

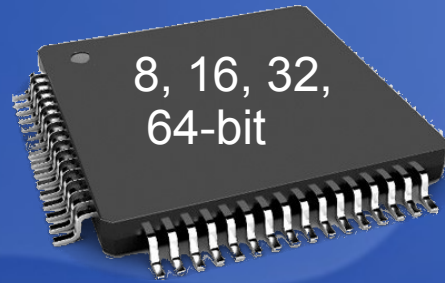
Desenvolvimento de soluções IoT com NuttX

Alan Carvalho de Assis



WHAT?

O que é o NuttX?



WHO?

Como o NuttX surgiu?

- Gregory Ellis Nutt



WHERE? **Empresas que usam NuttX**

SONY



MOTOROLA

SAMSUNG



小米
xiaomi.com

Google

Haltian

3D Robotics
UAV TECHNOLOGY

ENGIE



Daruma
Tecnologia

WHERE?

Onde o NuttX é usado?

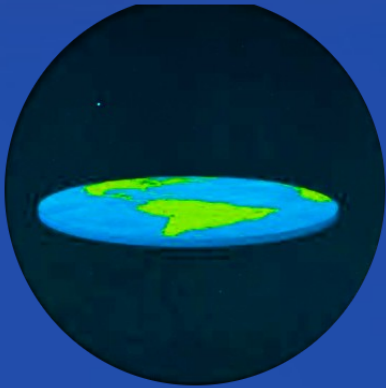


Quais micros o NuttX suporta?

The ARM logo is displayed in a white rectangular box. It consists of the lowercase letters 'arm' in a bold, blue, sans-serif font.The AVR logo is shown in a bold, black, sans-serif font with a registered trademark symbol (®) to the upper right of the 'R'.The Z80 logo features the number '80' in a large, grey, stylized font with a multi-colored, rainbow-like gradient. The 'Z' is positioned to the left of the '80'.The RISC-V logo includes a stylized 'R' symbol composed of a blue square and a yellow triangle, with the text 'RISC-V' in a blue, sans-serif font below it.The Xtensa logo is presented in a white rectangular box with the word 'Xtensa' in a black, sans-serif font.The MIPS logo is shown in a white rectangular box with the word 'MIPS' in a blue, stylized, sans-serif font.

Recursos do NuttX

preemptive



PROTECTED

KERNEL

Recursos do NuttX (continua...)

VFS

Kernel Modules

SMP

Realtime Scheduler: FIFO, RR, SPORADIC

PTY

I/O Redirect.

