There are **5 types of MCU’s [Microcontroller units]**

1. Main stream – board range of apps
2. High performance – best for data transfer, code execution and processing
3. Ultra low power – energy efficient, balanced between performance, power and cost-effectiveness
4. Wireless – Wireless connectivity
5. Microprocessor – wide range of apps

**Configuration via GUI [STM32 Cube MX]**

1. Pinouts
2. Clocks and oscillators
3. Peripherals
4. Middleware

STM32Cube MX software generates initialization codes and helps correct errors by providing warning for any conflicts (for pin mapping or clock configurations).

**STM32 Cube Programmer is used to program the STM device. It is used to**

1. Erase
2. Read/Write
3. Verify

The instructions loaded on the device.

Also used to configure *option bytes.* Update the ST Link firmware, this cube programmer is available in both GUI and CLI (command line interface)

**STM32 Cube MX supports 3 different compiler options -**

1. STM 32 CubeIDE (inhouse compiler for code generation based on eclipse front-end and GNU compiler)
2. Keil-uvision
3. IAR

**STM32 Cube Library (these libraries also could be product specific)**

* Embedded software packages
* Low level drivers (HAL,LL,BSP)
* Middleware examples
* Application Examples/demonstrations.

Available on st.com

**STM32 Expansion Packs**

3 types of expansion packs:

1. Function Packs – advanced application project and libraries
2. X-cube Packages – developed and maintained by ST
3. I-Cube packages – 3rd party packages

Expands on existing libraries

Plug and Play examples like touch GFX, sbsfu us bpd and azure rtos

**STM32 Cube monitor**

Helps to fine tune and diagnose STM32 applications runtime through reading and visualizing variables in real-time.

There are currently 4 tools in this family –

1. STM32 Cubemonitor [Real time behaviour and application profiling]
2. STM32 Cubemonitor-Power [analyse low power performance]
3. STM32 Cubemonitor-RF [Test radio performances on BLE and 802.15.4 Technologies]
4. STM32 Cubemonitor-UCPD [Monitors and configures USB Type-C and power delivery apps]