

# **DAC-1 and DAC-2 Peripheral Board Technical Manual**

Date: 8 February, 2006

Document Revision:1.01



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DAC-2 Peripheral 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 DAC-2 for a period of 90 days. 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 DAC-2. 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

DAC-2 is a peripheral board for the MINI-MAX and PRO-MAX series of micro-controller systems.

DAC-2 has 8 output analog channels with 6 $\mu$ S setting time

DAC-2 is powered from 5 Volts DC of external power source through the 20-pin expansion connector.

Software examples for DAC-2 Peripheral board are available from <http://www.bipom.com/>

**NOTE:**

***DAC-1 and DAC-2 is the same board. However, only one DAC ( U1) is installed on DAC-1.***

## 2. Specifications

DAC-2 board has the following configuration:

- 8-bit 8 channels DAC using AD5305 micro-power IC with 6  $\mu$ S setting time.
- Two 6-pin terminal blocks and one 4-pin terminal block for 8 analog outputs
- 20-pin Expansion connector for a host micro-controller board ( <http://www.bipom.com/boards51.php> )
- Communication through I2C-bus with a host micro-controller.
- Onboard 4.096V precision reference source powered from an external 5VDC.
- Single operating voltage: 5 VDC, 1.8mA supply consumption.
- Dimensions are 2.35 X 2.40 inches (5.97 X 6.10 centimeters).
- Mounting holes of 0.138 inches (3.5 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 DAC-2 peripheral board

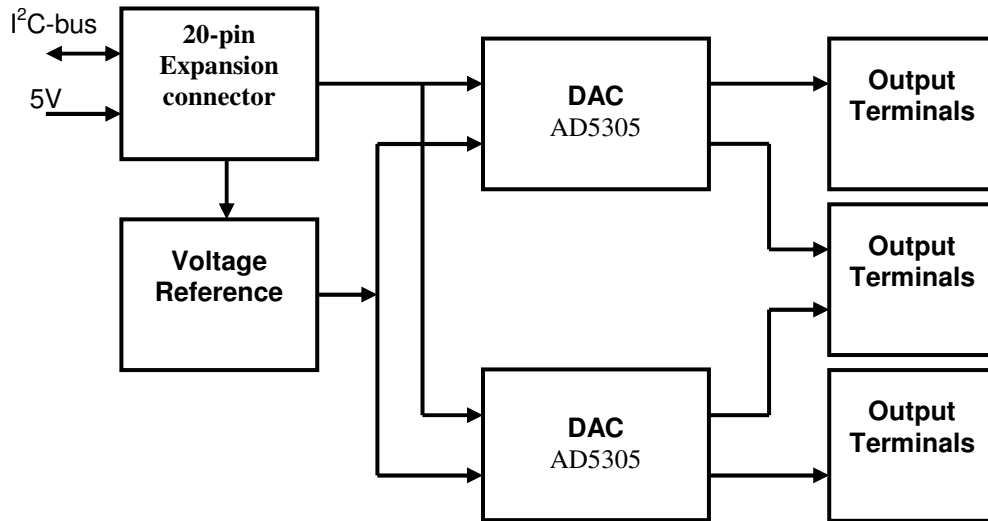


Figure 1

#### Expansion connector

The 16 control pins and 5 Volt power supply pins are available on the 20-pin connector (J1) for interfacing to micro-controller boards. DAC-2 can be connected to micro-controller 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 connector.

**Connector J1**

Signal	Pin	Pin	Signal
P3.0	20	19	P3.1
P3.2	18	17	P3.3
P3.4	16	15	P3.5
P3.6	14	13	P3.7
P1.0	12	11	P1.1
P1.2	10	9	P1.3
P1.4	8	7	P1.5
P1.6/SCL	6	5	P1.7/SDA
VCC (+5V)	4	3	GND
VCC (+5V)	2	1	GND

Table 1

## **Output Terminals**

Table 2 shows the pin assignments for the output terminals

**Output Terminals X1 ... X3**

<b>Signal</b>	<b>Pin</b>
Out A-1	X1-1
GND	X1-2
Out B-1	X1-3
GND	X1-4
Out C-1	X1-5
GND	X1-6
Out D-1	X2-1
GND	X2-2
Out A-2	X2-3
GND	X2-4
Out B-2	X3-1
GND	X3-2
Out C-2	X3-3
GND	X3-4
Out D-2	X3-5
GND	X3-6

Table 2

## **Power Supply**

External power supply should be able to supply 5 Volts DC at 2mA current.

