

MSP430-413STK2 STARTERKIT DEVELOPMENT BOARD FOR MSP430F413 MICROCONTROLLERS

Features:

- MCU: MSP430F413 with 8K Bytes Program Flash, 256 Bytes data Flash, 256 Bytes RAM
- Custom LCD panel with 5 digits, 5 decimal counters, special signs
- JTAG connector
- RS232 connector
- RS232 interface circuit with Tx, Rx signals
- Dallas touch button port
- status LED
- two buttons
- Buzzer
- 32 768 Hz oscillator crystal
- TEST pin pull-down
- RST/NMI pin pull-up
- CR2032 li-battery holder 3V
- power supply filtering capacitor
- extension headers for unused uC pins
- PCB: FR-4, 1.5 mm (0,062"), green soldermask, white silkscreen component print
- Dimensions: 80x50 mm (3.15x1.96")

Programming:

To program MSP430-413STK2 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:

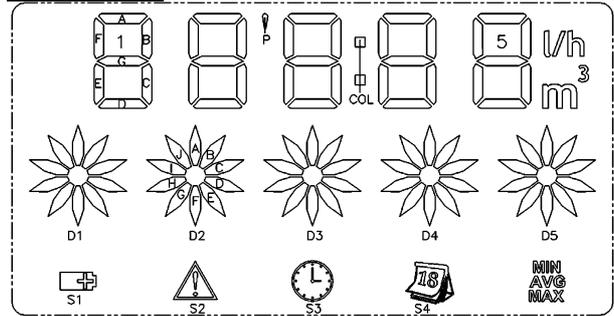
MSP430-JTAG

TDO	1		2	UCC_IN
TDI	3		4	UCC_OUT
TMS	5		6	NC
TCK	7		8	TEST/UPP
GND	9		10	NC
RST/NMI	11		12	NC
NC	13		14	NC

Dallas iButton interface:

The iButton interface is connected to P2.1 port with protection circuit and allows DS19XX iButtons to be detected, read and write. Sample assembly routine for iButton presence detection is included in the software for MSP430-1121STK in Olimex web page.

LCD pinouts:



PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
COM0	D1B	D1G	D1F	D2J	D2F	MAX	D3J	D3F	AVG	D4J	D4F	MIN	D5J	D5F
COM1	D2A	D1J	D1C	D2I	D2C	D3A	D3I	D3C	D4A	D4I	D4C	D5A	D5I	D5C
COM2	D2B	D1I	D1D	D2H	D2D	D3B	D3H	D3D	D4B	D4H	D4D	D5B	D5H	D5D
COM3	D1A	D1H	D1E	D2G	D2E	S2	D3G	D3E	S3	D4G	D4E	S4	D5G	D5E
PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28
COM0	5D	Wh	4D	Wh	3D	COL	2D	P	1D	S1				COM0
COM1	5C	5E	4C	4E	3C	3E	2C	2E	1C	1E				COM1
COM2	5B	5G	4B	4G	3B	3G	2B	2G	1B	1G			COM2	
COM3	5A	5F	4A	4F	3A	3F	2A	2F	1A	1F	COM3			

LEDs:

One LED is connected to P6.2

BUTTONS:

Two buttons are connected to MSP430F413. B1 is placed up and connected to P6.0, B2 is placed down and is connected to P6.1

BUZZER:

Piezzo buzzer is connected between P1.2 and P2.0 ports. When the voltage between P1.2 and P2.0 is reversed the buzzer will chirp.

RS232:

RS232 TX is connected to P1.0, RS232 Rx is connected to P1.1.

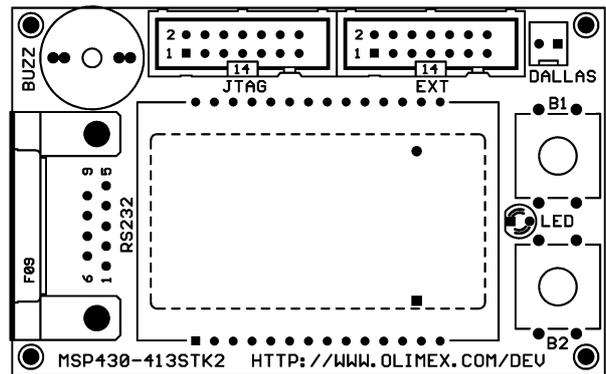
Extension header:

The extension header is 14 pin with 0.1" step.

