

# Technical Workshop

## Academic High Altitude Conference

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Stratospheric Ballooning Association

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# Outline

1 mbed Environment

2 Nucleo Platform

# What is mbed?

The mbed system provides:

- **Free** software libraries
- **Free** hardware designs
- **Free** online development tools
- Developer community

## What this means

Shorter development, lower cost

# Software Development Kit

- Open source C/C++ libraries  
Safe for personal or commercial use
- Hardware abstraction layer  
Isolate your application code from hardware changes
- Built from CMSIS APIs  
Work with high level functions or bare metal hardware
- Pretested startup and peripheral libraries

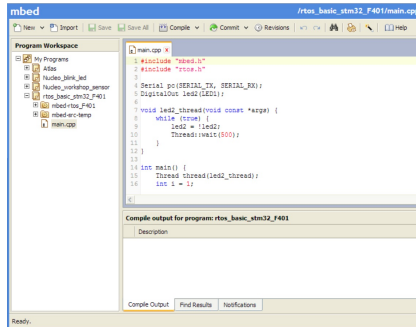
# Hardware Development Kit

The mbed Hardware Development Kit provides ready to use boards like the Nucleo as well as open source tools to develop custom boards.

- CMSIS-DAP based USB drag-n-drop programmer and debugger
- Virtual serial port

# Online Development Tools

- Professional ARM C/C++ compiler with optimization
- Cloud based IDE that allows you to work from anywhere
- Tightly integrated with a Mercurial based version control system
- Search, import, and publish open source libraries
- Export to several offline toolchains



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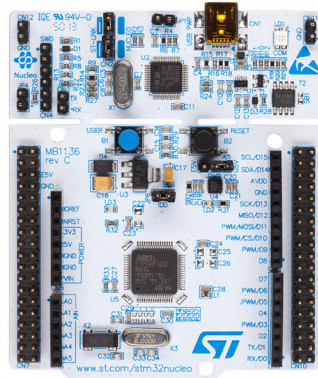
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2 Nucleo Platform

# Nucleo F401RE

The Nucleo platform combines a programmer/debugger and an STM32 based development board with Arduino compatible expansion headers.

- Up to 84 MHz clock speed
- 512 KBytes flash memory
- 12-bit 2.4 Msps ADC with up to 10 channels
- Three hardware USART
- Three hardware SPI
- Three hardware I2C





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## 1 mbed Platform

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## 1 Open Session

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