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

## 4. Application Notes

DAC-2 board can either be stacked on top of MINI-MAX/51-C using stand-offs or connected in a chain configuration using flat ribbon cable. Figure 2 shows how DAC-2 can be connected to a Micro-Computer board in a stacked fashion. Figure 3 shows the chain connection.

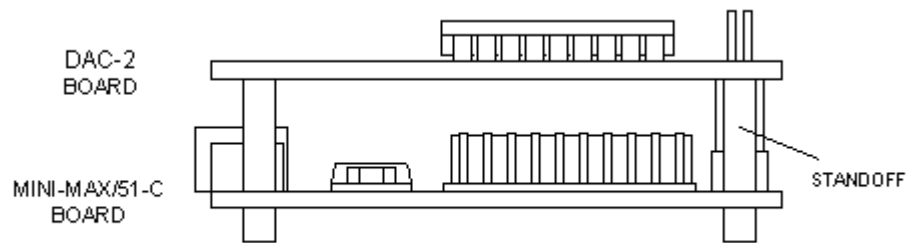


Figure 2

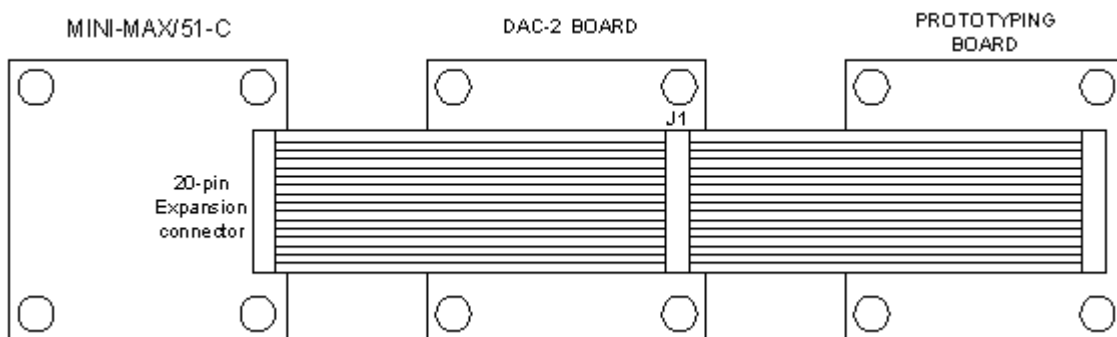


Figure 3

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

[http://www.bipom.com/periph\\_boards.php](http://www.bipom.com/periph_boards.php)