Left header signals up to down: +3V, P6.3, P6.4, P6.5, P6.6, P6.7, GND

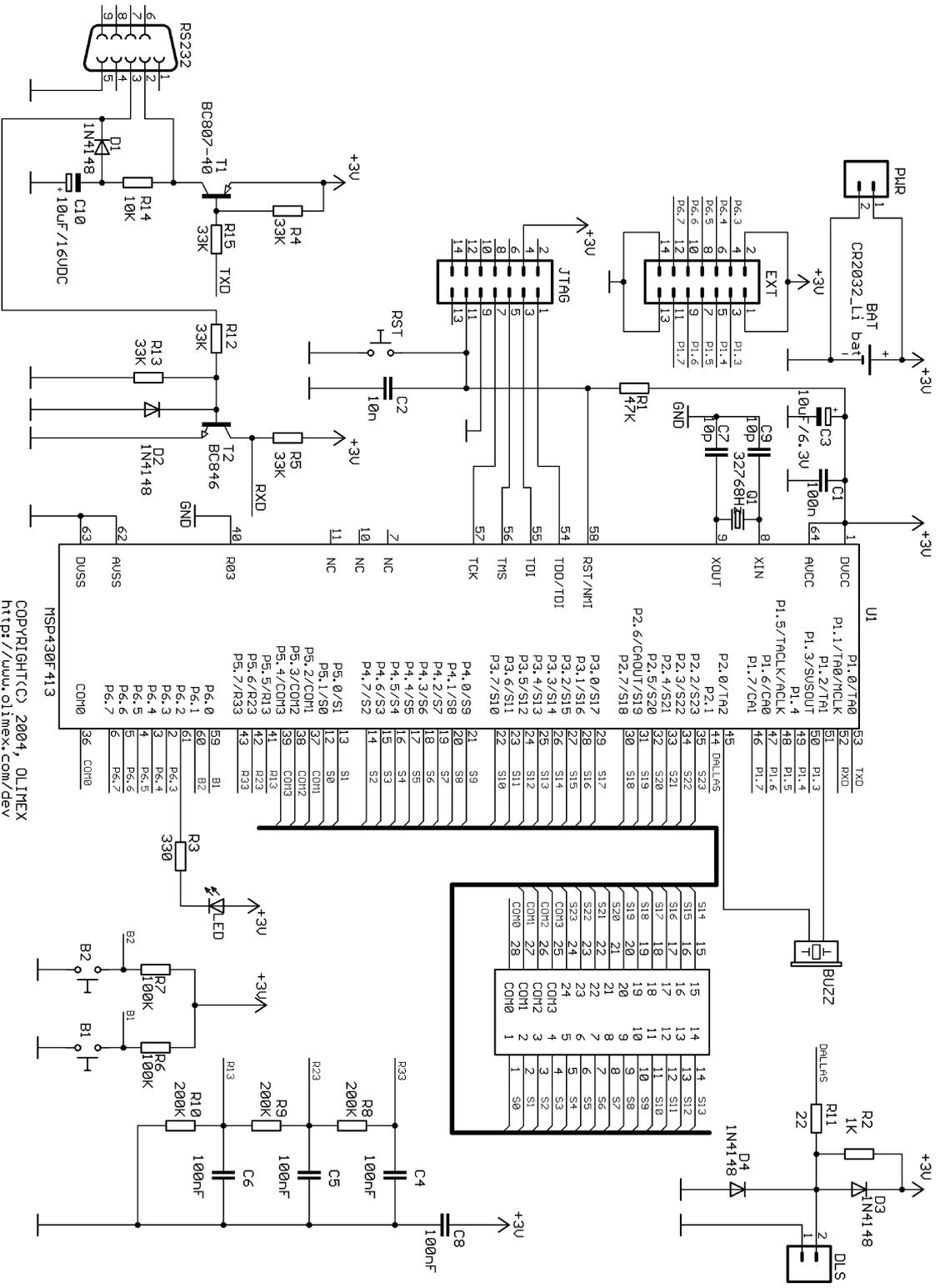
Right header signals up to down: +3V, P1.3, P1.4, P1.5, P1.6, P1.70, GND.

Board layout:



Ordering codes:

MSP430-413STK2 - assembled and tested, includes MSP430F413 microcontroller



MSP430F413
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