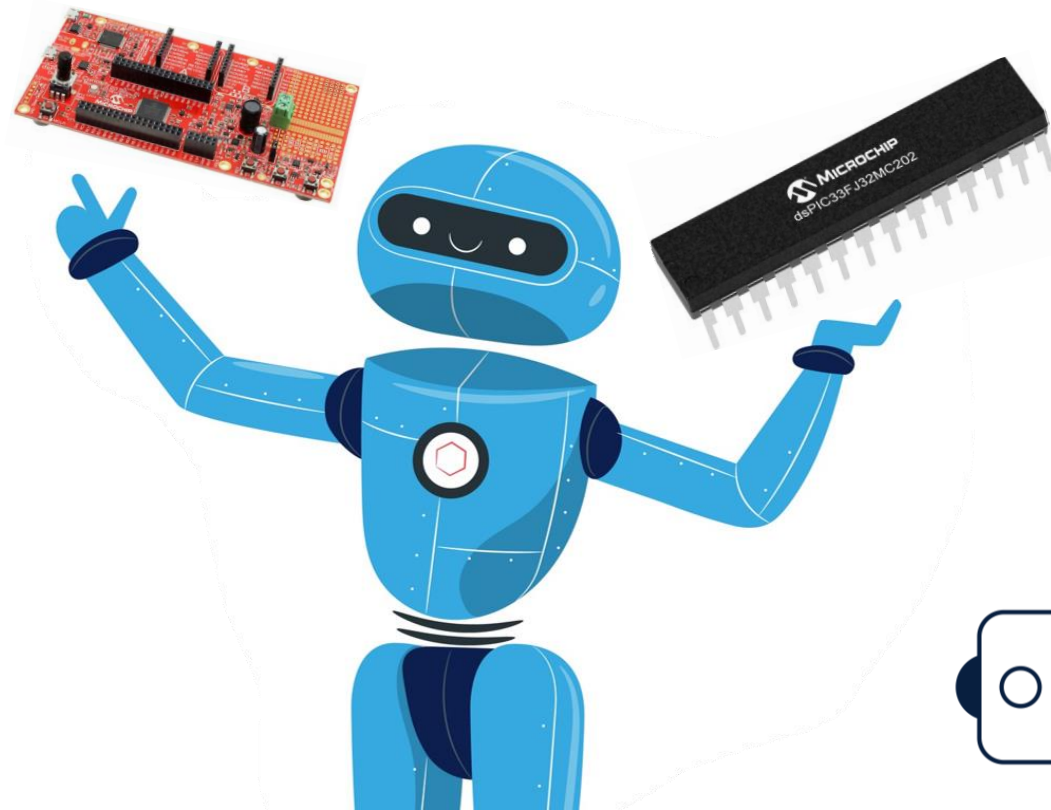


Taller : Microcontroladores Pic de Microchip

Instructor : Godo Sánchez Heredia

Investigador y Desarrollador en el Área de Sistemas Embebidos
Laborando en CD Tech Group en el Área de Diseño de Electrónico

