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Why I2C is faster than SPI?

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19th July 2005, 18:32   #1

mhytr ○
Member level 3
▮▮▮▮▮▮▮▮▮▮▮
🔵

Join Date: Dec 2004
Posts: 57
Helped: 1 / 1
Points: 1,711
Level: 9

Why I2C is faster than SPI?

a question encountered in the interview

📄19th July 2005, 18:32

19th July 2005, 20:32   #2

Bingo600 ○
Full Member level 5
▮▮▮▮▮▮▮▮▮▮▮
🔵

Join Date: Aug 2004
Location: Cyberspace
Posts: 266
Helped: 20 / 20
Points: 3,538
Level: 13

Why I2C is faster than SPI?

It usually is not

As Hardware SPI most likely is in the Mhz Speed , and I2C is either 100Khz or 400Khz.

Maybe on a slow ARM that has HW I2C and has to do software SPI , a 400Khz I2C could be faster. As i recall that an Arm is rather slow in softwarecontrolled "Pin-IO" on the pins.

My Atmels runs SPI at 8 Mhz (Tx) and 4 Mhx (Rx) @16Mhz Clock

/Bingo

Added after 8 seconds:

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My Atmels runs SPI at 8 Mhz (Tx) and 4 Mhx (Rx) @16Mhz Clock

/Bingo

19th July 2005, 20:52   #3

Mr_Programmer ○   **Re: Why I2C is faster than SPI?**

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Audioguru (27), KlausST (26), FvM (21), c_mitra (18), BradtheRad (17)

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FvM (35129), alexan_e (11851), keith1200rs (10878), bigdogguru (9730), BradtheRad (9189)

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How oscillations start in the oscillator? (12)
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VHDL - (real Data type : error 10414) (10)
Vital glitches,many input changes (2)
spread of clock pulse in vhdl (2)
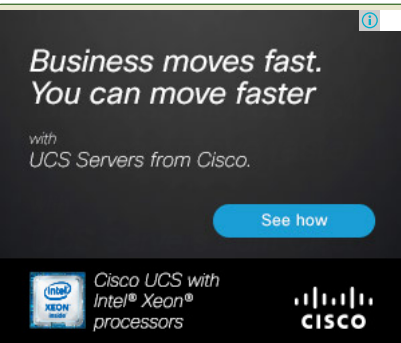**how to insert alph stable (impulsive) noise into a random data?** (0)

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FvM (207264), IanP (160151), bigdogguru (67607), betwixt (54256), tsb_nph (53644)

Full Member level 3

Join Date: Feb 2002
Posts: 153
Helped: 9 / 9
Points: 3,130
Level: 13

Hi mhytr,

I2C isn't faster then SPI. As far as I know the I2C Fast-Mode specification says 400kHz, if we ignore start and stop conditions we will have 400000 bits each second.
With the SPI interface you can transmit date with several MHz clock and in some applications also in full duplex mode. You see SPI is faster...

Regards...

19th July 2005, 20:52

22nd July 2005, 02:09   #4

nemolee ○
Full Member level 3

Join Date: Dec 2004
Posts: 152
Helped: 2 / 2
Points: 2,958
Level: 12

Re: Why I2C is faster than SPI?

I don't know the max. speed of SPI.
But the I2C max. speed is 3.4MHz, not 400KHz. (Please reference I2C spec. V2.1)

30th July 2005, 14:41   #5

bpu ○
Junior Member level 3

Join Date: Jul 2005
Posts: 31
Helped: 7 / 7
Points: 1,673
Level: 9

Why I2C is faster than SPI?

[nemolee]
many of the I2C devices can work only with 400kHz or low SCL signal.
for example, in my design i use the 256K flash AT24C256. this flash are 1 MHz (5V), 400 kHz (2.7V) and 100 kHz (1.8V) compatibility.
my digital design use 3.3V and low voltages ->i can read this flash only with 400kHz or low SCL signal

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30th July 2005, 18:15   #6

Gorilla ○
Member level 5

Join Date: Jan 2003
Posts: 89
Helped: 9 / 9
Points: 3,715
Level: 14

Re: Why I2C is faster than SPI?

The fastest serial memory devices are SPI. ST for example has 50 MHz SPI interfaces on their serial flash memory.

See http://www.st.com/stonline/books/ascii/docs/10027.htm.

1st August 2005, 12:27   #7

dBUGGER ○
Full Member level 1

Join Date: Apr 2005
Location: Milky Way
Posts: 108
Helped: 13 / 13
Points: 2,220
Level: 10

Re: Why I2C is faster than SPI?

Hi,
SPI is faster and simpler than I2C. Just check out this link. Very clearly explained.......

http://embedded.com/showArticle.jhtml?articleID=9900483

Best Regards,

| 24th August 2005, 11:02 | #8 |

barkha ○

Full Member level 1

■■■■■■■■■■
■

Join Date:	Aug 2005
Location:	India
Posts:	113
Helped:	21 / 21
Points:	2,575
Level:	11

Re: Why I2C is faster than SPI?

SPI is faster than I2C . See good ppt -
http://www.stanford.edu/class/ee281/...ions/aut2002/1

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