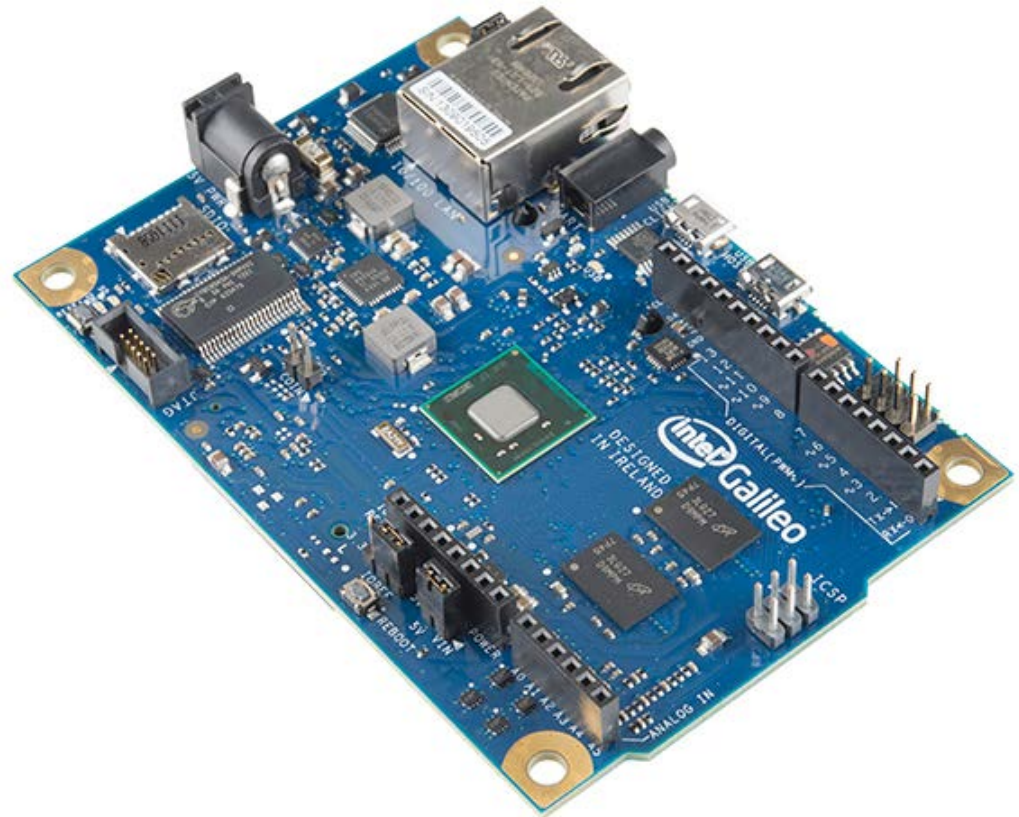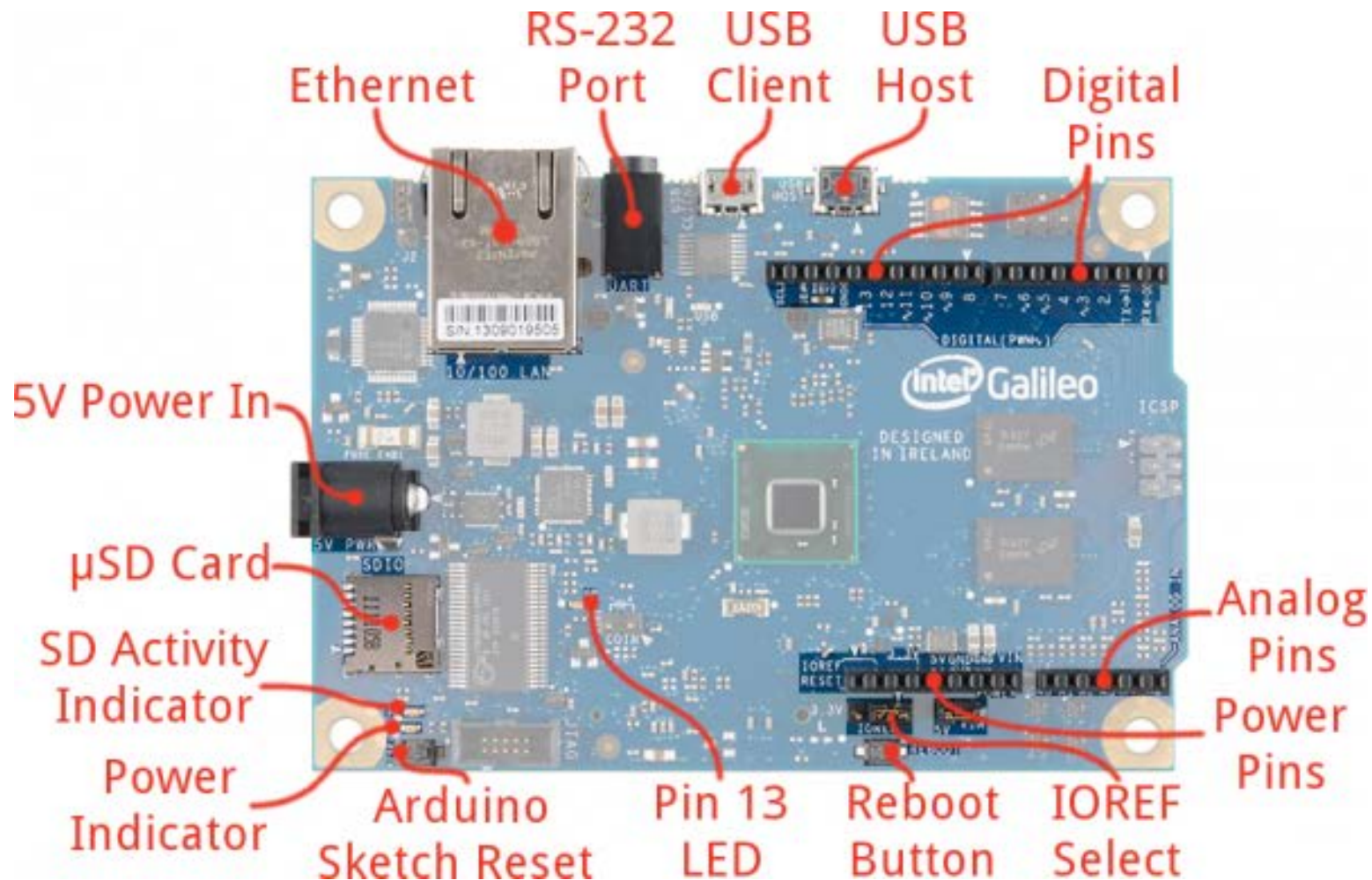# Set-Up the Galileo

