Easybom: How to choose a Microncontroller MCU

HONGKONG, CHINA, April 18, 2023 /EINPresswire.com/ -- The MCU industry is growing more quickly than the rest of society as new devices with various functions appear one after another. How can we pick the best product out of a plethora of options? What guides the selection of a microcontroller?

Memory

It is advised to utilize a Flash single-chip microcomputer during the research and development phase since it has the benefits of electric writing and electric erasing, which make it very convenient to modify the software and can speed up development. OTP single-chip microcomputers can be utilized for devices that have already started to take shape, which can save masking time and accelerate the time to market for products. When making a choice, be sure the program memory is adequate or the price will go up. Choose EEPROM to save data if you want to. or an IAP-compatible microcontroller.

Running speed

A single-chip microcomputer's operating speed is primarily influenced by its instruction set and clock frequency. One machine cycle is many clocks.

The speed of the single-chip microcomputer should be chosen in accordance with the requirements. Keep your pursuit of high speed balanced. The single-chip microcomputer's stability, anti-interference, and other properties are essentially inversely related to speed.

I/O port

One of the first factors to take into account when choosing a single-chip microcomputer is the quantity and purpose of the I/O ports. The amount is decided based on actual needs. I/O redundancy increases chip size and cost in addition to chip size.

Timer/Counter

The majority of single-chip microcomputers include two to three timers or counters, and some of these have additional features including input and write capture, output comparison, and PWM (pulse width modulation). Utilizing these modules can reduce CPU usage while also simplifying software design. Many single-chip microcomputers still available today feature a watchdog timer (WDT), which may be set to automatically reset when the single-chip microcomputer "crashes".

Serial interface

The regular UART interface, improved UART interface, I2C bus interface, CAN bus interface, SPI interface, USB interface, etc. are some examples of the common serial interfaces used by single-chip microcomputers. Some single-chip microcomputers lack a serial interface, although the majority of them include a UART interface.

Analog circuit function

At this time, a large number of single-chip microcomputers offered AD converters, PWM output, and voltage comparators, whereas just a few offered DA converters.

The on-chip AD converter and sample/hold circuit are both integrated into the single-chip microprocessor, making it simple for customers to create complex data acquisition systems. To produce pulse signals with various frequencies and duty ratios, utilize the PWM module. may easily implement the D/A output function. The PWM output module can also be utilized to carry out tasks like controlling the DC motor's speed.

Affordability of Microcontrollers

Whether a single-chip microcomputer can be bought directly refers to whether it can be bought from the manufacturer or a representative of the manufacturer, and whether the buying channel is efficient. Whether there is a sufficient supply of single-chip microcomputers to guarantee that the chosen single-chip microcomputer can satisfy the product's production requirements.

You should be careful to select single-chip microcomputers that are still being produced when making your decision. Because it lacks the capability for a backup supply, the single-chip microcomputer that was discontinued cannot be chosen, which has a negative impact on the product's ability to continue being manufactured and maintained. Additionally, it will make customers feel dated, which will lessen the freshness of the goods.

It is preferable to see if the single-chip microcomputer you've chosen has been upgraded. It goes without saying that a single-chip microcomputer with a new version ready to be released or already available has the durability to be utilized in a system or product.

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