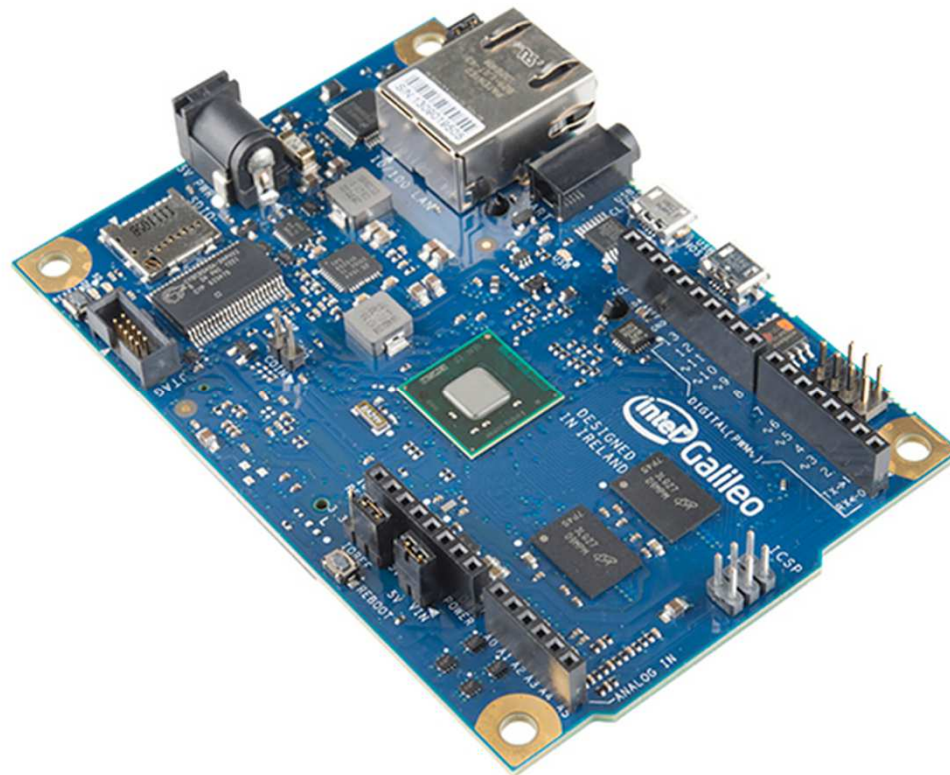


Arquitetura II

Galileo: Hardware e Ambiente de desenvolvimento

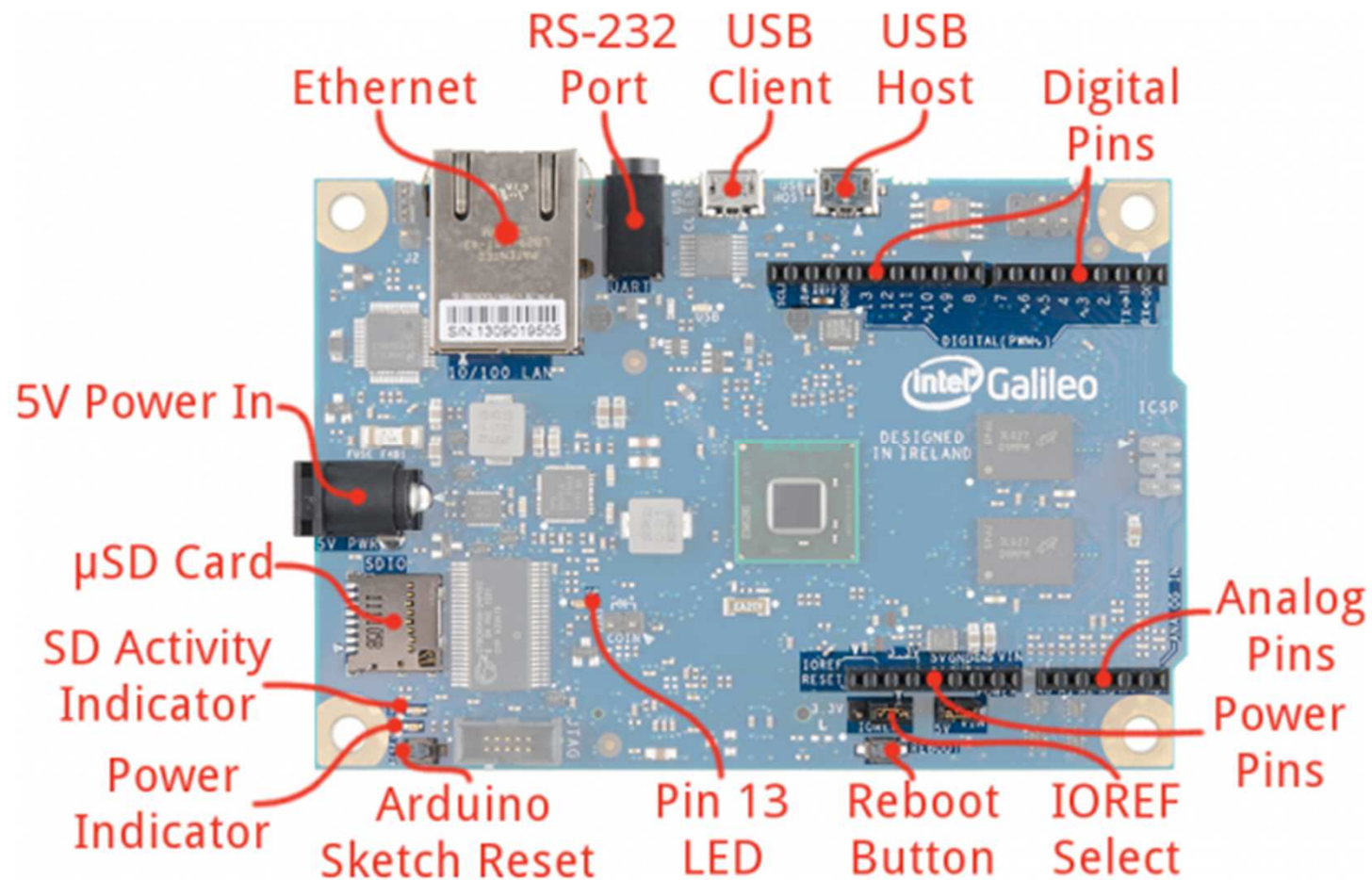
Galileo: Hardware e Ambiente de desenvolvimento

