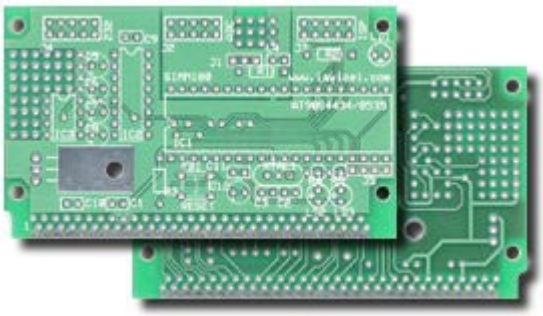
SBC - Single Board Computer

DATA SHEET



SIMM100

Single Board Computer, SimmStick compatible with Atmel® AVR® AT90S8535 microcontroller.

Product specification — November 1 1999

SIMM100 Leaflet — Version 1.1

History:

Version 1.0 / September 1999 / Preliminary Specification

Version 1.1 / November 1999 / Product Specification

LAWICEL

Single Board Computer, SimmStick compatible with Atmel® AVR® AT90S8535 microcontroller. **SIMM100**

DESCRIPTION

The SIMM100 is a Single Board Computer with the Atmel® 8-bit High Performance and Low Power RISC microcontroller type AVR® AT90S8535. The SIMM100 can work as a stand-alone Single board computer or together with the e.g. DT003 from Dontronics.

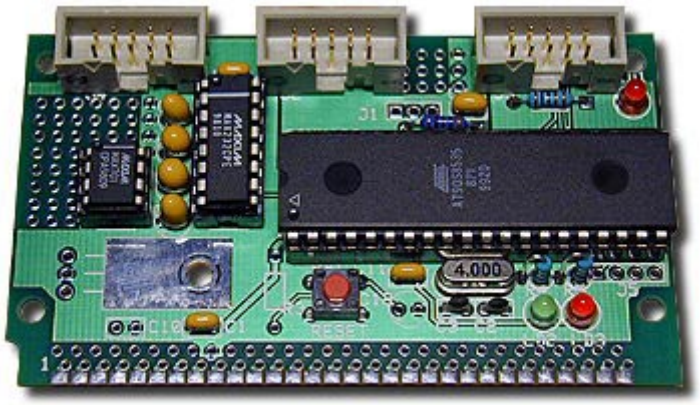


*Figure 1: The picture above shows the **Simm100** board mounted with an **AT90S8535**, MAX232, MAX701, Reset button and IDC connectors for **RS-232**, **ADC** and **ISP** (In System Programmable). To improve **EMI**, the board has a ground layer and a separate ground layer for the ADC for a stable Analog Conversion.*