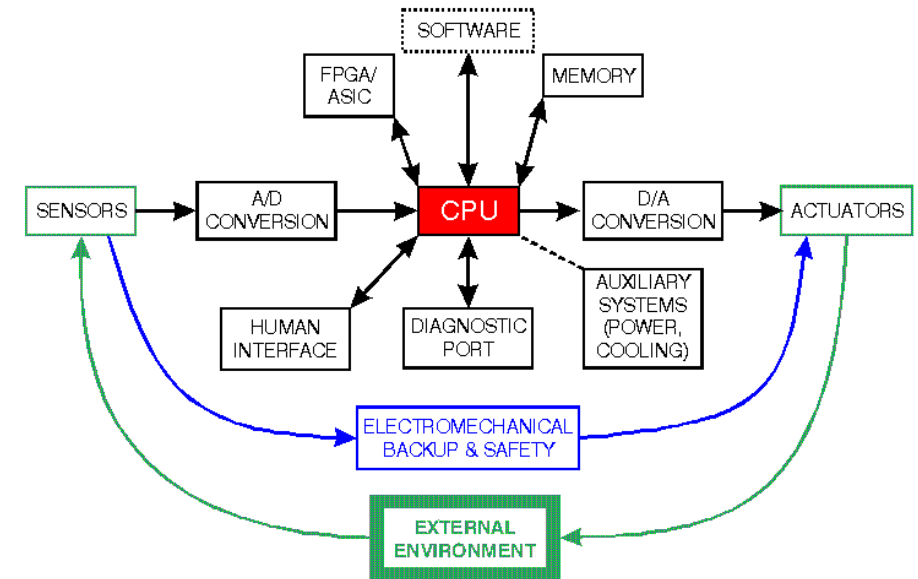


Introducción a Los Sistemas Embebidos

Son sistemas electrónicos de propósito específico diseñados para una función específica



