Intel Do-It-Yourself Challenge
Hello World with the Arduino IDE

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Before you start

Processors and IO

Desktop OS

We'll use Ubuntu 12.04 LTS on a laptop,
but the Arduino IDE works the same on other Oses.

Hardware

Intel Galileo Development Board, for sale online.

(example : http://eu.mouser.com/new/Intel/intel-galileo-development-board/ 53.60 euros)

The box comes with cables and power supply.

Software

Intel Galileo Arduino SW (IDE and drivers)
https://communities.intel.com/docs/DOC-22226

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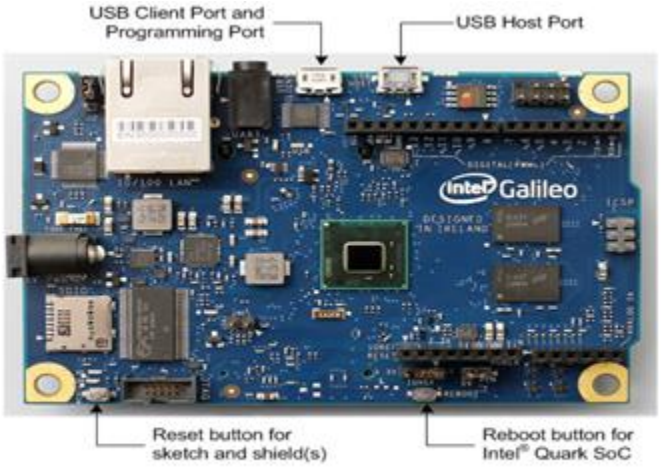
Plug – Boot – Connect

Step 1

Plug the power supply and **wait** for the USB green LED to be on. Do not proceed to step 2 until it's green (booting).

Step 2

Connect the USB cable
to the USB **client** port,
not the USB **host** port.



Note: The I/O headers are identical to the Arduino Revision 1.0 pinout.

Step 3

You'll see a new linux device called /dev/ttyACM

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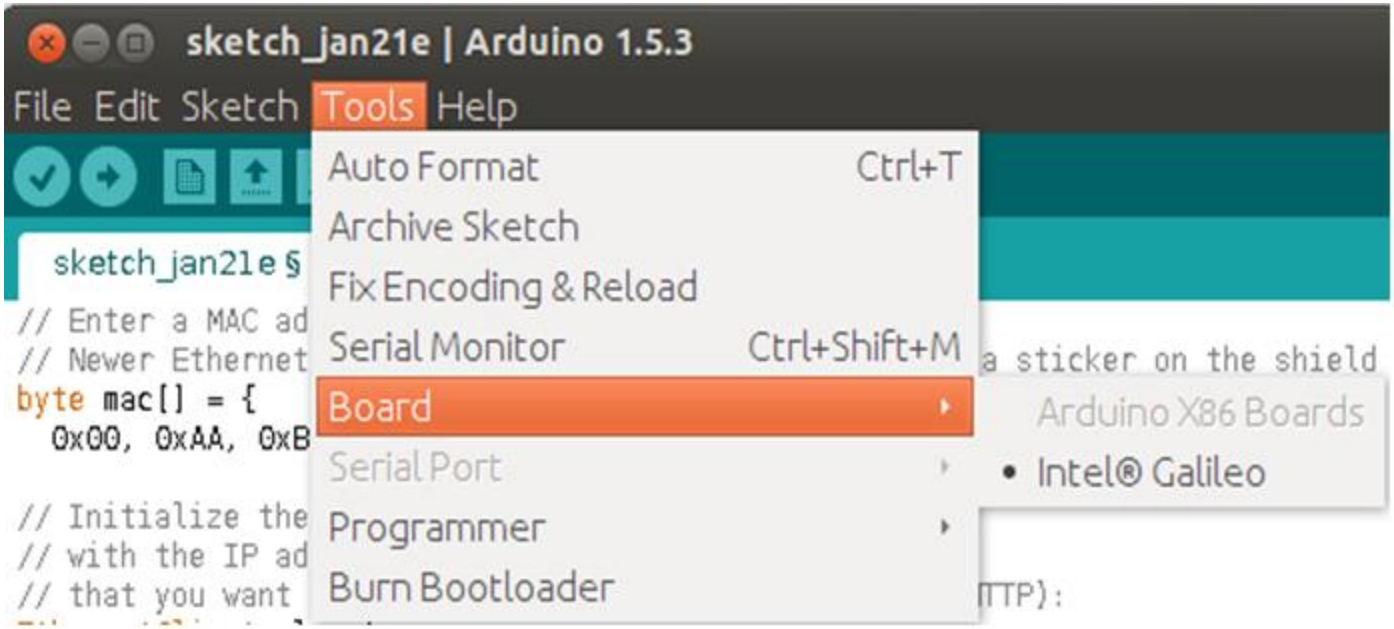
Development Environment

