

Arduino Uno reference guide

Structure

```
void Setup()
void Loop()
```

Control structures

```
If (x<5){
for (int i = 0; i < 255; i++){
while (x < 6){
```

Further syntax

```
// Single Line Comment
/*.* / Multi Line Comment
#define ANSWER 42
#include <myLib.h>
```

General operators

```
= assignment
+,- addition, subtraction
*,/ multiplication, division
% modulo
== equal to
!= not equal to
< less than
<= less than or equal to
```

Pointer access

```
& Reference Operator
* Dereference Operator
```

Bitwise operators

```
& Bitwise AND
| Bitwise OR
^ Bitwise XOR
~ Bitwise NOT
```

Compound operators

```
++ Increment
-- Decre
+= Compound Addition
&= Compound Bitwise AND
```

Pseudo random numbers

```
randomSeed(seed)
long random(max)
long random(min,max)
```

Data types

```
void
boolean 0,1, false, true
char e.g.'a'-128 > 127
unsigned char 0 > 255
int -32.768 > 32.767
unsigned int 0 > 65535
long -2.147.483.648 > 2.147.483.647
float -3,4028235E+38 > 3.402835E+28
sizeof(myint) returns 2 bytes
```

Strings

```
char S1[15];
char S2[8]='A'r'd'u'i'n'o';
char S3[8]='A'r'd'u'i'n'o'\0';
char S4[]="Arduino";
char S5[8]="Arduino";
char S6[15]="Arduino"
```

Conversion

```
char() int() long()
byte() word() float()
```

Qualifiers

```
static Persist between calls
volatile Use RAM (nice for ISR)
const Mark read-only
PROGMEM Use flash memory
```

Interrupts

```
attachInterrupt (Interrupt,function, type)
detachInterrupt (Interrupt)
boolean (Interrupt)
interrupts ()
```

Time

```
unsigned long millis()
50 days overflow
unsigned long micros()
70 min overflow
delay(ms)
delayMicroseconds(us)
```

Math

```
min(x,y) max(x,y) abs(x)
sin(rad) cos(rad) tan(rad)
pow(base, exponent) map(val, fromL, fromH, toL, toH)
constrain(val, fromL, toH)
```

Tone

```
tone (pin, freqhz)
tone (pin, freqhz, duration_ms)
noTone (pin)
```

```
shiftOut (dataPin, clockPin, how, value) unsigned log
pulseIn (pin, [HIGH,LOW])
```

Arrays

```
int myInts[6];
in myPins[]={2,4,8,5,6};
int myVals[6]={2,4,9,3,5};
```

Analog i/o

```
analogReference(EXTERNAL, INTERNAL)
analogRead(pin)
analogWrite(pin, value)
```

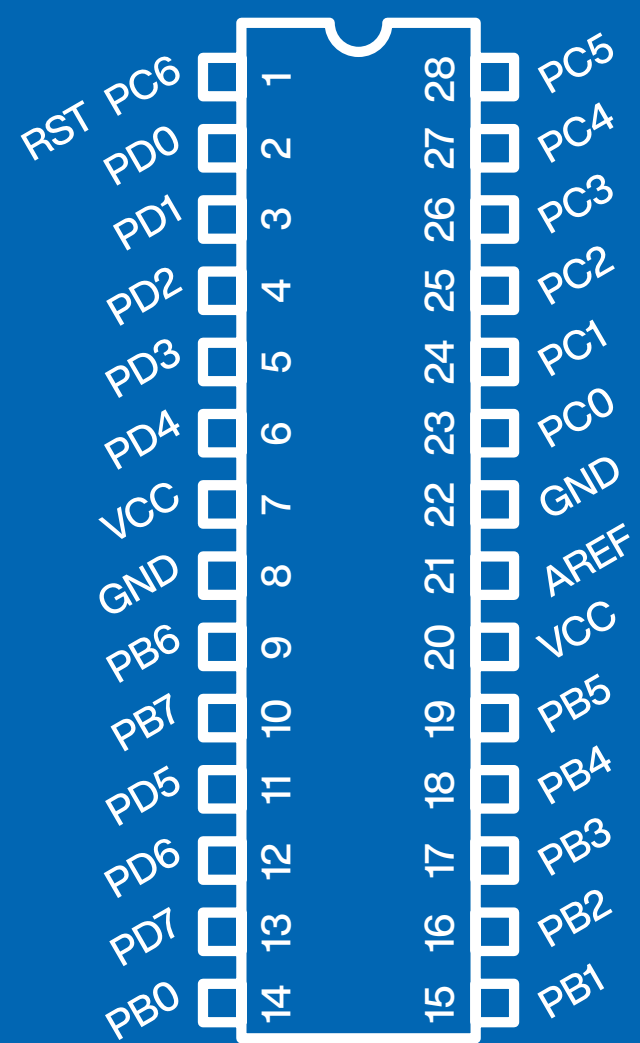
Digital i/o

```
pinMode(PIN,[INPUT, OUTPUT])
digitalRead(pin)
digitalWrite(pin, value)
```

Serial communication

```
Serial.begin(speed)
Serial.print("Text")
Serial.println("Text")
```

ATmega328 pinout



Online references

forum.arduino.cc
arduino.cc/en/



Arduino Uno board