- Funcionalidad
- Consumo
- Costo
- Confiabilidad



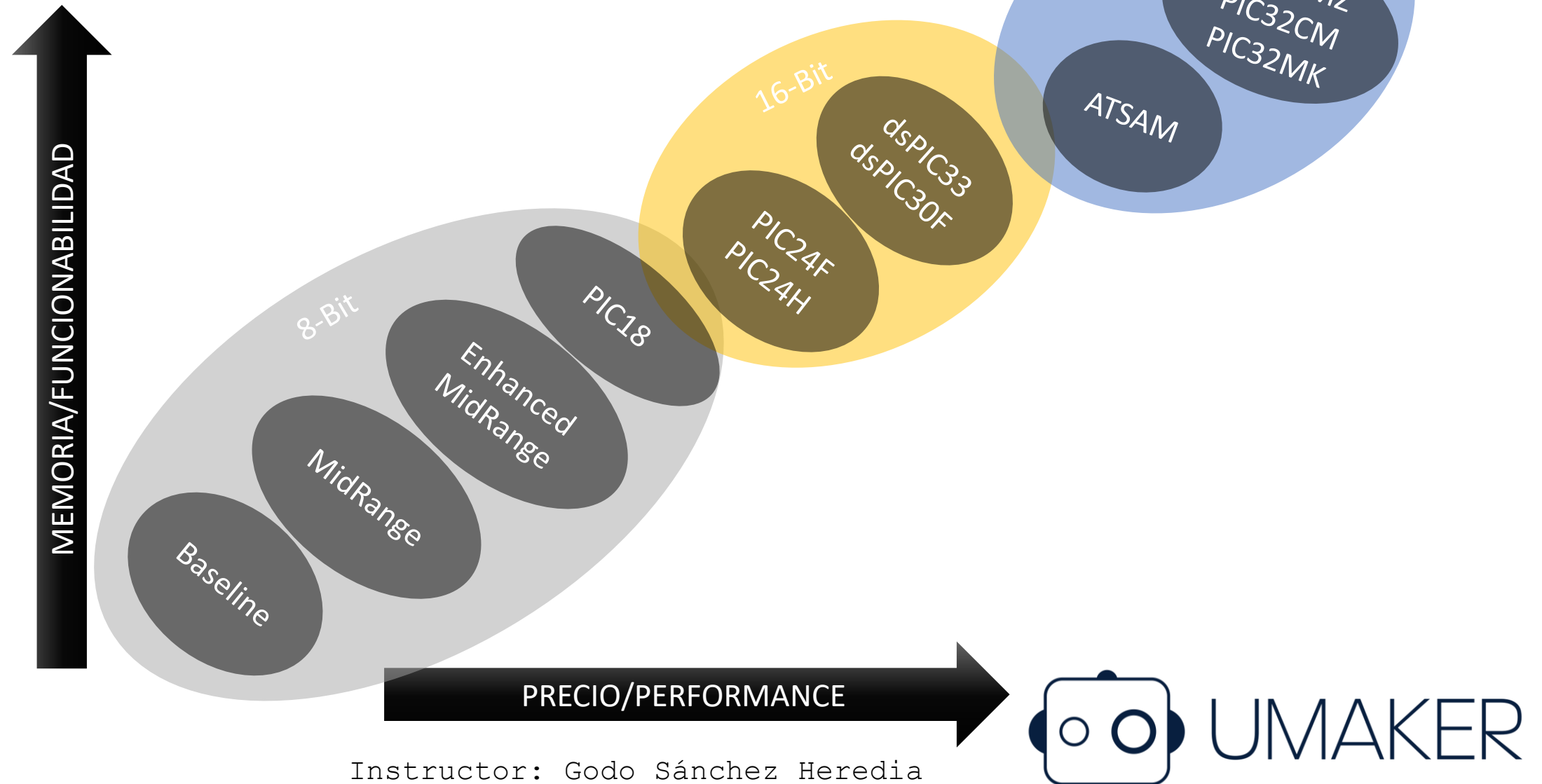
Introducción a Los Sistemas Embebidos





