![SUNROM TECHNOLOGIES logo]

P89C51RD2 Controller Board with ICSP Programmer
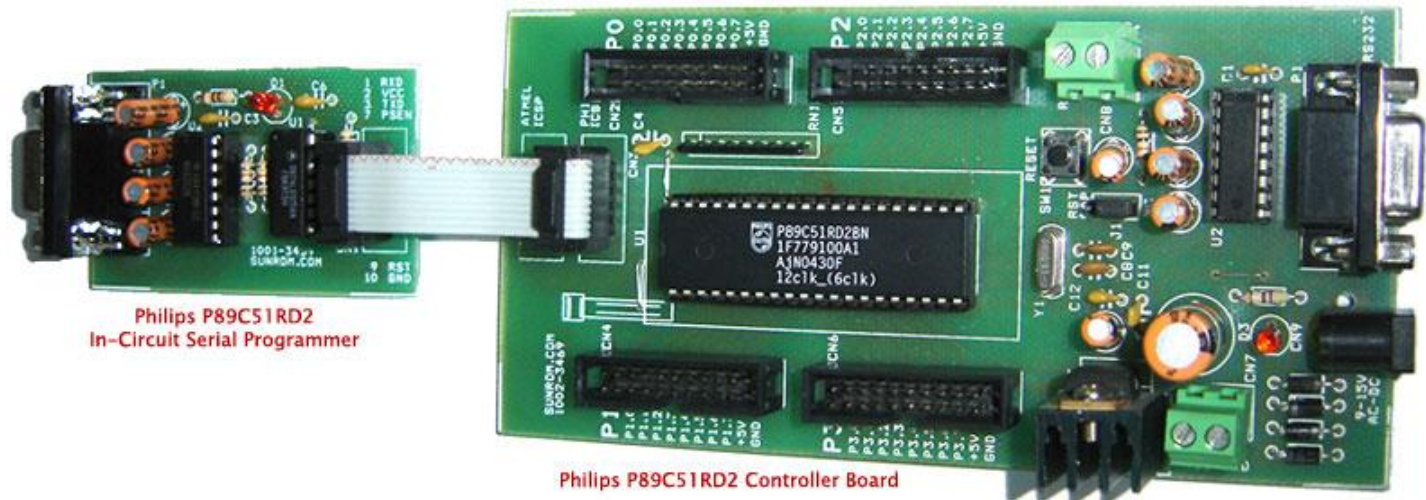

Philips P89C51RD2
In-Circuit Serial Programmer

Philips P89C51RD2 Controller Board

1.   Overview

Versatile, easy-to-use, general-purpose controller using the popular Philips P89C51RD2 microcontroller. The board includes no more than is absolutely necessary for a basic controller, thus keeping the cost and board size to a minimum. All of the individual pins have been brought out to standard four .1"-spaced headers to accommodate interfacing to almost any kind of circuitry. It is designed for use in applications ranging from robotics to industrial controller applications.
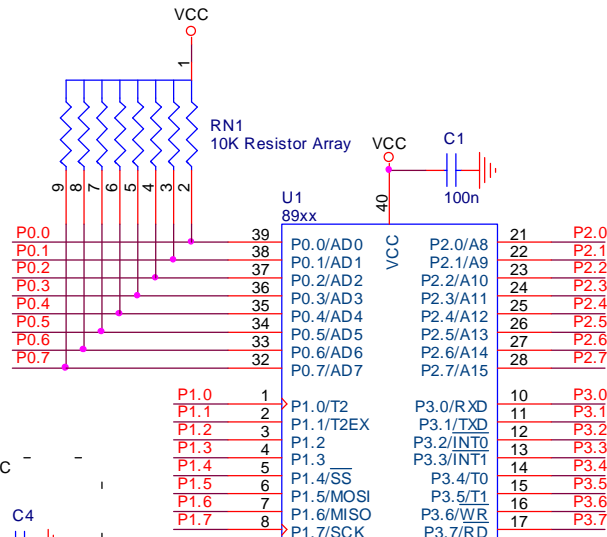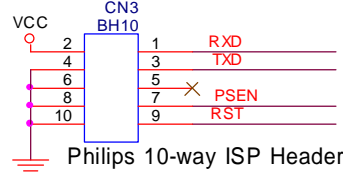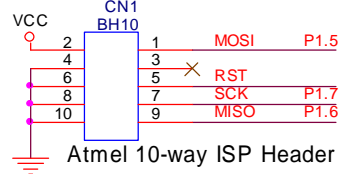
2.   Features