SOC Intel Quark

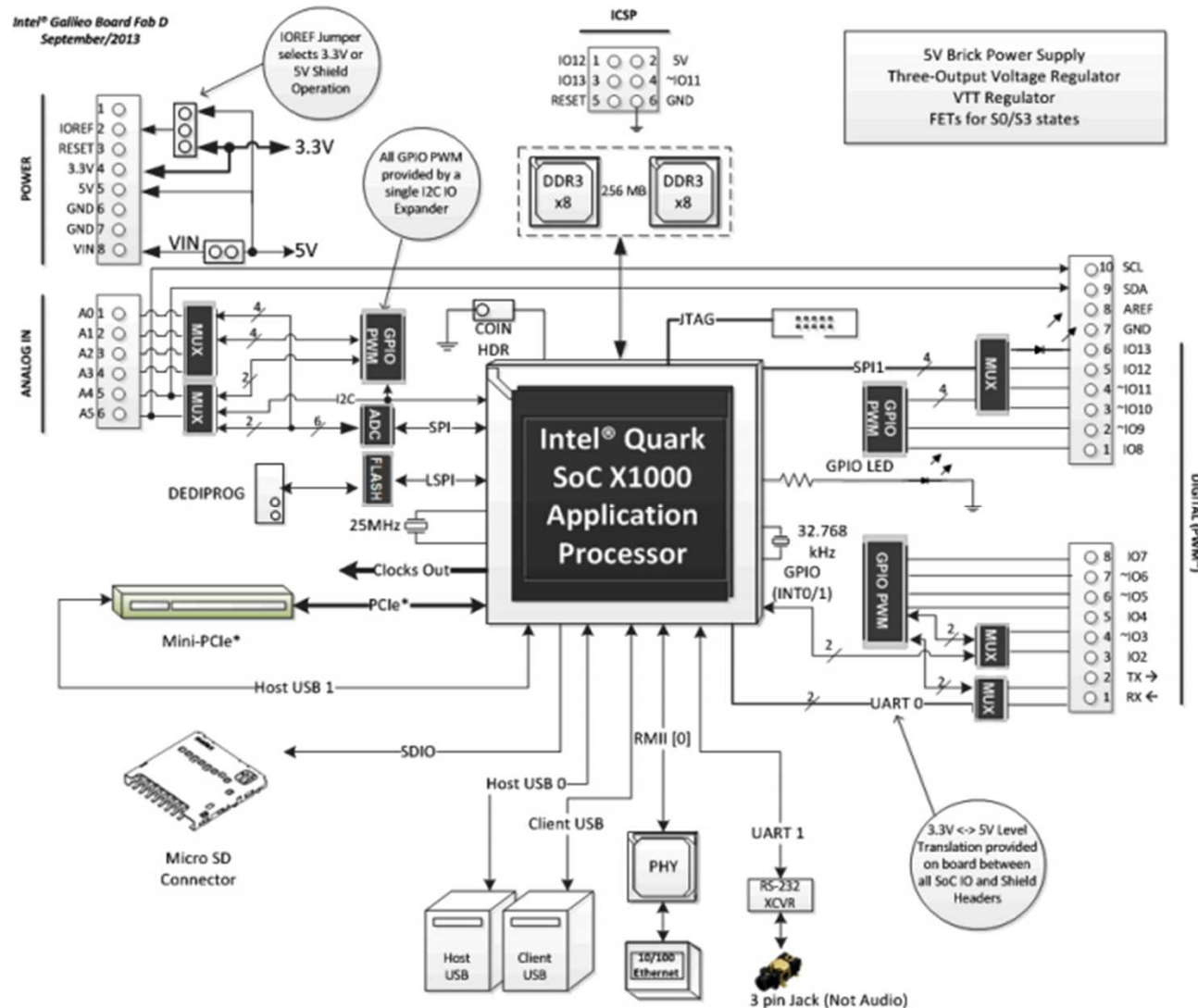


Galileo: Hardware e Ambiente de desenvolvimento

Localização componentes do hardware

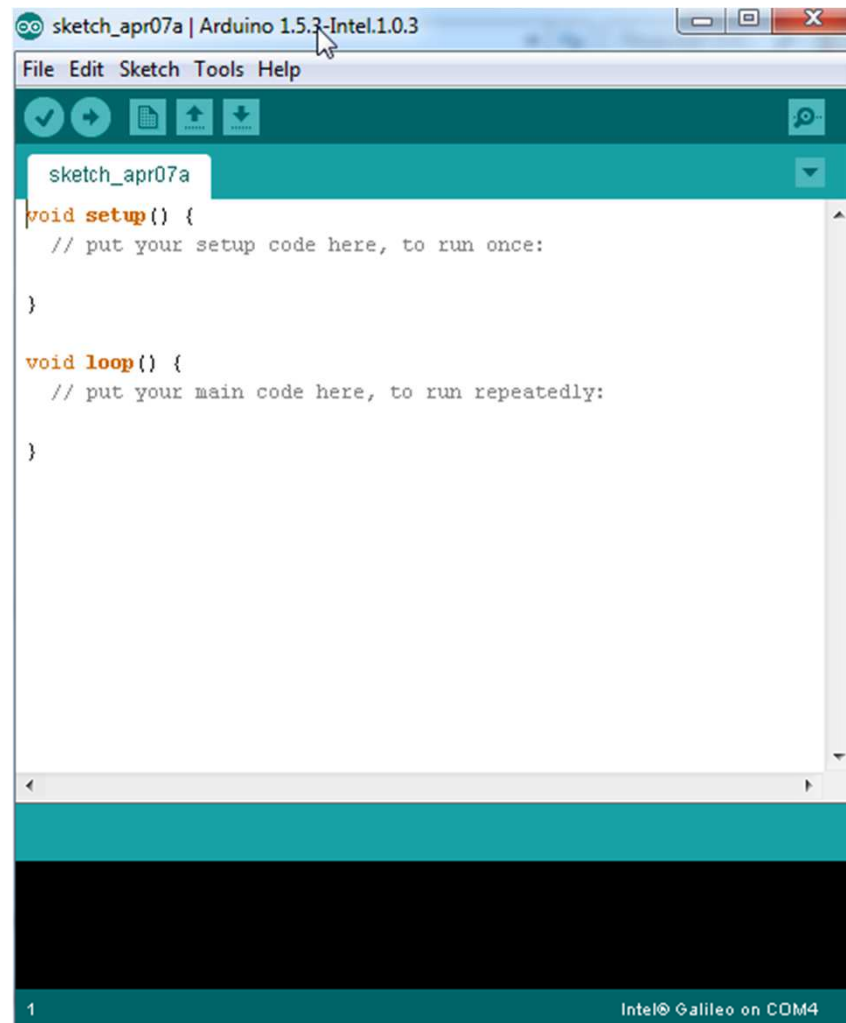


Galileo: Hardware e Ambiente de desenvolvimento