MICROCHIP

Portafolio de Microchip

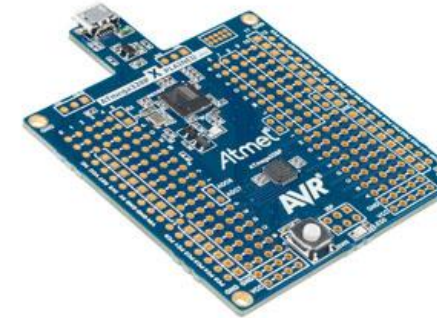
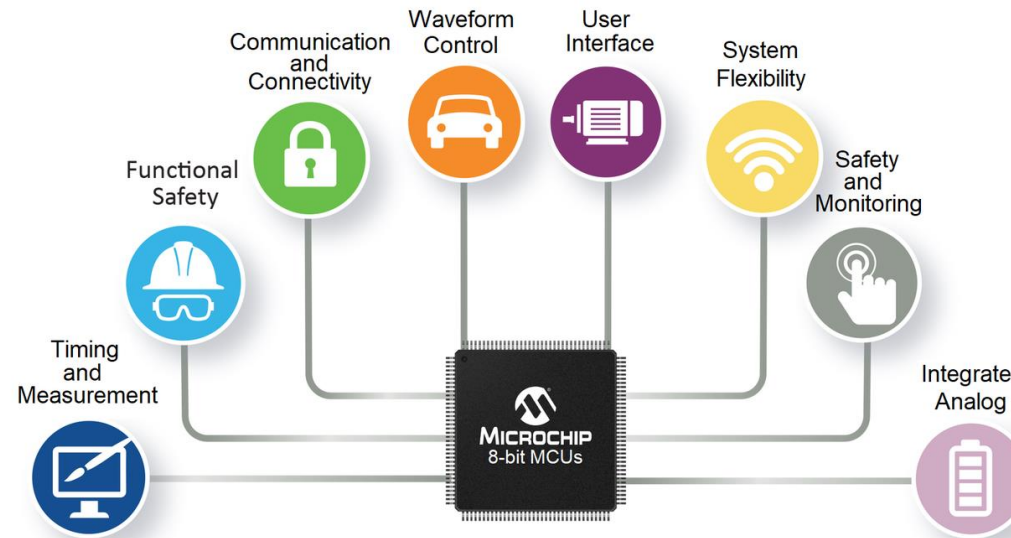