Extract the files from the archive : “tar –xvzf filename.tgz“

Launch the development environment (IDE) : “./arduino“

Select Board and serial port in the “Tools” menu.



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Update the Firmware

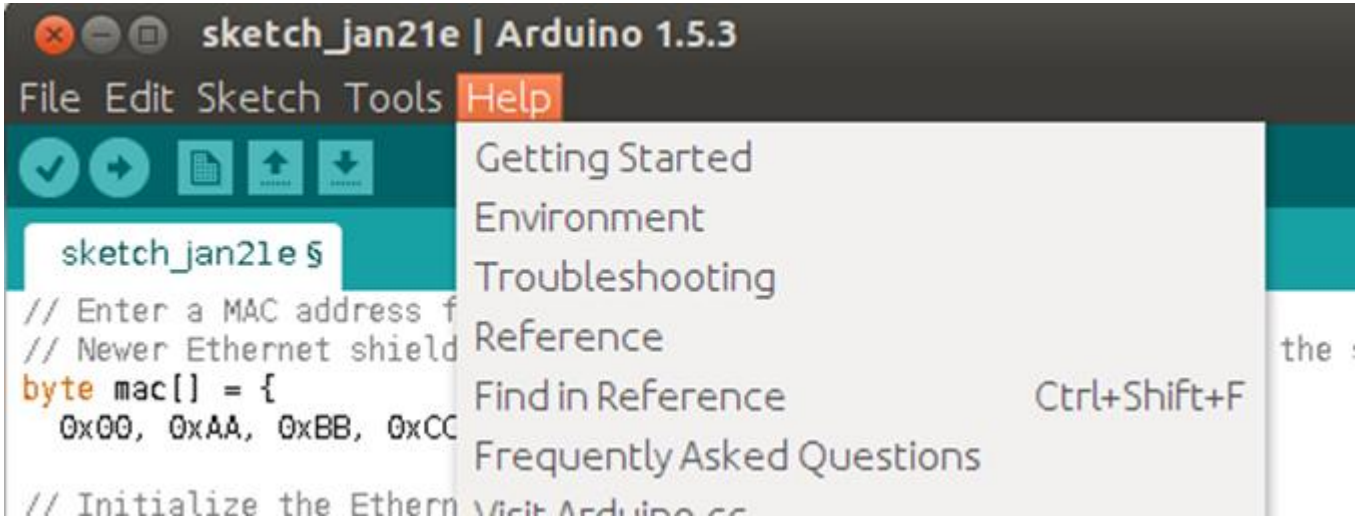
To update the firmware, first make sure you are online

Remove the micro SD card from the board (if present)

