P18 I/O Module
Peripheral Board

Technical Manual

Date: 23 September, 2010

Document Revision: 1.03

BiPOM Electronics

WARRANTY:

BiPOM Electronics warrants P18 I/O Module peripheral board for a period of 1 year. If the board becomes defective during this period, BiPOM will at its option, replace or repair the board. This warranty is voided if the product is subjected to physical abuse or operated outside stated electrical limits. BiPOM Electronics will not be responsible for damage to any external devices connected to P18 I/O Module peripheral board. BiPOM Electronics disclaims all warranties express or implied warranties of merchantability and fitness for a particular purpose. In no event shall BiPOM Electronics be liable for any indirect, special, incidental or consequential damages in connection with or arising from the use of this product. BiPOM Electronics' liability is limited to the purchase price of this product.

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1. Overview

P18 I/O Module peripheral board is dedicated for the MicroTRAK training kit with a using of a Microchip PIC™ micro-controller host board.

MicroTRAK is the ultimate training kit and project development platform with microcontrollers. Whether developing a new project with or learning about microcontrollers, you will find MicroTRAK a highly versatile carrier board with support for microcontroller systems with 8051, 6811, 6808, PIC™, Basic Stamp, Basic Tiger and others.

List of micro-controller boards and peripheral boards, software examples for MicroTRAK training kit are available from

http://www.bipom.com/

P18 I/O Module peripheral board allows access to any signal of any port of a PIC™ micro-controller on the MicroTRAK development platform. P18 I/O Module peripheral board has 32 switches to control over PIC™ micro-controller inputs and 32 LEDs to indicate the signals.

P18 I/O Module peripheral board should be powered from a 5 Volt DC external stabilized power source through the 36-pin input/output connector.

2. Specifications

P18 I/O Module peripheral board has the following configuration:

- 36-pin pluggable module connector

- Two 32-pin expansion connector footprints

- 32 channel DIP top side switch to control over the PIC™ micro-controller inputs

- 32 LEDs with 74ALS05 hex inverters as input buffers

- Single operating stabilized voltage 5VDC at 250mA maximum current

- Dimensions are 5.95 X 1.975 inches (15.1 X 5.0 centimeters).

- Mounting holes of 0.15 inches (3.8 millimeters) are on four corners.

- 0° - 70° C operating, -40° - +85° C storage temperature range.

3. Functional Blocks

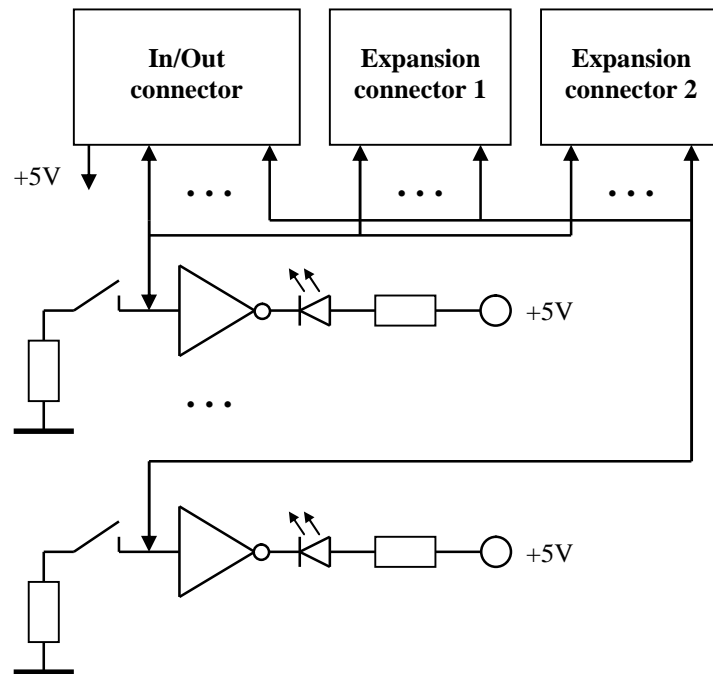Figure 1 shows the block diagram of the P18 I/O Module peripheral board

Figure 1

Pluggable Module connector

The 32 input/output (I/O) lines and 5 Volt power supply pins are available on the 36-pin connector X1 for interfacing to PIC™ micro-controller host board.