Galileo: Hardware e Ambiente de desenvolvimento

Ambiente de desenvolvimento Arduino



Galileo: Hardware e Ambiente de desenvolvimento

Estrutura de projeto/código

Declaração de objetos
globais

Configuração e atribuições
iniciais. (executa uma vez no
início)

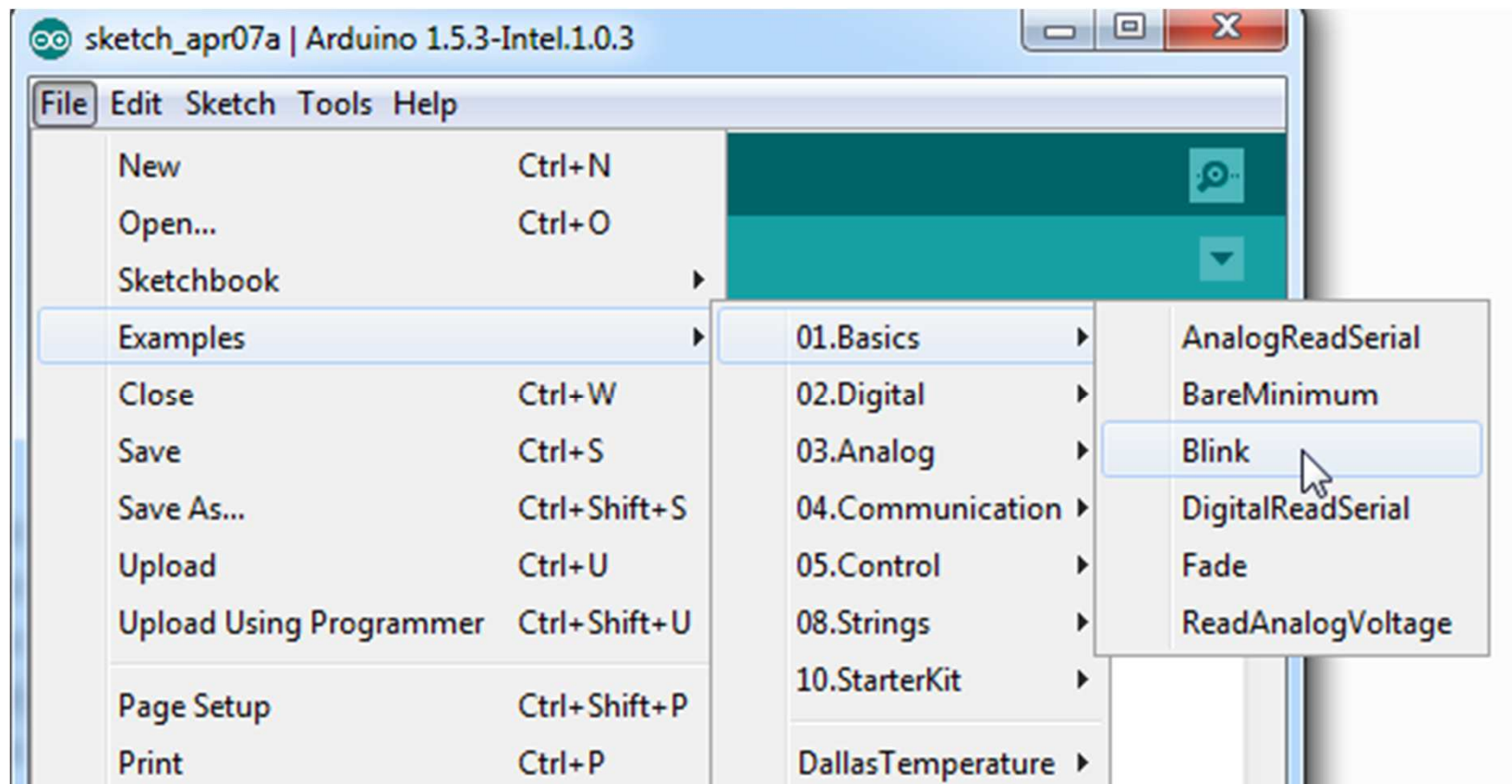
Aplicação executada em laço
infinito

```
sketch_apr07a $
```

```
void setup() {  
    // put your setup code here, to run once:  
}  
  
void loop() {  
    // put your main code here, to run repeatedly:  
}
```

