

The Development Board LDM-MP 3.01 04 is a printed circuit board, size 114x81x15 mm and prototypical field 81x53 mm (hole pitch 2.54 mm) with installed microcontroller ATmega128 (DD1) of the company ATMEL in the housing TQPF-64. The board has the 9-contact connector XS2 (DB-9) to connect «direct» cable to the consecutive port RS-232 of the computer. This connector is used for both data transmission and for programming the controller using the free software distribution firmware PonyProg2000. The board has the chip DD3 (ADM202EARN) of interface level converter RS-232. Frequency of the microcontroller is given by the quartz resonator ZQ1 8 MHz. The board power is carried out by an external stabilized voltage supply +5 V, which is connected to the connector XS3. SW1 button is used to turn on and turn off the power. Glowing LED VD2 indicates that power is on.

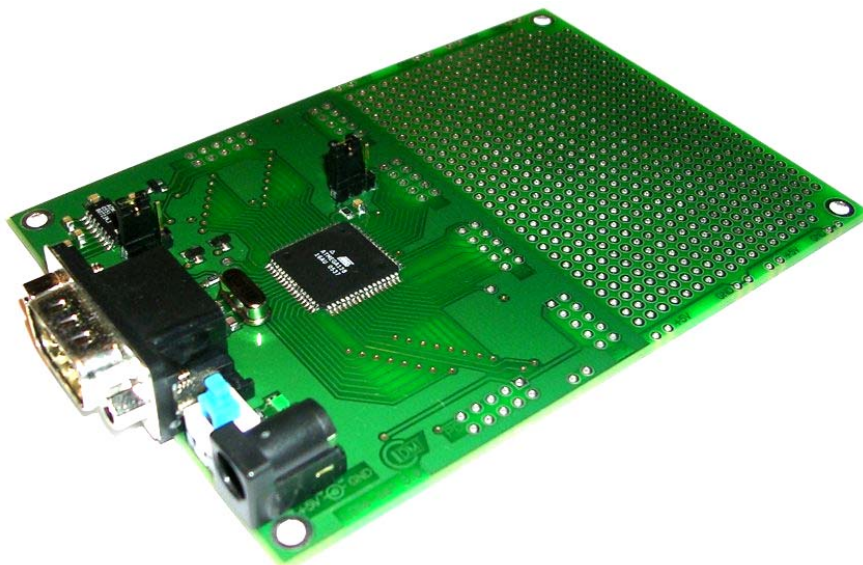


Fig.1. General View of the development board LDM-MP 3.01

The board has two jumpers. XS4 – is used for selecting a reference voltage controller ADC. You can use as the reference voltage the supply

voltage controller +5 V, and the voltage from 0 to +5 V on the user's choice. On default a jumper is set to use the supply voltage of the controller. XS1 – is used to set the mode while sending/receiving data between the computer and the controller via UART. If UART is not used, you can leave the jumper in the initial position and not change the position of it. During the programming a jumper must be returned to its initial position.

The development board is intended for prototyping devices designed on microcontrollers ATmega128 (ATmega103 or AT90CAN128), and also for assembly completed devices by mounting necessary components on the prototypical field of the board. Use of LDM-MP 3.01 allows minimizing the implementation time of the product on the market.

