

# Digital Ports

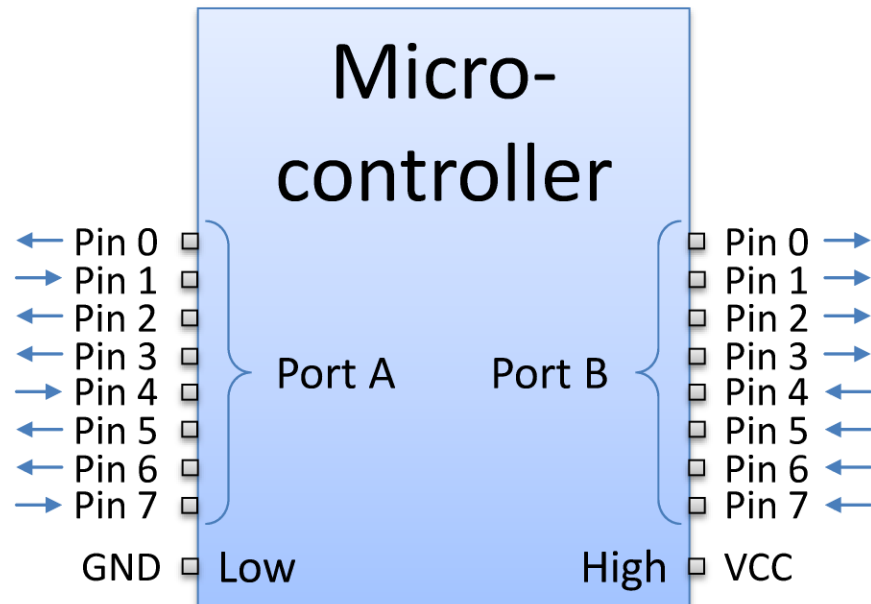
Networks and Embedded Software

Module 4.2.1

by Wolfgang Neff

# Digital Ports (1)

- Basics
  - Pins are either
    - Input
    - Output
  - Pins can be
    - High: 1 (VCC)
    - Low: 0 (GND)
  - Ports
    - Group of pins