Galileo: Hardware e Ambiente de desenvolvimento

Aplicação 01 – “Hello World”



Galileo: Hardware e Ambiente de desenvolvimento

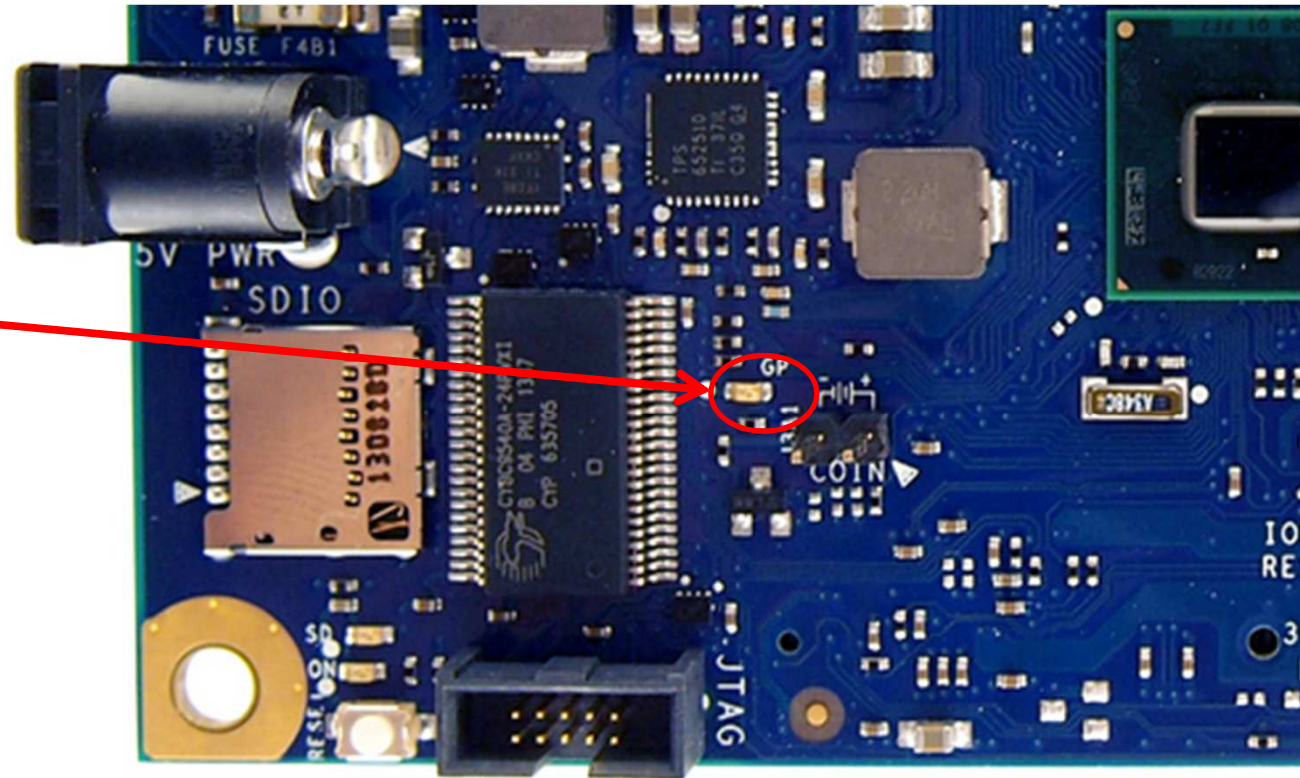
Aplicação 01 – “Hello World”

```
// Pin 13 has an LED connected on most Arduino boards.  
// give it a name:  
int led = 13;  
  
// the setup routine runs once when you press reset:  
void setup() {  
    // initialize the digital pin as an output.  
    pinMode(led, OUTPUT);  
}  
  
// the loop routine runs over and over again forever:  
void loop() {  
    digitalWrite(led, HIGH); // turn the LED on (HIGH is the voltage level)  
    delay(1000);             // wait for a second  
    digitalWrite(led, LOW);  // turn the LED off by making the voltage LOW  
    delay(1000);             // wait for a second  
}
```