Instructor: Godo Sánchez Heredia



UMAKER

Linea de 8 Bits



MPLAB® Xpress Board

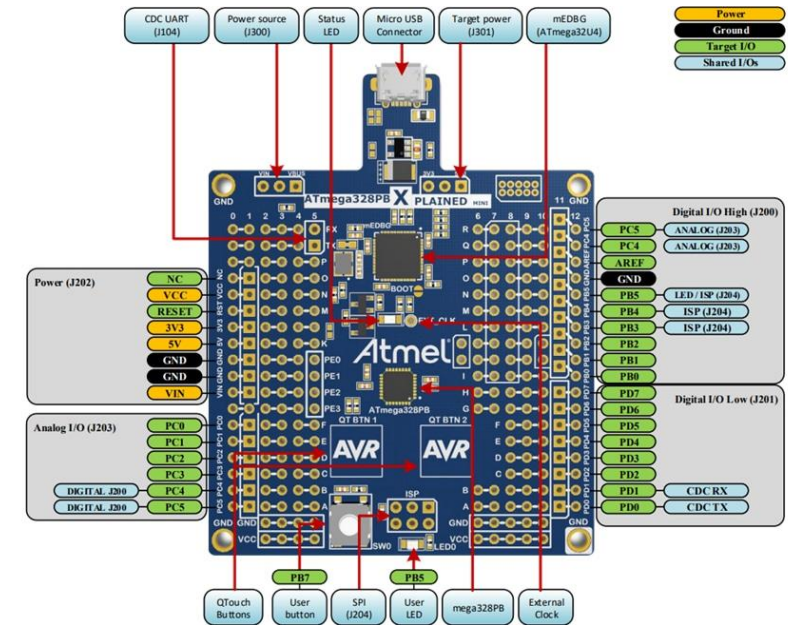
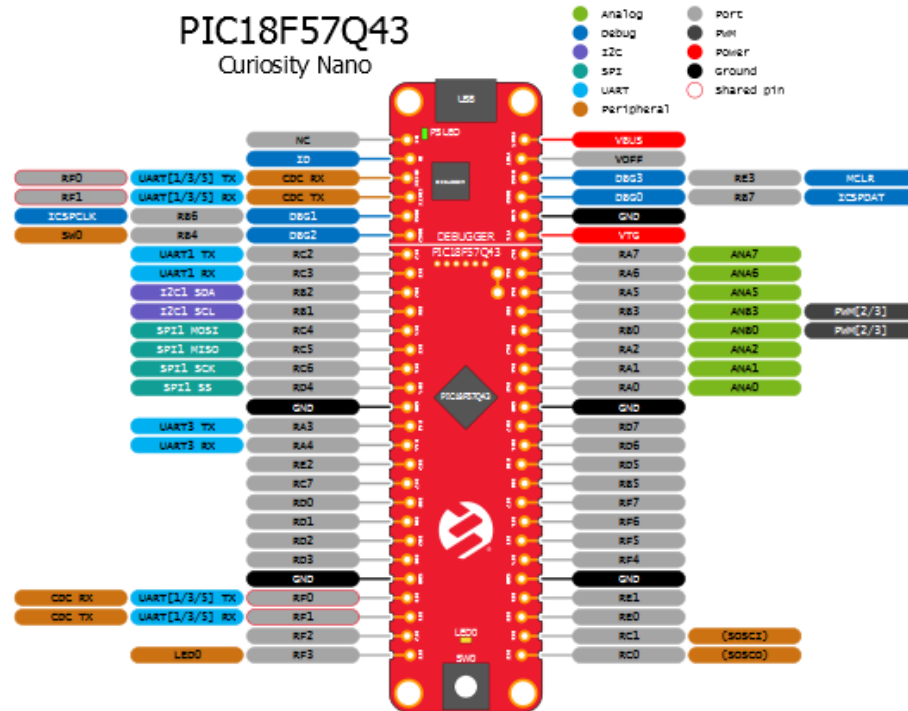
<https://ww1.microchip.com/downloads/en/DeviceDoc/30009630M.pdf>





