

The background of the slide is a grayscale aerial photograph of a city, likely New York City, showing a dense grid of buildings and a large suspension bridge with multiple cables. Overlaid on the right and bottom-left corners are several diagonal, semi-transparent geometric shapes in shades of blue, magenta, and white. The text is centered in a bold, dark blue font.

Megawin Technology Arduino Introduction

What is Arduino ?

Arduino is a convenient, flexible, and easy-to-use open source electronic prototyping platform. The main advantage is that it omits the tedious underlying development, allowing users to focus on functional implementation and quickly develop and verify hardware prototypes. The library files, codes, programs, circuits, projects and other design files created by developers and users can all be shared as open source.

Arduino

Hardware:

Arduino hardware development boards and various independent Modules

Software :

Arduino IDE

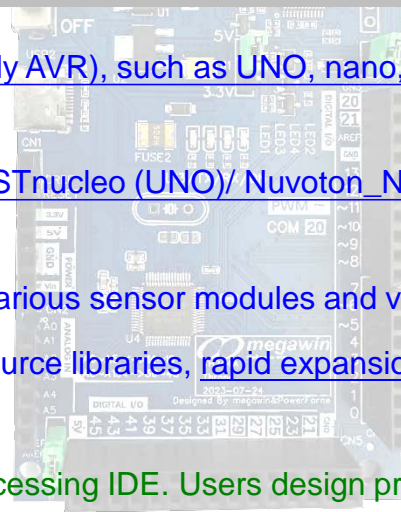
(Software Development Environment)

1 Arduino official development board (mainly AVR), such as UNO, nano, Mega2560, Yun...

2 Third-party development board: such as STnucleo (UNO)/ Nuvoton_NuEdu-UNO/ megawinTH244A, etc.;

3 Multiple independent modules, such as various sensor modules and various motor modules. Combined with various open source libraries, rapid expansion and application.

1. Arduino IDE: Developed based on Processing IDE. Users design programs based on C/C++.
 - 1) Program text editor, compile, download, serial port debugger
 - 2) Library manager: Many open source libraries are available for developers to download and modify.
 - 3) Development board manager: manage core development packages.
2. Development package of megawin TH244A under Arduino IDE.



Features and fully developable packages

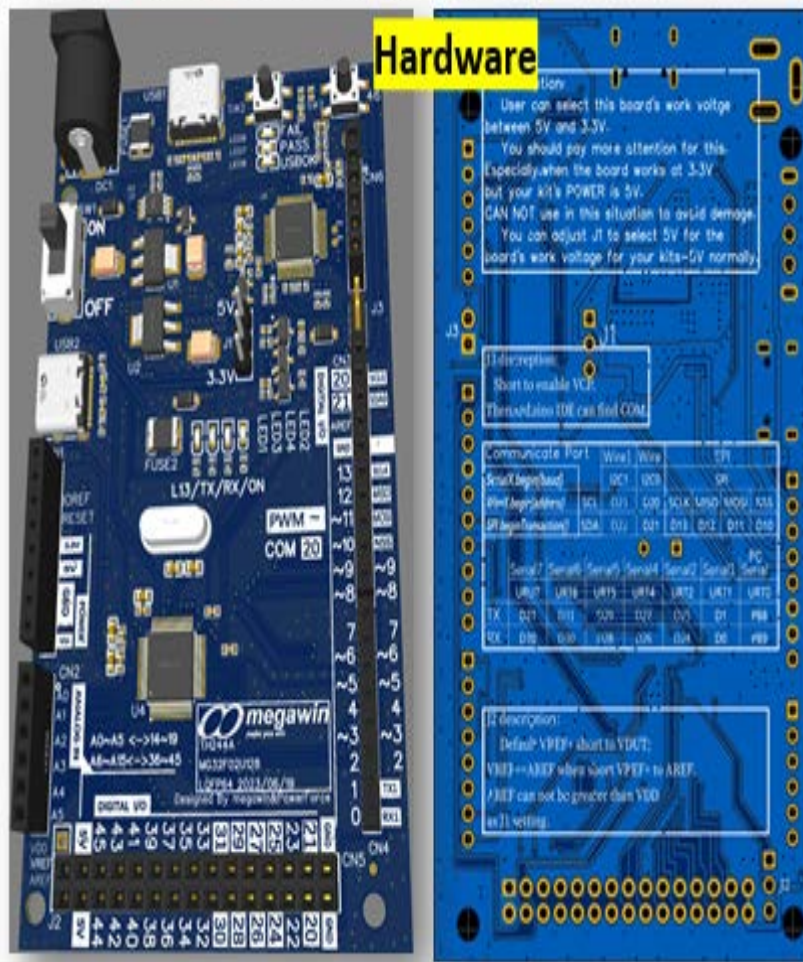
■ IDE platform example



Hardware + Software

(Development Edition/Development Kit)