Table 1 shows the pin assignments for the connector.

Connector X1

Signal	Pin		Signal	Pin		Signal	Pin		Signal	Pin
GND	1		RC7	10		RC4	19		RB2	28
VDD	2		RD7	11		RC3	20		RB1	29
RA5	3		RD6	12		RA2	21		RB0	30
RC0	4		RD5	13		RC5	22		-	31
RA4	5		RD4	14		RA1	23		RE1	32
RC1	6		RD3	15		RA0	24		RE0	33
RB3/5	7		RD2	16		RC2	25		RE2	34
RB6	8		RD1	17		RB7	26		VDD	35
RC6	9		RD0	18		RB4	27		GND	36

Table 1

Expansion connectors

The 32 input/output (I/O) lines are available on the 32-pin expansion connector footprints X2 and X3 for soldering wires or adding your own connector.

Table 2 shows the pin assignments for the connector.

Connectors X2, X3

Signal	Pin		Signal	Pin		Signal	Pin		Signal	Pin
RA5	1		RD7	9		RC4	17		RB4	25
RC0	2		RD6	10		RC3	18		RB2	26
RA4	3		RD5	11		RA2	19		RB1	27
RC1	4		RD4	12		RC5	20		RB0	28
RB3/5	5		RD3	13		RA1	21		-	29
RB6	6		RD2	14		RA0	22		RE1	30
RC6	7		RD1	15		RC2	23		RE0	31
RC7	8		RD0	16		RB7	24		RE2	32

Table 2

Power Supply

External power supply should be able to provide stabilized 5 Volts DC at 250mA.

WARNING:

Correct polarity should be observed when applying external DC supply to the connector.

4. Application Notes

Various host micro-controller boards can be used with the P18 I/O Module peripheral board. More details on supported BiPOM micro-controller boards are available from the link below:

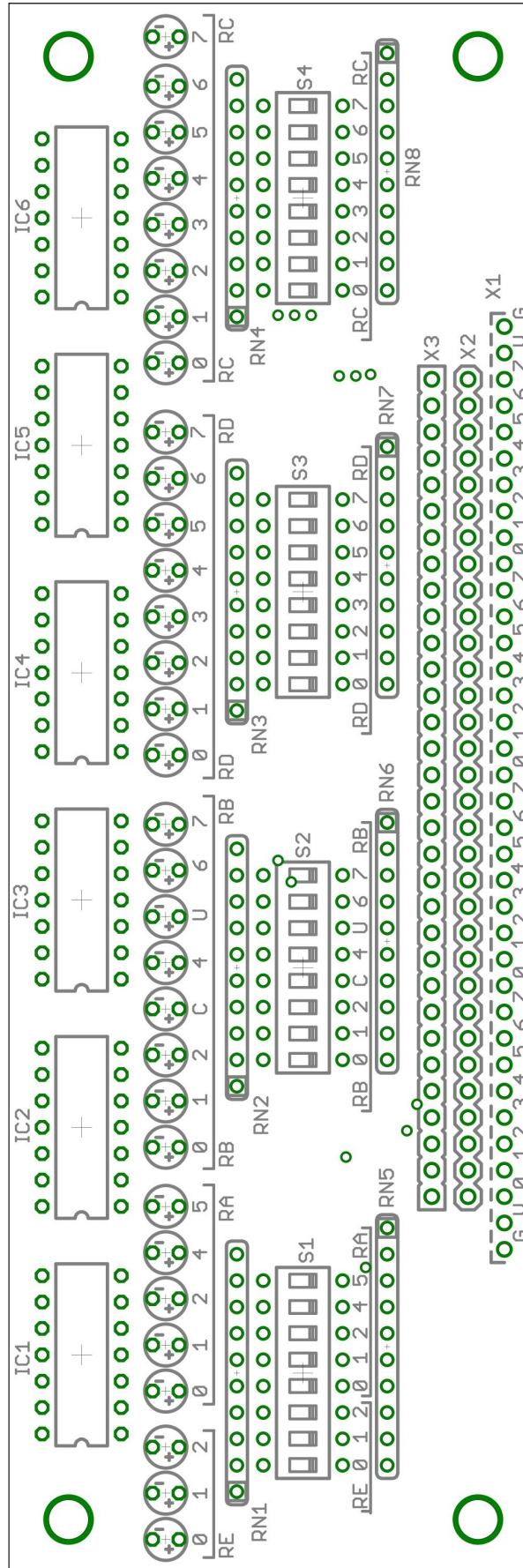http://www.bipom.com/boards.php

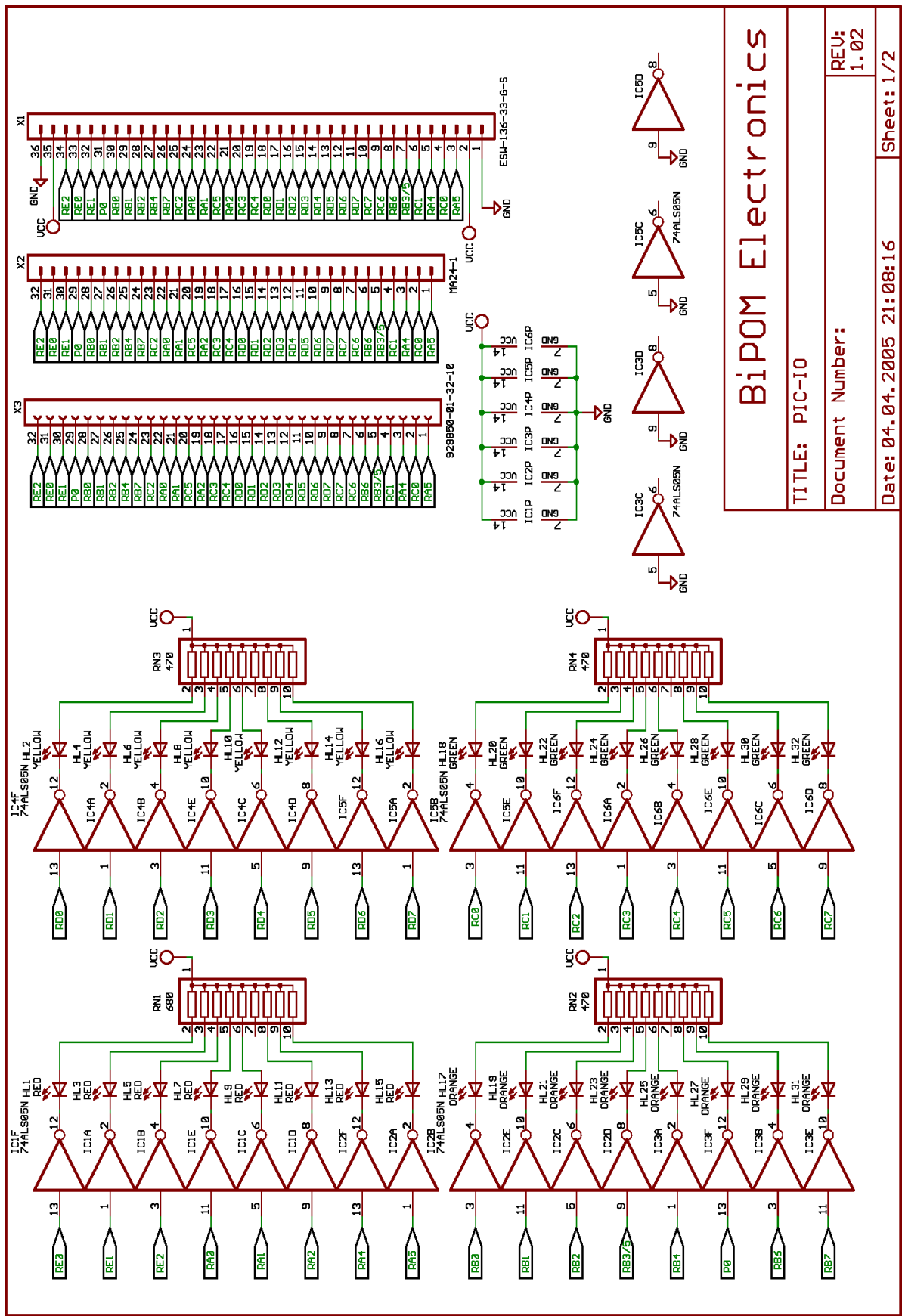Various development systems provide examples for MicroTRAK training kit using P18 I/O Module peripheral board.
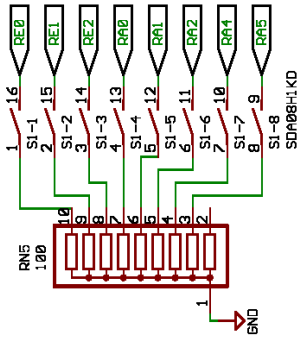
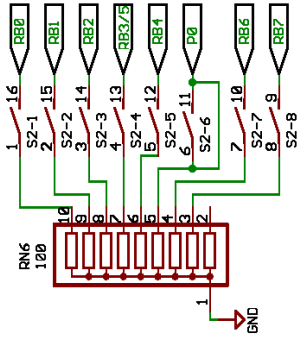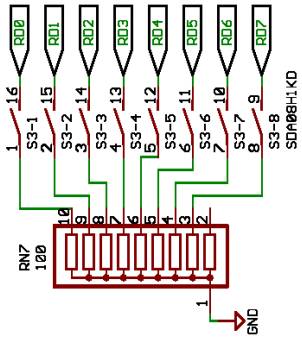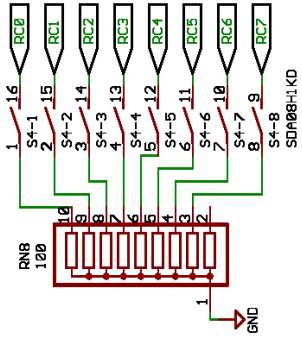Please download any of these development systems from:

http://www.bipom.com/software.php

5. Board Layout

6. Schematics

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RC0 RC1 RC2 RC3 RC4 RC5 RC6 RC7

1 16 S4-1
2 15 S4-2
3 14 S4-3
4 13 S4-4
5 12 S4-5
6 11 S4-6
7 10 S4-7
8 9 S4-8
SDA08H1KD

RN8
100

GND

RD0 RD1 RD2 RD3 RD4 RD5 RD6 RD7

1 16 S3-1
2 15 S3-2
3 14 S3-3
4 13 S3-4
5 12 S3-5
6 11 S3-6
7 10 S3-7
8 9 S3-8
SDA08H1KD

RN7
100

GND

RB0 RB1 RB2 RB3/5 RB4 P0 RB6 RB7

1 16 S2-1
2 15 S2-2
3 14 S2-3
4 13 S2-4
5 12 S2-5
6 11 S2-6
7 10 S2-7
8 9 S2-8
SDA08H1KD

RN6
100

GND

RE0 RE1 RE2 RA0 RA1 RA2 RA4 RA5

1 16 S1-1
2 15 S1-2
3 14 S1-3
4 13 S1-4
5 12 S1-5
6 11 S1-6
7 10 S1-7
8 9 S1-8
SDA08H1KD

RN5
100

GND

11