001BU**



Evaluation Kit: EK-RA6M3

## Ordering References

Part name	Flash	RAM	DataFlash	Operating Temperature	Package	Package dimensions	Pin Pitch
R7FA6M3AH2CBG	2MB	640kB	64kB	-40/+85°C	BGA 176pin	13x13mm body	0.8mm
R7FA6M3AH3CFC	2MB	640kB	64kB	-40/+105°C	LQFP 176pin	24x24mm body; (26x26mm)	0.5mm
R7FA6M3AH2CLK	2MB	640kB	64kB	-40/+85°C	LGA 145pin	7x7mm body	0.5mm
R7FA6M3AH3CFB	2MB	640kB	64kB	-40/+105°C	LQFP 144pin	20x20mm body; (22x22mm)	0.5mm
R7FA6M3AH3CFP	2MB	640kB	64kB	-40/+105°C	LQFP 100pin	14x14mm body; (16x16mm)	0.5mm
R7FA6M3AF2CBG	1MB	640kB	64kB	-40/+85°C	BGA 176pin	13x13mm body	0.8mm
R7FA6M3AF3CFC	1MB	640kB	64kB	-40/+105°C	LQFP 176pin	24x24mm body; (26x26mm)	0.5mm
R7FA6M3AF2CLK	1MB	640kB	64kB	-40/+85°C	LGA 145pin	7x7mm body	0.5mm
R7FA6M3AF3CFB	1MB	640kB	64kB	-40/+105°C	LQFP 144pin	20x20mm body; (22x22mm)	0.5mm
R7FA6M3AF3CFP	1MB	640kB	64kB	-40/+105°C	LQFP 100pin	14x14mm body; (16x16mm)	0.5mm

For more details, please visit [www.renesas.com/RA](http://www.renesas.com/RA)

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