Menu : Help > Firmware Update

Do not unplug power or USB during the update

After update, reboot the board
by removing the power supply



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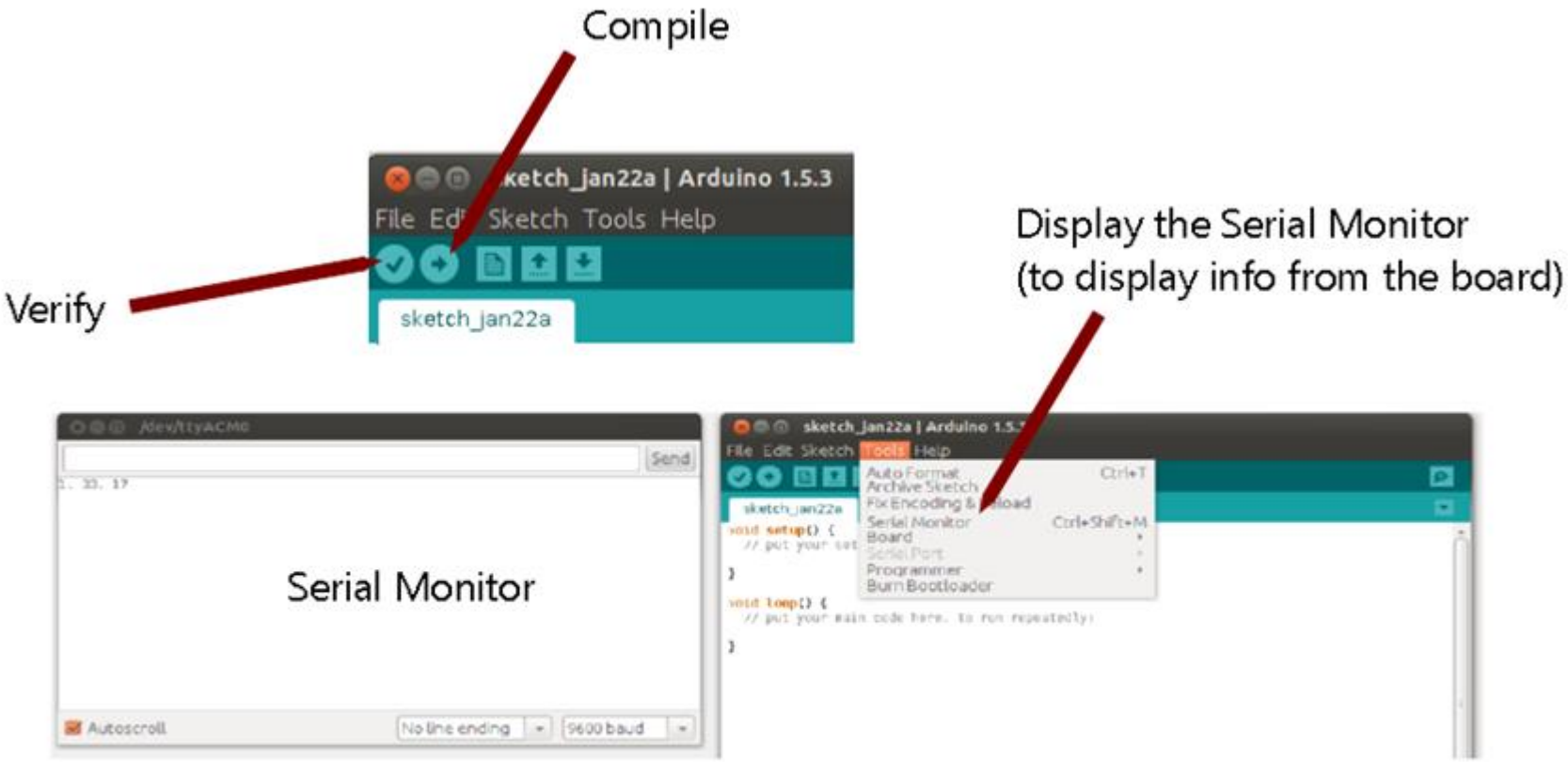
HelloWorld with Arduino IDE

Overview



Validation, compilation and serial communication console

1 Intel® Galileo on /dev/ttyACM0

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Hello World : print

Copy paste this code

```
// put your setup code here, to run once
void setup() {
  // initialize serial communication at 9600 bits per second
  Serial.begin(9600);
  // sending characters on serial port (visible if you display the serial monitor)
  Serial.println("Setup says: Hello World!");
}
// put your main code here, to run repeatedly
void loop() {
  //sending characters the same way as setup function
  Serial.println("Loop says: Hello World!");
  //waiting a second
  delay(1000);
}
```

Verify, Upload and Execute

Click Verify and Upload. Code is executed, see the output in the serial monitor.
Note : pushing the reset button won't reboot the board.

