

# The RX Family Flagship Product with Highest Performance

## RX72N MCU GROUP



RX72N Product Info

This 32-bit microcontroller is ideal for real-time applications such as AC servo drivers and IoT gateways. RX72N features 240MHz RXv3 core, industry's largest class on-chip memory, and 182 GPIOs to realize equipment control and networking function on a single chip. RX72N also supports various functions such as HMI, networking, and security required for industrial and consumer equipment on a single chip, contributing to smaller enclosure and shortened development time.

### Features

- 240MHz RXv3 core, Double-precision FPU, Register bank save function for faster interrupt response
- 4MB flash memory (120MHz read access, Dual bank function), 1MB SRAM
- 182 general-purpose input/output (GPIO) ports
- 2ch Ethernet, SD host I/F, USB 2.0 full speed, 3ch CAN, QSPI
- Arithmetic unit for trigonometric functions accelerating vector controls for motors
- TFT LCD controller supporting WVGA, 2D drawing engine, Serial sound I/F, CMOS camera I/F
- Encryption engine (AES, 3DES, RSA, ECC, SHA, TRNG), Key management, Flash memory protection function

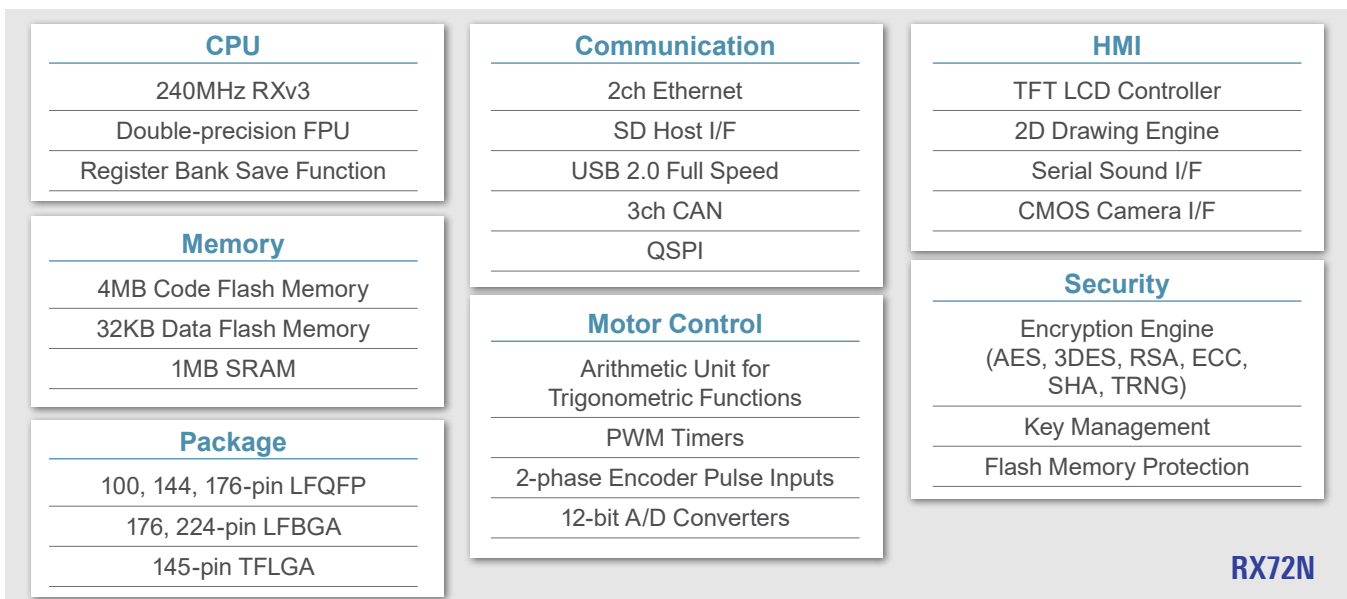
### Benefits

- Industry's fastest class on-chip flash memory contributes to higher real-time performance
- Industry's largest class on-chip memory and high pin-count package for smaller enclosures
- Realize equipment control and networking function on a single chip
- Dedicated hardware accelerator reduces CPU load for motor control
- HMI functions for improved exterior design and operability
- Security functions protecting data communications and programs

### Applications

- AC servo driver
- General-purpose inverter
- PLC (Programmable Logic Controller)
- Industrial robot
- Motion controller
- Remote I/O
- HVAC controller
- Smart meter
- Smart speaker