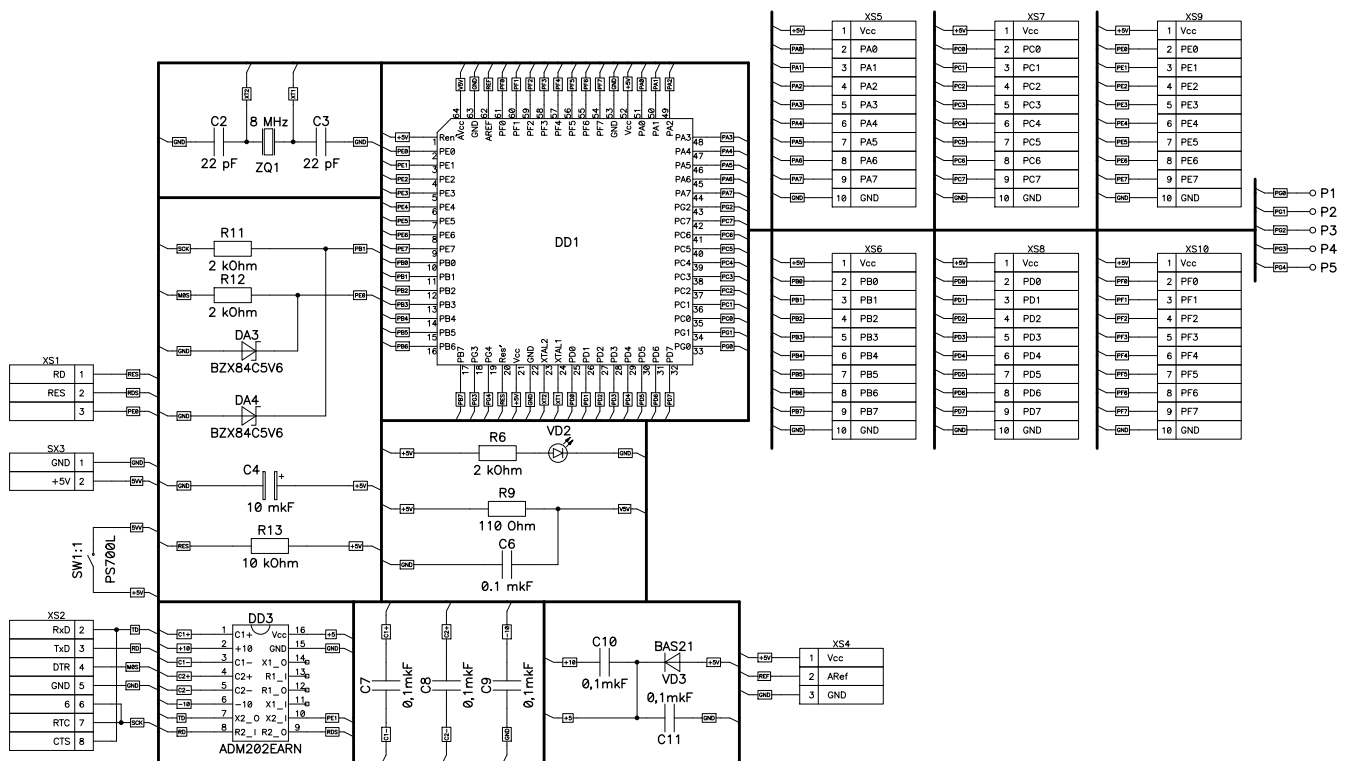


Fig.2. The electrical scheme of LDM-MP 3.01

Microcontroller architecture of Atmel AVR ATmega128, 16 MHz, FLASH 128K, SRAM 4K, EEPROM 4K, 10-bit unipolar ADC with 8 analog channels in the range of 0...+5 V, 53 programmable pins in/out.

You can install other controllers:

ATmega103 - 6 MHz, FLASH 128K, SRAM 4K, EEPROM 4K;

AT90CAN128 - 16 MHz, FLASH 128K, SRAM 4K, EEPROM 4K.

Controller pins and bus power are connected to the prototyping field and allow setting connectors of the type IDC-10MS:

- XS5 – PortA;
- XS6 – PortB;
- XS7 – PortC;
- XS8 – PortD;
- XS9 – PortE;
- XS10 – PortF;
- P1 - P5 – PortG0 - PortG4.

