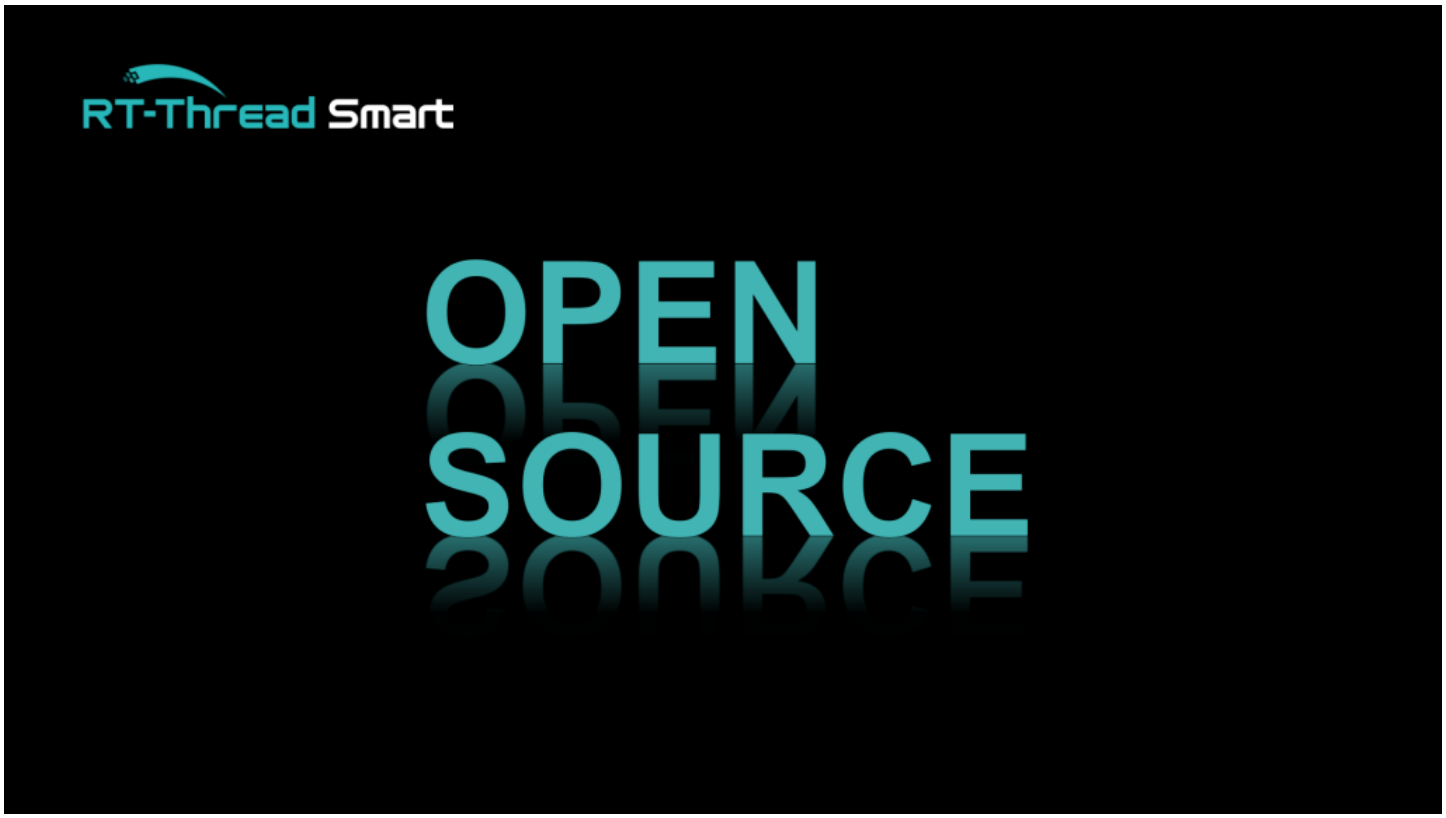
RT-Thread Smart OpenSource Micro-Kernel Operating System is Launching!

RT-Thread Smart is aimed primarily at mid- to high-end processors with MMU(Memory Management Unit), providing a more competitive operating system-based software platform for different industries.



Shanghai, Sep 27, 2020 (Issuewire.com) - Innovation Drives the Future

With a lot of market research and 2 years of Hard Work Development, the RT-Thread Research & Development Team successfully developed the RT-Thread Smart Micro-Kernel Operating System. RT-Thread Smart is aimed primarily at mid- to high-end processors with MMU(Memory Management Unit), providing a more competitive operating system-based software platform for different industries.

Market Positioning

RT-Thread Smart is positioned as a professional high-performance micro-kernel operating system for real-time applications, to benefit the industries in Security(such as IPC Camera), Gateway, Industrial Control, On-board Device, Consumer Electronics and so on. Among the division of traditional IoT operating systems, a micro-kernel operating system is the only one that can fill the gap between traditional RTOS and large operating system Linux, achieving the best balance among real-time, cost, security, start-up speed, and so on.

Implementation Principles

Compared to macro kernel structure, the Micro-kernel contains an efficient kernel, several separate system service components and drivers.

Micro-kernel supports putting system service components or drivers into kernel states to run on demand, for achieving a better performance.

Micro-kernel also supports to move most of the system components and drivers of the system outside the kernel, to run as a separate service process, and interacting with the service process through messages.

This reduces the coupling between the components and the kernel, making the kernel design more concise. Meanwhile, the inter-process resources are isolated so that the failure of individual services will not affect the normal function of the kernel and other services, making the system more secure and reliable.

RT-Thread Smart shows extraordinary performance on resource consumption, start-up time and real-time features.

Resource consumption: The compressed RT-Thread Smart kernel is 217 KB in size, the root file system 127 KB and memory usage 1.9 MB.

Start-up time: With the full supports of filesystems, network protocol stacks and multimedia, it takes 3 to 5 seconds for RT-Thread Smart to finish the startup process. If without running any functional components RT-Thread Smart only requires less than 500 ms to start up. If the persimmon UI component is integrated, the time that the whole system needs from power on to the UI running is about 1.7 seconds.

Real-time: The interrupt latency is less than 1 us, which meets most application cases with strict real-time requirements.

RT-Thread Smart is a lite kernel with its system services running in the user mode. It supports the traditional RT-Thread API to inherit the existing software environments. RT-Thread Smart is also built through `scons`, which makes it easy to integrate RT-Thread online software packages. What's more, POSIX interfaces are supported to port Linux applications on it.

Meanwhile, the RT-Thread self-developed one-stop development tool RT-Thread Studio IDE fully supports RT-Thread Smart, which lowers the barriers to use and improves work efficiency.

As always, RT-Thread Smart will be open-source and applies Apache License v2.0. The code will be released in October.

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Source : RT-Thread IoTOS

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