### Block Diagram



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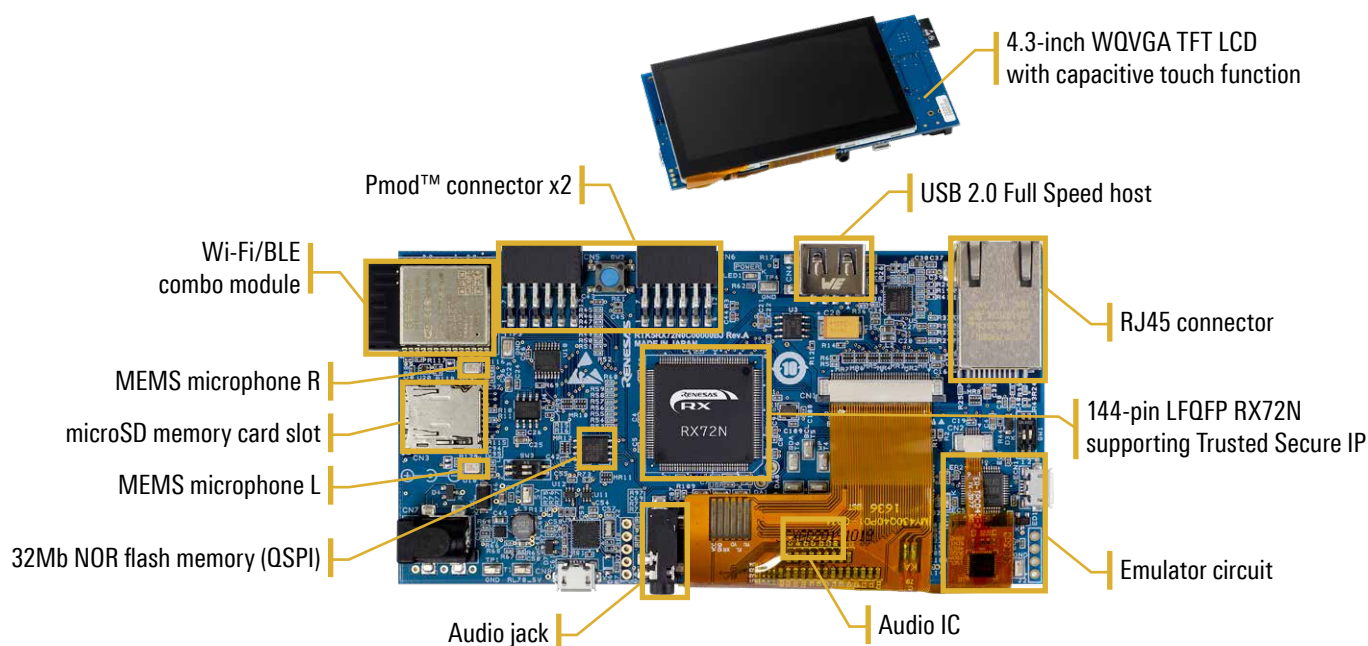
## Evaluation Board

### RX72N Envision Kit (RTK5RX72N0C00000BJ)

- Affordable and suitable for evaluation on network, HMI, security, and other functions
  - Network (wired: Ethernet, wireless: Wi-Fi/BLE combo module on-board)
  - HMI (4.3-inch WQVGA TFT LCD, audio IC, MEMS microphone on-board)
  - Security (Trusted Secure IP and flash memory protection function incorporated into RX72N)
- SEGGER graphics library "emWin" can be used free of charge from evaluation to mass production
- Separate emulator is not needed with an emulator circuit mounted on the envision kit
- Start with RX72N pre-installed demo firmware features by switching on the envision kit through a USB cable



RX72N Envision Kit  
Info Page



## Ordering References

### Flash Memory: 4MB, SRAM: 1MB

\* For 105°C product, please change the third last alphabet from D to G.

| With Trusted Secure IP    | R5F572NNHDFP       | R5F572NNHDFB | R5F572NNHDLK | R5F572NNHDFC | R5F572NNHDBG | R5F572NNHDBD |
|---------------------------|--------------------|--------------|--------------|--------------|--------------|--------------|
| Without Trusted Secure IP | R5F572NNDDFP       | R5F572NNDDFB | R5F572NNDDLK | R5F572NNDDFC | R5F572NNDDBG | R5F572NNDDBD |
| Pin Counts                | 100                | 144          | 145          | 176          | 176          | 224          |
| Package                   | LFQFP              | LFQFP        | TFLGA        | LFQFP        | LFBGA        | LFBGA        |
| Package Size              | 14mm x 14mm        | 20mm x 20mm  | 7mm x 7mm    | 24mm x 24mm  | 13mm x 13mm  | 13mm x 13mm  |
| Pitch                     | 0.5mm              |              |              | 0.8mm        |              |              |
| Operating Temperature     | Ta = -40°C to 85°C |              |              |              |              |              |

### Flash Memory: 2MB, SRAM: 1MB

\* For 105°C product, please change the third last alphabet from D to G.

| With Trusted Secure IP    | R5F572NDHDFP       | R5F572NDHDFB | R5F572NDHDLK | R5F572NDHDFC | R5F572NDHDBG | R5F572NDHDBD |
|---------------------------|--------------------|--------------|--------------|--------------|--------------|--------------|
| Without Trusted Secure IP | R5F572NDDDFP       | R5F572NDDDFB | R5F572NDDDLK | R5F572NDDDFC | R5F572NDDDBG | R5F572NDDDBD |
| Pin Counts                | 100                | 144          | 145          | 176          | 176          | 224          |
| Package                   | LFQFP              | LFQFP        | TFLGA        | LFQFP        | LFBGA        | LFBGA        |
| Package Size              | 14mm x 14mm        | 20mm x 20mm  | 7mm x 7mm    | 24mm x 24mm  | 13mm x 13mm  | 13mm x 13mm  |
| Pitch                     | 0.5mm              |              |              | 0.8mm        |              |              |
| Operating Temperature     | Ta = -40°C to 85°C |              |              |              |              |              |