MICROCHIP

Linea de 8 Bits



UMAKER

Instructor: Godo Sánchez Heredia

Linea de 16 Bits



Battery-Powered Designs

General Embedded Designs

Easy Upgrade From 8-bit PIC® MCUs

Low Power Designs



High-Performance Designs



Real-Time Control and Robust Designs

Motor Control

Digital Power

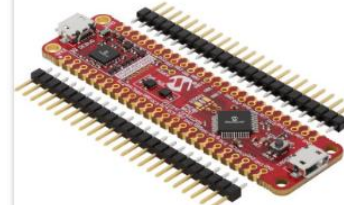
Functional Safety and Security

Robust Connectivity

Common Peripherals, Libraries and Development Ecosystem

Entry-Level Functions
16 MIPS

Advanced Functions
Up to 100 MIPS Per Core



Instructor: Godo Sánchez Heredia

Familias del dsPIC

dsPIC33F Family

Speed (MIPs)	Flash (KB)	RAM (Bytes)	Pins
16-50	6 - 256	512 16384	18 - 100

Series: **dsPIC33F Features:** DSP, ADC, Timers, UART, SPI, I²C, PWM

dsPIC33FJxx**GP**xxx - General purpose, some devices with DMA, DAC, and QEI

dsPIC33FJxx**GS**xxx - Optimized for SMPS designs, some devices with QEI and CTMU

dsPIC33FJxx**MC**xxx - Motor control optimized, includes QEI and MCPWM



dsPIC33CH DUAL-CORE Family

Speed (MIPs)	Flash (KB)	RAM (Bytes)	Pins
100	64 - 512	20K - 40K	28 - 80



sPIC33E Family

Speed (MIPs)	Flash (KB)	RAM (Bytes)	Pins
70	32 - 512	4096 58304	28 - 144

Series: **dsPIC33E Features:** DSP, DMA, ADC, UART, I²C, SPI, PWM, IC

dsPIC33EPxx**GP**xxx - General purpose, includes CTMU and CAN

dsPIC33EPxx**GM**xxx - Adds I²S and a second CAN to the GP series

dsPIC33EPxx**MC**xxx - Motor control, includes QEI and enhanced PWM

dsPIC33EPxx**GS**xxx - Optimized peripherals for SMPS applications

dsPIC30F Family

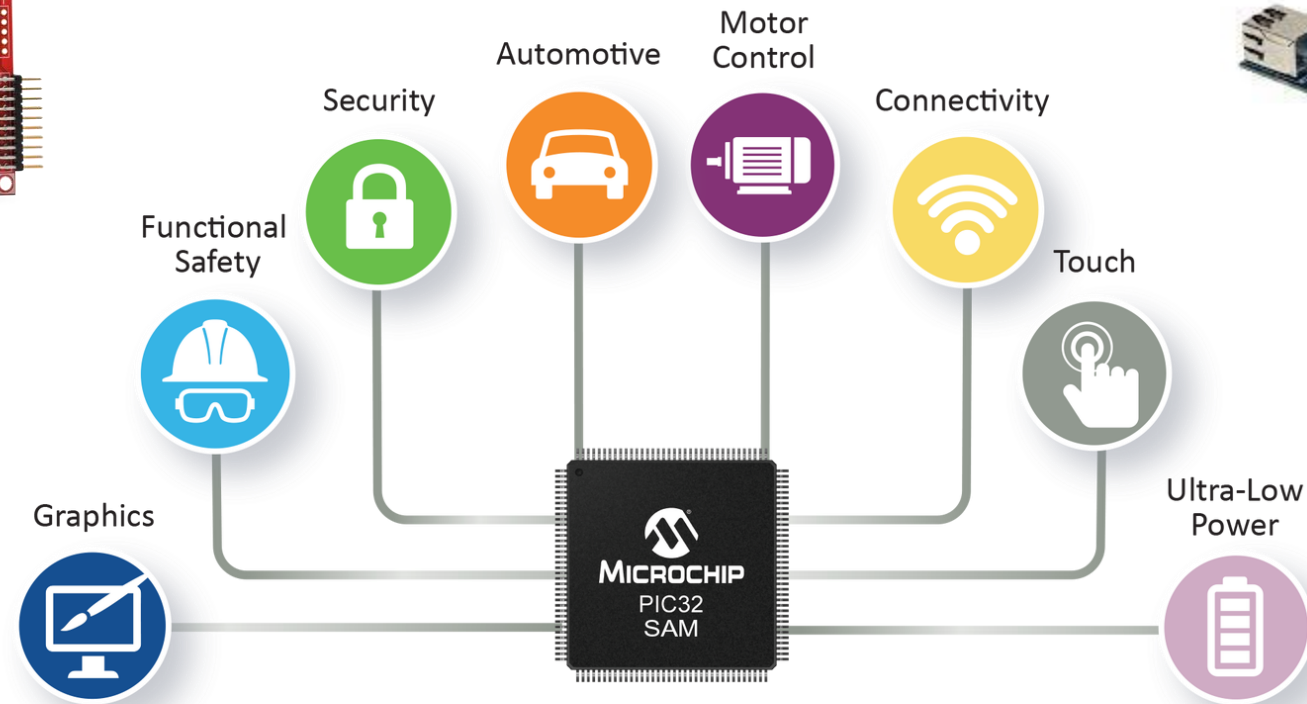
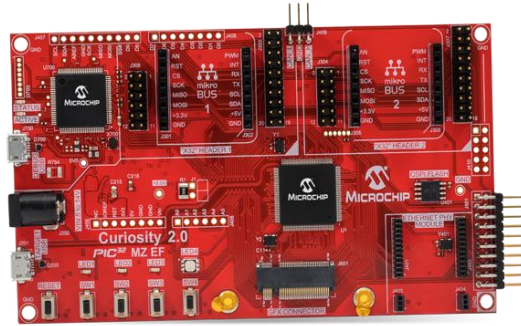
Speed (MIPs)	Flash (KB)	RAM (Bytes)	Pins
30	6 - 144	256 8192	18 - 80