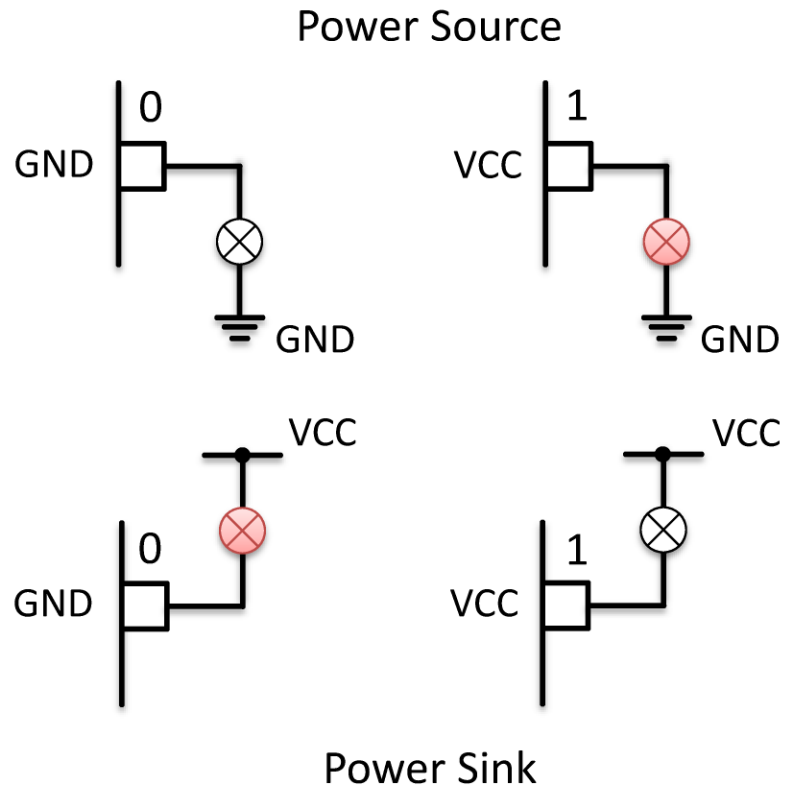


# Digital Ports (2)

- Output pins

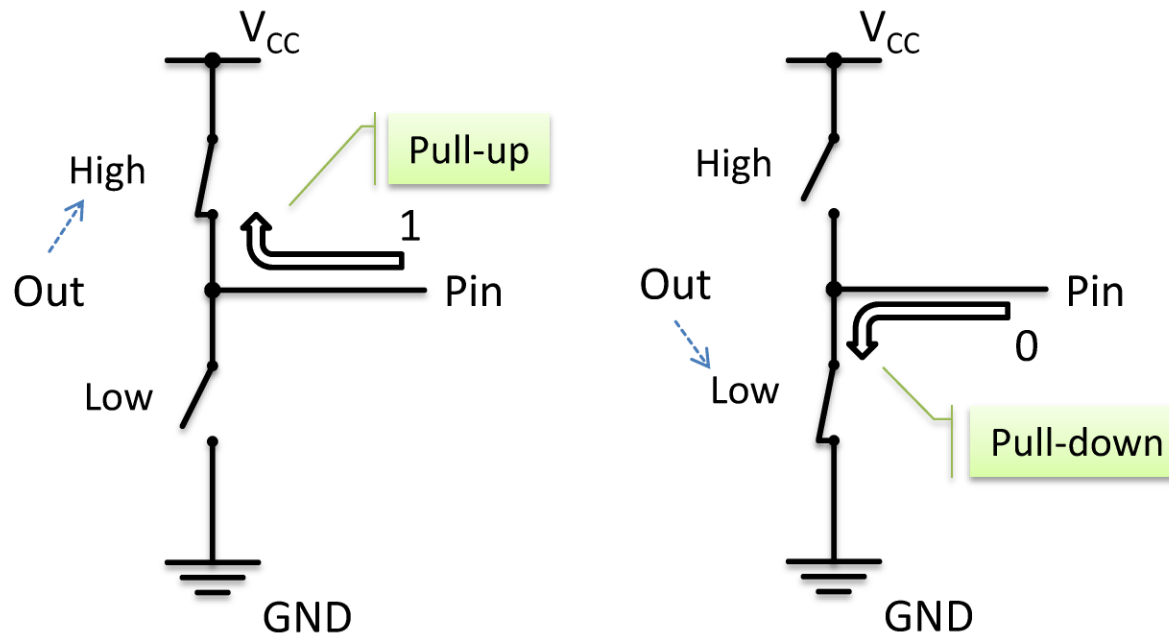
- Power sources

- High
      - Positive pole
      - Source
    - Low
      - Negative pole
      - Sink



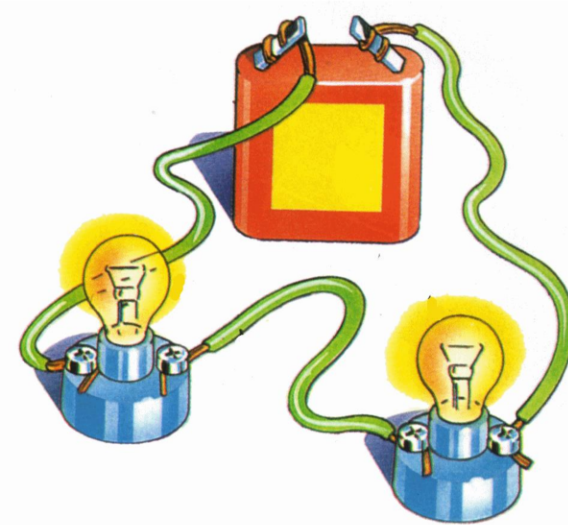
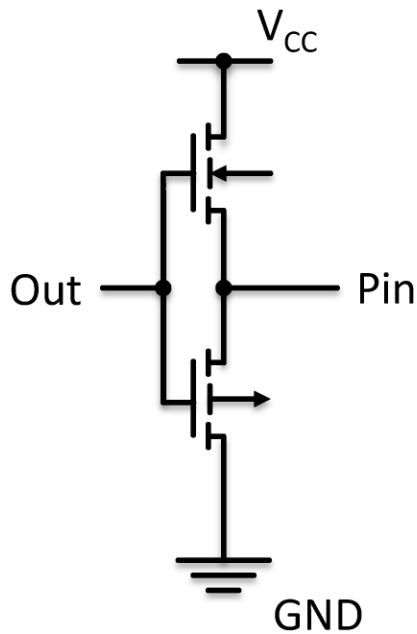
# Digital Ports (3)