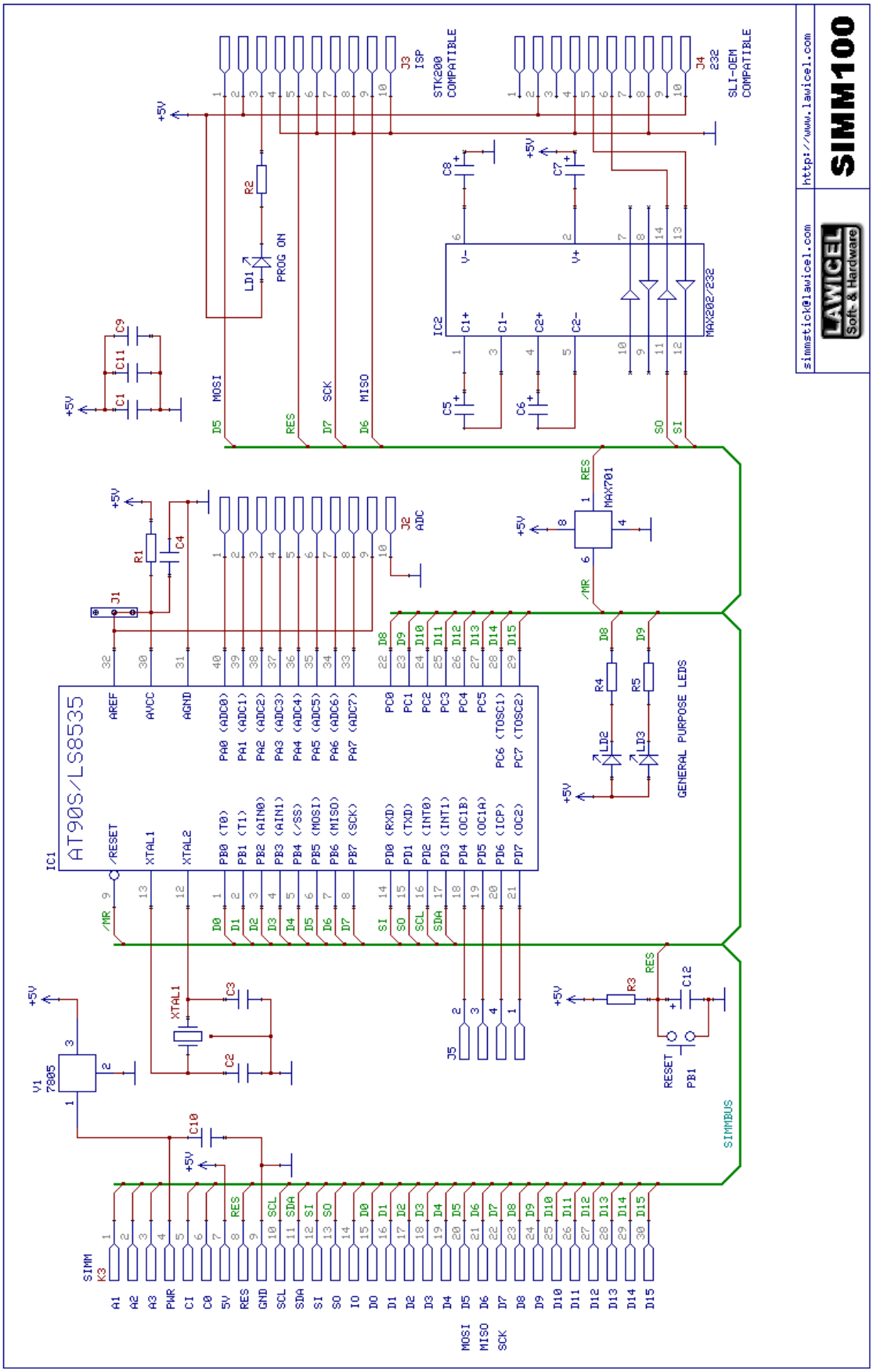


Figure 2: Schematic.

Assembling Instructions

For minimum operation you have to install IC1, XTAL, C1, C2, C3, C11, C12 & R3. The XTAL can be exchanged to a resonator, then C2 and C3 can be omitted. When using the RC Reset (C12 / R3), you also need to jumper pin 1 & 6 of IC3, so the reset signal reaches the microcontroller. You can also add the PB1 pushbutton for a manual RESET if you do not have that on any other place (like e.g. on the DT003).

If you need a better power up (RESET), you should not install C12 / R3, instead install the IC3.

Then if you need ISP (In System Programmable) with a Kanda / Atmel STK200 compatible programmer, you need to install J2 and if you like to have indication when programming etc. also R2 and LD1.

If you want to use the ADC of the AT90S8535, then install R1 and C4 and optionally the J2 IDC connector. Jumper J1 is by default applying 5VDC to the AREF of the ADC and if you need any other reference voltage, cut that wire open on the board and install J1, so you can select a different reference voltage. pin 9 on the J1 connector could then be used for applying the new voltage reference. There is also a very small Prototype/ Experiment area and one of the pads are connected to 0VDC (GND) and the other 5VDC (VCC).

To add on board RS-232, you need to install IC2, C5, C6, C7, C8, C9 and the J4 IDC connector. The J4 IDC connector is pin compatible with the SLI-OEM from Wirz, so adding a straight ribbon cable between the SIMM100 and the SLI-OEM makes it simple and easy to use a serial LCD.

If you do not have access to 5VDC and would like to use e.g. 9-12VDC then install the voltage regulator V1 and capacitor C10.

Finally the 2 user definable / general purpose LEDs (LD2 & LD3) plus the resistors for them (R4 & R5) could be mounted and controlled via PC0 & PC1 of the microcontroller, note that they sink current into the microcontroller, so turning them on need a LOW output (0VDC) and turning them off needs a HIGH output (5VDC).

J5 is also a small 4 pin connector for the rest of the PD port (PD4-7) that isn't routed out the the SimmStick bus.

