

This is revision A of the [AVR Adaptor Board](#) and it is currently a [work in progress](#).

EMDP1 AVR Adaptor Board (Rev. A)

Table of Contents

- [Table of Contents](#)
- [Introduction](#)
- [Schematics](#)
- [Printed Circuit Board](#)
- [Tables](#)
- [Issues](#)

Introduction

There is a [PDF](#) version of this file available.

The AVR Adaptor Board is used to program [Atmel](#)[®] AVR microcontrollers. Most chips are programmed serially. The ATtiny28 is programmed using a parallel mode.

In order to serially program an AVR one of two serial programming methods is used. The SPI programming method is entered by applying 0 volts to RESET* and talking to the chip using the SPI protocol. The AVR serial programming method is entered by applying 12 volts to RESET*.

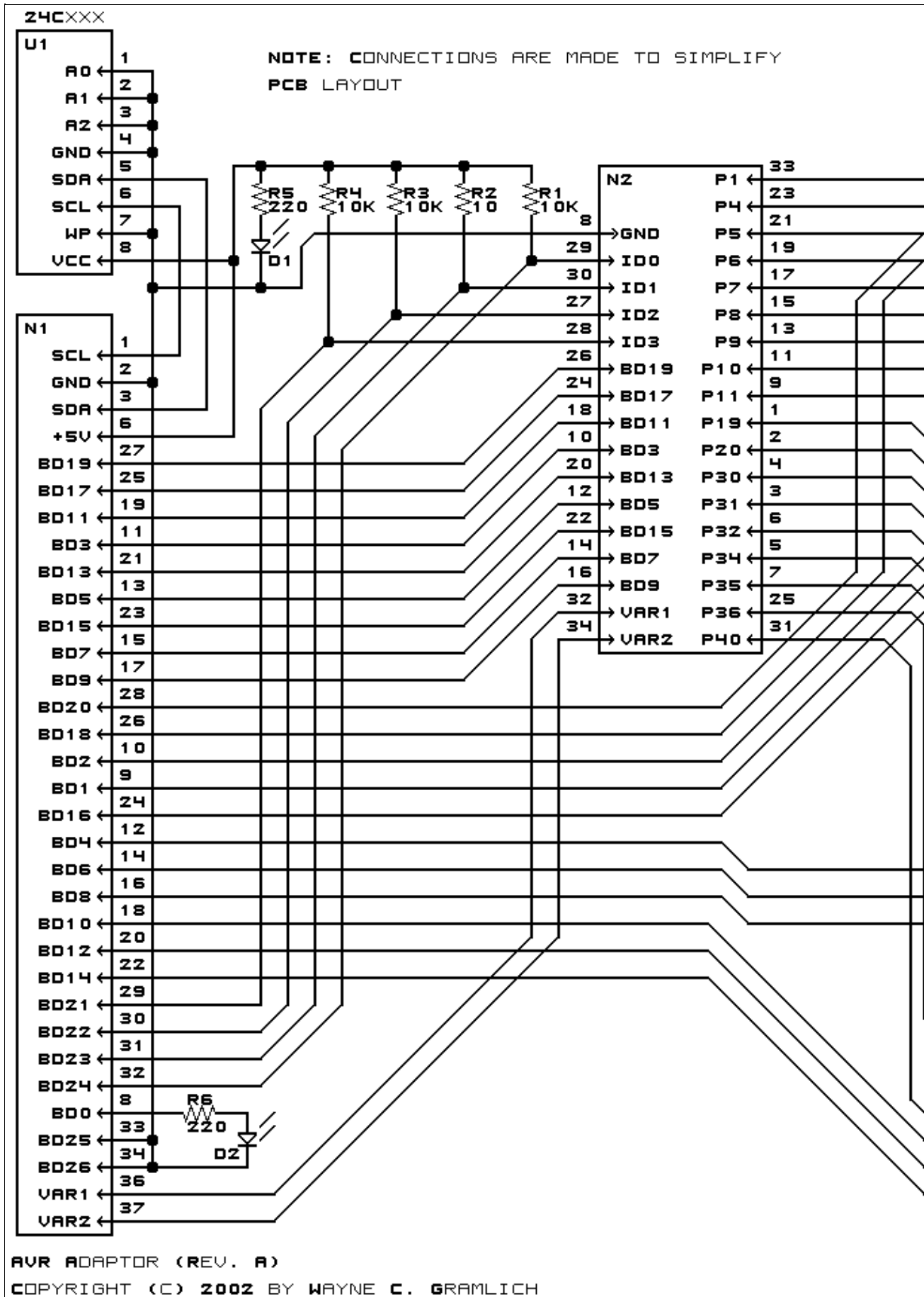
This adaptor board directly supports the AVR microcontrollers that are in 8, 20, 28, and 40 pin DIP (Dual Inline Package) packages. Any surface mount AVR microcontrollers will need an alternative adaptor; since I am perfectly happy to use DIP packaging for all of my projects that use AVR microcontrollers, I am in no particular hurry to design an adaptor for surface mount AVR chips.