Introduction and Getting Ready

What is the Galileo?

- A microprocesser – a fully functioning computer
- Compatible with Arduino software and hardware
- Runs Linux onboard for more advanced functions

Board Overview

What We'll be Doing with It

- Using sensors to control onboard functions
- Controlling sensors and LEDs based on Internet data
- Sending sensor data to the cloud
- Interfacing between Arduino and Linux (Python)
- Using Python packages

Physical Materials

- Galileo Gen 2 Board and power supply (blue box)
- Micro-USB cable
  - Allows you to transfer Arduino files
- Mini-USB cable and mini-USB to 6-pin serial adapter
  - This allows you to access the Galileo's onboard Linux via serial port
- Ethernet cable
  - Will allow you to share your computer's internet

More Physical Materials

- Micro-SD card and adapters
  - Allows the Galileo to boot a larger Linux image
- Tri-Color RBG LED
- Push button sensor
- Light/temperature sensor

Bring your own:
- Breadboard
- Jumper cables

Get the Workshop Materials

- Clone https://github.com/aloverso/IntelGalileoWorkshop onto your computer
- Here you'll find:
  - Presentations – all powerpoints used for this class
  - Python and Linux Files – files we will use later, to be copied to the Linux shell
  - Arduino Files
- Open the Arduino Files folder and copy all folders into your personal Arduino folder (usually located in **Documents**)

