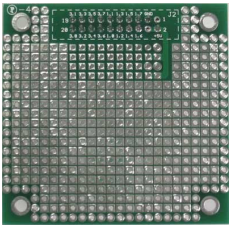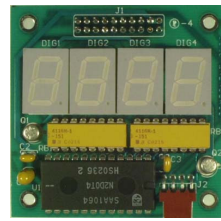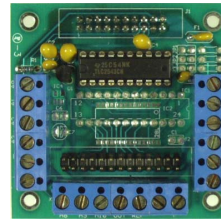# BiPOM Peripheral Boards

PROTO-1: 2.35" X 2.40" prototyping board which has a 20-pin universal expansion connector to interface with MINI-MAX or PRO-MAX series boards. Several prototyping boards can be stacked for custom circuit development. Analog inputs, analog outputs, temperature sensors, relays, displays and many other circuits can be added to MINI-MAX or PRO-MAX boards for rapid project development.

LED-1 Board: A peripheral board with four 7-segment LED displays with decimal point. The displays are placed on sockets and can be easily replaced. 4-digit LED-driver with I2C-Bus interface is installed to this board. The segment outputs of LED-driver are controllable current-sink sources. They are switched on by the corresponding data bits and their current is adjusted by control bits. LED-driver on the board is controlled via an I2C-compatible 2-wire serial bus.
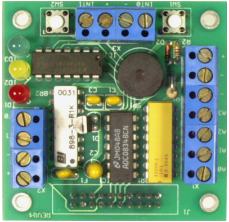
TB-1: 2.35" X 2.40" (5.97 X 6.10 cm.) TB-1 Training Board allows performing various experiments with the MINI-MAX/51-C2 or other 8051 compatible boards. TB-1 has programmable traffic lights, 4-channel, 8-bit analog inputs, buzzer, switch inputs, and counter/timer inputs to test the interrupts.

DAQ-2543 Board: DAQ-2543 is Analog-To-Digital / Digital-To-Analog peripheral board with TLC2543, 11-channel, 12-bit Analog-To-Digital Converter from Texas Instruments. All the channels are available on terminal blocks.

OLED-1: 128x64 4-bit Grayscale OLED Graphics display board with microcontroller serial (SPI) interface.
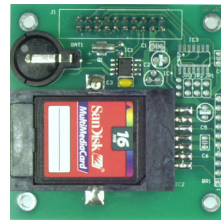
MMC-RTC-1: MMC/RTC board is a storage flash device which is designed specifically for storage/data logger applications. A Multi Media Card (MMC) with high capacities such as 1 Giga-byte can be installed on the built-in MMC socket. MMC-RTC-1 board also includes a DS1307 low power, battery-backed Clock/Calendar. (Multi Media Card is not included)
.
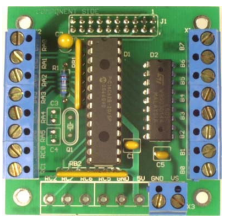
DIO-1 Board: DIO-1 is an expander board with 8 open/collector outputs (each capable of 400mA) and 12 TTL/CMOS inputs/outputs. A PIC16C62 micro-controller on this board acts as a I2C 2-wire slave device to control inputs and outputs. DIO-1 can also be used as a standalone PIC micro-controller board.
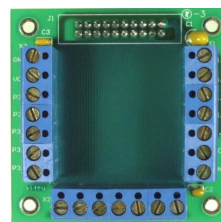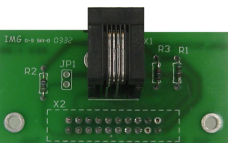
TERMINAL-1: Brings out Ports 1 and 3 of the MINI-MAX/51-C2 to terminal blocks for easier access.

**KP1-4X4:** 4 by 4 matrix keypad. Plugs directly to MINI-MAX/51-C2.
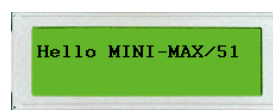
LCD242: 24 characters x 2 lines LCD display. Connects directly to MINI-MAX/51-C2 with included cable. Also available in LED backlit version (**LCD242-BK**).

X10-1: Connects MINI-MAX/51-C2 to standard X10 devices through the TW523 power line interface.

