KAMAMI

ZL16PRG

In-Circuit Emulator and Flash Memory Programmer for AVR Microcontrollers

ZL16PRG is a USB tool for programming, ICE emulation and debugging (all with AVR Studio) AVR family of microcontrollers equipped with JTAG interface. ZL16PRG is fully compatible with the original Atmel AVR JTAG ICE.

ver. 1.0

btc

Features

- Connected to PC through miniUSB port
- Connection to the USB interface 1.1 or 2.0 standard
- Compatible with Atmel AVR JTAG ICE
- Cooperates with Atmel AVRStudio software (for programming, real time emulation, debugging, step by step program execution, breakpoints, microcontroller memory dump)
- Built-in two LED indicators (Power and JTAG Activity)
- Standard 10-pin connector to the target circuit (Atmel standard compatible)
- Powered from system 5 V/60 mA max.
- Dimensions: 90x90x17 mm
- Operates with 5 V target voltages

Supported microcontrollers

Devices supported by ZL16PRG are available in menu of the AVRStudio program. Most popular microcontrollers with JTAG interface are: ATmega128/128L, ATmega16/16L, ATmega32/32L, ATmega323/323L, ATmega64/64L, ATmega162/162L, ATmega165/165P, ATmega169/169L/169V/169P, ATmega649/6490/329/3290, ATmega325/3250/645/6450, ATmega640/1280/1281/2560/2561 etc.

Description of ZL16PRG

Fig. 1. USB connector on rear panel of ZL16PRG

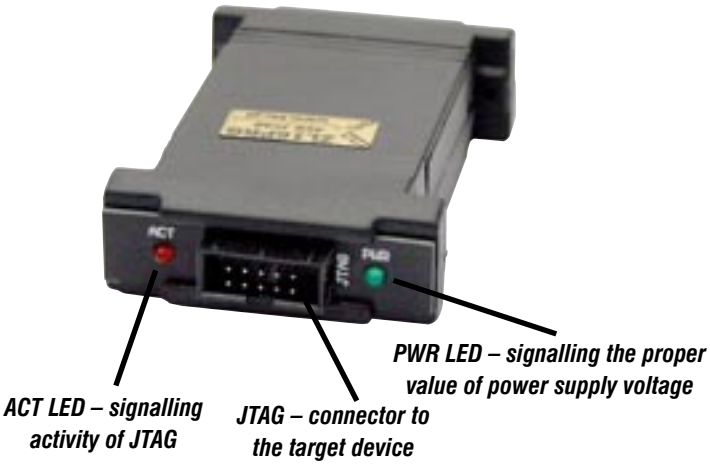

Fig. 2. Connectors and LEDs on front panel of ZL16PRG

ICE and of the AVR Studio operating instruction can be found on Atmel website:
http://www.atmel.com/dyn/resources/prod_documents/DOC2475.PDF.

Connection to the target circuit

Connection to the target circuit should be realized through the 10-lead ribbon cable, terminated with standard IDC connector. The JTAG connector (2x5 pin with 0.1" raster) is compatible with Atmel layout. Pin 1 is marked with an arrow.

Examples of ZL16PRG connection to ATmega16 and ATmega128 (mounted on *dipAVR128* module) are shown on **Fig. 3** and **Fig. 4**.