- Philips P89C51RD2 with 11.0592 Mhz Crystal Oscillator
- Operates over a wide range of supply voltage: 7 to 15 Volts
- On-Board 1 Amp Power Supply & Power Indicator LED
- On-Board Reset Switch
- ICSP for In-System-Programming
- On-Board RS232 Port for direct connection to PC's Serial Port

3.   Specifications
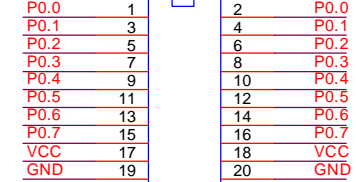
- 64 KB ISP Capable Flash Memory
- 1 KB RAM
- 80C51 Central Processing Unit
- On-chip Flash Program Memory with In-System Programming
- 4 level priority interrupt
- 8 interrupt sources
- Four 8-bit I/O ports
- Full-duplex enhanced UART
- Power down mode
- Second DPTR register
- Asynchronous port reset
- Low EMI (inhibit ALE)
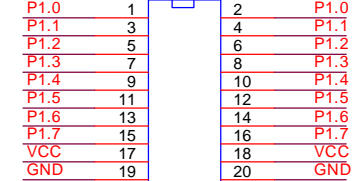- Programmable Counter Array (PCA) / PWM / Capture/compare
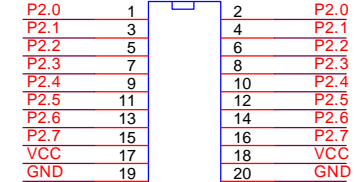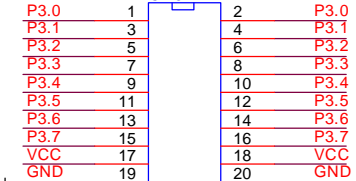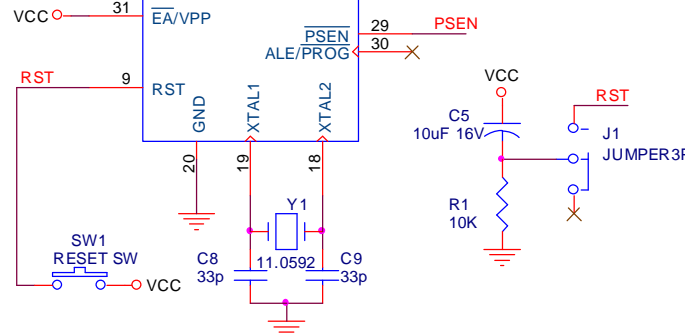
4. Schematic

In System Programming

VCC

CN1
BH10

2	1	MOSI	P1.5
4	3		
6	5	RST	
8	7	SCK	P1.7
10	9	MISO	P1.6

Atmel 10-way ISP Header

VCC

CN3
BH10

2	1	RXD
4	3	TXD
6	5	
8	7	PSEN
10	9	RST

Philips 10-way ISP Header

RS232

C3
10uF 16V

C2
10uF 16V

C4
100n

U2
MAX232

C+ C1- V+
VCC
16
9 RXD P3.0
R2OUT
10 TXD P3.1
R2IN
T2IN
8
R2IN
7
T2OUT
C2+ C2- V- GND

C6
10uF 16V

C7
10uF 16V

P1
DCON9-F
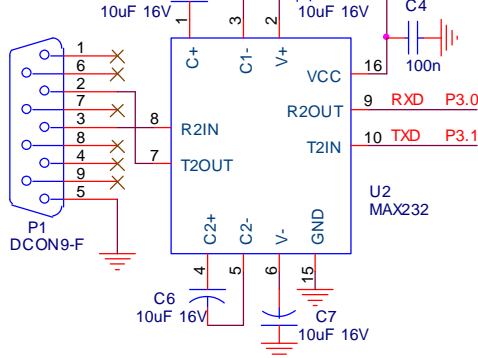
POWER INPUT AND REGULATOR

D1
D2
D4
D5

CN9
DC SOCKET

VDD

U3
LM7805
IN   OUT
GND

VCC

C10
1000uF 25V

C11
100n

C13
10uF 16V

C12
100n

R2
470E

D3
LED

VCC

RN1
10K Resistor Array

VCC

C1
100n

U1
89xx

39	P0.0/AD0	P2.0/A8	21	P2.0
38	P0.1/AD1	P2.1/A9	22	P2.1
37	P0.2/AD2	P2.2/A10	23	P2.2
36	P0.3/AD3	P2.3/A11	24	P2.3
35	P0.4/AD4	P2.4/A12	25	P2.4
34	P0.5/AD5	P2.5/A13	26	P2.5
33	P0.6/AD6	P2.6/A14	27	P2.6
32	P0.7/AD7	P2.7/A15	28	P2.7

