

PIC876Hub10 RoboBrick

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What Is It?

- PIC16F876 CPU with 20MHz Crystal
- 10 RoboBrick Ports
- On/Off Switch with Power On LED
- 5 Volt Power Supply with Fuse

PIC16F876

- 20 MHz 8-bit `RISC' CPU
- 8K 14-bit words of Flash
- Flash Memory is User Programmable
- 368 bytes of RAM
- 22 I/O Lines
- 5 A/D
- USART & 3-Timers

Parts Cost

- PIC16F876 \$8.23/1 \$5.03/25
- PIC16F76 (new!) \$7.60/1 \$4.56/25
- 20MHz Crystal \$2.78/1 \$2.47/25
- LM2940 Regulator \$1.49/1 \$1.29/10
- Switch \$1.15/1 \$.95/10
- LED, Caps, Resistors, Headers, etc. < \$2
- Total: ~\$12-\$13

Programming

- Use a boot loader
- Download standard .hex files
- MPLab Assembler
- CCS `C' (~\$100)
- CrownHill PICBASIC (~\$100)
- μ CL (free)

μCL

- Micro–Controller Language
- μCL rhymes with `chuckle'
- C–like syntax
- Bit & Byte Data types
- Handles register banks and code banks
- Written in Tcl/Tk
- Visual Development Env. in the works
- Free.

μCL IDE

```
edit.tcl
◆ Fwd ◆ No Case ▾ Exact Replace <<0>: Fixed ▾ Font12 Cut Quit
▾ Back ▾ Case ◆ Reg. Exp. Search ^<[0-9]*>:.*$ ◆ Font14 Copy
Save Compile ▾ Edit ◆ Debug Run Next Step ▾ Font18 Paste No Errors

1 constant rx_bit 1
2 constant rx_mask 1 << rx_bit
2 constant brick_bit 2
4 constant brick_mask 1 << brick_bit
port porta a bits_only read_write_manual
pin tx porta tx_bit write_only
pin rx porta rx_bit read_only
pin brick porta brick_bit read_write_manual
port portb b unused none
255 constant space 0xff

global foo byte
global number byte

procedure main {
    arguments_none
    returns_nothing

    # Read a byte.

    variable char byte
    variable count byte
    variable checksum byte
    variable child0 byte
    variable child1 byte
    variable child2 byte
    variable child3 byte
    variable child4 byte
    variable child5 byte

    X foo := foo + 1
    O number := 0
    O loop_forever {
        # Get a character:
        O char := get_byte(rx_mask)

        # Delay 2/3's of bit make sure that get_byte is done.
        X call delay()
        ..
```

PDA's

- What do you do with an old Palm Pilot?
- Sell it on EBay!
- Old M100 & \$35 Today
- PIC16F876 to Multiplex RoboBrick ports

OOPic

- Contacted by Scott Savage
- Interested in integrating with RoboBricks
- Hardware Exchange Coming

Summary

- Cheap
- Powerful
- Flexible
- Small
- Not yet available! Drats!!!