My going in design decision was that there was going to be a single 40-pin ZIF (Zero Insertion Force) socket *and* that I would always place pin 1 of each AVR microcontroller in the upper left corner of that socket, irrespective of whether the chip is in an 8, 14, 18, 28, or 40 pin DIP package. The investigation of how this all works is done up on the [index.html](#).

Schematics

The schematic for the AVR Serial Adaptor is shown below:

EMDP1 AVR Adaptor Board (Rev. A)



AVR ADAPTOR (REV. A)

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The [parts list](#) is kept in a separate file.

Printed Circuit Board

The various printed circuit board files are listed below:

[avr_artwork.png](#)

The artwork (silk screen) layer.

[avr_back.png](#)

The back (solder side) layer.

[avr_front.png](#)

The front (component side) layer.

[avr.gal](#)

The RS274X "Gerber" artwork (silk screen) file.

[avr.gbl](#)

The RS274X "Gerber" back (solder side) file.

[avr.gtl](#)

The RS274X "Gerber" top (component side) file.

[avr.gml](#)

The RS274X "Gerber" mask (solder mask) file.

[avr.drl](#)

The Excellon drill file.

[avr.tol](#)

The drill rack file.

[avr.ptl](#)

The parts list (bill of materials) file.

Tables

The EMDP1 connector is listed below:

Pin	Label	Connected To
1	SCL	Serial EEPROM
2	GND	Plug Pin 8
3	SDA	Serial EEPROM
4		
5		
6	+5V	Serial EEPROM & pull ups
7		
8	BD0	Program LED
9	BD1	ZIF40 Pin 13
10	BD2	ZIF40 Pin 12
11	BD3	Plug Pin 10
12	BD4	ZIF40 Pin 27
13	BD5	Plug Pin 12
14	BD6	ZIF40 Pin 28

EMDP1 AVR Adaptor Board (Rev. A)

15	BD7	Plug Pin 14
16	BD8	ZIF40 Pin 29
17	BD9	Plug Pin 16
18	BD10	ZIF40 Pin 37
19	BD11	Plug Pin 18
20	BD12	ZIF40 Pin 38
21	BD13	Plug Pin 20
22	BD14	ZIF40 Pin 39
23	BD15	Plug Pin 22
24	BD16	ZIF40 Pin 14
25	BD17	Plug Pin 24
26	BD18	ZIF40 Pin 3
27	BD19	Plug Pin 26
28	BD20	ZIF40 Pin 2
29	BD21	Plug Pin 28 (ID3)
30	BD22	Plug Pin 27 (ID2)
31	BD23	Plug Pin 30 (ID1)
32	BD24	Plug Pin 29 (ID0)
33	BD25	Ground
34	BD26	Ground
35	BD27	
36	VAR1	Plug Pin 32
37	VAR2	Plug Pin 34
38		
39		
40		

Pin	Label	Connected To
1	P19	ZIF40 Pin 19
2	P20	ZIF40 Pin 20
3	P31	ZIF40 Pin 31
4	P30	ZIF40 Pin 30
5	P34	ZIF40 Pin 34
6	P32	ZIF40 Pin 32
7	P35	ZIF40 Pin 35
8	GND	Ground
9	P11	ZIF40 Pin 11
10	BD3	N1 Pin 11
11	P10	ZIF40 Pin 10
12	BD5	N1 Pin 13
13	P9	ZIF40 Pin 13
14	BD7	N1 Pin 15

15	P8	ZIF40 Pin 8
16	BD9	N1 Pin 17
17	P7	ZIF40 Pin 7
18	BD11	N1 Pin 26
19	P6	ZIF40 Pin 6
20	BD13	N1 Pin 21
21	P5	ZIF40 Pin 5
22	BD15	N1 Pin 23
23	P4	ZIF40 Pin 4
24	BD17	N1 Pin 25
25	P36	ZIF40 Pin 36
26	BD19	N1 Pin 27
27	ID2	N1 Pin 30 (BD22)
28	ID3	N1 Pin 29 (BD21)
29	ID0	N1 Pin 32 (BD24)
30	ID1	N1 Pin 31 (BD24)
31	P40	ZIF40 Pin 40
32	VAR1	N1 Pin 36 (VAR1)
33	P1	ZIF40 Pin 1
34	VAR2	N1 Pin 37 (VAR2)

Issues

Any fabrication issues will be listed here.

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