P1.0	1	P1.0/T2	P3.0/RXD	10	P3.0
P1.1	2	P1.1/T2EX	P3.1/TXD	11	P3.1
P1.2	3	P1.2	P3.2/INT0	12	P3.2
P1.3	4	P1.3	P3.3/INT1	13	P3.3
P1.4	5	P1.4/SS	P3.4/T0	14	P3.4
P1.5	6	P1.5/MOSI	P3.5/T1	15	P3.5
P1.6	7	P1.6/MISO	P3.6/WR	16	P3.6
P1.7	8	P1.7/SCK	P3.7/RD	17	P3.7

VCC 31 EA/VPP

PSEN 29 PSEN
ALE/PROG 30

RST 9 RST

GND 20   XTAL1 19   XTAL2 18

SW1
RESET SW

C8
33p

Y1
11.0592

C9
33p

VCC

C5
10uF 16V

RST

J1
JUMPER3P

R1
10K

POWER OUT

Unregulated Output Voltage

CN7
VDD   +V

2 Pin Screw Terminal

Regulated 5V Output Voltage

CN8
VCC   +5V

2 Pin Screw Terminal

PORT0
CN2

P0.0	1	2	P0.0
P0.1	3	4	P0.1
P0.2	5	6	P0.2
P0.3	7	8	P0.3
P0.4	9	10	P0.4
P0.5	11	12	P0.5
P0.6	13	14	P0.6
P0.7	15	16	P0.7
VCC	17	18	VCC
GND	19	20	GND

20 Pin FRC

PORT1
CN4

P1.0	1	2	P1.0
P1.1	3	4	P1.1
P1.2	5	6	P1.2
P1.3	7	8	P1.3
P1.4	9	10	P1.4
P1.5	11	12	P1.5
P1.6	13	14	P1.6
P1.7	15	16	P1.7
VCC	17	18	VCC
GND	19	20	GND

20 Pin FRC

PORT2
CN5

P2.0	1	2	P2.0
P2.1	3	4	P2.1
P2.2	5	6	P2.2
P2.3	7	8	P2.3
P2.4	9	10	P2.4
P2.5	11	12	P2.5
P2.6	13	14	P2.6
P2.7	15	16	P2.7
VCC	17	18	VCC
GND	19	20	GND

20 Pin FRC

PORT3
CN6

P3.0	1	2	P3.0
P3.1	3	4	P3.1
P3.2	5	6	P3.2
P3.3	7	8	P3.3
P3.4	9	10	P3.4
P3.5	11	12	P3.5
P3.6	13	14	P3.6
P3.7	15	16	P3.7
VCC	17	18	VCC
GND	19	20	GND

20 Pin FRC

| **Sunrom Technologies** | | **http://www.sunrom.com** | |
Title 8051 Microcontroller Development Board			
Code 1002-3469		Rev	1
Date: Monday, December 04, 2006		Sheet 1	of 1