Hello World : blink

Goal

Load a file, execute, see the green LED blink.

Blink

Load the file from :
File > Examples > 01.Basics > Blink

In the new window :
click Verify and Upload

See the green LED flashing
on the Galileo board.

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Tips and links

A few important tips …

Tips

> Use the reset button on board
to run the setup() function again and restart the loop() function

> Note that reboot and reset buttons
should **not be use with SD card** and Linux system

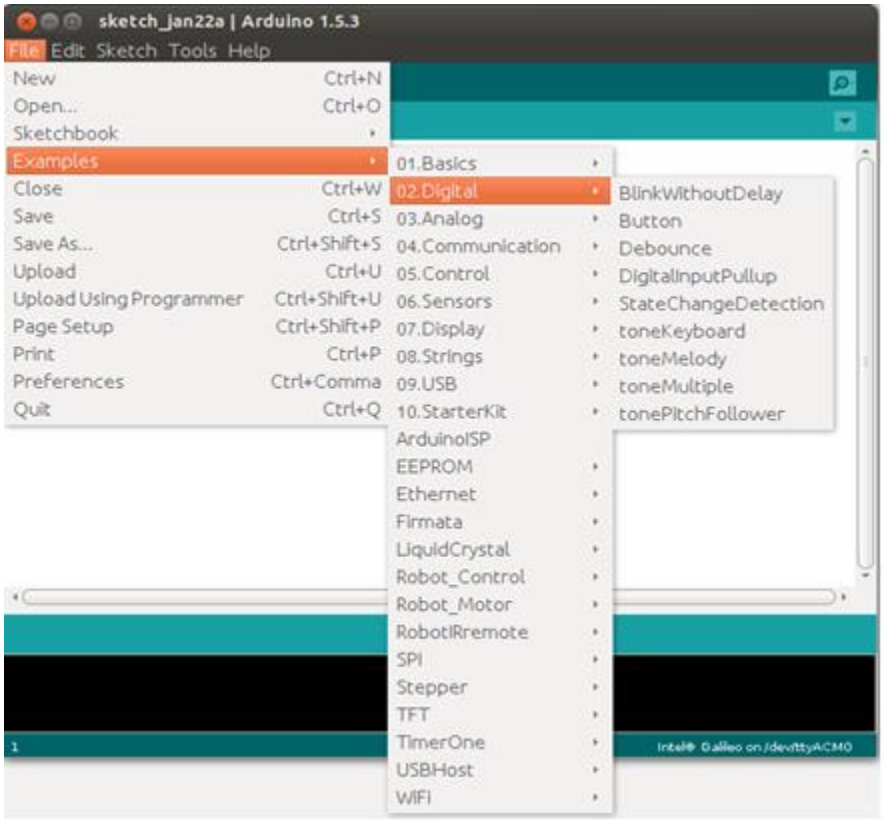
> Also note that if you use the reboot button,
USB won't be available. Reboot your board **unplugging and plugging** in the power supply.

> Use the serial monitor to debug your sketches

Going further …

Menu

There's tons of examples, feel free to browse and execute.



Sketches

Arduino source code are called sketches

File extension is .ino

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Arduino reference

http://arduino.cc/en/Reference/HomePage

Buy | Download | Getting Started | Learning | Reference | Hardware | FAQ

Reference Language | Libraries | Comparison | Changes

Language Reference

Arduino programs can be divided in three main parts: *structure*, *values* (variables and constants), and *functions*.