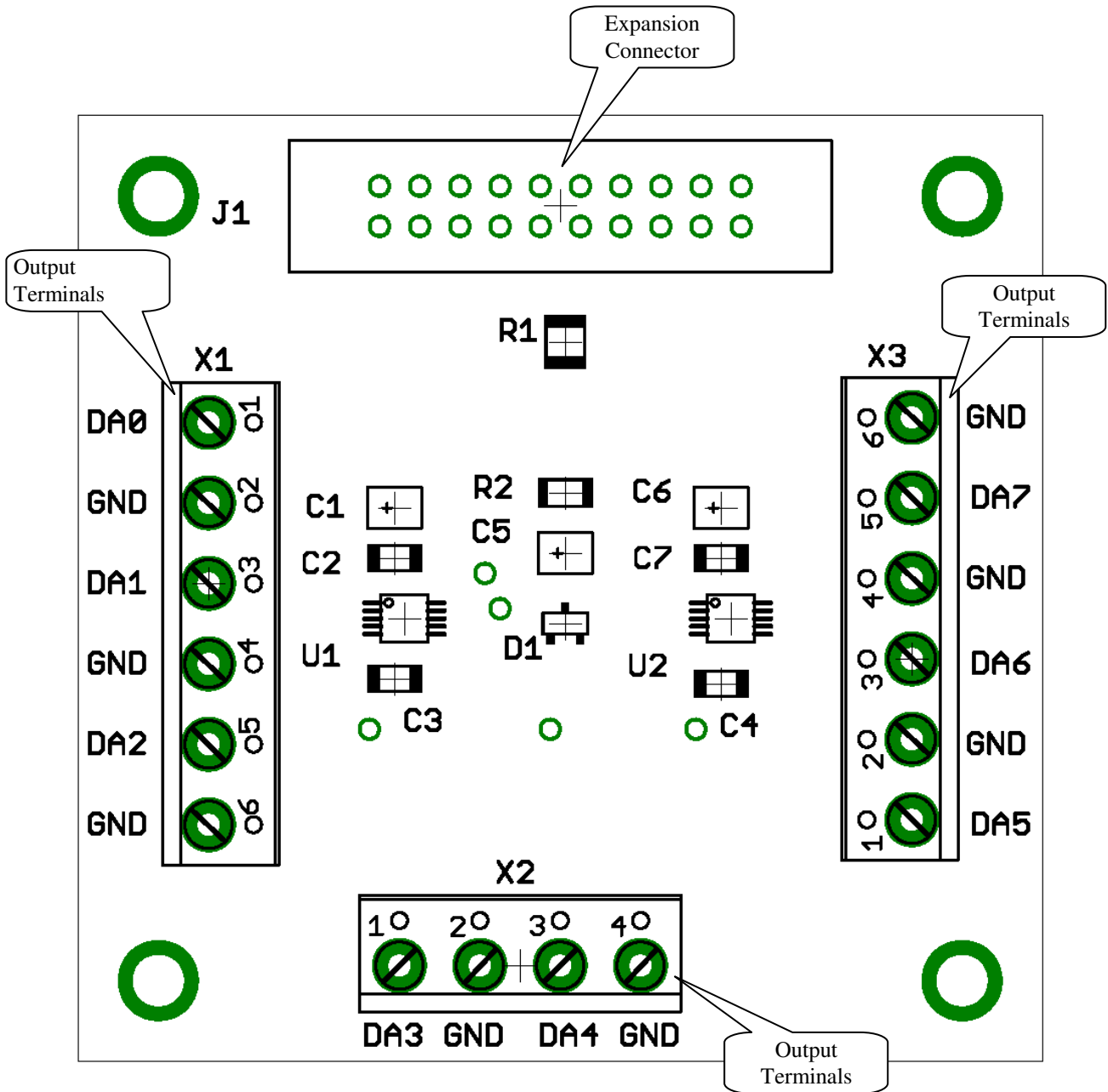
8051/52, BASCOM51 and SDCC (Small Device C Compiler) development systems provide examples for DAC-2.

Please download any of these development systems from:

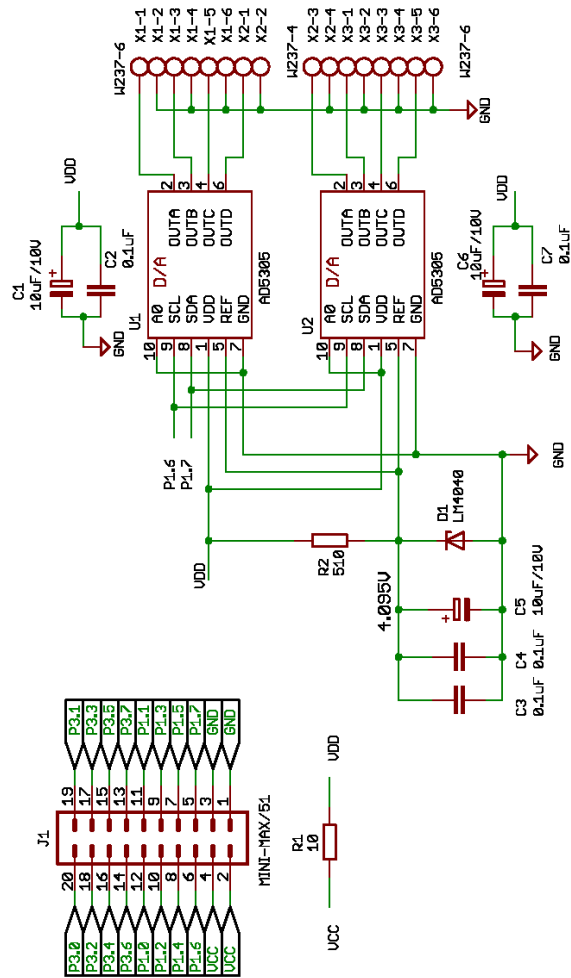
<http://www.bipom.com/software.php>

## 5. Board Layout

Layout of DAC-2 board is shown below:



## 6. Schematics



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TITLE: DAC2

Document Number:

REV:  
1.01

Date: 01.02.2003 19:08:16

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