YAHOO! MAIL
Classic

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CHIPs newsletter

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Newsletter #2 Topics:

- RJ11 to 6 pin SIP Adapter
- microEngineering Labs Adapter
- Debugging 20 pins or less
- High Cost PIC Programmer Myth
- Latest Book Released
- Need Your Feedback
- Conclusion

RJ11 to 6-pin SIP Adapter

There are many Microchip development boards available for creating a design and most of them have some kind of programming connector. If you see one with a phone jack or RJ11 style connector and you want to connect a PICkit 2 or PICkit 3 with their flat 6 pin SIP connector then you have to create some kind of adapter. Instead of building one, why not consider the Microchip RJ11 to ICSP Adapter under part number AC164110. It comes with a 6" conductor phone cable, a 6 pin male to male header and a circuit board with an RJ11 connector on one end and a 6 pin flat header on the other. With this kit you can plug a PICkit 2 style connector into any RJ11 board or plug an RJ11 programmer such as the ICD2 or ICD3 in-circuit debugger into a PICkit 2 style header board. You can get this adapter from many sources including Digikey.com and Mouser.com. They typically sell for $9.99 so at that price you should have at least one in your

programming tool kit.

Microchip AC164110 Adapter Kit

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microEngineering Labs Adapter
While I'm on the subject of adapters, if you use the PICBASIC PRO compiler
and one of their development boards, then you've probably seen the 2x5 header
they use on all their development boards. The In Circuit Serial Programming
used with those boards is the same as the ICSP used with the PICkit 2 or other
PIC programmers, they are just in a different connector format. There is an
adapter for this as well offered by microEngineering Labs. It's the ICD210A
adapter which sells for $19.95. It converts their 2x5 header into an RJ11
connector so you would need the AC164110 adapter above to use the PICkit 2
with the melabs boards.

Melabs ICD210A Adapter

Debugging 20 pins or less
I've received a few emails asking how to debug software written for the
PIC16F690 micro I use in my Beginner's Guide to Embedded C books. The
PICkit and ICD tools from Microchip allow you to single step through your
program and set a breakpoint to make the program stop at a specific command
line. This can be very handy when you have a code problem that you just cannot
figure out. Well some of the larger PICs such as the 28 and 40 pin parts (and
even some 18 pin parts) have extra silicon inside that handle the debug interface

so you can debug directly through the 6-pin ICSP programming connection. Unfortunately the PICs in 20 pin, 14 pin and 8 pin (and some 18 pin) don't have this extra silicon so you need to use an adapter with a special chip on-board that has the extra silicon. For the PIC16F690, Microchip offers the debug adapter AC162061 which they call the ICD Header Interface for the PIC16F690.

You will need the AC164110 adapter mentioned above to use this debug adapter with the PICkit 2 or PICkit 3 since it only has the RJ11 connector again. This adapter costs $35 so it's added cost for debugging. I personally like to use a 28 pin part for debugging and then when I get the code working, I recompile it for the smaller part. This way I don't need to buy a bunch of adapters. The PIC16F886 is a great part for this because it has all the features and memory found in the smaller parts so the code adapts fairly easily.

PIC16F690 Debug Adapter AC162061

High Cost PIC Programmer Myth
I often read websites pushing their form of getting started with Microchip PICs. They offer starter kits that later on require you to purchase their microcontroller in order to use there tools. In most cases they use a bootloader or an interpreter program that is software preprogrammed inside a PIC that will load your program without the need for a hardware PIC programmer. The PICAXE, Basic Atom, and Basic Stamp are examples of this. In some cases they offer extra features such as debug capability or free compilers that work with the parts so they do have an advantage for somebody just getting started. What I don't like though is when they oversell it by stating you don't have to buy a $200 PIC programmer to use their chips. To a beginner this can be huge because most beginners aren't ready to invest $200 in a programmer only to find out they don't like programming microcontrollers. The problem is this $200 programmer isn't a true statement!

