REFERENCIA RÁPIDA ARDUINO

OSHWDEM - 2014

BricoLabs

Estructura

void **setup**()
void **loop**()

Control de flujo

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

Sintaxis adicional

// Single line comment
/ * .. * / Multi line comment
#define ANSWER 42
#include <myLib.h>

Operadores

= assignment
+, − addition, substraction
*, / multiplication, division
% modulo
== equal to
! = not equal to
< less than
<= less than or equal to

Punteros

& reference operator
* dereference operator

Operadores de bit

& bitwise AND
| bitwise OR
∧ bitwise XOR
∼ bitwise NOT

Operadores compuestos

++ Increment
−− Decrement
+ = Compound addition
& = Compound bitwise AND

Constantes

```
HIGH, LOW
INPUT, OUTPUT
true, false
```

53 : Decimal
B11010101 : Binary
0x5BA4 : Hexadecimal

Tipos de datos

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+38
sizeof (myint)	returns 2 bytes

Arrays

int myInts[6];
int myPins[]=2,4,8,5,6;
int myVals[6]=2,-4,9,3,5;

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";

Conversión

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

Calificadores

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

Interrupciones

attachInterrupt(interrupt, function, type)
detachInterrupt(interrupt)
boolean(interrupt)
interrupts()
noInterrupts()

E/S Avanzada

tone(pin, freqhz)
tone(pin, freqhz, duration_ms)
noTone(pin)
shiftOut (dataPin, clockPin, how, value)
unsigned long **pulseIn**(pin, [HIGH,LOW])

Tiempo

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

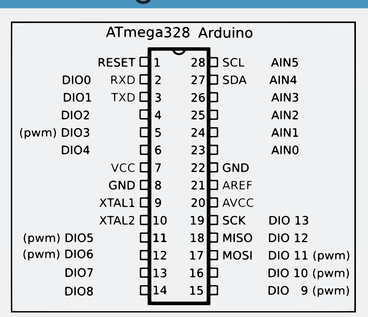
Matemáticas

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)

Números Pseudo Aleatorios

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

Pineado ATmega328



Pines E/S

	Uno	Mega
# of IO	14 + 6	54 + 11
Serial Pins 3	0 - RX, 1 -TX	RX1 → RX4
Interrupts	2,3	2,3,18,19,20,21
PWM Pins	5,6 - 9,10 - 3,11	0 → 13
SPI (SS, MOSI, MISO, SCK)	10→ 13	50→ 53
I2C (SDA, SCK)	A4, A5	20,21

E/S Analógica

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

E/S Digital

```
pinMode(pin,[INPUT,OUTPUT])
digitalWrite(pin, value)
int analogRead(pin)
```

Comunicación Serie

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

Web

```
forum.arduino.cc
playground.arduino.cc
arduino.cc/en/Reference
```

Arduino Uno