Rustable

μcore 在 arm 架构下的 Rust 移植

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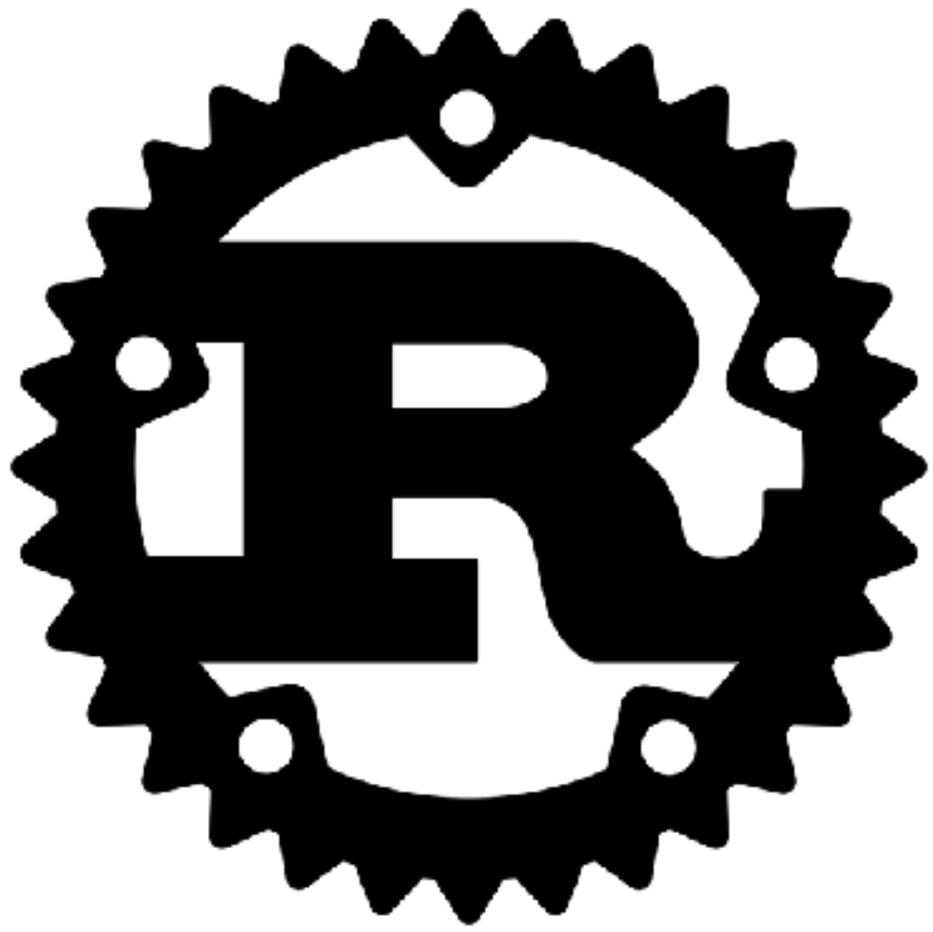


Rust

Rust

C++

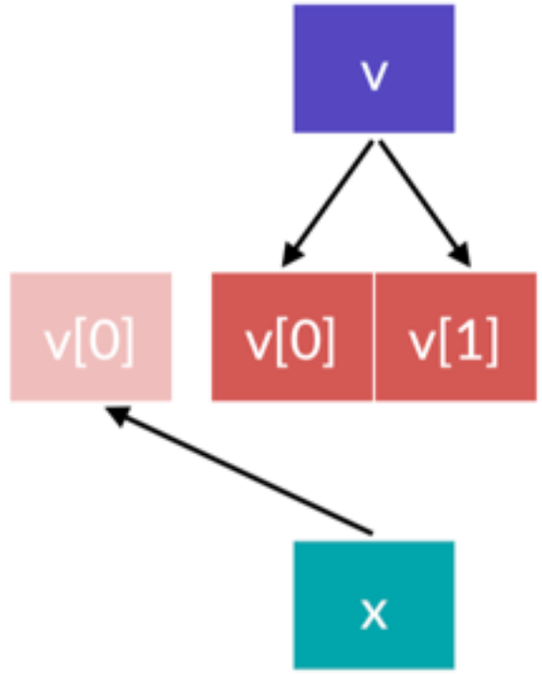
```
int main() {
    vector<string> v;

    v.push_back("Hello, ");

    string &x = v[0];

    v.push_back(" world!");

    cout << x;
}
```



Rustable

1. 目标
2. 进度
3. Demo

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- **Rust!**
- **Raspberry Pi!**
- **µcore!**
  - 中断、异常、系统调用
  - 内核线程管理、用户进程管理
  - 进程调度
  - 物理内存管理
  - 虚拟内存管理
  - 文件系统
- **Peripherals!**
  - USB
  - 网卡

Rustable

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- 完成 arm 平台硬件部分 调研
- bootloader
- xmodem uart ttywrite

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调研

- bootloader
- interrupt and exception
- physical memory management
- file system

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调研

- interrupt and exception
  - EL0 (user)
    Typically used to run untrusted user applications.
  - EL1 (kernel)
    Typically used to run privileged operating system kernels.
  - EL2 (hypervisor)
    Typically used to run virtual machine hypervisors.
  - EL3 (monitor)
    Typically used to run low-level firmware.