Galileo: Hardware e Ambiente de desenvolvimento

Aplicação 01 – “Hello World”

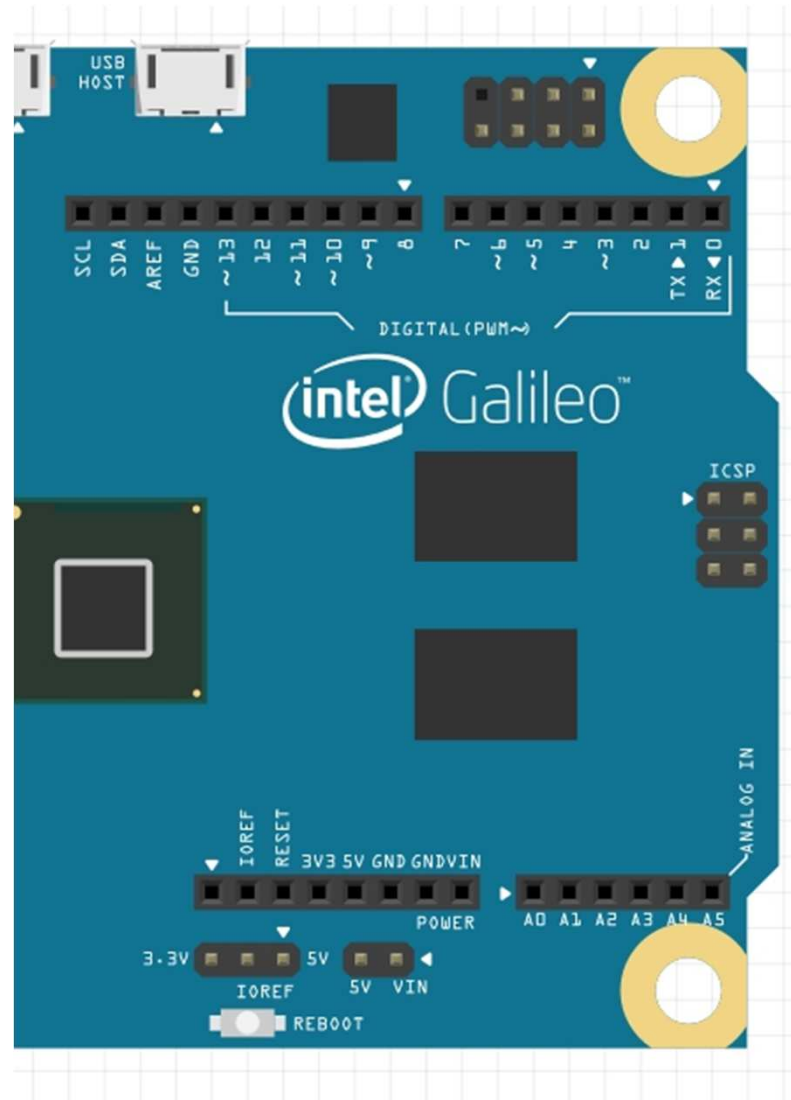
```
int led = 13;
```



```
pinMode(led, OUTPUT);
```

