

noForth website

MSP-EXP430G2ET with noForth 2553

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In this text we refer to these two documents:

- MSP430G2553.PDF "MSP430G2x53, MSP430G2x131 mixed signal microcontroller"
- SLAU144J.PDF "MSP430x2xx Family User's Guide"

1. MSP-EXP430G2ET with noForth 2553



MSP-EXP430G2ET, LAUNCHPAD, DEV KIT

Core Sub-Architecture: MSP430

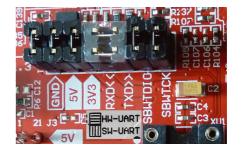
Kit Contents: LaunchPad Emulator, Mini USB-B Cable, Quick Start Guide

- Farnell Ordercode: 3126126, TEXAS INSTRUMENTS MSP-EXP430G2ET
 Aliexpress Product ID: MSP-EXP430G2ET launchpad

RS232/USB driver

The correct USB driver for the MSP-EXP430G2ET Launchpad should load automaticly under Windows on your PC.

For a working RS232/USB connection the jumpers must be in the "HW|UART" position, as the picture shows.



i/o port connections on MSP-EXP430G2ET

Port 1		Port 2	
Digital	i/o, UART	Digital	i/o
P1.0	Led red	P2.0	RGB led
P1.1	Uart	P2.1	RGB led
P1.2	Uart	P2.2	RGB led
P1.3	S2	P2.3	
P1.4	• • •	P2.4	
P1.5	• • •	P2.5	
P1.6	Led green	P2.6	Xin
P1.7	• • •	P2.7	Xout

Connectors on MSP-EXP430G2ET

J1	=	i/o	Р1,	P2	and	3V3
-		, -	,			

J2 = i/o P1, P2, Reset, Test and GND

J3 = 5 Volt & Ground

J4 = External power (2,5V tot 3,6V)

J5 = 5 Volt & ground

J6, J7 = Jumpers to red led and green led

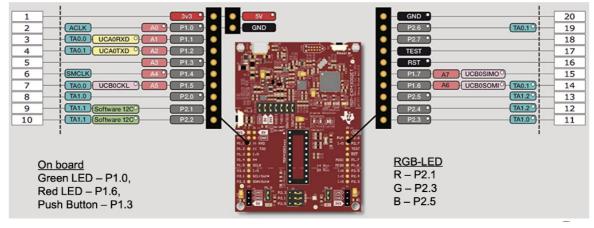
J8 = Jumpers to RGB led J101 = Power & USB RS232

J102 = USB RS232 and programmer interface

Hardware on MSP-EXP430G2ET

- Red led on P1.0
- Green led on P1.6
- RGB led on P2.0, P2.1 & P2.2
- Switch S2 on P1.3
- Reset switch S1
- Optional 32kHz crystal on P2.6 & P2.7

MSP-EXP430G2ET PINOUT



2. MSP430G2553 i/o ports

Port addresses

The MSP430G2553 port registers are memory mapped. An overview:

Label	P1	P2	Function
PxIN	20	28	In
Px0UT	21	29	0ut
PxDIR	22	2A	Direction
PxIFG	23	2B	Interrupt flag
PxIES	24	2C	Interrupt edge on
PxIE	25	2D	Interrupt on
PxSEL	26	2E	Select
PxREN	27	2F	Resistor on/off
PxSEL2	41	42	Select 2

See: MSP430G2553.PDF under "peripheral file map" page 18-20.

PxDir, PxREN and PxOUT

The three registers PxDIR, PxREN and PxOUT are used to configure an i/o pin:

PxDIR	PxREN	Px0UT	Pin configuration
0	0	Х	Floating input
0	1	0	Input with resistor to GND
0	1	1	Input with resistor to VCC
1	Χ	Χ	Output

More info in MSP430G2553.PDF page 328-329.

Texas Instruments recommends to configure unconnected i/o pins as Output.

PxSEL and PxSEL2

The registers PxSEL and PxSEL2 are to assign a special function to an i/o pin. In this way, for example, the ADC or UART can be activated.

More info: MSP430G2553.PDF page 42-57: Port Pin Functions.

PxSEL2	PxSEL	i/o-function
0	0	Normal i/o
0	1	Basic extra function
1	0	Controller specific!
1	1	Second extra function

3. MSP430G2553 RAM & ROM

RAM 0200 - 03FF FlashROM C000 - FFFF

4. MSP430G2553 interrupt vectors

```
FFDE
        End of free Flash
FFE0
        . . .
FFE2
        . . .
FFE4
        Ρ1
FFE6
       P2
FFE8
       . . .
FFEA
       ADC
FFEC
       USCI B0 TX
FFEE
       USCI B0 RX
FFF0 TIMEROAO CCR1 CCR2
FFF2
       TIMER A0 CCR0
FFF4
       WATCHDOG
FFF6
       COMPARATOR
FFF8
       TIMER A1 CCR1 CCR2
FFFA
       TIMER A1 CCR0
FFFC
       NMI
FFFE
       RESET
```

See MSP430G2553.PDF page 11 for details.

5. Processor registers in noForth

All processor registers (R0..R15) have their own name in noForth assembler:

PC RP (SP in TI texts!) SR CG	MSP430 system registers
SP IP TOS DOX NXT	noForth system registers
W DAY SUN MOON	Registers, locally used by noForth
XX YY ZZ	Unused (free) registers