

iL-NEWS



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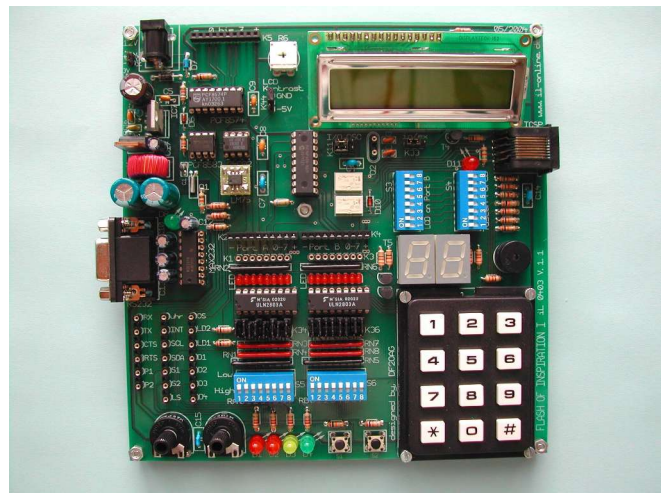
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12/04

NEW



NEW



&

iL_BAS16

Flash Of

Inspiration I

Release 5.6 of iL_BAS16STD and iL_BASPRO supports now the youngest PIC family introduced by Microchip.

(more at page 2)

This evaluation board carries the PIC 16F628 which is one of the finest PICs to work with. Great for education in school, at work and home.

(more at page 4)

New! **iL_BAS16** for PIC10F20x

Microchip announced the PIC10F202 and PIC10F206 to be the world's smallest microcontroller.

The important features are:

- ➔ 6 pin SOT 23 case
- ➔ dimensions are 3mm x 1,75 mm
- ➔ flash program memory
- ➔ precise internal 4 Mhz oscillator
- ➔ 4 io pins with 25 mA sink and source current
- ➔ sleep mode needs only 100nA
- ➔ 8 bit timer (TMR0)
- ➔ watchdog timer
- ➔ in circuit serial programming (ICSP)

Even the hardware resources of such small microcontrollers are limited
iL_BAS16
gives you the opportunity to write high language programs for them.

The devices PIC10F202 and PIC10F206 have only 24 general purpose registers. **iL_BAS16** needs only 13 of them. Therefore 11 bytes are left over for the user's duty. Not so much, but if you remember how many temporary bytes will be necessary to realize a 16 bit division, 11 bytes wouldn't so bad at all.

Thanks to the very useful commands of **iL_BAS16**, such like SERIN, SEROUT, I2C_READ and I2C_WRITE you can write very complex applications very easily and fast. Sure, also for PIC10F202 or PIC10F206.

Normally these devices should be programmed using in-circuit-serial programming. Both programmers, **iL_PRG16PRO** and **iL_ISP_U**, supports this kind of programming for PIC10F20x.

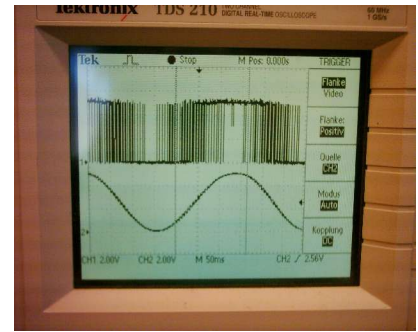
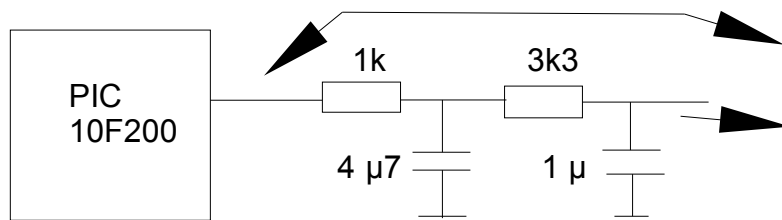
And now we top the above superlative!

The devices PIC10F200 and PIC10F204 have at least only 16 general purpose registers. So because **iL_BAS16** needs 13 of them just the tiny amount of 3 (three) bytes are left over for you. You may think of tiny amount of bytes equals to tiny applications. Concern the physical size you may be right, but ...

How?

Have a look at the following application note.

Application: Sine wave generator.



The two low pass filter forms a well suited sine wave out of the pwm signal. The first works as an integrator, the second eliminates the rest of the pwm signal which are still on the sine wave.