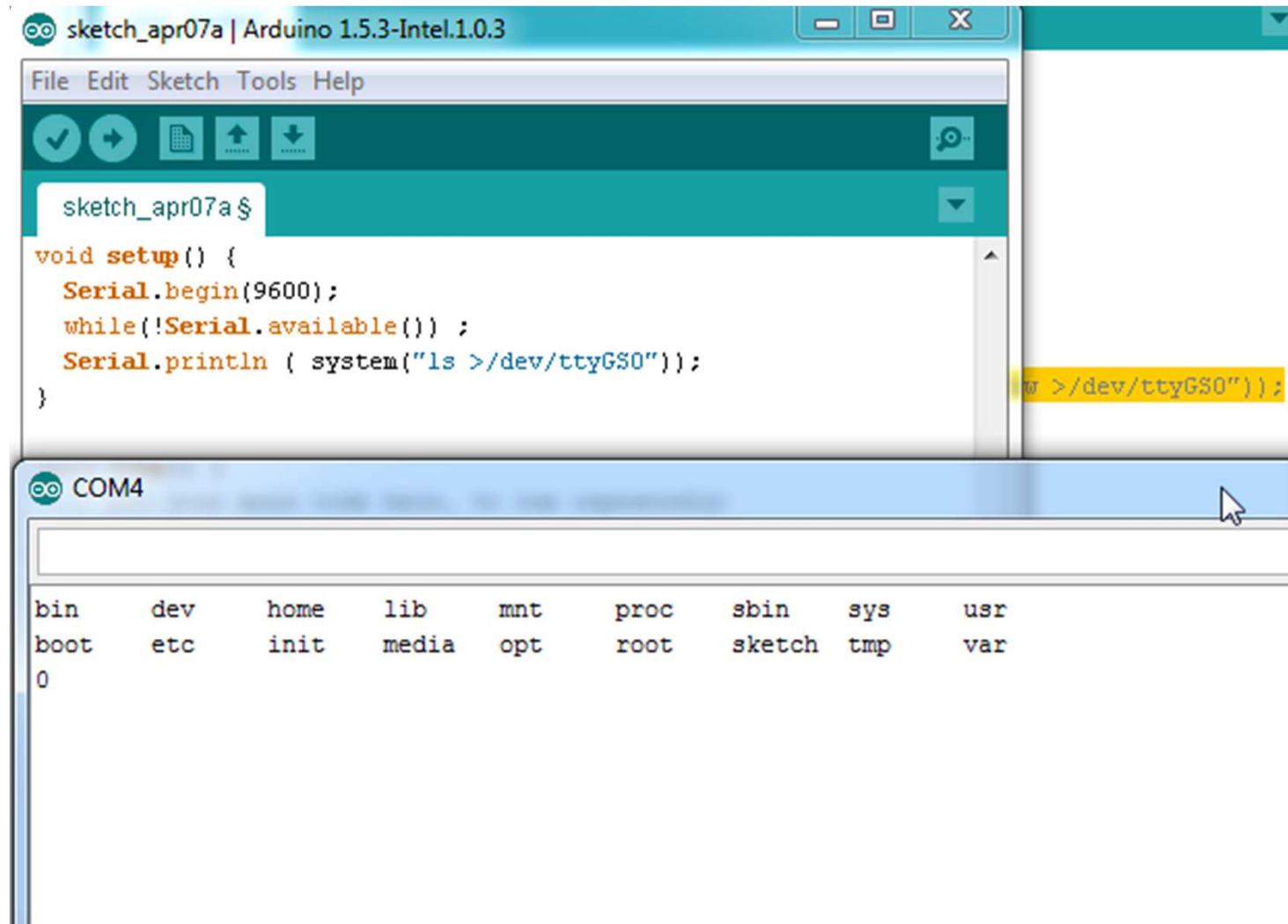
Galileo: Hardware e Ambiente de desenvolvimento

Entradas e Saídas



Galileo: Hardware e Ambiente de desenvolvimento

Ambiente Arduino : system



The screenshot shows the Arduino IDE interface. The top window, titled "sketch_apr07a | Arduino 1.5.3-Intel.1.0.3", contains a sketch with the following code:

```
void setup() {  
  Serial.begin(9600);  
  while(!Serial.available()) ;  
  Serial.println ( system("ls >/dev/ttyGS0"));  
}
```