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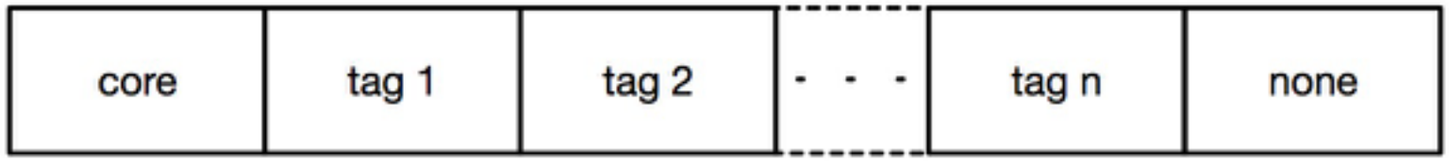
- physical memory management



Name	Type (tag)	Size	Description
CORE	0x54410001	5 or 2 if empty	First tag used to start list
NONE	0x00000000	2	Empty tag used to end list
MEM	0x54410002	4	Describes a physical area of memory
CMDLINE	0x54410009	variable	Command line to pass to kernel

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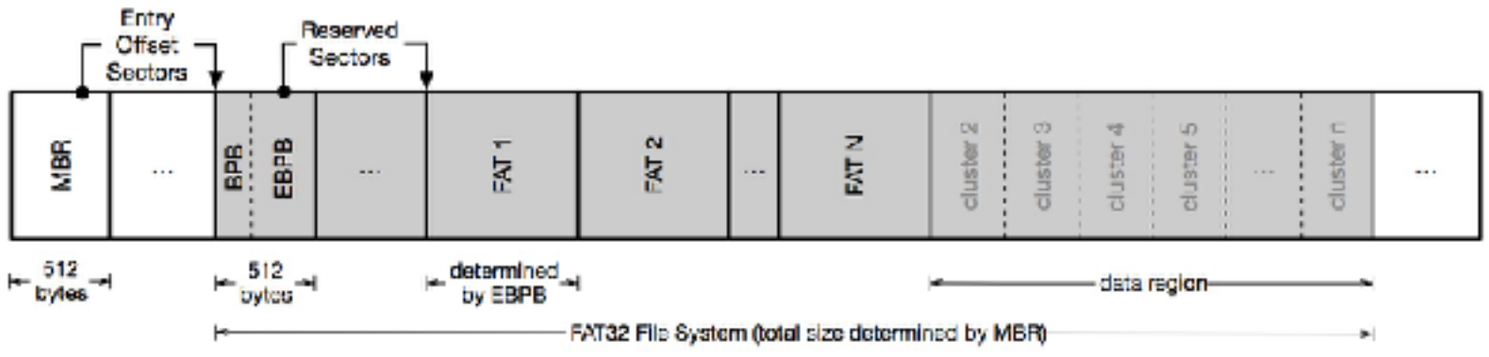

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bootloader

```
---------------------------- 0x400000
          kernel
---------------------------- 0x80000

---------------------------- 0x0
```

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bootloader

```
     uart-bootloader
---------------------------- 0x400000
           kernel
---------------------------- 0x80000

---------------------------- 0x0
```

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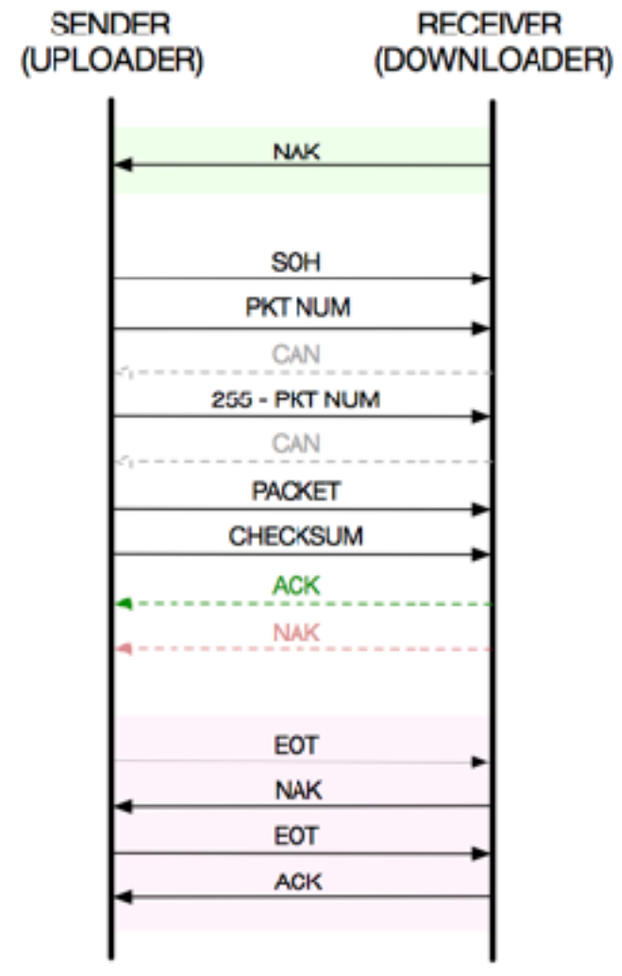
xmodem uart ttywrite



XMODEM protocol diagram.

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