Hardware : Hardware development board TH244A designed based on megawin ARM M0 MG32F02U128 main controller



Software : Development package mg32x02z that supports

Arduino IDE development environment

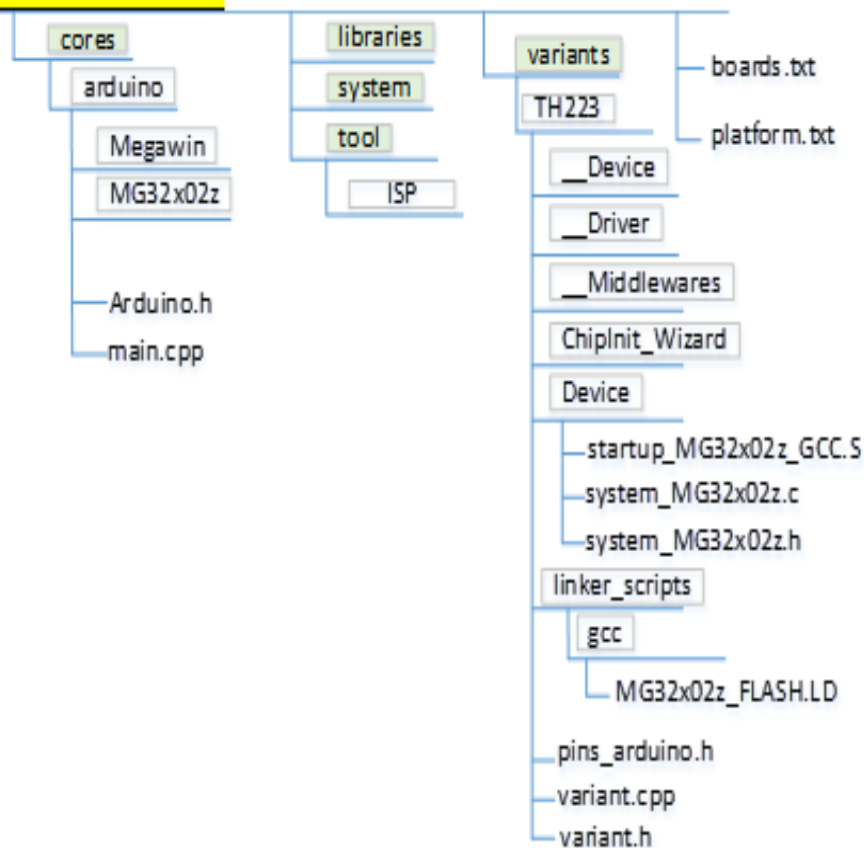
Development Kit

mg32x02zStructure

.....Arduino15\packages\megawin\hardware\

-> mg32x02z

-> X.X.X



Hardware Resources

1. TH244A is a development board **compatible with Arduino UNO interface**. Compared with UNO R3, TH244A has 47 GPIOs. As an ARM microcontroller development board, TH244A can be developed in the traditional ARM development environment, Keil-MDK (ARM);
2. **Development method in Arduino environment**. TH244A special **development kit MG32x02z** is used as support, supporting the functions in the following table;
3. Supports code development, compilation, downloading, and debugging in Arduino IDE and Visual Studio Code IDE (with Arduino extension installed).

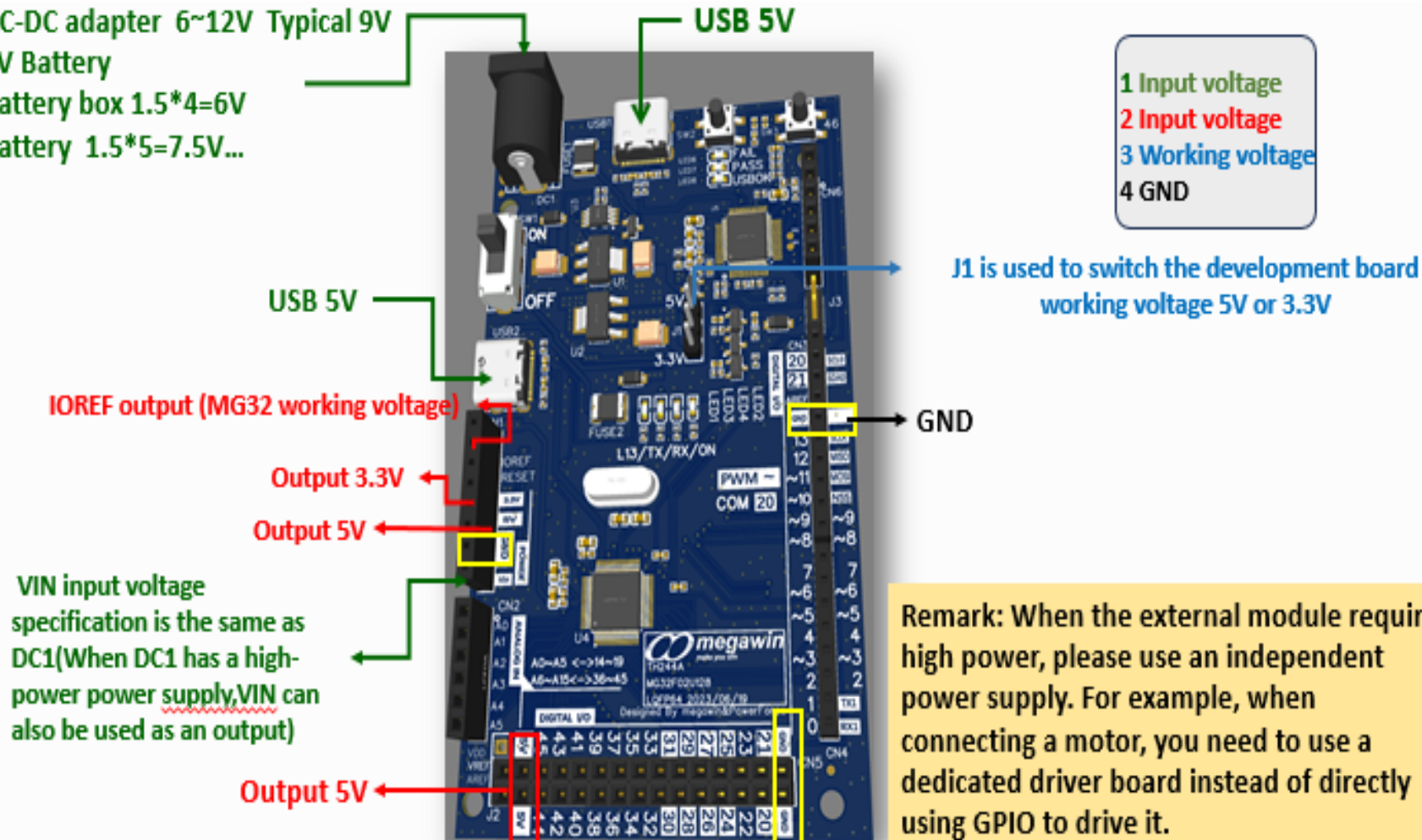


Board Name	Operating Voltage	Clock Speed	GPIO	Analog Input ADC	Analog Output DAC	PWM
Megawin TH244A	5V /3.3V Switchable	IHRCO 12MHz	47	16 8bit 10bit 12bit	1 12bit	7 8bit Default 1KHz , 300Hz~5KHz Adjustable

Communication part	UART	SPI	IIC	USB DEVICE	Program download and debugging interface
	7	1 (Master)	2 (Master/ Slave)	1 USB2 As Mouse, Keyboard	USB1 via <u>MLink</u> MG84FG516 Upload program

Hardware Resources

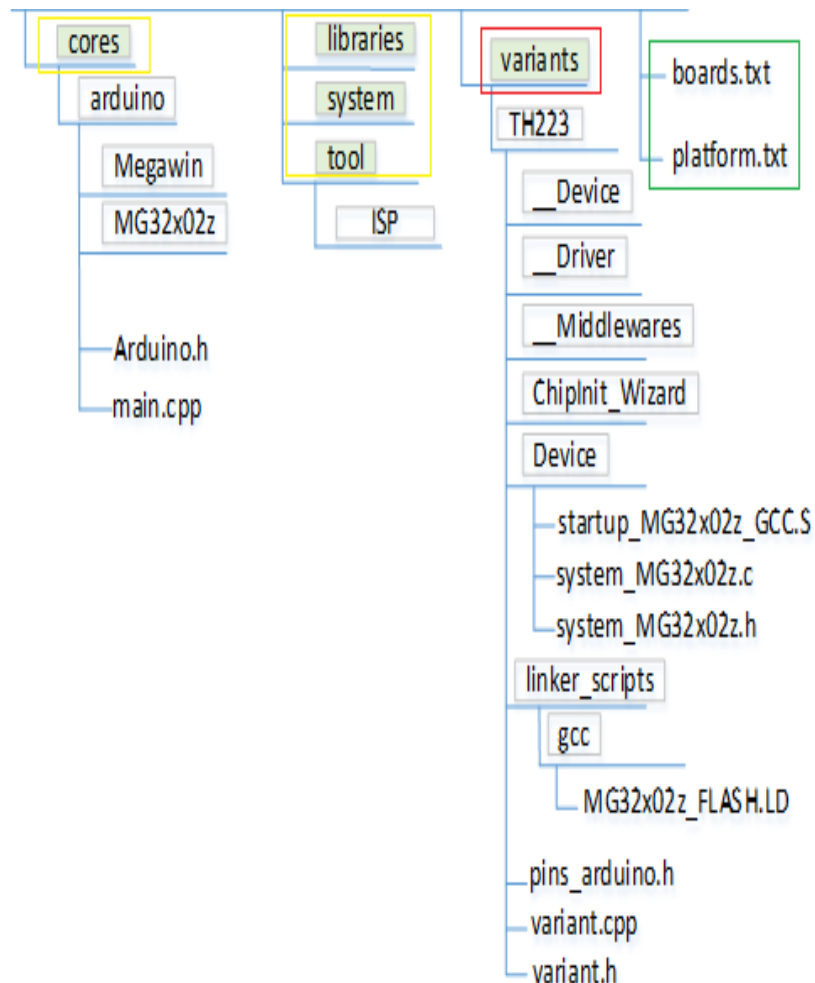
1. AC-DC adapter 6~12V Typical 9V
2. 9V Battery
3. Battery box 1.5*4=6V
4. Battery 1.5*5=7.5V...