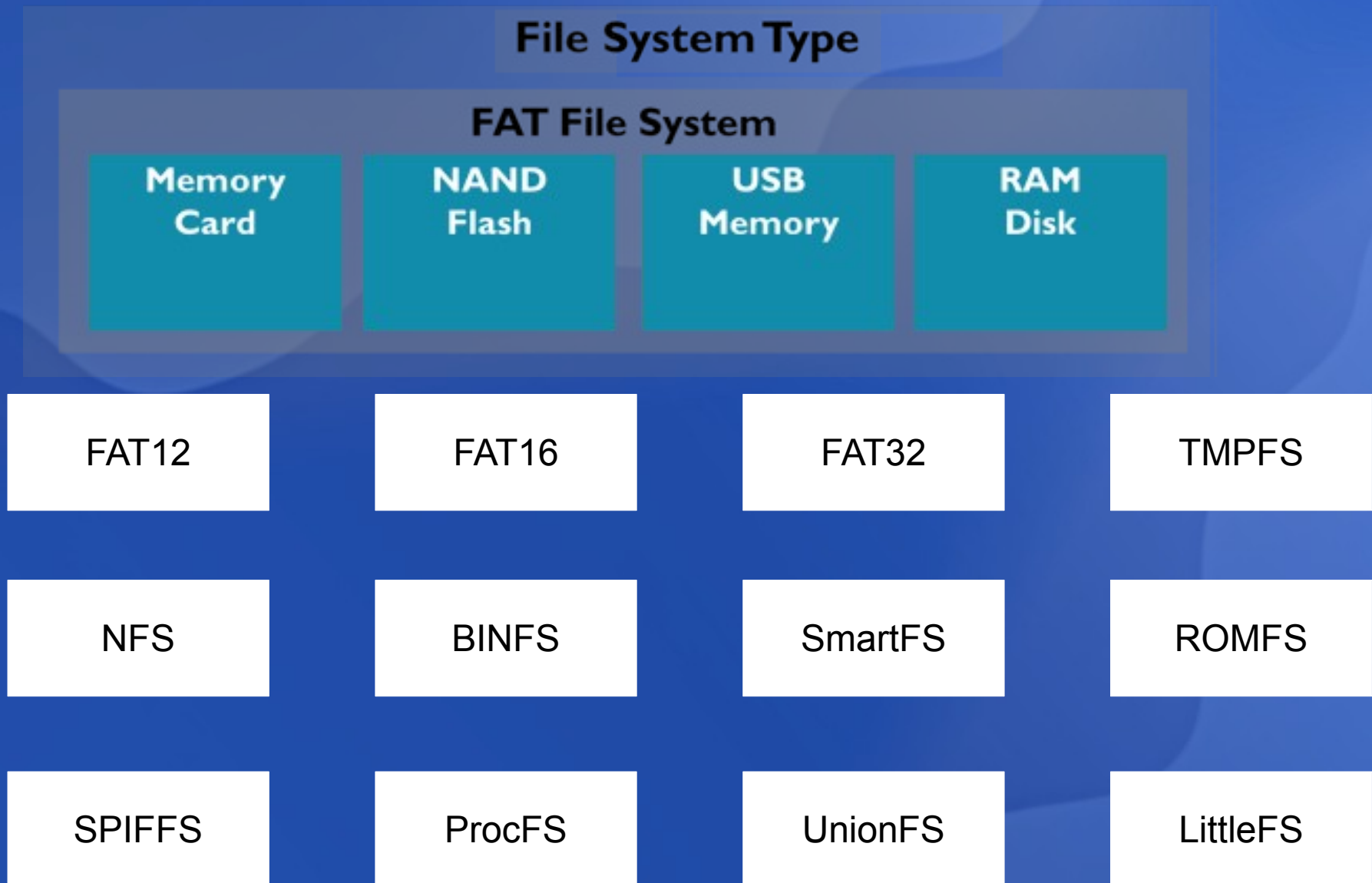
Power Management

DEBUG: E, W, I

syslog

Todas APIs são POSIX

Recursos do NuttX (continua...)



Recursos do NuttX (continua...)



Múltiplas Inter.

Roteamento

IPv4 e IPv6

6LoWPAN

TCP

UDP

ICMP

Unix Socket

DNS

Ethernet

802.11 (WiFi)

PPP (GSM)

Recursos do NuttX (continua...)



Framebuffer

LCD

OLED

NX Server

NX Graph Lib

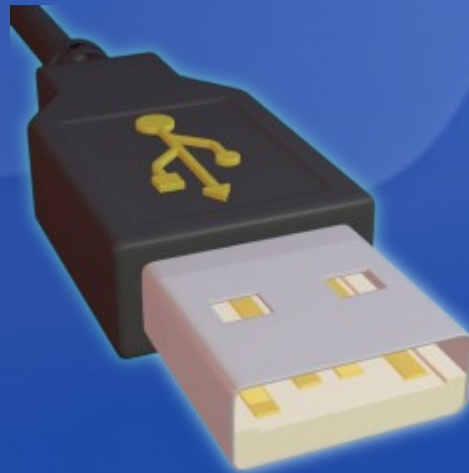
NXWidget

LittleVGL

VNC

Recursos do NuttX (continua...)

USB HOST



CDC/ACM

Mass Storage

HID Keyboard

HID Joystick

HID Mouse

USB HUB

Recursos do NuttX (continua...)

USB Device



CDC/ACM

Mass Storage

RNDIS Ether

CDC-ECM

Composite Dev

Recursos do NuttX (continua...)

