



CHIPS Newsletter Vol 15

Saturday, May 28, 2011 5:53 PM

From: "chips@elproducts.net" <chips@elproducts.net>

To: "Chuck Hellebuyck" <chuck@elproducts.com>

CHIPS newsletter

Vol 15 / May 2011 ver 2



Official Newsletter of

Chuck Hellebuyck's Electronic Products

<http://www.elproducts.com/>

Topic

chipKIT

Beginner's Guide to Embedded C Programming - Vol 3

PIC 18F25K22

More Microchip PIC Based Arduino's

Conclusion

chipKIT

My newsletters are often delayed due to my schedule but this month it was on purpose. The popular Arduino module has many clones but all based on the same microcontroller but there are more and more modules that maintain the same pin-out compatible designs that are Microchip PIC based. The delay of this newsletter was on purpose so I could announce the latest Arduino competitor called the chipKIT module. The chipKIT comes in two versions; and UNO32 and a MAX32. They are not only pin compatible with Arduino but they are also software compatible. They are based on the 80 Mhz PIC32 microcontroller. I was able to help beta test these and I found them very compatible but couldn't say anything until now. The IDE looks just like the Arduino IDE and can also program an actual Arduino as well.

The modules were designed by Digilent Technology with support from Microchip. You can get more information at microchip.com/chipkit or digilentinc.com/chipkit.





Beginner's Guide to Embedded C Programming - Vol 3

The book is finally released and started shipping May 15th. It will be available at several locations including Amazon.com, MicrochipDirect.com, Nuts&Volts Magazine Bookstore and my website elproducts.com.



PIC18F25K22

Give it time and this may become one of my favorite PICs to develop with. The features on this part are excellent. Here is a list of a few:



Lots of program space (32 kbytes), 1.5k bytes of RAM for variables, 16 Mhz instruction clock, two uarts and two spi/i2c ports, 5 PWM ports, operation down to 1.8v and up to 5v, up to 17 ADC pins!

Could you ask for more in a part that plugs right into the CHIPINO module?

It does have a brother in the 18F26K22 which has 64 bytes of program memory but I like this part because the Amicus18 BASIC Compiler from CrownHill supports this device and is free and incredibly powerful. I hope to do a lot more with that compiler and this chip.

More Microchip PIC Based Arduino's

If you prefer to use the PIC16F or PIC18F with the PIC compiler of your choice and want the Arduino compatible connection scheme then you can choose the CHIPINO module. It will accept any 28 pin Microchip PIC including the PIC18F25K22 I discussed earlier. The CHIPINO requires a programmer rather than relying on a bootloader like chipKIT and Arduino so this is a different option but gives you more options like live debugging.



The PICAXE world has its own Arduino pin compatible shield now. It's called the AXE401 but is also known as the PICAXE Shield Base. It uses an 18F25K22 on board with the PICAXE interpreter. You connect it to the PC using an FTDI custom cable that ends with a 3 pin audio jack.



The final module I know about is the Amicus18 based on the PIC18F25K20 but also supports the PIC18F25K22. It has a bootloader (currently PIC18F25K20 only) version but can also be programmed directly like CHIPINO through the ICSP connection (you need to solder on a header). This module has its own BASIC compiler that supports the 18F25K22 and I find it very powerful. The compiler is based on the Proton BASIC compiler. This compiler is free to

download so this can be used with any PIC18F25K22 module beyond the Amicus18.



Overall you can see what Arduino created is quickly expanding to the PIC world. And the PIC options offer so many options that I don't see in the Arduino choices.

If you look at the Arduino clones, they all stick to the same programming language and format so the only real choice just becomes a question of price. Sticking to one programming language does offer a larger shared library but many of the PIC compilers have lots of examples as well. The biggest advantage to all of this is these modules, Arduino and PIC, is that they share the same connection scheme so they can all share the plug in shields. I look for that market to grow.

Conclusion

If anybody knows of another Microchip PIC based Arduino connector compatible module I missed, please let me know and I'll promote it in my newsletter. I really expect that we'll see more shields released so more users who don't have the hardware background can get their ideas running with less effort. That is the ultimate strength of all these modules sharing a common connection scheme. It should help more beginners to get involved.

I'm also always on the lookout for a good compiler that is free to download. If you know of a compiler that is free or open sourced that would work with these Arduino style modules then shoot me an email. In fact email me any feedback, good or bad at chuck@elproducts.com.

[Unsubscribe from CHIPS Newsletter](#)