

Electrical Engineering Stack Exchange is a question and answer site for electronics and electrical engineering professionals, students, and enthusiasts. It only takes a minute to sign up.

Sign up to join this community



Anybody can ask a question



Anybody can answer



The best answers are voted up and rise to the top



Connecting more than one serial device to PIC16f877a

Asked 8 years, 1 month ago Active 5 years, 10 months ago Viewed 3k times



0



In my project i need to interface a gps receiver and a gsm modem to pic16f877a, But there is only one set of UART lines in this Microcontroller. Is it possible to multiplex these two devices using software without the use of additional hardware?

pic serial multiplexer

Share Cite Improve this question Follow

asked Apr 5 '13 at 17:22



Sabin Jose

101 ● 1 ● 2

- 2 No - but for low to medium baud rates you can do one of them in software. Or you could add hardware. – [pjc50](#) Apr 5 '13 at 17:59

@pjc50 can you please elaborate the software technique. should I use two separate max232 IC's for gps and gsm? – [Sabin Jose](#) Apr 6 '13 at 14:42

It's commonly referred to as bit-banging and is perfectly feasible if the processor isn't too busy otherwise. I'm sure there's code examples on piclist.com or in one of the microchip app notes. Essentially you time the right sequence of 1s and 0s yourself. – [carveone](#) Jul 18 '13 at 22:16

Also - do you need both at the same time? If not, you could use tristate buffers to disconnect the device you aren't using. The other posts are right; there are plenty of other pics with 2 uarts. But a hack is a good way to learn :-). – [carveone](#) Jul 18 '13 at 22:31

3 Answers

Active Oldest Votes



2



You're approaching the problem in the wrong way. You have two devices that put out serial data, so you need a microcontroller with two UARTS. Luckily, such things are available, for example among the PIC24's there are chips that have two UART ports *and* two I2C ports. These are still PIC, so you can apply your PIC16 skills.

Match the microcontroller to the application! Do not have a "pet" microcontroller that you use for everything, no matter what.

There isn't much reason to use a PIC16 today in a new design. It's great that Microchip stands behind them and still makes them. But the primary value of this is that you can replace a nonworking one in an old device.

Share Cite Improve this answer Follow

answered Apr 5 '13 at 22:06



Kaz

18.9k ● 1 ● 36 ● 80

Look around. For instance, ST makes microcontrollers. Check out STM32. – Kaz Apr 6 '13 at 2:28



1



As was stated in the other answers consider switching to a more advanced PIC with 2 UART modules. The PIC18 series of microcontroller is still 8-bit, but offers more peripherals than the PIC16's. Switching to a PIC18 would also allow you to take advantage of the Microchip C18 compiler which makes writing the programs easier (can be written in C instead of Assembly) and the compiler comes with a set of software libraries, for example a software implementation of a UART peripheral.

Share Cite Improve this answer Follow

answered Apr 19 '13 at 13:19



mjh2007

3,859 ● 22 ● 49

Yes, it is best to use a pic with two UARTs, for example PIC18F23k22 is good. – Dilum Jul 19 '14 at 16:28



0



If you have an I2C or SPI interface available on your micro, you could hang a UART (e. g. XR20V2170IL40-F) off that.

Share Cite Improve this answer Follow

answered Apr 5 '13 at 19:19



DoxyLover

6,511 ● 1 ● 15 ● 23