Component Values

IC1	Microcontroller type AVR AT90S8535 or simular
IC2	RS-232 Tranceiver type MAX202/232
IC3	Reset circuit type MAX701
C1, C4, C9,	100nF (same as 0.1uF)
C10, C11	
C2, C3	22pF (15-30pF)
C5, C6,	1uF (if MAX232) or 0.1uF (if MAX202)
C7, C8	
C12	4.7uF to 10uF depending on reset delay
R1	100 ohms
R2, R4, R5	1k ohms
R3	10k ohms
XTAL1	What ever frequency you need (Chrystal or Resonator)
V1	5VDC/1A voltage regulator type TO220 with screw for proper cooling
LD1	LED for indicating ISP programming, normally 3mm RED
LD2, LD3	LEDs for general purpose 3mm, color is up to you
J1	Jumper 3*1 pins
J2,J3,J4	10pin IDC connector
J5	Connector 4*1 pins
PB1	Reset push button

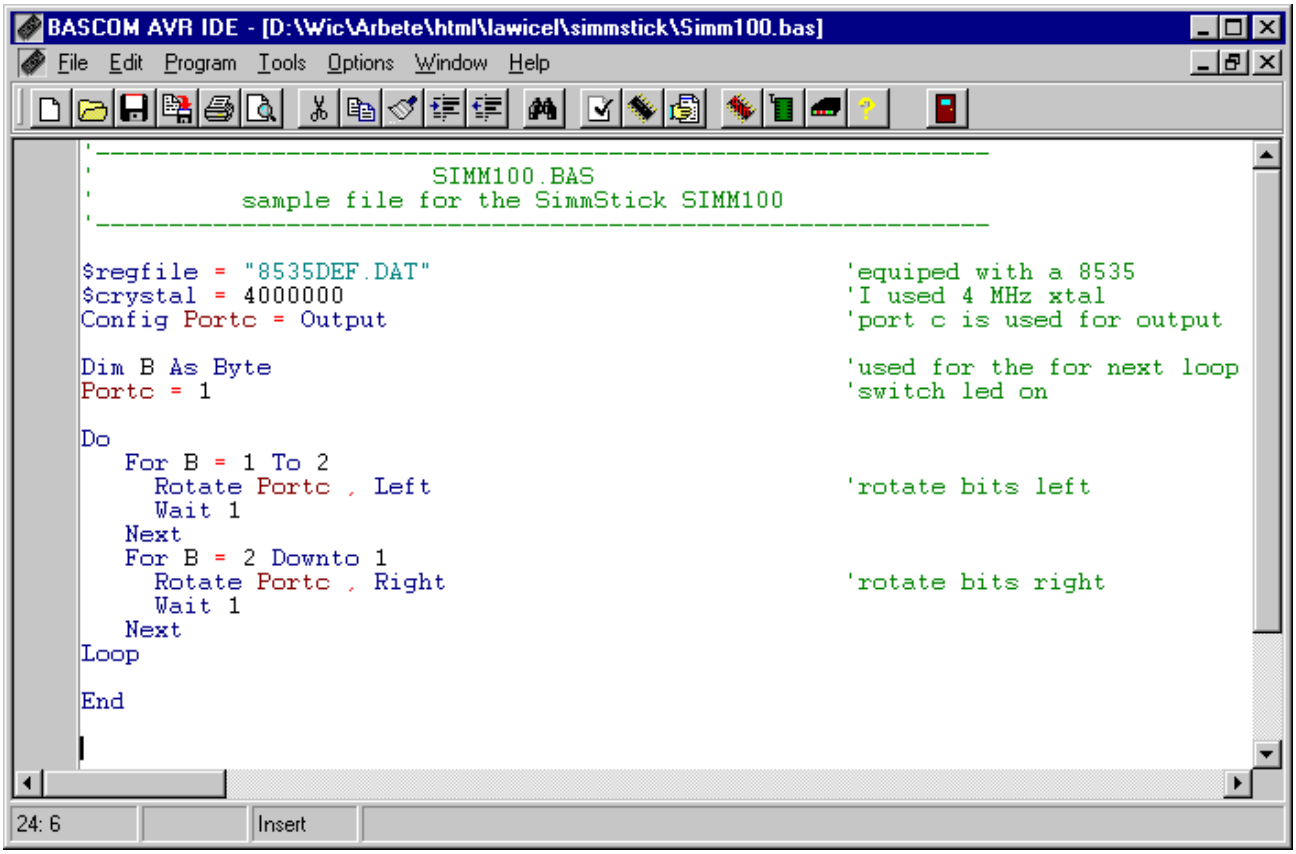


Figure 3: BASCOM-AVR and the SIMM100 program sample delivered pre-programmed with the board.

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DEFINITIONS

Data Sheet Identification	Product Status	Definition
Preliminary Specification	*Beta version / in Design*	This data sheet contains preliminary data and more data will be published later. Specifications may change without prior notice.
Product Specification	Full Production	This data sheet contains the Final Specification. LAWICEL reserves the right to make changes at any time without prior notice, in order to improve the design.

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