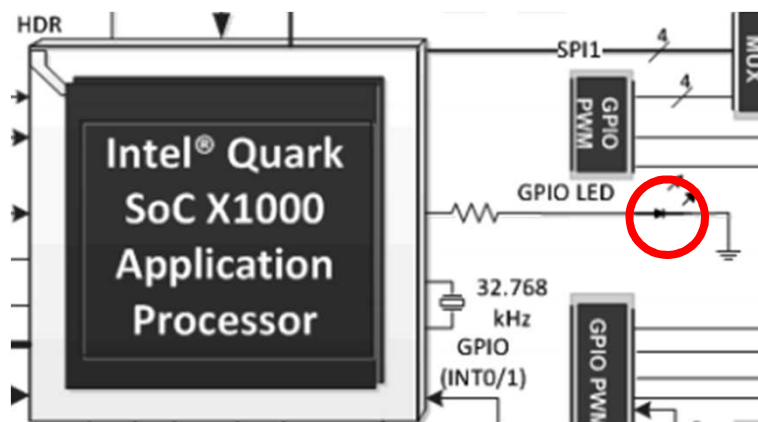
The bottom window, titled "COM4", displays the output of the sketch, which is a directory listing of the root filesystem:

```
bin      dev      home     lib      mnt      proc     sbin     sys      usr  
boot     etc      init     media    opt      root     sketch   tmp      var  
0
```

Galileo: Hardware e Ambiente de desenvolvimento

Acesso a E/S via Linux Sysfs

```
echo -n "3" > /sys/class/gpio/export  
echo -n "out" > /sys/class/gpio/gpio3/direction  
echo -n "strong" > /sys/class/gpio/gpio3/drive  
echo -n "1" > /sys/class/gpio/gpio3/value
```



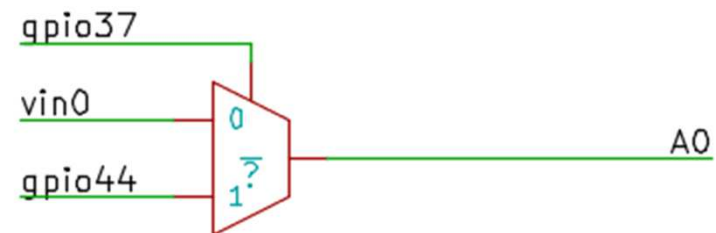
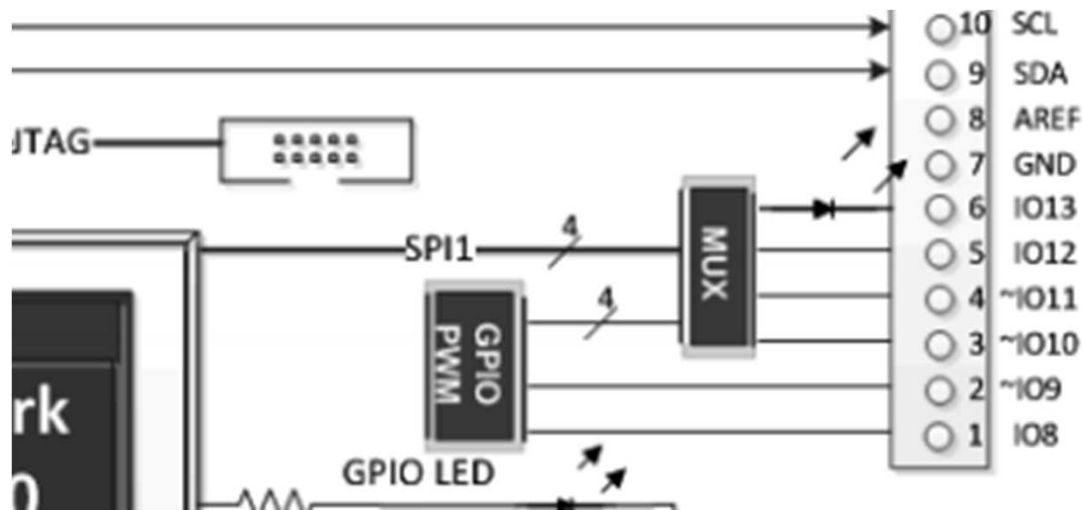
Galileo: Hardware e Ambiente de desenvolvimento

Acesso a E/S via Linux Sysfs

```
void setup() {  
    system("echo -n \"3\" > /sys/class/gpio/export");  
    system("echo -n \"out\" > /sys/class/gpio/gpio3/direction");  
    system("echo -n \"strong\" > /sys/class/gpio/gpio3/drive");  
    system("echo -n \"1\" > /sys/class/gpio/gpio3/value");  
}  
  
void loop() {  
    // put your main code here, to run repeatedly:  
  
}
```

Galileo: Hardware e Ambiente de desenvolvimento

Pinos de E/S multiplexados



Galileo: Hardware e Ambiente de desenvolvimento

Desafio: Controlar o pino 13 como saída

