SPI

Serial peripheral interface for synchronous serial communication Used for short distances and mostly used in embedded systems Standard from Motorola.

Master-Slave architecture, full-duplex communication using four wires.

- SCLK: Serial Clock (output from master).
- MOSI: Master Output Slave Input, or Master Out Slave In (data output from master)
- MISO: Master Input Slave Output, or Master In Slave Out (data output from slave).
- SS: Slave Select (often active low, output from master).

Master configures the clock which must be supported from the slave device The master then selects the slave device with a logic level 0 on the select line. If a waiting period is required, such as for an analog-to-digital conversion, the master must wait for at least that period of time before issuing clock cycles. Frequency up to a few MHz, limiting also the wire length Connection of more devices possible

SPI is used to talk to a variety of peripherals, such as:

- Sensors
    - temperature, pressure, ADC, touchscreens, video game controllers
- Control devices
    - audio codecs, digital potentiometers, DAC
- Camera lenses
    - Canon EF lens mount
- Communications
    - Ethernet, USB, USART, CAN, IEEE 802.15.4, IEEE 802.11, handheld video games
- Memory
    - flash and EEPROM
- Real-time clocks
- LCD, sometimes even for managing image data
- Any MMC or SD card