Structure

- setup()
- loop()

Control Structures

- if
- if...else
- for
- switch case
- while
- do... while
- break

Variables

Constants

- HIGH | LOW
- INPUT | OUTPUT| INPUT_PULLUP
- true | false
- integer constants
- floating point constants

Data Types

- void
- boolean
- char

Functions

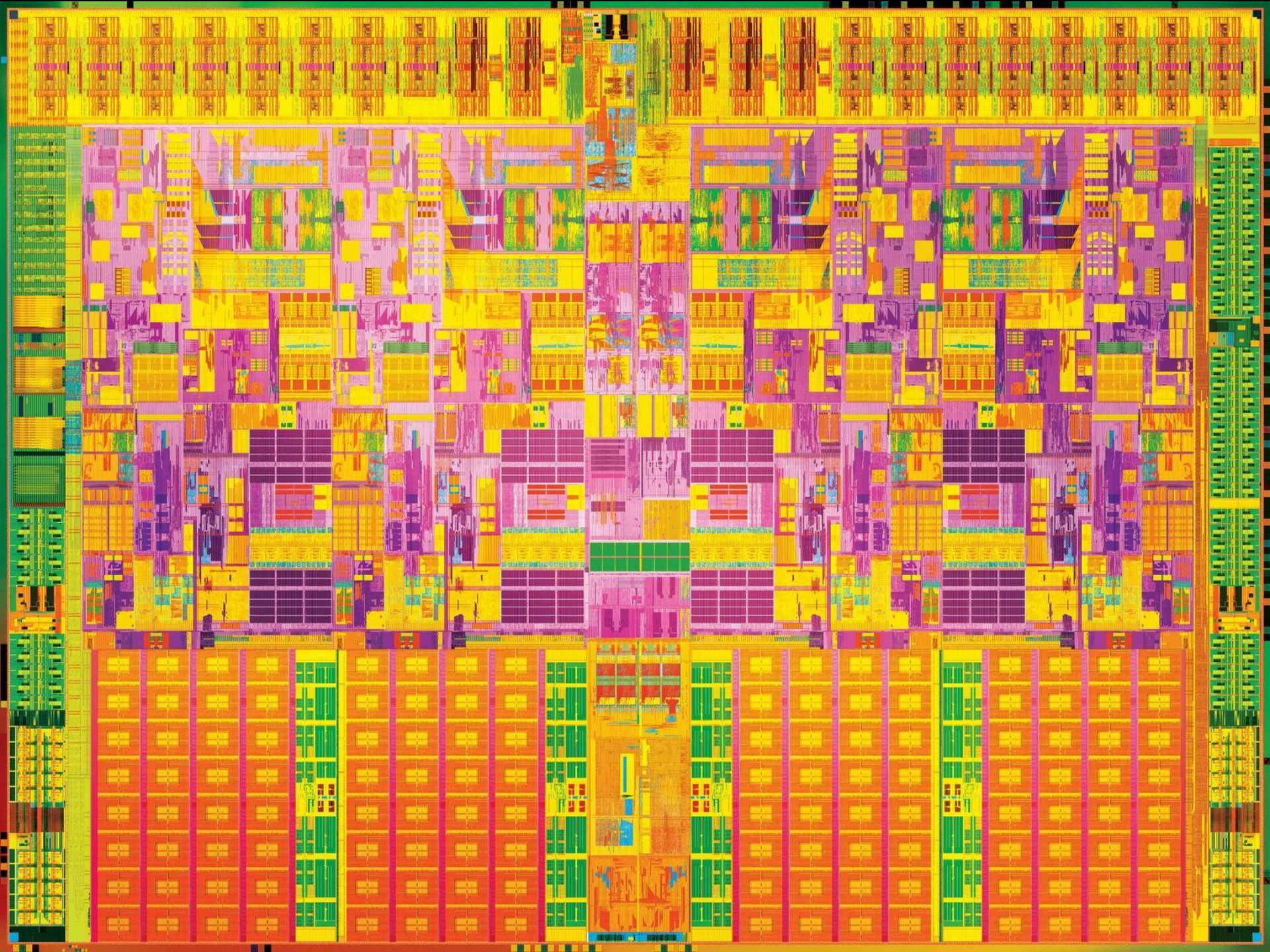
Digital I/O

- pinMode()
- digitalWrite()
- digitalRead()

Analog I/O

- analogReference()
- analogRead()
- analogWrite() - *PWM*

Advanced I/O



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