

T-1-1820 board Technical Manual

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T-1-1820 board Technical Manual. No part of this work may be reproduced in any manner without written permission of BiPOM Electronics.

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WARRANTY:

BiPOM Electronics warrants T-1-1820 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 T-1-1820 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.

1. Overview

T-1-1820 board is a general purpose, low-cost peripheral board for the MINI-MAX and PRO-MAX series of micro-controller systems. The board allows to use DS18B20+PAR Digital Thermometer with the micro-controller systems.

T-1-1820 board is powered from 5 Volts DC of external power source.

Software examples for T-1-1820 board are available from <http://www.bipom.com/>

2. Specifications

T-1-1820 board has the following configuration:

- DS18B20+PAR Digital Thermometer provides $\pm 0.5^{\circ}\text{C}$ accuracy from -10°C to $+85^{\circ}\text{C}$
- 20-pin Expansion connector for data communication with a micro-controller board and power supply.
- 3-pin additional connector for DS1822 Digital Thermometer output.
- Two jumper blocks to select the communication lines with a micro-controller board.
- Single operating voltage: 5 VDC, 3 mA maximum supply consumption.
- Dimensions are 2.4 x 1.2 inches (5.88 X 2.94 centimeters).
- Mounting holes of 0.138 inches (3.5 millimeters) are on four corners.
- 0° - 70°C operating, -40° - $+85^{\circ}\text{C}$ storage temperature range.

3. Functional Blocks

Figure 1 shows the block diagram of the T-1-1820 board

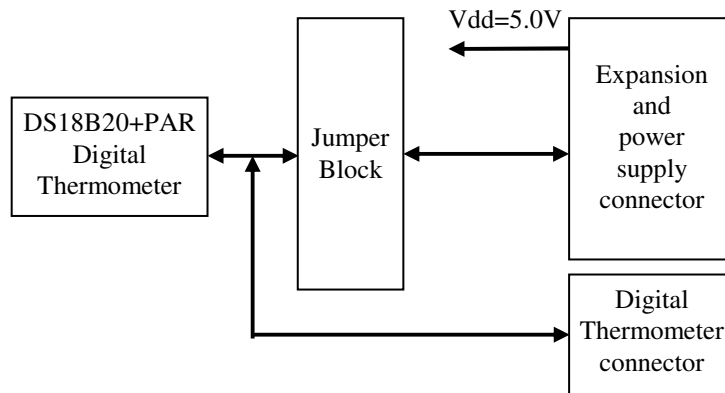


Figure 1

Expansion connector

5 data communication pins and 5 Volt power supply pins are available on 20-pin connector X3 for interfacing to a host micro-controller board. T-1-1820 board can be connected to a host board either as a piggyback daughter-board using standoffs or can be placed away from the micro-controller board using a 20-wire ribbon cable (Part #: EXPCABLE-6). Table 1 shows the pin assignments for the X3 connector.

Connector X3

Signal	Pin	Pin	Signal
NC	20	19	NC
PSCL3 /I2C SCL/	18	17	NC
NC	16	15	NC
DSDA4 /I2C SDA/	14	13	PSCL4 /I2C SCL/
PSCL0 /I2C SCL/	12	11	DSDA0 /I2C SDA/
PSCL1 /I2C SCL/	10	9	DSDA1 /I2C SDA/
PSCL2 /I2C SCL/	8	7	DSDA2 /I2C SDA/
NC	6	5	DSDA3 /I2C SDA/
NC	4	3	GND
VCC (+5V) input	2	1	NC

Table 1

Digital Thermometer connector

Digital Thermometer 1-Wire data bus is available on a 3-pin connector X6. Table 2 shows the pin assignments for the connector.

1-Wire bus Connector (X6)

Signal	Pin
VCC (+5V)	1
1-Wire Data	2
GND	3

Table 2.

Jumpers

Table 3 shows the jumper assignments for connections of the Digital Thermometer 1-Wire data. **WARNINGS!** Do not install more than one jumper to X1!