Software Resources - Development Kit

.....Arduino15\packages\megawin\hardware\mg32x02z\x.x.x

x.x.x represents the version number



- **borad.txt** file is used to describe chip/development board information, debugging information, etc. (This information will later become compiled macro information. The IDE distinguishes different development boards through the definitions in this file).
- **Platform.txt** file is used to describe compiler related information, compilation tools, compilation path, etc. It is similar to the makefile file.
- **Cores** is the core file of Arduino. The main structure definition, system clock, serial port, IO and other common basic codes of Arduino are implemented here.
- **Libraries** is the library file of TH244A. Development board UART, I2C, SPI and other library functions;
- **System** Place CMSIS (ARM Cortex™ Microcontroller Software Interface Standard)
- **tool** is used to place the tools used by the development board or chip, which can be called by Arduino (support console parameter calling). Currently there is only one tool for ISP download, which is used to support calling ISP related instructions through Arduino IDE to execute download actions.
- **variants** is the core code of the development board. This module can be compiled from the borad.txt file. Various different codes for similar chips or development boards of different specifications are placed here. For example, the pinout definition structure, etc.

Software Resources

■ https://www.megawin.com.tw/files/Download/Tools/Arduino/package_MG32x02z_index.json

Arduino IDE integrates a **third-party development board manager**. It can easily manage development board categories and versions.

When megawin needs to release a development package, the server only needs to place the actual **development package (bz2 compressed file)** and the new version **JSON file (.json file)** to the network location specified by megawin:

(https://www.megawin.com.tw/files/Download/Tools/Arduino/package_MG32x02z_index.json) 。

When the Arduino IDE is started, it will first retrieve the JSON file based on the URL and analyze the internally defined development package and tool version numbers. If there is a higher version than the local version, the user will be prompted to install it. The development package version number is x.x.x. For example, 1.0.1<1.0.2<1.1.0<2.0.1 means the versions are in ascending order.

首选项

设置

网络

项目文件夹地址:

c:\Users\86186\Documents\Arduino

浏览

☒ 显示项目中的文件夹

编辑器字体大小:

14

界面比例:

☒ 自动调整 100 %

颜色主题:

Light

编辑器语言:

中文(简体)

(需要重新加载)

显示详细输出

☒ 编译 ☒ 上传

编译器警告

无

☐ 上传后验证代码

☒ 自动保存(U)

☐ 编辑快速建议

json's URL

其他开发板管理器地址: http://www.megawin.com.tw/upload/media/MCU32/Tools/Arduino/package_MG32x02z_index.json

取消

确定

Blink | Arduino IDE 2.1.1

文件(F) 编辑 项目 工具 帮助



Megawin TH244A



开发板管理器

MEGAWIN



类型:

全部



Megawin MG32x02z
(32-bits ARM Cortex-...

1.0.2 已安装

Boards included in this package:
Megawin MG32F02U128_LQFP64,
Megawin MG32F02U128_LQFP8...

更多信息

1.0.2

移除

1.0.2

1.0.1

1.0.0

Blink.ino

Turns an LED on for one second, then of

Most Arduinos have an on-board LED you
it is attached to digital pin 13, on MK
the correct LED pin independent of whic
If you want to know what pin the on-boar
model, check the Technical Specs of your
<https://www.arduino.cc/en/Main/Products>

modified 8 May 2014

by Scott Fitzgerald

modified 2 Sep 2016

by Arturo Guadalupi

modified 8 Sep 2016

by Colby Newman

This example code is in the public doma

How to get started

■ Prepare tools

- Arduino board, USB transmission cable
- Arduino IDE (free download)
- Sensors, LEDs, Dupont wires and other accessories

■ Development steps

1. Install Arduino IDE
2. Use USB to connect Arduino to the computer
3. Write the program and upload it to the board
4. Test and correct the program logic