Get the Arduino Software

- Download the software for your operating system here: http://www.intel.com/support/galileo/sb/CS-035101.htm
- Unzip it and move the folder (*arduino-1.6.0*) to your top-level directory C:
- Rename it Galileo to make it easy to find, or any name you want as long as it **has no spaces**
- Double-click the *arduino.exe* application to run it and make sure it starts up
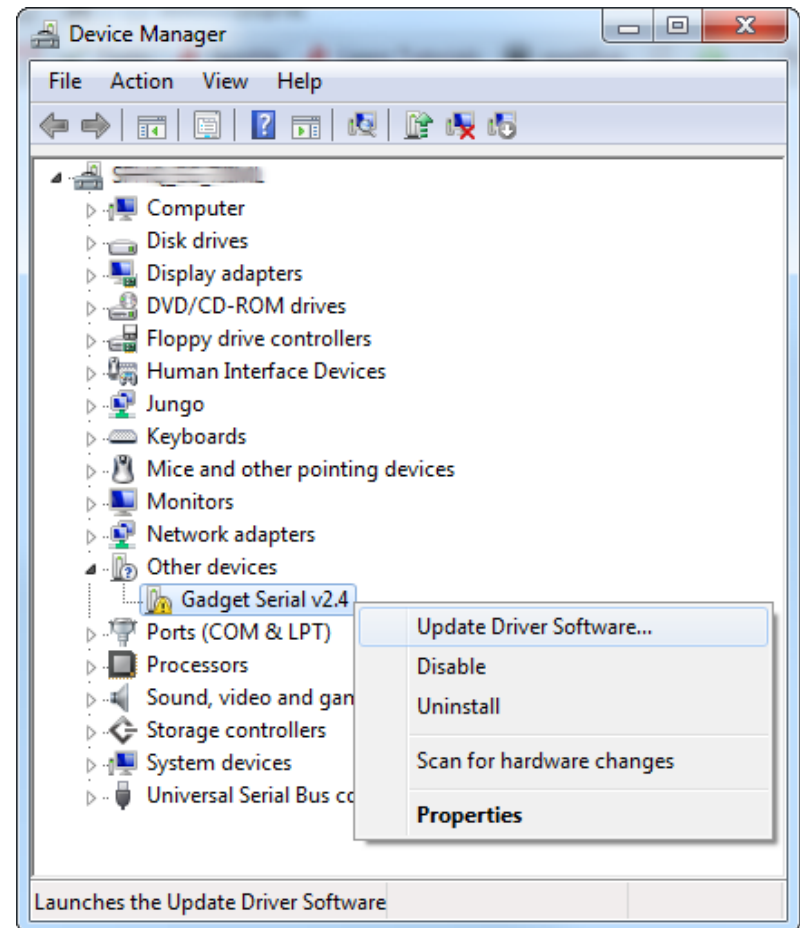
Install the Device Drivers

- Connect the 5V power supply to the board, and into a wall plug
- Connect a micro-USB cable from the board to one of your computer's USB ports
- Upon connecting the board, Windows will automatically attempt to install the driver and, unsurprisingly, it will fail. We'll have to manually install the driver.
- Open up the **Device Manager**. (Either *Start > Run > devmgmt.msc*, or go to the Control Panel, select *System and Security > System* and click Device Manager.)

Install the Device Drivers

- Locate the **Gadget Serial v2.4** device, under the Other devices tree. Right-click that and select **Update Driver Software**...
- On the first window that pops up, click **Browse my computer for driver software**. And on the next page select **Browse...** and navigate to the folder for your Arduino Galileo software installation.
- Then click **Next**.

Install the Device Drivers

- **Click Install** on the next *Windows Security* window that pops up. And, after a number of loading-bar-scrolls, the installation should complete and you should be greeted with a *Windows has successfully updated your driver software* window.

- Look back at the **Device Manager**, under the *Ports* tree now. There should be an entry for **Galileo (COM #)**. Remember which COM # your Galileo is assigned, it'll be important for Arduino sketch uploading and the next step.

Using the Arduino IDE

- Reboot the Galileo by **FIRST unplugging the micro-USB cable** and NEXT **unplugging the 5V power**
- Reboot by **FIRST plugging in 5V power** and **NEXT plugging in the micro-USB cable**
- Run the *arduino.exe* application in the software you downloaded in the first step

Using the Arduino IDE

- Go to **Tools** and select **Serial Port** (this might take a few moments to be un-greyed out while the board starts up). Select the **COM port** that you saw earlier in *Device Manager*
- Go to **Tools** > **Board** and select Intel Galileo Gen 2

Uploading your First Sketch

- Go to **File** > **Examples** > **01.Basics** > **Blink**
- Click the **Upload** button

- After the upload completes, you should see a tiny green LED blinking once per second. The LED is connected to Pin 13 and is labeled "L" directly next to the USB port on the board