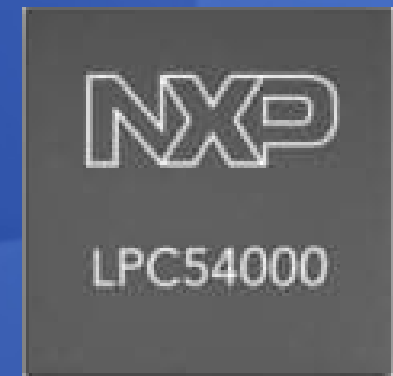
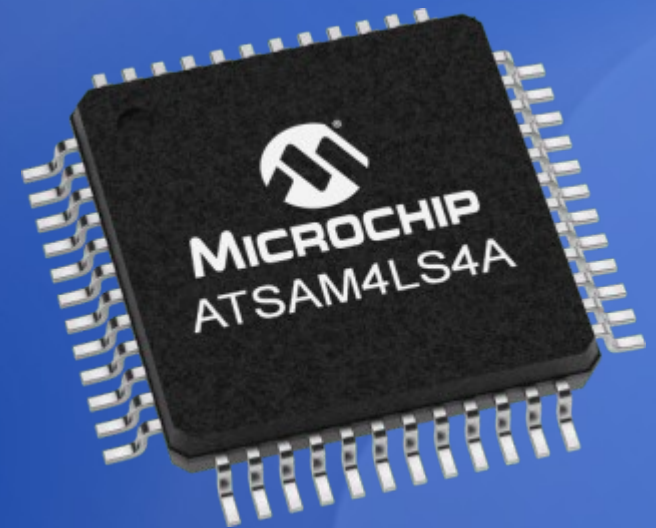
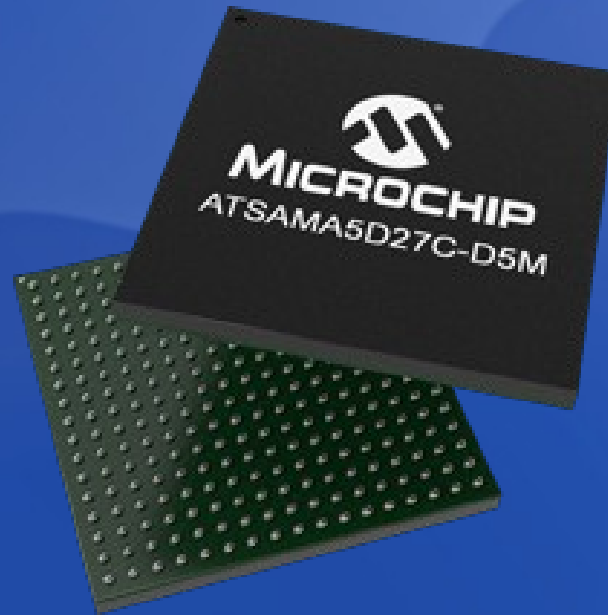
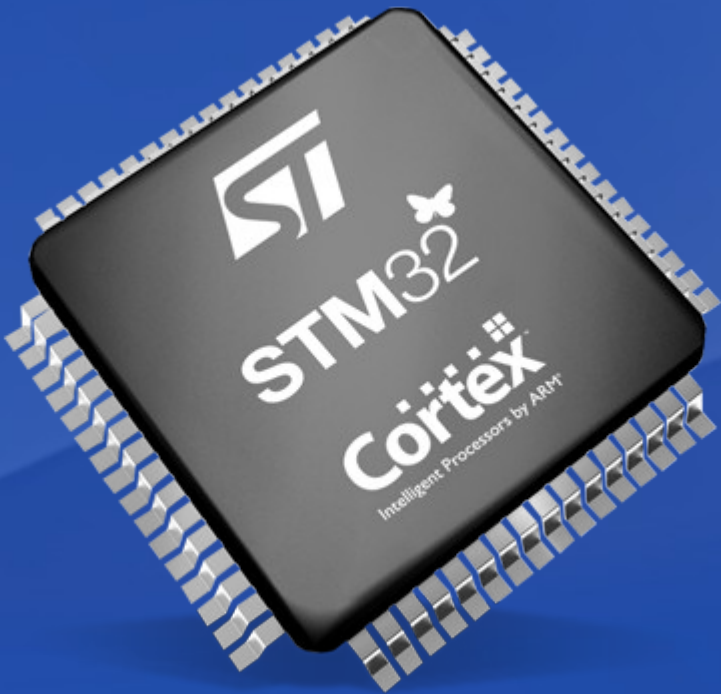


Tone Generator (Ringtone)

Codecs de Audio: VS1053, CS43L22, WM8776

Tocador de áudio NXPlayer: Local ou Stream Web

Quais micros com melhor suporte?



Como começar a usar NuttX?

- NuttX Channel:
 - www.youtube.com/c/NuttXChannel
- Lista de sites com tutoriais:
 - <http://nuttx.org/doku.php?id=wiki:getting-started>
- Leia os vários README.txt dentro do NuttX;
- Inscreva-se na lista de discussão:
 - <https://groups.google.com/forum/#!forum/nuttx>

Como contribuir?

- Contribua com documentação e tutoriais;
- Comece lendo o código fonte: você consegue! ;
- Tente implementar drivers fáceis: sensores, etc;
- Pesquise pelas mensagens de erro;
- Peça ajuda na lista de discussão;
- Siga à risca o estilo do código fonte do NuttX:
<http://nuttx.org/doku.php?id=documentation:codingstandard>
- Envie seu patch ou dê um PR no bitbucket;
- Bem-vindo ao time! ;-)

Contato

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Perguntas?