- Output pins (continued)
  - Totem-pole configuration



# Digital Ports (4)

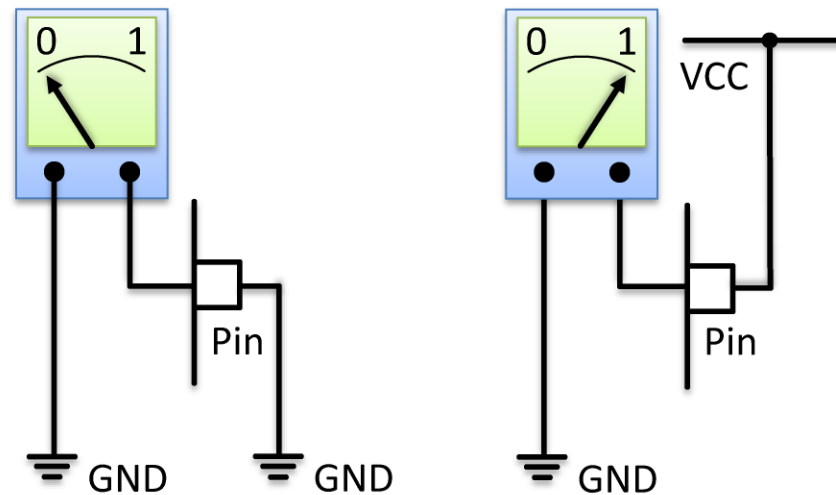
- Output pins (finished)
  - Technical Implementation



# Digital Ports (5)

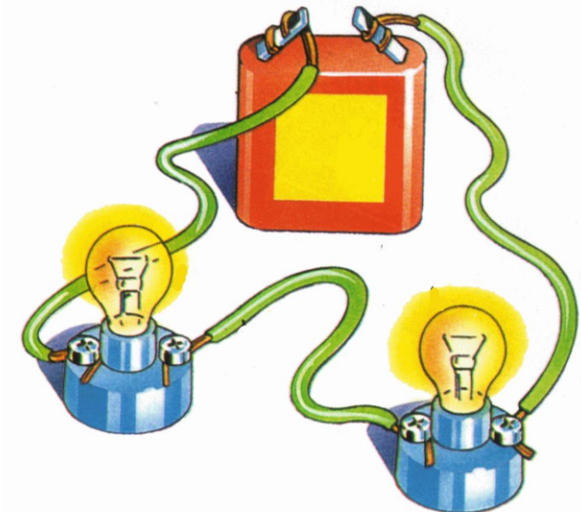
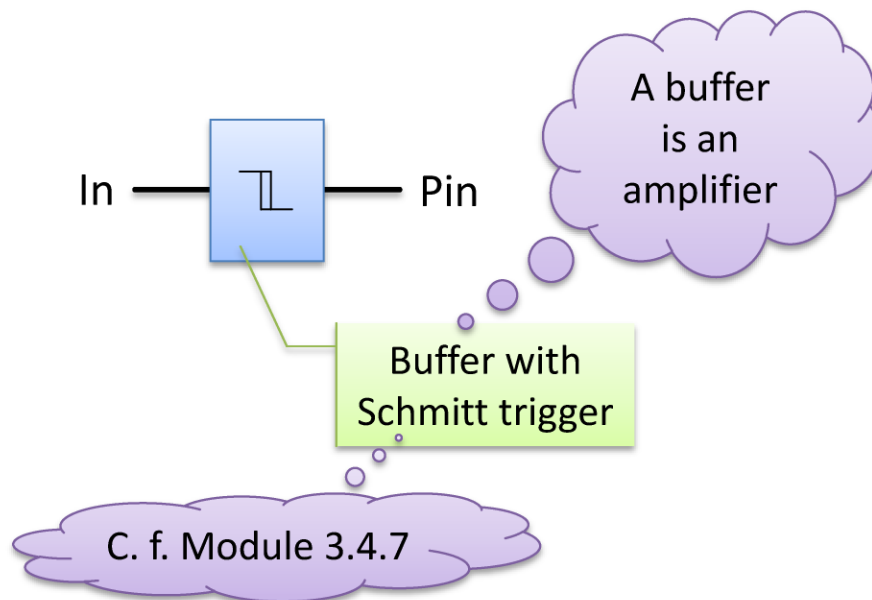
- Input pins
  - Probes
    - Voltmeter
    - GND → 0
    - VCC → 1
  - No current

