

Mikroprocesorski sistemi



ORGANIZACIJA PREDMETA

- PREDAVANJA
 - VEZBE
 - PROJEKAT – INDIVIDUALNO
- } KOLOKVIJUM

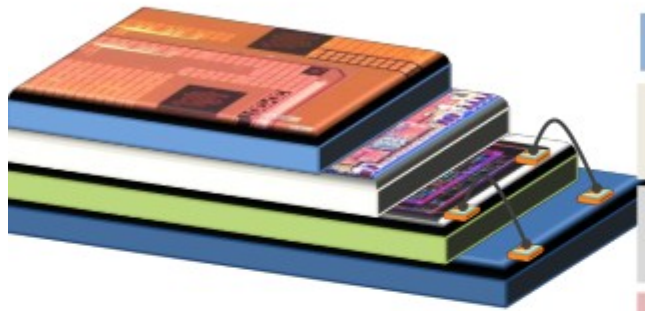
ARM

- Holding osnovan 1990 godine, kao zajedničko preduzeće kompanija Accorn, Apple i VLSI Technology.
 - ARM ne proizvodi čipove već se bavi dizajnom arhitekture i procesora, tj. IP-a.
 - Skoro svi vodeći proizvođači elektronskih komponenti otkupljuju licence od ARMa i na osnovu njih proizvode svoje varijante mikrokontrolera i mikroprocesora.
 - Osnovna ideja je da procesorsko jezgro bude standardizovano (ARM), a da svaki proizvođač dodaje svoje specifične periferije.
- 

ARM partneri



Najmanji ARM računar



Wireless Sensor Network

Sensors, timers

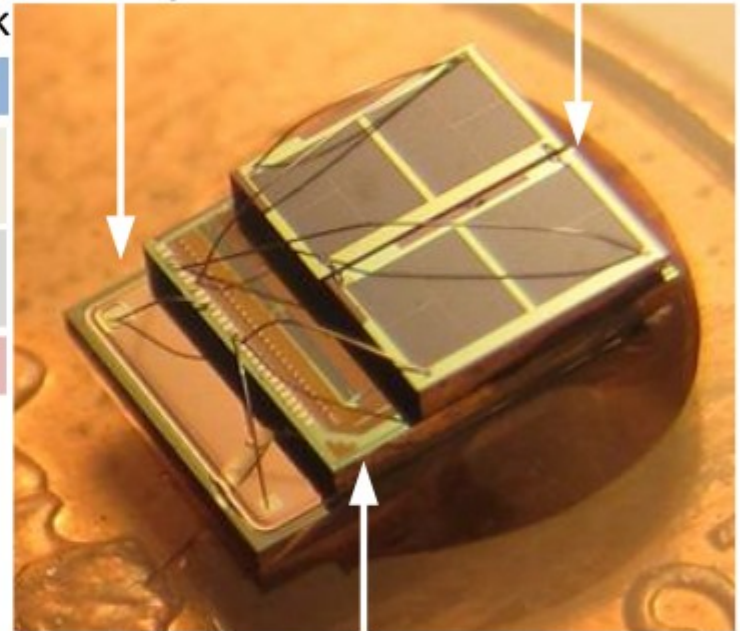
Cortex-M0 +16KB RAM 65nm
UWB Radio antenna