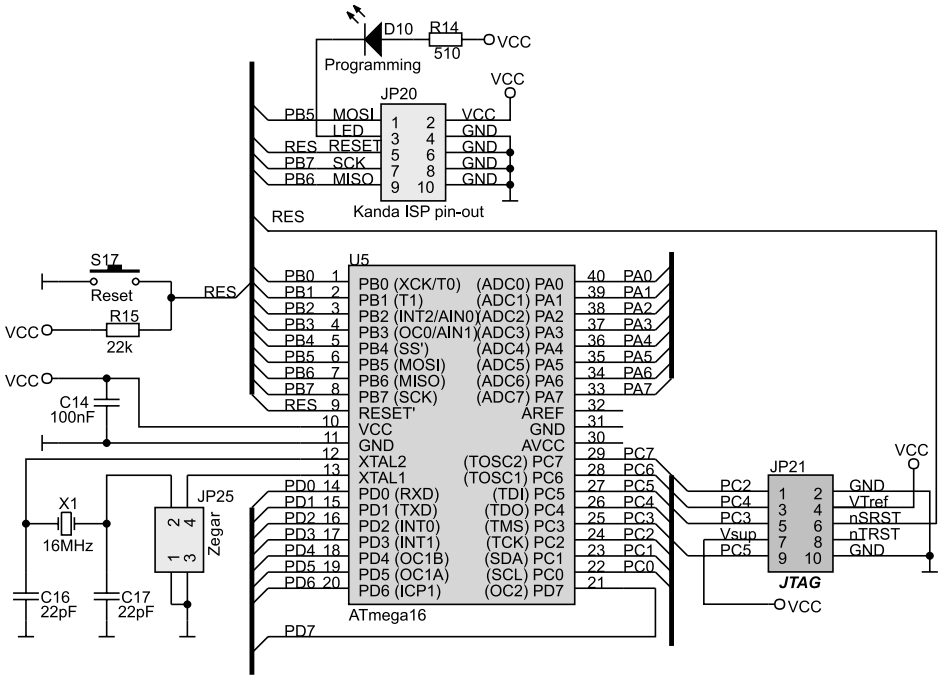

Fig. 3. ZL16PRG with the ATmega16 connection

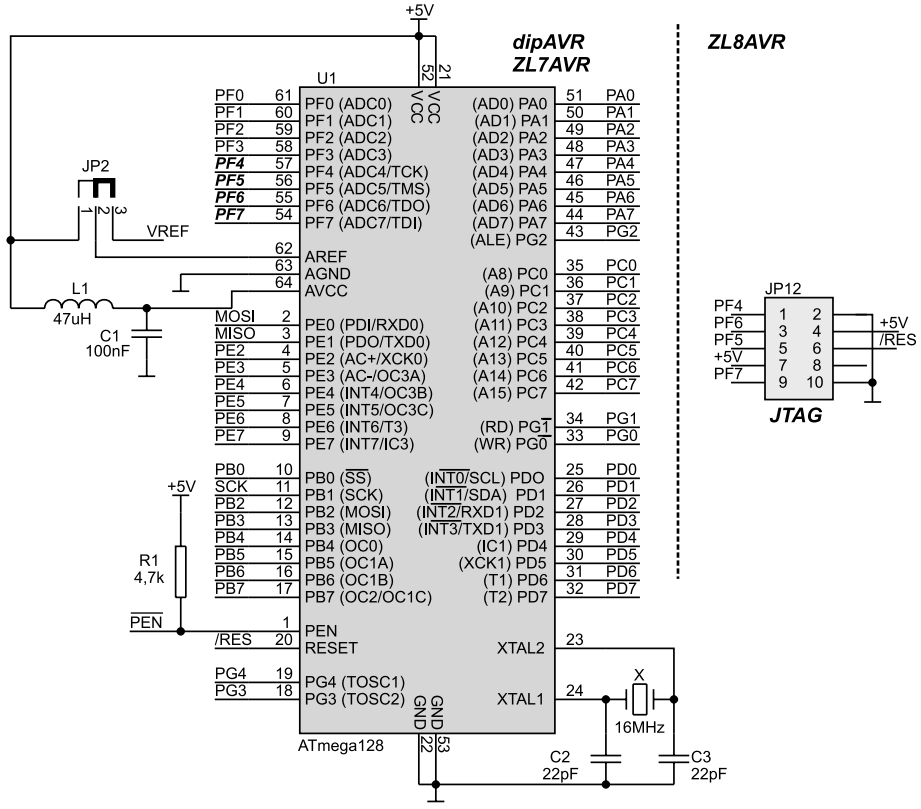

Fig. 4. ZL16PRG with the ATmega128 connection (the example shows dipAVR128/ZL7AVR module and ZL8AVR base board)

Signals used by ZL16PRG for JTAG transmission are: TCK, TDO, TMS, TDI.

Description of JTAG signals (connector shown on **Fig. 5**):

TCK *Test Clock* - clock signal for the AVR JTAG interface

TDO *Test Data Output* - data signal provided to the target JTAG interface

TMS *Test Mode Select* - switching signal for the AVR JTAG interface

TDI *Test Data Input* - data signal received from the target JTAG interface

Power supply lines: VCC and GND.

VCC - power supply from target circuit

GND - power ground

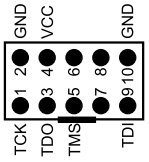

Fig. 5. JTAG connector is compatible with an Atmel standard

Virtual Com port driver

Because ZL16PRG uses integrated USB to RS232 converter, customer must install proper driver for his/her computer and operational system. Available drivers are included on CD-ROM supplied with ZL16PRG.

Technical assistance

For technical assistance, please contact support@kamami.com.

Please provide the following data:

- Version of the operating system
- Microcontroller type used in your system and its oscillator frequency
- Detailed description of the problem

Contents of the package

Code	Description	
ZL16PRG	ZL16PRG emulator	1 pcs.
	Ribbon cable terminated with two IDC 10 plugs	1 pcs.
	USB A/miniB cable	1 pcs.
	CD with documentation and software	1 pcs.

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