Series: **dsPIC30F Features:** DSP, ADC, Timers, UART, SPI, I²C, PWM

dsPIC30Fxxx - **5 Volt**, some devices with EEPROM, CAN and QEI



Linea de 32 Bits





MPLAB X IDE



Entorno de desarrollo oficial para desarrollar aplicaciones con microcontroladores de Microchip compatible con Windows, Linux y MAC.
Flexibilidad de integracion con el Compilaodr de mcu de 16 bits

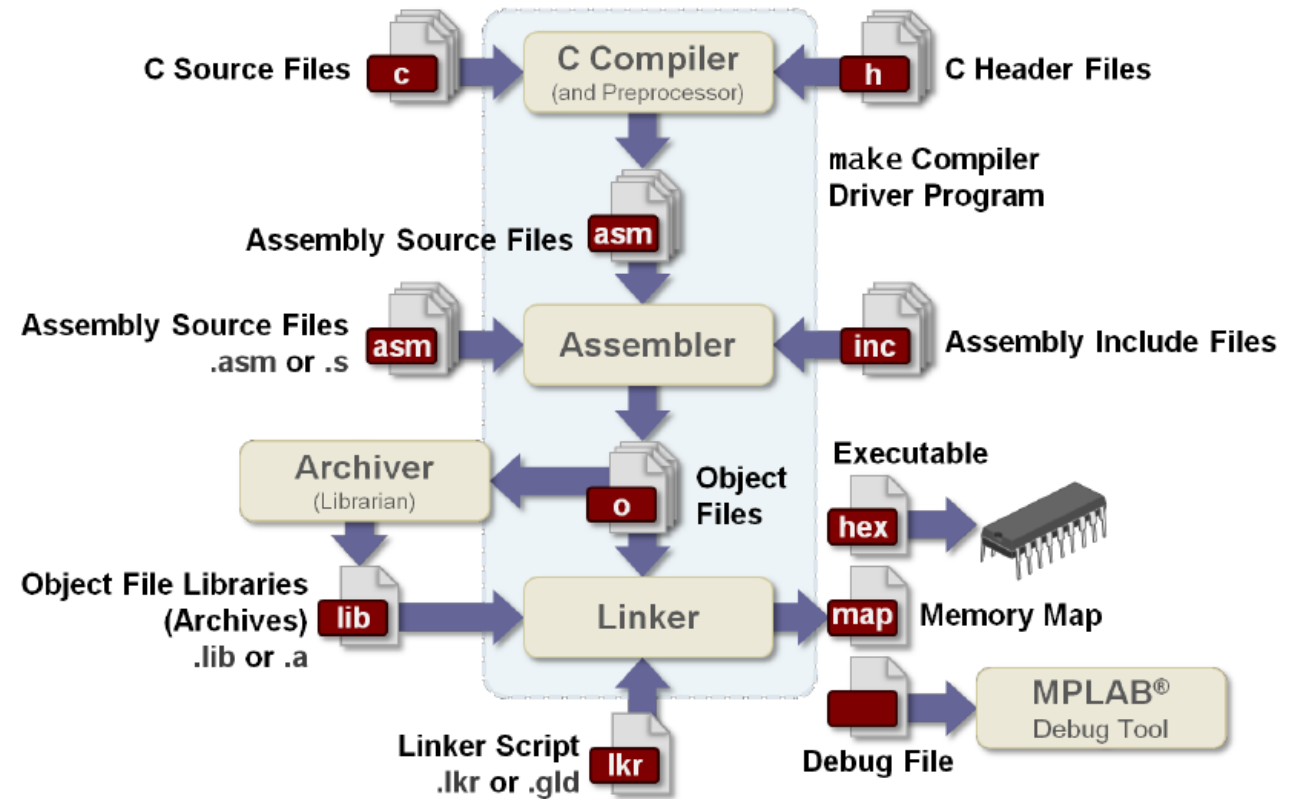


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Función del Compilador XC16

Traducir el lenguaje de alto nivel (Lenguaje C, Basic, Python etc) a lenguaje ensamblador



Compilador XC16

- Compilador ISO C90 (conocido como ANSI C)
- Soporta a todos los MCU de 16 Bits : PIC24 ,dsPIC33 Y dsPIC30
- Disponible para Windows ,Linux, Mac OS



MCC



Es un entorno de programación gráfico gratuito que genera código C transparente y fácil de entender para insertarlo en su proyecto. Usando una interfaz intuitiva, habilita y configura un amplio conjunto de periféricos y funciones específicas para su aplicación. Es compatible con nuestros dispositivos de 8 bits, 16 bits y 32 bits, que incluyen nuestros microcontroladores (MCU) PIC®, AVR® y SAM y los controladores de señal digital (DSC) dsPIC®.

MCC consta de tres tipos de contenido: MCC Melody, MCC Classic y MPLAB Harmony. Ofrece bibliotecas de aplicaciones y controladores de sistema y periféricos para el desarrollo de software embebido.

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MCC



MPLAB® X IDE/MPLAB Xpress*

MPLAB Code Configurator (MCC)

Content Manager Tool (CMT)

MCC Melody

MCC Melody supports PIC® and AVR® MCUs and dsPIC® DSCs. We recommend using MCC Melody for new designs.

Evolved from MCC Classic, MCC Melody offers an improved and flexible architecture with several new advanced capabilities. The offline MPLAB X IDE and the online MPLAB Xpress IDE both support MCC Melody.

MCC Classic

MCC Classic supports PIC and AVR MCUs and dsPIC DSCs. We recommend using MCC Classic for existing designs and for designs that use devices and libraries that are not supported in MCC Melody.

MCC Classic is the traditional content type of MCC that you are probably familiar with.

