USB AVR JTAGICE XPII

- Debugger & Programmer, compatible with JTAGICE mkII from ATMEL

- Supports On-Chip Debugging and programming

- Supports all AVR and AVR32 MCUs with On-Chip Debug capability, including XMEGA devices

- Supports AVR Studio 4/5/6 (delivered with firmware for AVR Studio 5, can be updated to support AVR Studio 4/6)

Features

- Supports debugging of all AVR and AVR32 devices with OCD
- Supports programming of all AVR and AVR32 devices with OCD
- On-Chip Debugging: Run, Single step, Breakpoints, etc.
- Supports Assembler and HLL Source Level Debugging
- Programming Interface to flash, eeprom, fuses and lockbits (not debugWIRE)
- USB 1.1 and RS232 Interface to PC for Programming and Control

- JTAG, PDI, debugWIRE Interface to target board
- Regulated Power Supply for 9-15V DC Power
- Can be powered from the USB bus
- Target operating voltage range of 2.1V to 5.5V

Based on JTAGICE mkII from ATMEL
- Fully compatible with JTAGICE mkII, easy to use, stable and reliable

Based on JTAGICE mkII firmware
- Identified as JTAGICE mkII in AVRStudio, high speed debugging and programming

Upgradable firmware
- Firmware is upgradable to Support Future Devices
- Automatic Upgrade

Supported software
- AVR Studio 4/5/6, WINAVR(GCC) or IAR is used as front-end software
- Supports the program files generated by ICCAVR, CVAVR, IAR

Device Support
- Supports debugging and programming of all AVR and AVR32 devices with JTAG, PDI, debugWIRE Interface

Refer to AVR Studio 5 , the following devices are supported:

AVR 8-BIT MCU	
Mega AVR	ATmega16; ATmega16A; ATmega162; ATmega32; ATmega32A; ATmega64; ATmega64A; ATmega128; ATmega128A; ATmega164P; ATmega324P; ATmega324PA; ATmega644; ATmega644P; ATmega644PA; ATmega165; ATmega165P; ATmega325; ATmega325P; ATmega3250; ATmega3250P; ATmega645; ATmega6450; ATmega640; ATmega1280; ATmega1281; ATmega1284P; ATmega2560; ATmega2561; ATmega48; ATmega48P; ATmega48PA; ATmega88; ATmega88P; ATmega88PA; ATmega168; ATmega168P; ATmega168PA; ATmega328P
LCD AVR	ATmega169; ATmega169P; ATmega169PA; ATmega329; ATmega329P; ATmega3290; ATmega3290P; ATmega649; ATmega649P; ATmega6490
Tiny AVR	ATtiny13; ATtiny13A; ATtiny2313; ATtiny24; ATtiny44; ATtiny84; ATtiny25; ATtiny45; ATtiny85; ATtiny261; ATtiny461; ATtiny861; ATtiny48; ATtiny87; ATtiny88; ATtiny43U; ATtiny167; ATtiny261A; ATtiny461A; ATtiny861A; ATtiny2313A; ATtiny4313
XMEGA AVR	ATxmega64A1; ATxmega128A1; ATxmega64A3; ATxmega128A3; ATxmega256A3; ATxmega256A3B; ATxmega16A4; ATxmega32A4; ATxmega64D3; ATxmega128D3; ATxmega192D3; ATxmega256D3; ATxmega16D4; ATxmega32D4;
USB AVR	ATmega32U4; ATmega32U6; AT90USB646; AT90USB647; AT90USB1286; AT90USB1287; AT90USB162; AT90USB82; ATmega8U2; ATmega16U2; ATmega32U2

Battery Management AVR	ATmega406; ATmega16HVA; ATmega16HVB; ATmega32HVB; ATmega64HVE
Lighting AVR	AT90PWM3; AT90PWM3B; AT90PWM316; AT90PWM2; AT90PWM2B; AT90PWM216
Automotive AVR	ATmega16M1; ATmega32M1; ATmega64M1; ATmega32C1; ATmega64C1; AT90CAN32; AT90CAN64; AT90CAN128
Misc	AT90SCR100; ATmega128RFA1

AVR 32-BIT MCU	
AVR32 AP7	AT32AP7000 AT32AP7001 AT32AP7002
AVR32 UC3	AT32UC3A0128 AT32UC3A0256 AT32UC3A0512 AT32UC3A0512ES AT32UC3A1128 AT32UC3A1256 AT32UC3A1512 AT32UC3A364 AT32UC3A364S AT32UC3A3128 AT32UC3A3128S AT32UC3A3256 AT32UC3A3256S AT32UC3B064 AT32UC3B0128 AT32UC3B0256 AT32UC3B0256ES AT32UC3B164 AT32UC3B1128 AT32UC3B1256 AT32UC3C0512C AT32UC3C1512C AT32UC3C2512C AT32UC3B0512revC AT32UC3B1512revC AT32UC3L064 AT32UC3L032 AT32UC3L016

*Supports all the different voltages and speed grade versions of the devices listed in the table above.