Programmlisting:

```
*****
*SINUS10F.BAS
*15.12.2004
*(c) Ing. Büro Lehmann, Fürstenbergstr. 8a, 77756 Hausach, www.iL-online.de
*****
'Sinusgenerator mit PIC 10F200 erzeugt eine Sinusschwingung mit einer
'Frequenz von ca. 6 Hz. Die Auflösung beträgt 8 Bit bei 6 ° Schritten..
'Wenn man die Auflösung herabsetzt sind auch höhere Frequenzen möglich.
'device definiert den Baustein, wdt_off schaltet den Watchdog aus
'protect_off deaktiviert den Ausleseschutz, t0cs_int def. GP2 als I/O
define device 10F200, wdt_off, protect_off, t0cs_int
xtal 4
'beim 10F200 und 10F204 stehen nur 3 RAM Speicheradressen zur Verfügung
define wert = $10 as byte
define zeig = $11 as byte
define ii = $12 as byte

cold:
goto start
'Hier liegen die Sinuswerte von -90 ° bis ++90 ° in 6 ° Schritten.. Diese Tabelle
'wird einmal von Anfang bis Ende und anschließend von Ende zum Anfang gelesen
tabelle:
lookup wert, zeig, 0, 1, 3, 6, 11, 17, 24, 33, 42, 52, 63, 75, 88, 101, 114, 127, (+)
140, 153, 166, 179, 191, 202, 212, 221, 230, 237, 243, 248, (+)
251, 253, 254, 255, 0
return
'initialisiert die Ports. GP2 ist Ausgang, Rest Eingang
init:
tris gpio, %00001011
let zeig=0
return
'hier wird die PWM erzeugt. Es wurde ganz bewusst der compilereigene PWM-
'Befehl nicht verwendet, da so mehr Parameter frei definierbar werden.
pwm:
let ii=0
pwm:
outp gpio, 2
if ii<=wert then set gpio, 2 else res gpio, 2
inc ii
if ii<>0 then goto pwm
inp gpio, 2
return

start:
gosub init
'zuerst Tabelle von vorne nach hinten abarbeiten (-90 ° bis ++90 °)
loop1:
gosub tabelle
gosub pwm
inc zeig
if zeig, 5=1 then goto loop2
goto loop1
'jetzt Tabelle von hinten nach vorne abarbeiten (+90 ° bis --90 °)
loop2:
dec zeig
if zeig=0 then goto loop1
gosub tabelle
gosub pwm
goto loop2
```

Even this big applications needs only 128 words of program memory and fits in the smallest device of the PIC10F20x family. This PIC10F200 has 256 word of program memory. As you can see **iL_BAS16** produces a very efficient und small code for all PIC devices.

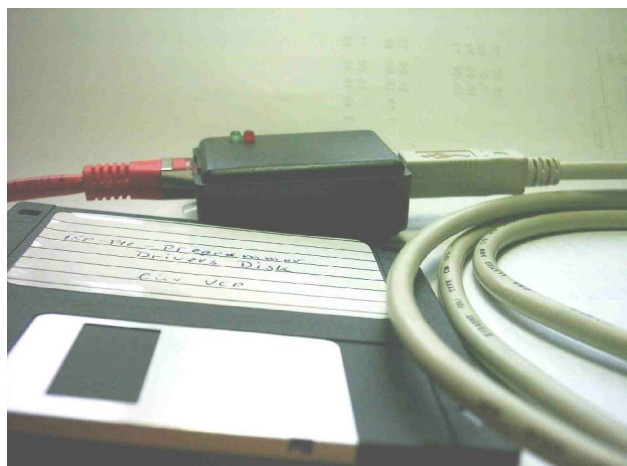
Flash Of Inspiration I

This evaluation board for PIC16F628 has all important components on board, which are needed in engineer's daily life. Designed with a lot of experience it helps beginners, too. For them it is a perfect base to learn. You are guided carefully and step by step to complex applications like I²C bus, lcd, serial communication etc. On the other hand, experts will get the flexibility they need. All hardware devices, except two of them, can be wired without any limitations. This helps you to create your test design with the same pin ordering like in your target hardware. External hardware can be connected to **Flash Of Inspiration I** by flat cable and additional pin rows.

Hardware features on board:

- Switching power supply for U_{in} = 8-16 Volt
- PIC 16F628, on-board programmable
- LCD with 2 lines and 16 characters each
- 2 LED 7 segment displays
- 4 LEDs ,
- LED status for each port pin
- miniature loudspeaker
- 3 x 4 key matrix with 12 keys
- 2 buttons
- switch to force each pin to high or low
- 2 potentiometers for analogue inputs
- RS232c (optional handshake CTS/RTS)
- each pin can be wired to external hardware
- I²C-PCF 8583, real time clock with calendar and 240 byte RAM
- I²C-PCF 8574, 8 bit port I/O expander
- I²C-LM 75, temperature sensor
- I²C-24LC02, 256 byte EEPROM memory
- RJ45 jacket for in circuit programming, the PIC16F628 remains in its socket
- 36 connectors for wiring the hardware
- 1 pin row to connect the I2C port expander PCF 8574

Also NEW



IL_ISP_U

the genius programmer
for PIC 10F20x,12Cxxx,12Fxxx,16C6x,
16F6xx,16C7x and 16F8x

- x designed for the future because:
- x optimized for in circuit serial programming
- x connect to USB
- x go with **Flash Of Inspiration I** perfectly

More detailed information and prices will be found at

www.iL-online.de

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