Outstanding Real-Time Performance

RX66N MCU GROUP

RX66N Product Info

This 32-bit microcontroller is ideal for real-time applications such as general-purpose inverters and IoT gateways. RX66N delivers outstanding real-time performance with the RXv3 core operating at 120MHz and has industry's largest and fastest class on-chip memory. Hence, RX66N 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

- 120MHz RXv3 core, Double-precision FPU, Register bank save function accelerating interrupt response
- 4MB flash memory (120MHz read access, Dual bank function), 1MB SRAM
- 182 general-purpose input/output (GPIO) ports
- Ethernet, SD host I/F, USB 2.0 full speed, 3ch CAN, QSPI
- TFT LCD controller supporting WVGA, 2D drawing engine, Serial sound I/F, CMOS camera I/F
- Encryption engine (AES, TDES, 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 with a single chip
- 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

CPU

120MHz RXv3
Double-precision FPU
Register Bank Save Function

Memory

4MB Code Flash Memory
32KB Data Flash Memory
1MB SRAM

Package

100, 144, 176-pin LFQFP
176, 224-pin LFBGA
145-pin TFLGA

Networking & Advanced Connectivity

Ethernet
SD Host I/F
USB 2.0 Full Speed
3ch CAN
QSPI

Motor Control

PWM Timers
2-phase Encoder Pulse Inputs
12-bit A/D Converters

HMI

TFT LCD Controller
2D Drawing Engine
Serial Sound I/F
CMOS Camera I/F

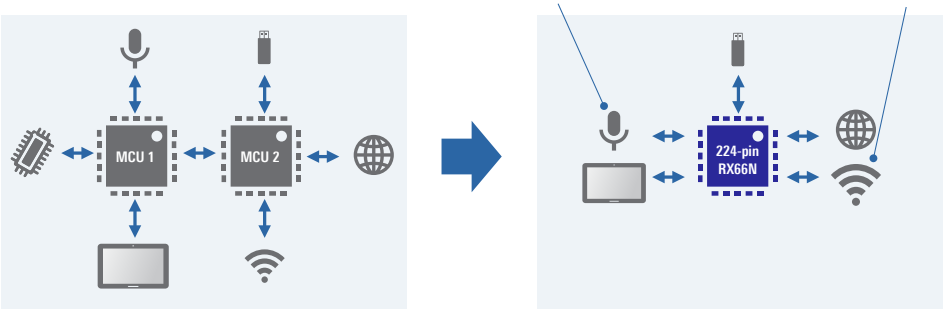
Security

Encryption Engine (AES, TDES, RSA, ECC, SHA, TRNG)
Key Management
Flash Memory Protection

RX66N

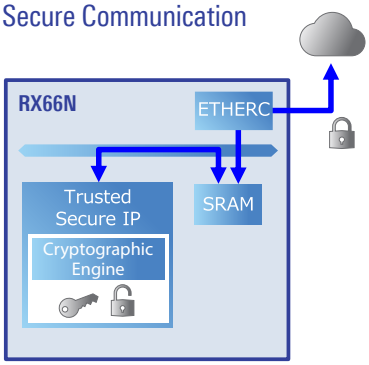
Usage Example and Benefits

Board Miniaturization



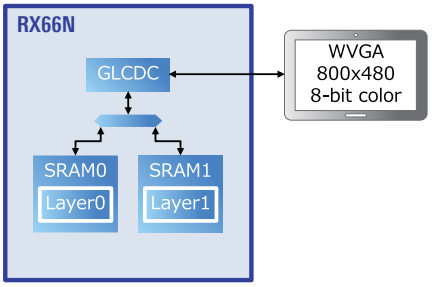
- Enable multiple functions on a single chip with outstanding real-time performance, large on-chip memory, and 182 GPIOs
- Contribute to smaller enclosure and shortened development time by eliminating sub MCUs and external memory

Secure Communication



- Encrypt data for secure communications
- High-speed encryption/ decryption by cryptographic engine

High-resolution TFT-LCD Control



- Control WVGA LCD without external memory
- Smooth drawing by two-layer configuration

* 16-bit colors WQVGA LCD can also be controllable

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	R5F566NNHDFP	R5F566NNHDFB	R5F566NNHDLK	R5F566NNHDFC	R5F566NNHDBG	R5F566NNHDBD
Without Trusted Secure IP	R5F566NNDDFP	R5F566NNDDFB	R5F566NNDDLK	R5F566NNDDFC	R5F566NNDDBG	R5F566NNDDBD
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	R5F566NDHDFP	R5F566NDHDFB	R5F566NDHDLK	R5F566NDHDFC	R5F566NDHDBG	R5F566NDHDBD
Without Trusted Secure IP	R5F566NDDDFP	R5F566NDDDFB	R5F566NDDDLK	R5F566NDDDFC	R5F566NDDDBG	R5F566NDDDBD
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					

Document No. R01PF0189EU0100
Date of release: April 2020