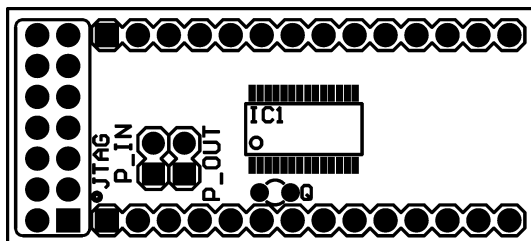# MSP430-H1232 HEADER BOARD
FOR MSP430F1232 MICROCONTROLLERS

Fetures:
The MSP430-H1232 header board provides easy way for developing and prototyping with MSP430F1232 microcontrollers. The board is with following features:
- JTAG connector
- JTAG Power_In and Power_Out jumpers
- 32768 Hz crystal oscillator
- TEST pin pull-down
- RST/NMI pin pull-up
- Power supply filter capacitors
- 0.1" (2.54 mm) extension slots

Power In jumper:
Power_In jumper connects power supply from JTAG connector to Header board. When this jumper cap is placed you can program the microcontroller even without any other external supply. Note that if the Header board is placed in target circuit, you have to ensure that your circuit doesn't draw more than few milliampers current or the power supply may decrease due to the JTAG port current limitations. Power_In is useful and must be used mostly to program your header board when it's not put on your target circuit socket.

Power Out jumper:
Power_Out jumper connects power from Header board to JTAG connector. When this jumper cap is placed, the power supply of JTAG connector will follow the power supply of Header board. This is useful when your Header board (target circuit) works at lower than +3,3V power supply.

Note:
Power_In and **Power_Out** jumper caps should not be placed at the same time.

Programming:
To program MSP430-H1232 you need MSP430 JTAG dongle (Olimex part # MSP430-JTAG) and MSP430 KickStart software. KickStart allow you to write and debug code in assembly language without any limitations and to write code in C with 2K limit. The latest release of KickStart software may be free download from TI web site: **http://www.ti.com/sc/msp430**

JTAG interface:
The JTAG connector is 2x7 pin with 0,1" step and TI recommended JTAG layout. The PIN.1 is marked with square pad on bottom and arrow on top. JTAG signals are on port P1.4, P1.5, P1.6 and P1.7, which are not used for other functions.
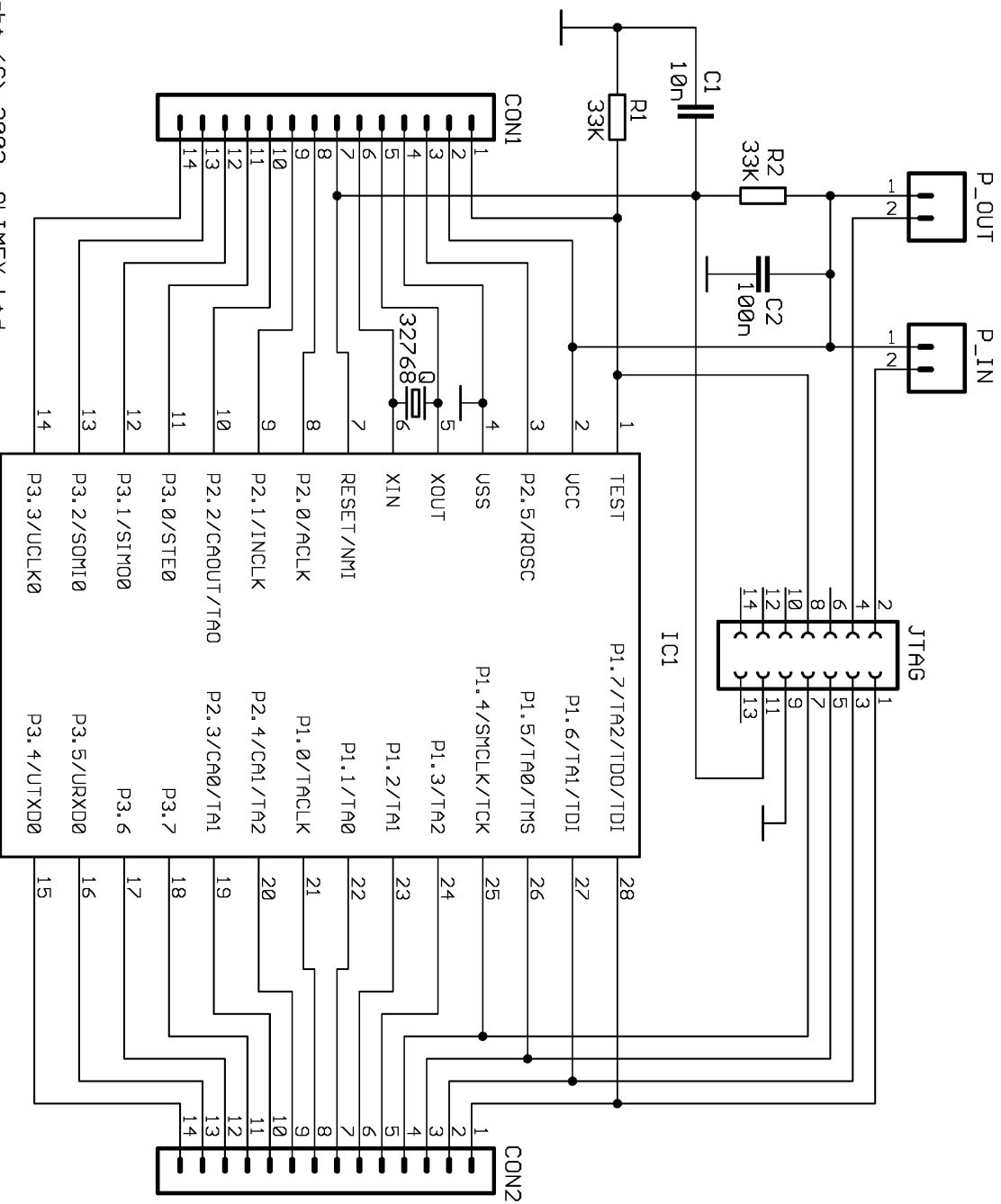
JTAG TOP view PCB board layout:

Ordering codes:
MSP430-H1232 - assembled and tested

CON1

MSP430F1232

IC1

JTAG

P_OUT

P_IN

CON2

C1
10n

R1
33K

R2
33K

C2
100n

Q
32768

TEST
VCC
P2.5/ROSC
XOUT
XIN
USS
RESET/NMI
P2.0/ACLK
P2.1/INCLK
P2.2/CAOUT/TA0
P3.0/STE0
P3.1/SIMO0
P3.2/SOMI0
P3.3/UCLK0

P1.7/TA2/TDO/TDI
P1.6/TA1/TDI
P1.5/TA0/TMS
P1.4/SMCLK/TCK
P1.3/TA2
P1.2/TA1
P1.1/TA0
P1.0/TACLK
P2.4/CA1/TA2
P2.3/CA0/TA1
P3.7
P3.6
P3.5/URXD0
P3.4/UTXD0

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