If you look back about 10 years ago then a $200 programmer was typical but now there are so many PIC programmers under $50 its not a big investment and you can recoup that money by using blank PICs instead of their custom parts which cost a lot more. In fact the JDM style programmer which gets its power

from the serial port can be built for around $10 in parts. I've seen JDM style programmers on EBAY for less than $10. Then there are the PICkit 2 and PICkit 3 from Microchip that cost under $50. There are also PICkit 2 clones all over the place because Microchip offers the PICkit 2 schematics for free to download. My point is, don't believe the hype about the $200 PIC programmer. If you want to get started with PICs then any of the low cost options will work as a programmer. My latest favorite is the CHIPAXE.com programming setup based on a PICkit 2 clone. This gives you everything you need to start programming the 8 pin 12F683 microcontroller for under $30. And you can use it with blank PICs that cost a couple dollars or less.

Latest Book Released

My "Getting Started with PICs - Volume 2" has officially been released for sale at Amazon.com and will soon be on my website. It covers my Nuts & Volts articles from January 2007 through December 2007. Check it out if you are looking for help learning about how to get started or want to get a bound version of the 2007 articles.

My column ran in Nuts & Volts from 2006 thru 2009 but at this point it appears that Nuts & Volts will not be continuing my column into 2010. Still not sure why as it was popular. If you want the column back please email Nuts & Volts at editor@nutsvolts.com.

Getting Started with PIC®s
Volume 2
A Collection of 2007 Nuts & Volts Magazine Articles

PIC16F886

Chuck Hellebuyck
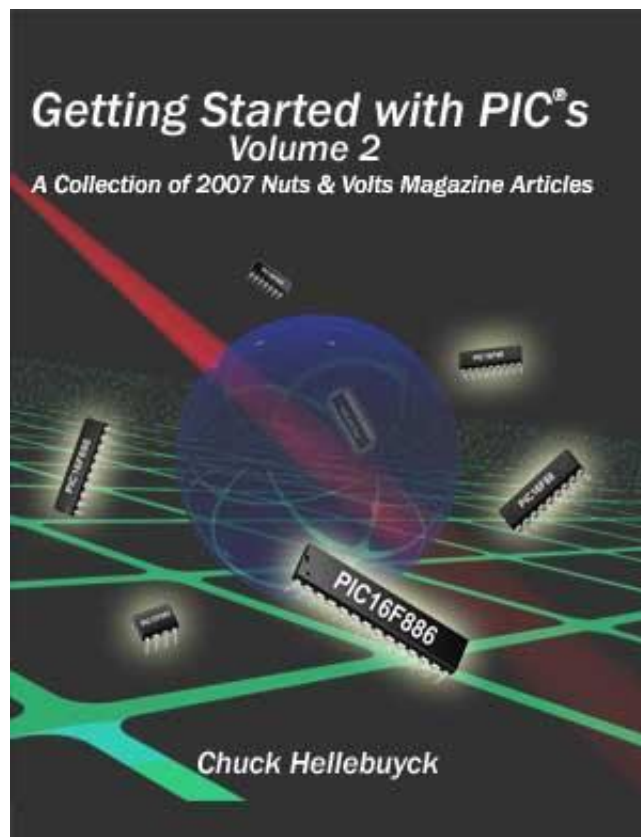
I Need Your Feedback

I'm working on the outline for Volume 3 of my "Beginner's Guide to Embedded C Programming" book series and I'm stuck between two themes. I could; 1) Go further in explaining Structures, Unions and Pointers with more projects for the PIC16F690 or 2) I could go in a new direction and introduce programming the PIC18F micro using the Microchip C18 compiler (which you can download for free in a fully functional student version). Please email me at chuck@elproducts.com with your thought which would be a better choice in your mind.

Conclusion

This is my second newsletter and I've received a few emails asking if they missed an issue since they haven't seen any in a while. I am trying to write these faster but the software I chose to create and distribute the newsletter is a bit of a pain so I've been looking at other options rather than just writing and dealing with it. I promise to get newsletters out more often in the future and I appreciate your patience. It's nice to have people asking for it because it indicates I'm covering interesting topics. If you have an idea for a future newsletter topic, shoot me an email. I read them all.

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