MPLAB Harmony

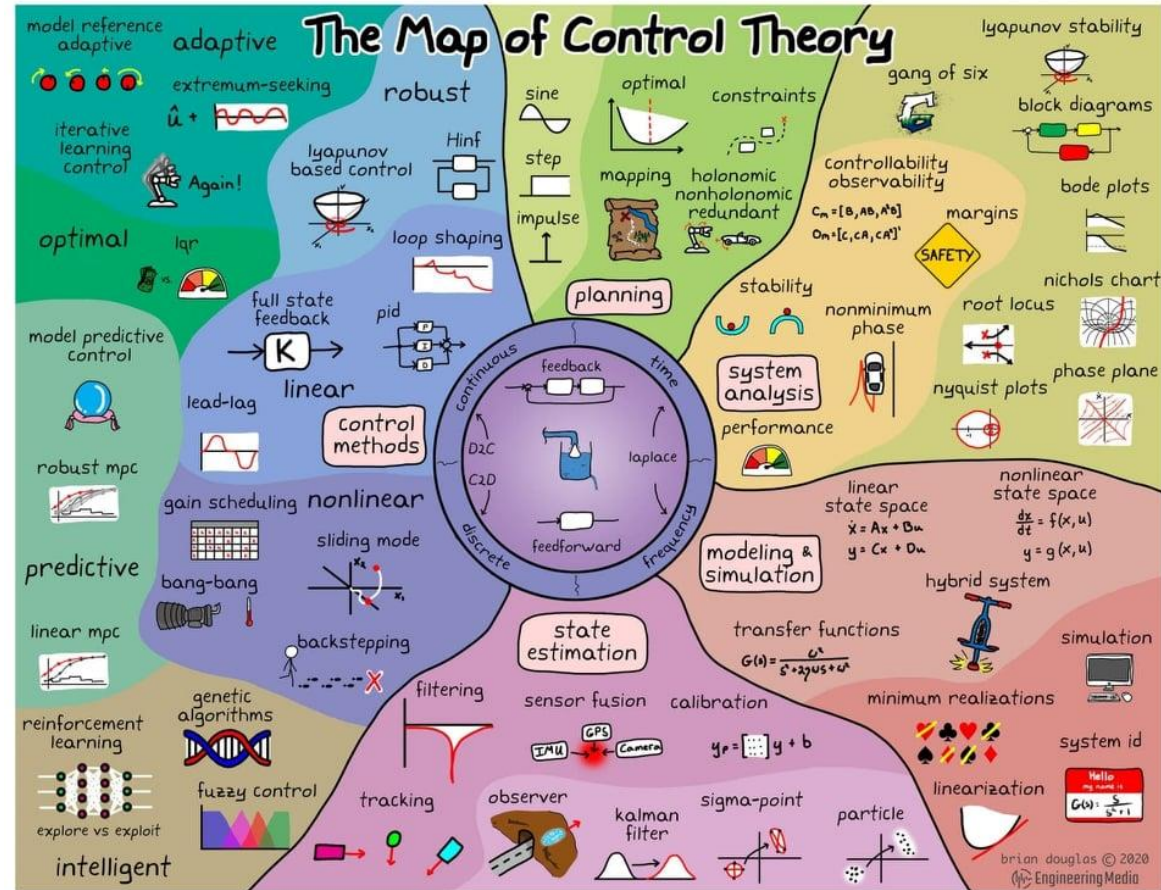
MPLAB Harmony supports all Microchip's 32-bit MIPS® and Arm® Cortex® based MCU and MPU device families.

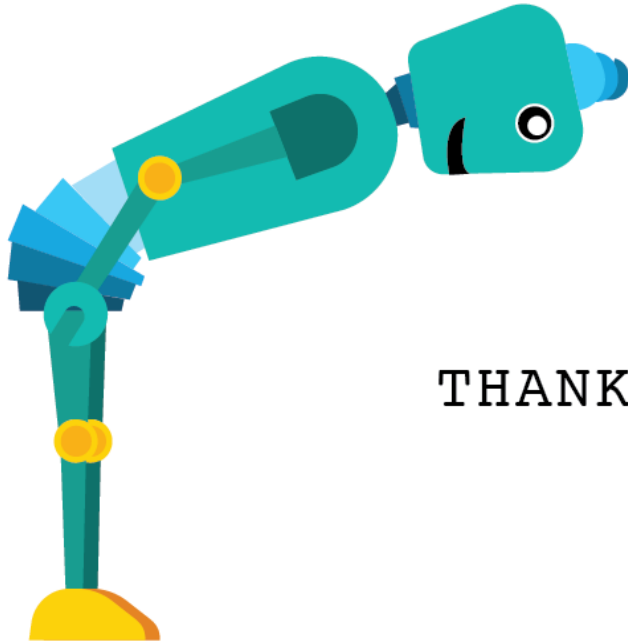
MPLAB Harmony is a fully integrated embedded software development framework that provides flexible and interoperable software modules to simplify the development of value-added features to reduce your product's

*MPLAB Xpress only supports MCC Melody.

Instructor: Godo Sánchez Heredia







THANK YOU

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