5.   Programming software

Start setup by clicking FlashMagic.exe, and follow setup instructions.
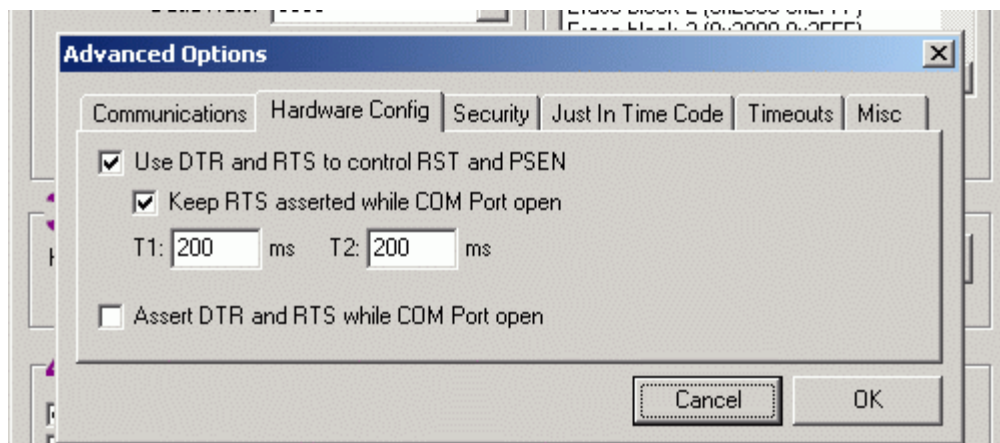Once installed start Flash Magic from Start Menu > All Programs > Flash Magic
Following main screen is displayed, Change options on main screen as shown below.
Select appropriate serial port present on your PC.
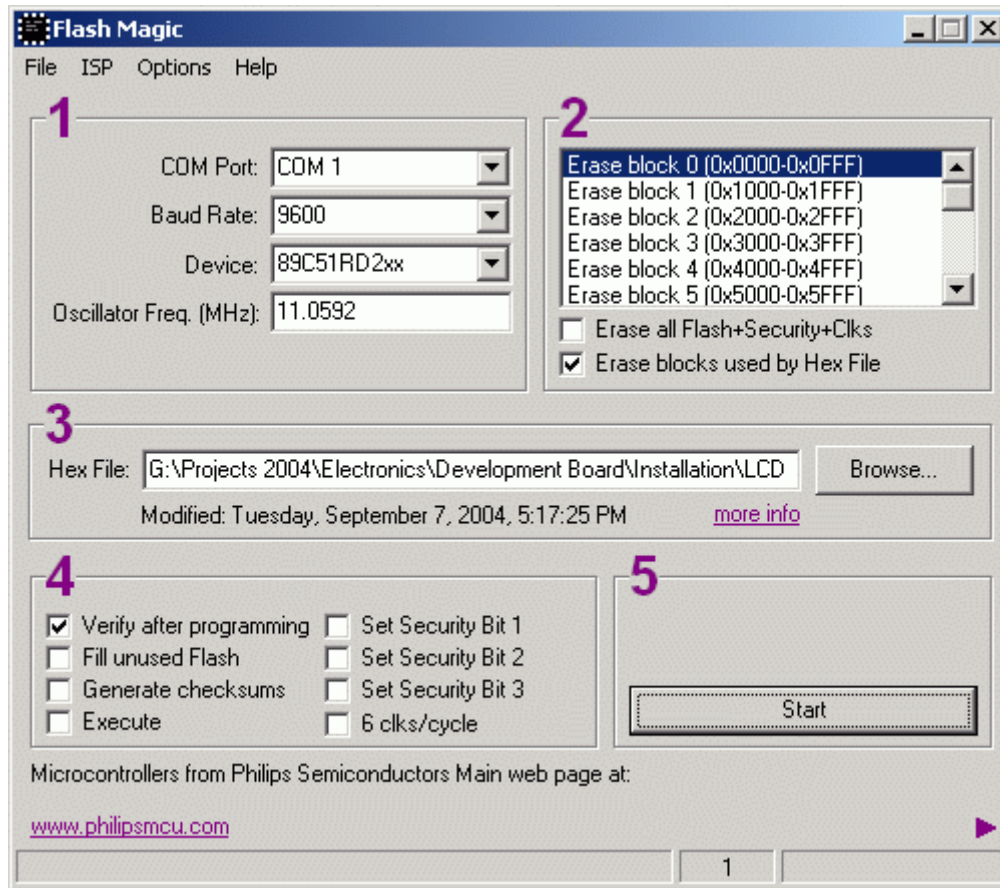
Additional Setup includes going to Options > Advanced Options and setting as below

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6. Package Includes

- Fully Assembled and Tested Controller Board and ICSP Programmer Board
- Flat Ribbon Cable connecting between Controller Board and Programmer
- Serial Port Cable for Programmer
- CDROM containing Schematic, Programming Software and User Manual

7. Ordering Information

Part Number	Description
1002-3469	Philips P89C51RD2 Controller Board with ICSP Programmer
1002-3468A	Atmel AT89S52 Controller Board with ICSP Programmer

8. Also Available

Atmel AT89S52 Controller Board with ICSP Programmer
http://www.sunrom.com/index.php?main_page=product_info&cPath=35&products_id=139

89Sxx In-Circuit Serial Programmer

AT89S52 Controller Board

9.   Disclaimer

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