# Diff between I2C and Spi Communication



**Dilip_Kumar**

Friday, June 08, 2007 8:28 PM (permalink)

New Member

Total Posts : 3
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Joined: 6/8/2007
Location: 0
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## Diff between I2C and Spi Communication

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Hi,I am dilip,I need the what are all the major differences between I2c and Spi communication.

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**DarioG**

RE: Diff between I2C and Spi Communication • Friday, June 08, 2007 8:48 PM (permalink)

Super Member

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Well, let's start with hardware:
- let's first state that they both are "Master/Slave" protocols, i.e. communication is always initiated by one Master.
- I2C only uses 2 wires, Clock & Data; Clock is unidirectional (mostly, though there is an exception) and Data is bidirectional. More than 2 devices can exist on the same bus, and they will still use 2 wires altogether (addressing is software-based).
- SPI uses at minimum 4 wires, one Clock, one Data Out, one Data In, and one CS (chip select). So, Clock is always an output going from Master to slave(s), Data In is a input, and Data Out is a output. CS is a chip select signal, which allows one (among possibly several) slave devices. So, as we can see, addressing is done in hardware.

SPI is inherently faster (up to some 25MHz, maybe more), while I2C is slower (100-400KHz). This is inherently due to the use of more signals to perform communication (in fact, beyond else, I2C uses special sequences to show Start and Stop of communication, while SPI uses CS wire).

As for software, the actual communication is similar among the two, i.e. Clock is generated by Master, and Data is written or read on edges of clock. What changes is that SPI can read & write at the same time, while I2C not. And also the Beginning and End of communication, as we saw above.

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Dario Greggio
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Rule of thumb: Always read inputs from PORT*x* and write outputs to LAT*x*. If you need to read what you set an output to, read LAT*x*.

#2

**Dilip_Kumar**

New Member

Total Posts : 3
Reward points : 0
Joined: 6/8/2007
Location: 0
Status: offline

RE: Diff between I2C and Spi Communication • Friday, June 08, 2007 11:06 PM (permalink)

Thank u Dario for giving me in detail the difference between I2C and SPI

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