X1 jumper assignments

Jumper	Signal	If removed	Operations if installed
X1:1-2	DSDA0 /X3:pin-11/	Unconnected	Connected to 1-Wire data (D) of the Digital Thermometer
X1:3-4	DSDA1 /X3:pin-9/	Unconnected	Connected to 1-Wire data (D) of the Digital Thermometer
X1:5-6	DSDA2 /X3:pin-7/	Unconnected	Connected to 1-Wire data (D) of the Digital Thermometer
X1:7-8	DSDA3 /X3:pin-5/	Unconnected	Connected to 1-Wire data (D) of the Digital Thermometer
X1:9-10	DSDA4 /X3:pin-14/	Unconnected	Connected to 1-Wire data (D) of the Digital Thermometer

Table 3

Table 4 shows the jumper assignments for connections of the Digital Thermometer pullup enable line. **WARNINGS!** Do not install more than one jumper to X4!

X4 jumper assignments

Jumper	Signal	If removed	Operations if installed
X4:1-2	PSCL0 /X3:pin-12/	Unconnected	Connected to Pullup enable (P) of the Digital Thermometer
X4:3-4	PSCL1 /X3:pin-10/	Unconnected	Connected to Pullup enable (P) of the Digital Thermometer
X4:5-6	PSCL2 /X3:pin-8/	Unconnected	Connected to Pullup enable (P) of the Digital Thermometer
X4:7-8	PSCL3 /X3:pin-18/	Unconnected	Connected to Pullup enable (P) of the Digital Thermometer
X4:9-10	PSCL4 /X3:pin-13/	Unconnected	Connected to Pullup enable (P) of the Digital Thermometer

Table 4

Power Supply

T-1-1820 board can be powered from a 5 Volts DC source through 20-pin X3 connector. The board power supply consumption is 3 mA maximum.

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

4. Application Notes

T-1-1820 peripheral board can be stacked on top of Micro-Computer board using stand-offs or connected in a chain configuration using flat ribbon cable. Figure 2 shows how T-1-1820 board can be connected to a Micro-Computer board in a stacked fashion. Figure 3 shows the chain connection.

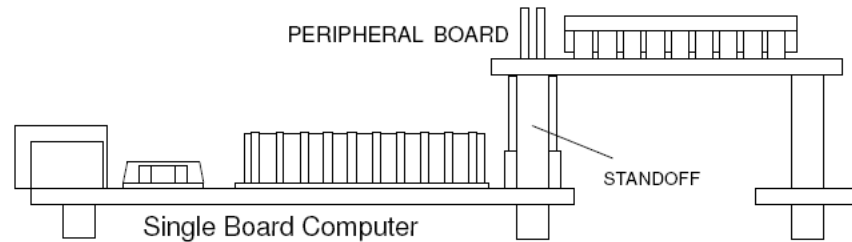


Figure 2

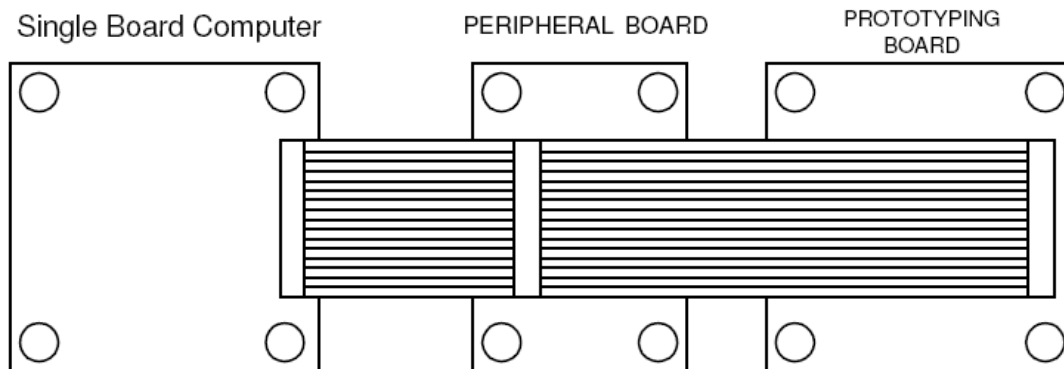


Figure 3

More details concerning BiPOM Peripheral boards are available from the link below:

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

8051/52, BASCOM51 and SDCC (Small Device C Compiler) development systems provide examples for T-1-1820 peripheral board.

Please download any of these development systems from:

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

5. Board Layout

Layout of the T-1-1820 board is shown below:

