**---Description---**

I will use Attiny 45 for my fab ISP but. I will try to compare all of the Attniny 44,45,84,85 and the Atmega328p that we have already in our Fablab.

We made a comparison chart with all the relevant things on the chips itself (programmable memory, pins, interface compatibility).

**---misconceptions---**

An integrated circuit (IC) doesn’t necessarily means a microcontroller (MCU) an IC may be a voltage regulator or an signal amplifier.

**----SLANG----**

\*VCC, VDC---Voltage on continuos current or voltage on direct current

\*GND--- Ground

\*ADC---Analog to digital converter

\*SOIC--- Small Outline Integrated Circuit

\*PDIP---Dual In-line Package

\*QFN--- Quad Flat No-leads package

\*TQFP---Quad Flat Package

\*AREF---Analogic reference

\*PCINT--- Pin Change INTerrupt

\*CLK---CLocK (internal oscillator of the MCU)

\*SCL, SCK--- Serial clock but one is for SPI communication and the other for I2C communication.

\*XTAL1, XTAL2---- Crystal (external component to make more accurate time/count measurements)

\*AIN--- Analog input

\*MOSI--- Master Out Slave In (for SPI communication)

\*MISO---Mater In Slave Out(for SPI communication)

\*TX--- transmitter (for USART communication)

\*RX---receiver (for USART communication)

\*SDA--- Signal Data (for I2C communication)

\*PWM--- pulse width modulation

\*TOSC1,TOSC2---Timer Oscillator

\*Quad Flat Package - <https://es.wikipedia.org/wiki/Quad_Flat_Package>

\*Quad Flat No-leads package - <https://en.wikipedia.org/wiki/Quad_Flat_No-leads_package>

\*Small outline integrated circuit - <https://en.wikipedia.org/wiki/Small_outline_integrated_circuit>

\*Dual in-line package - <https://es.wikipedia.org/wiki/Dual_in-line_package>

\*Microcontroller - <https://en.wikipedia.org/wiki/Microcontroller>

\*PCINT vs. INT - <https://www.avrfreaks.net/forum/whats-functional-difference-between-int-and-pcint>

\*SLC vs. SCK - <https://www.reddit.com/r/AskElectronics/comments/8g21wf/what_is_the_difference_between_scl_and_sck/>

\*XTAL - <https://www.quora.com/What-does-XTAL-in-8051-micro-controller-stand-for>

\*PWM - <https://es.wikipedia.org/wiki/Modulaci%C3%B3n_por_ancho_de_pulsos>

\*OC0A,OC1A - <https://electronics.stackexchange.com/questions/92297/toggle-oc1a-oc1b-and-oc1c-using-timer-in-ctc-mode>

\*what is an analog input? - <https://labjack.com/support/faq/what-is-analog-input>

\*SPI communication - <https://es.wikipedia.org/wiki/Serial_Peripheral_Interface>

\*I2C communication - <https://es.wikipedia.org/wiki/I%C2%B2C>

\*UART communication - <https://cursos.mcielectronics.cl/2019/06/18/senales-tx-y-rx/>

**--- Comparison---**

In this table we compared the important things from the datasheets

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IC | Programmable Flash Memory | EEPROM / SRAM | 8 bit Timer / Counter | 16 bit Timer / Counter | PWM channels | High frecc pwm channels | 10 bit  ADC | SPI compatible | I2C compatible | USART compatible |
|  | Byte | Bytes | pin | pin | pin | pin | pin |  | | |
| Attiny44 | 4k | 256 | 1 | 1 | 4 | 0 | 8 | X | X |  |
| Attiny84 | 8k | 512 | 1 | 1 | 4 | 0 | 8 | X | X |  |
| Attiny45 | 4k | 256 | 1 | 0 | 2 | 2 | 4 | X | X |  |
| Attiny85 | 8k | 512 | 1 | 0 | 2 | 2 | 4 | X | X |  |
| Atmega328P | 32k | 1k | 2 | 1 | 6 | 0 | 6 | X | X | X |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

**---Conclusion---**

To fabricate an ISP for the electronics production class the Attiny 45 is more than enough for this task and it’s easier to solder than the ATmega328P even if this last one has 8 times more programmable memory to use.