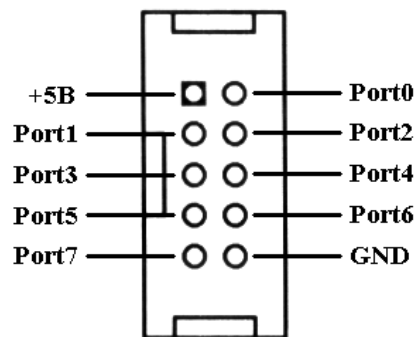


Fig.3. The scheme of pinouts of controller ports

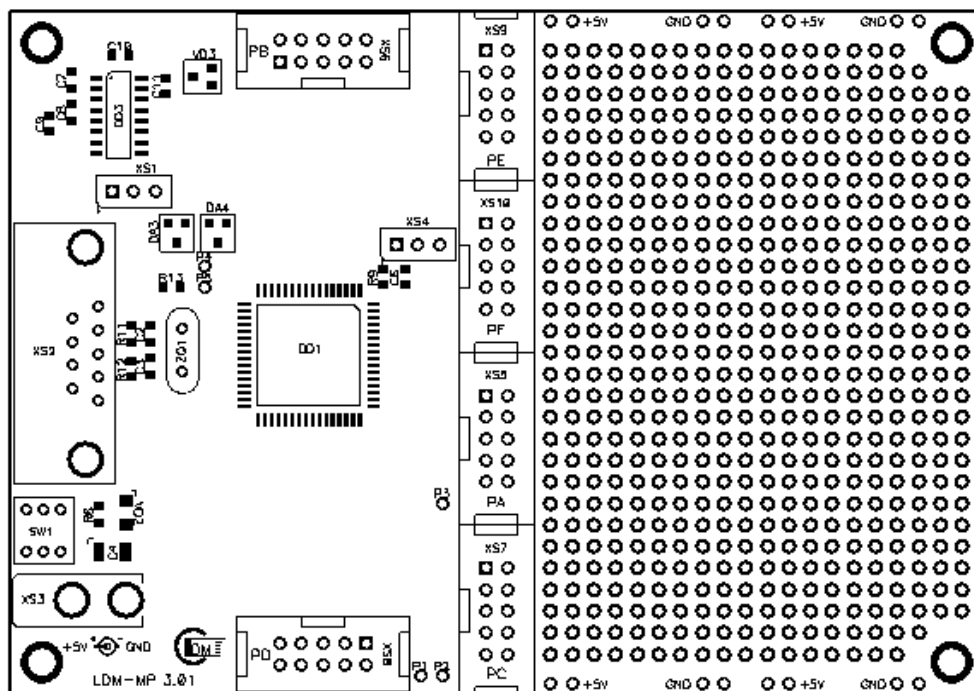


Fig.4. External view of the printing board LDM-MP 3.01

For proper operation of the kit you should adapt the firmware PonyProg2000 as following: in the open window PonyProg2000 select the menu item: Setup / Interface Setup, in the window I / O port setup (Fig. 5) in the field Select Polarity of the Control lines check the box Invert D-IN.

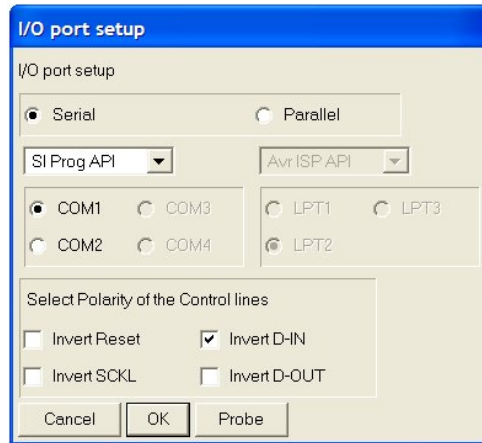


Fig. 5. The window I/O port setup with necessary settings

### **Packaging arrangements:**

- The development board;
- Description of the development board;
- The compiler CodeVisionAVR 1017;
- Description of the compiler CodeVisionAVR;
- The program for the controller firmware PonyProg2000;
- Description of the controller;
- Program examples;
- The manual of step-training of the controllers programming.