Performance
- On-Chip Debugging: Run, Single step, Breakpoints, etc. Allows the user to view the internal state of the device.
- High speed Debugging
- Programming Interface to flash, eeprom, fuses and lockbits (not debugWIRE)
- Low speed programming through ISP, or high speed programming through JTAG

Connecting to PC
Before connecting up the JTAGICE XPII for the first time, be sure to install the USB driver on the host computer. This is done automatically when installing the front-end software (Probably AVR Studio). The JTAGICE XPII can connect to the host PC through a USB cable or serial cable (to COM port on the PC)
- Each JTAGICE XPII has a unique ID, a PC could connects to several Devices at the same time
- USB Interface: use the PDIUSBD12, USB 1.1
- RS-232 Interface: use the 9-pin RS-232 cable. Make sure that no other software has control of the COM port where the JTAGICE XPII is connected.
The rear panel of the JTAGICE XPII houses the DC jack, power switch, USB and RS-232 connectors.

Connects to target board

Debugging Interface: JTAG, PDI, debugWIRE (SPI), depending on which interface the target devices with.

Programming Interface: JTAG, PDI, ISP (SPI), depending on which interface the target devices with.

The cable has to be changed according to the existed header on the target board. See Details displayed bellow.

- Connecting to a JTAG target
  - Standard JTAG header, Using the default 10-pin JTAG cable directly
  - Custom JTAG header, Using 10-wire multicolour custom connector cable
- Connecting to a PDI target
  - Using 10-wire multicolour custom connector cable
- Connecting to a debugWIRE or ISP target
  - Standard 10-pin SPI header, Using 10-pin (JTAG) to 10-pin (SPI) probe adapter cable
  - Standard 6-pin SPI header, Using 10-pin (JTAG) to 6-pin (SPI) probe adapter cable
  - Custom SPI header, Using 10-wire multicolour custom connector cable

The figure 1, 2, 3 and 4 shows the header pinouts of different interfaces
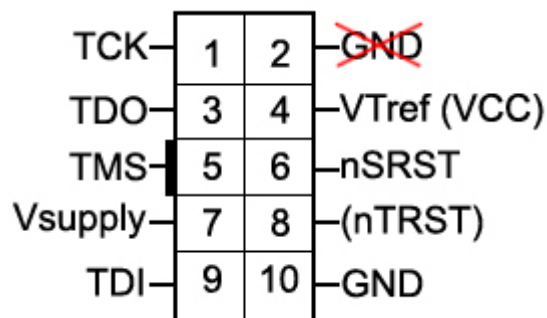
Figure 1. JTAG header pinout   **Figure 2. PDI header pinout**

Figure 3. 10-pin SPI header pinout   **Figure 4. 6-pin SPI header pinout**

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MOSI  1  ● ●  2 VCC          MISO 1  ■ ●  2 VCC
  NC  3  ● ●  4 GND          SCK 3   ● ●  4 MOSI
 RST  5  ● ●  6 GND          RESET 5 ● ●  6 GND
 SCK  7  ● ●  8 GND
MISO  9  ● ● 10 GND
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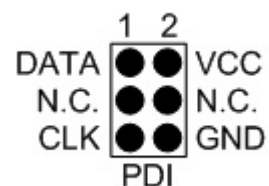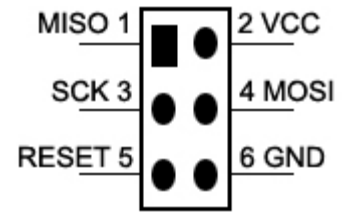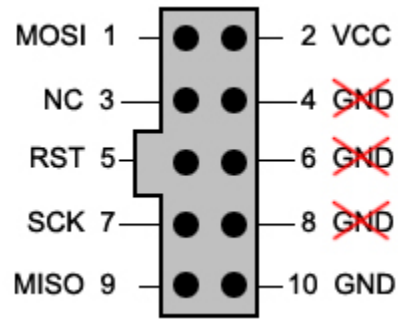
Powering the JTAGICE XPII
- Operates using an external power supply providing 9-15V DC
- Can be powered directly from the USB bus
- The target board should be powered from Another Power Supply