## Voltage Probe



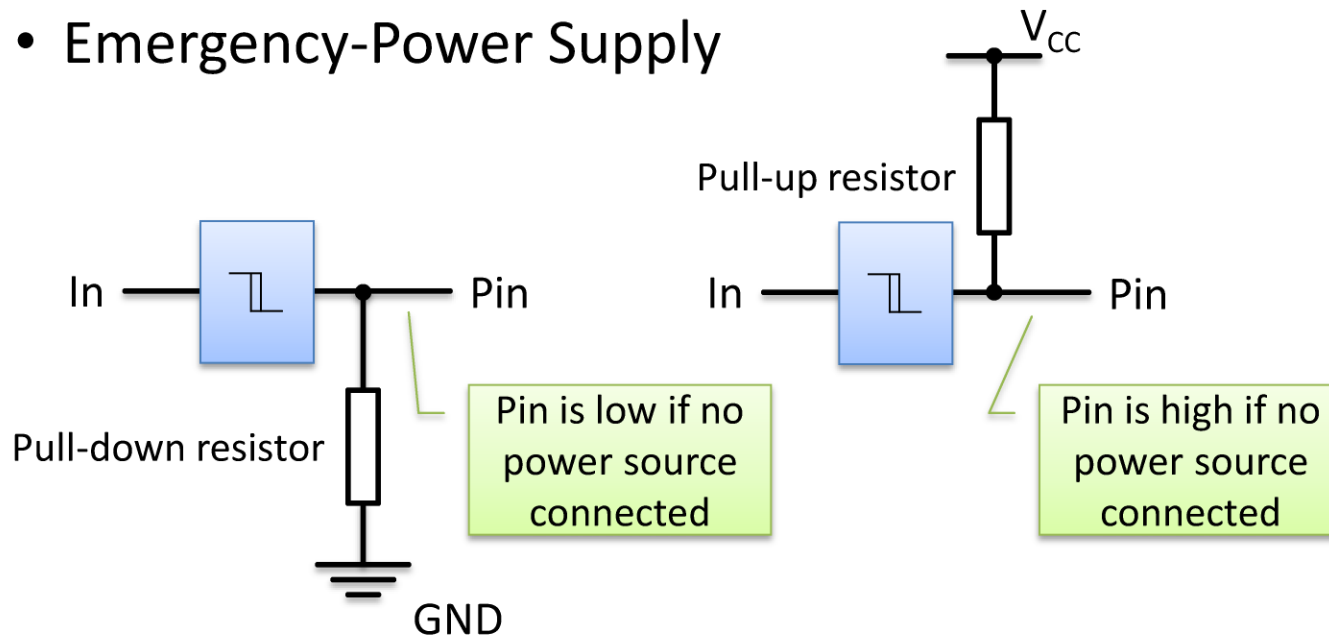
# Digital Ports (6)

- Input pins (continued)
  - Technical Implementation



# Digital Ports (7)

- Input pins (finished)
  - Pull Configuration
    - Emergency-Power Supply





# Digital Ports (8)

- Electrical Characteristics
  - Operating voltage
    - Typ. 3.3 V / 5.0 V
  - Max pin current
    - Typ. 20.0 mA
  - Consult Datasheet

