Inter – integrated Circuit also known as I2C is a communication protocols that was intended to allow multiple “slave” digital integrated circuits (“Chips”) to potentially communicated with more than one master. (SFUPTOWNMAKER, n.d.) The main intention for this protocols is for short distance communication. The physical requirements for this protocols are two wires. But, these two wires can support up to 1008 slave devices. (SFUPTOWNMAKER, n.d.)The typical speed for this communication is 100kHz or 400kHz. (SFUPTOWNMAKER, n.d.) There is some overhead that comes from using I2C and that is for every 8 bits of data being sent, one extra bit of meta data must be sent as well. The common uses of I2C is to control LCD displays, keyboard, LED drivers, microcontrollers and RAM. (quick2wire, n.d.) These are just the few common uses that I2C can be used for. The advantages of I2C is that fact that it only requires 2 signal lines, it flexible in data transmission and that it can handle multiple master systems. (Burris, n.d.) This disadvantage of I2C is that it has a limited communication speeds that are available, many devices does not support higher speed, I2C uses more power than most serial communication busses because it uses something called “open-drain” topology. (Burris, n.d.)

One wire is a serial protocol using a single data line plus ground reference for communication. A single “master” initiates and controls a communication with one or more “slaves” over a single dateline. Note that each One Wire slave has a unique 64-bit ID which is the device address on the 1-wire bus. The physical requirement for this protocols are 1-wire and 4.7k resistors. The bus capability is that it has 2 communication speeds which are standard mode at 16kbps and the overdrive mode at 142kbps. (Maxim, n.d.) The common uses of the One Wire are that it used in Weather Instruments. (1-Wire Price List, n.d.) Some weather instruments include testing for Humidity, temperature, wind, rain and many more weather instruments (1-Wire Price List, n.d.). It also used in computer chip called the iButton which is commonly used where information needs to travel with a person or object. (Maxim, n.d.) The advantages for One Wire is because they are very cheap and easy to uses, they are more tolerant of long wires between sensor, they provide temperatures, voltages and current reading and normally it is in devices like the iButton. The disadvantages of One Wire is that it depends a lot on precise timing (McRoberts) and Parasite Powering issue which can happening when there is the voltages drops below a critical level. (maximinte, n.d.)

Serial Peripheral Interface also known as SPI is an interface bus that is used to send data between microcontrollers or devices. (MIKEGRUSIN, n.d.) Only one side generate the clock which is normally the “master” and the other side is called the “Slave”. There is only one “master” but they can have many “Slaves”. In addition, there is very little overhead and data can be transmitted at high rates in both directions. The physical requirements for hardware that are needed are CPU, peripheral devices or microprocessors. The bus capabilities

The most common uses of Serial Peripheral interface is Real time clocks, USB controllers, switches or serial port controller. Advantages of an SPI is that it is faster than asynchronous serial, the receive hardware can be a simple shift register and it supports multiple slaves. The disadvantages of SPI is that it requires more signal line, must be well define in advance, master has to control communications. (MIKEGRUSIN, n.d.)

Advtanges