VFD202: 20 characters x 2 lines Vacuum Fluorescent display. Connects directly to MINI-MAX/51-C2 with included cable.
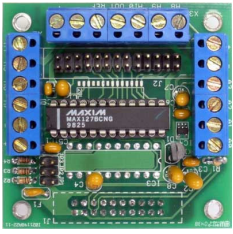
DAQ-127 and **DAQ-128** are 8-channel, 12-bit, Analog Input and 1 channel, 10-bit Analog Output peripheral board. DAQ-127 has +/- 10 Volt input range. DAQ-128 has +/- 4 Volt input range.
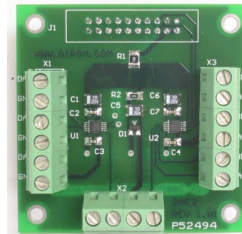
DAC-1 and **DAC-2** are 8-bit Digital to Analog Converter (DAC) boards with I2C 2-wire interface. DAC-1 has 4 analog output channels. DAC-2 has 8 analog output channels. All outputs and their corresponding ground returns connect to screw type terminal blocks.
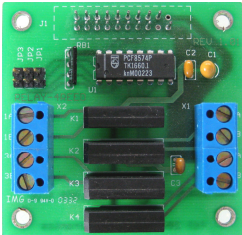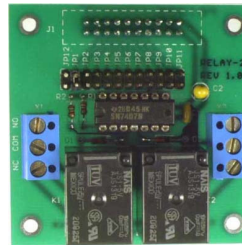
RELAY-4REED: Relay peripheral board with 4 reed relays. Normally Open Contacts.
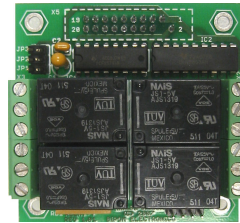
RELAY-4: Relay peripheral board with 4 power relays.
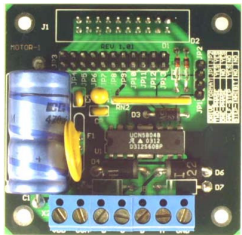
MOTOR-1: Stepper motor driver peripheral board is a peripheral board for the Single Board Computers. It offers complete control and drive for a four-phase unipolar stepper-motor.

**RELAY-2:** Relay peripheral board with 2 power relays. Normally Open and Normally Closed Contacts.

TW523 is a two-way X10 power line interface module. When used in conjunction with our X10-1 module, TW523 interfaces MINI-MAX boards to X10 devices.
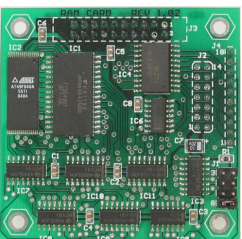
Standoff Kit-1: MINI-MAX series of micro-controller boards except a wide range of peripheral boards that can be plugged to the micro-controller board. The standoff kit consists of 12 pieces of plastic screws and spacers.
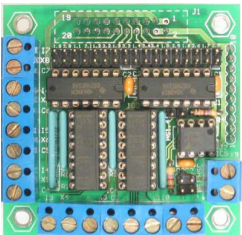
OPTO-1: 8 channel normal speed and 1 channel high speed optoisolated input board. Ideal for high voltage detection, isolated input detection, frequency and period measurements.
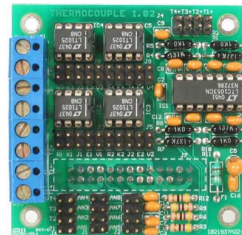
THERMOCOUPLE-4: 4 channel thermocouple board with cold-junction compensation and amplification for any combination of type E, J, K, R, S, T thermocouples.

RAM-1: The peripheral memory board for the MINI-MAX and PRO-MAX series of micro-controller systems. RAM-1 has 512Kbyte static RAM and 512Kbyte flash memory with an access via 8-bit address/data multiplexed bus.

CB-1 is a wireless communications peripheral board for the MINI-MAX series of micro-controller systems. CB-1 provides Infrared, Zigbee, Bluetooth communications for a host microcontroller.
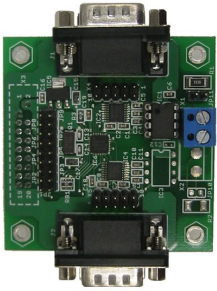
UART-2-RS232 has two RS232 channels and two (optional) RS485 channels and a hardware I2C bus for communications with a host microcontroller. It translates data from I2C to RS232/RS485 and adds more serial ports to MINI-MAX boards or other microcontroller systems.
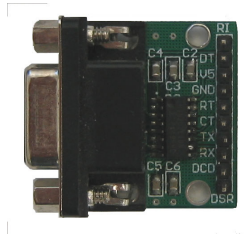
BRD-RS232-TTL-1: RS232 to TTL Converter for use with converting the RS232 port of MINI-MAX boards, PC's or any other RS232 devices to TTL/CMOS level. Useful when breadboarding or when interfacing with devices, such as GPS, Bluetooth, Zigbee and other modules that support only TTL RS232.
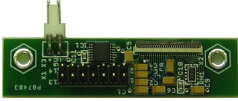
LCD-1: LCD Adapter Board for interfacing to graphical LCD's using serial (SPI) interface.