10 kB Storage memory ~3fW/bit

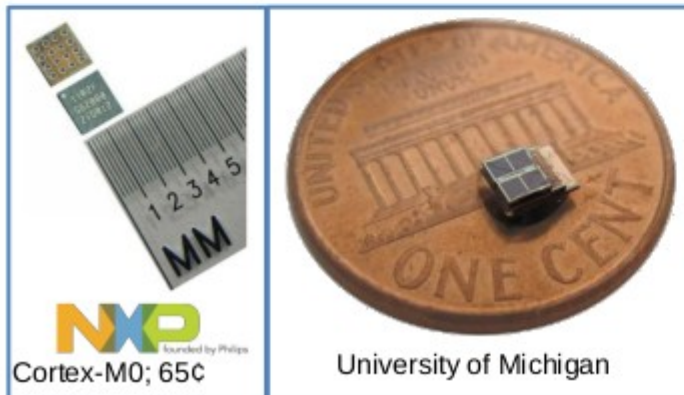
12 μ Ah Li-ion Battery

Battery

Solar Cells



Processor, SRAM and PMU



Wirelessly networked into large scale sensor arrays

Najveći ARM računar



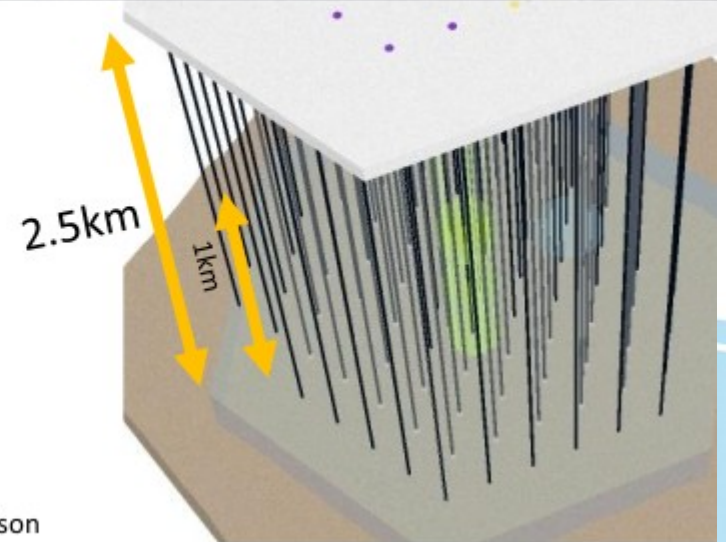
4200 ARM powered
Neutrino Detectors



70 bore holes 2.5km deep

60 detectors per string
starting 1.5km down

1km³ of active telescope



Work supported by the National Science Foundation and University of Wisconsin-Madison



- Moguća alternativa
- Otvorena RISC platforma
- University of California, Berkeley.
- <http://riscv.org/>

	ARM Cortex-A5	RISC-V Rocket	Ratio
Width (bits)	32	64	2x
Frequency	>1GHz	>1GHz	1x
Dhrystone Performance (Dmips/MHz)	1.57	1.72	1.1x
Area (no caches)	0.27mm ²	0.14mm ²	0.5x
Area (16 KB caches)	0.53mm ²	0.39mm ²	0.7x
Area Efficiency (Dmips/MHz/mm ²)	3.0	4.4	1.5x
Dynamic Power (mW/MHz)	<0.080	0.034	≥0.4x

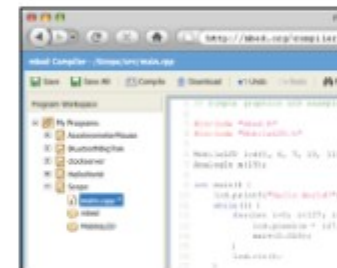
mbed (<http://mbed.org/>)

mbed

- **Getting Started and Rapid Prototyping with ARM MCUs**
 - Complete Targeted Hardware, Software and Web 2.0 Platform



Dedicated Developer Web Platform



Lightweight Online Compiler



High-level Peripheral APIs



**Rapid Prototyping
for Microcontrollers**



**LPC Cortex-M MCU in a
Prototyping Form-Factor**

Softver

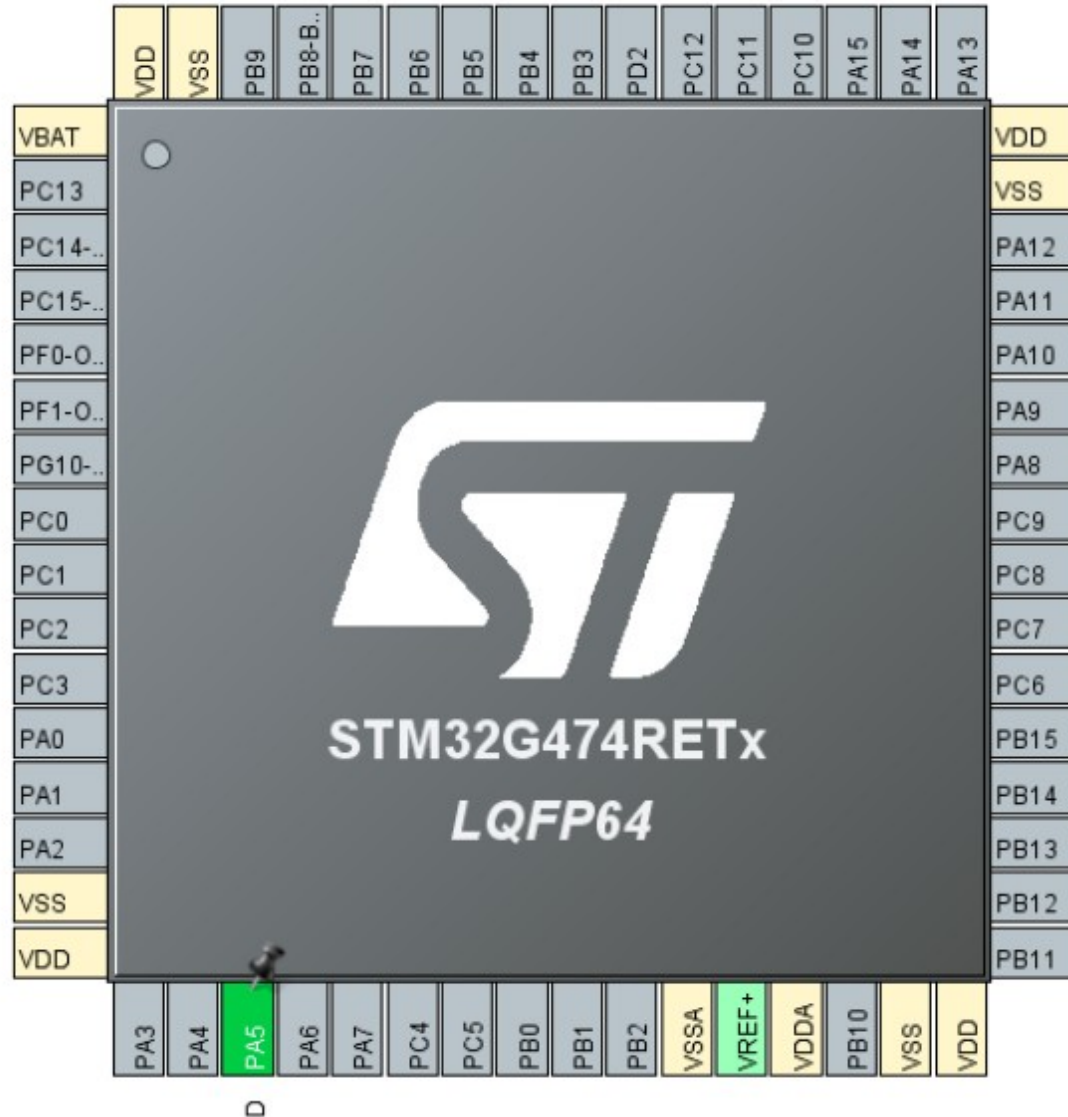


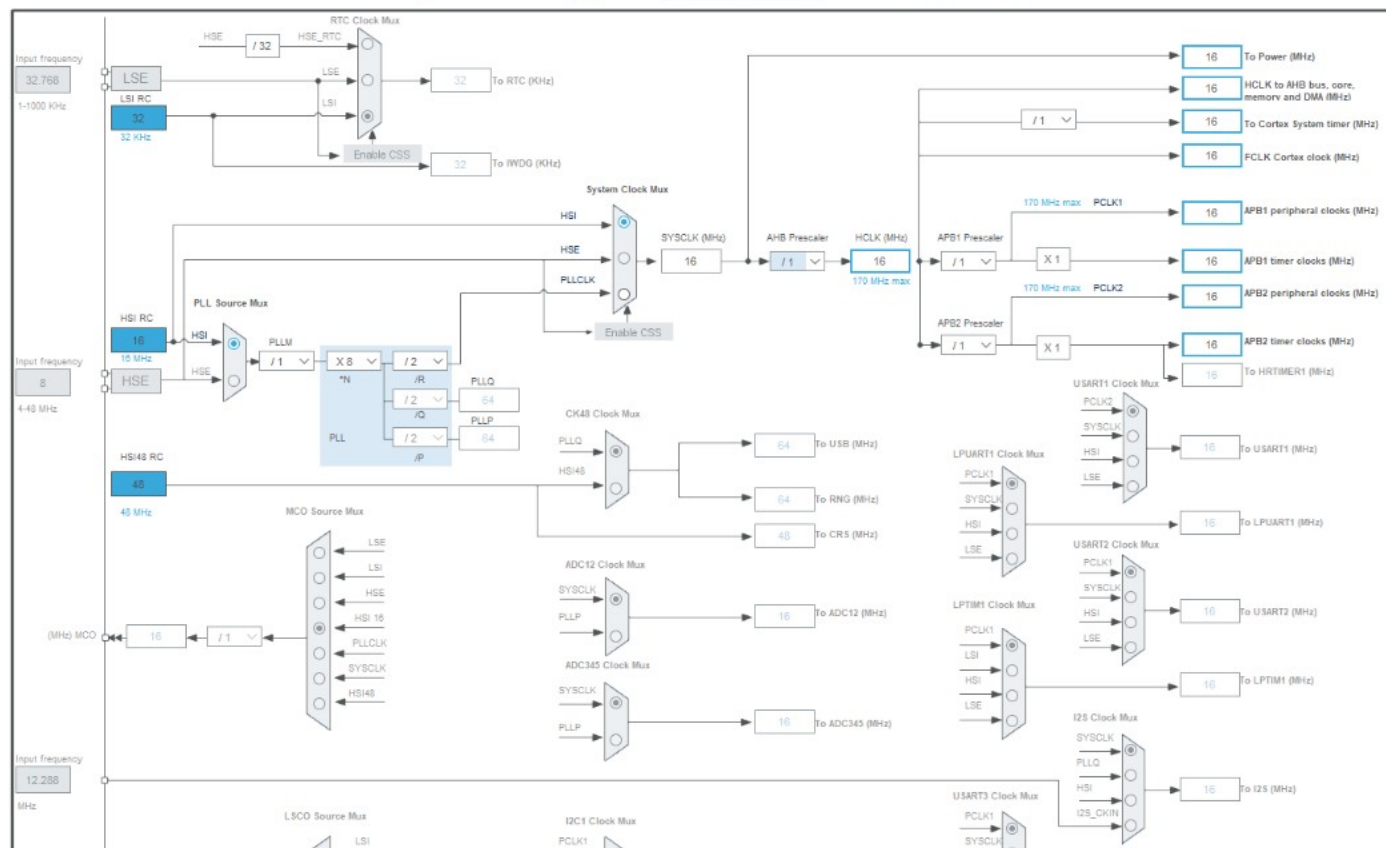
Слика 4. STM32CubeMX



IAR Embedded Workbench

Mikrokontroler stm32xxx





Ploce stm nucleo

