

**40-pin header for MSP432P4xx**

pin#	functions			
1	+3V3			
20	GND			
22	GND			
21	+5V0			
16	RST			
18	P3.0	PWM1		
3	P3.2	PWM1	RXD(1)	
4	P3.3	PWM1	TXD(1)	
32 <sup>1</sup>	P3.5	PWM1	SCLK(1)	SRV_1 <b>Avoid on P4111 board (LCD)</b>
11 <sup>1</sup>	P3.6	PWM1	PICO(1)	MOTOR_R_SLP_PIN <b>Avoid on P4111 board (LCD)</b>
31 <sup>1</sup>	P3.7	PWM1	POCI(1)	MOTOR_L_SLP_PIN <b>Avoid on P4111 board (LCD)</b>
7	P1.5	SCLK		
15	P1.6	PICO	SDA(1)	
14	P1.7	POCI	SCL(1)	
10	P6.4	SDA		
9	P6.5	SCL		
36	P6.6	PWM2		
35	P6.7	PWM2		
17	P5.7	PWM2	SRV_2	
37	P5.6	PWM2		
30	P5.5	A0	MOTOR_R_DIR_PIN	
29	P5.4	A1	MOTOR_L_DIR_PIN	
12	P5.2	A3	ENCODER_ELB_PIN	
33	P5.1	A4		
13	P5.0	A5	ENCODER_ERB_PIN	
28	P4.7	A6	BP_SW_PIN_0	
8	P4.6	A7	BP_SW_PIN_1	
27	P4.5	A8	BP_SW_PIN_2	
26	P4.4	A9		
6	P4.3	A10	BP_SW_PIN_3	
25	P4.2	A11	BP_SW_PIN_4	
5	P4.1	A12		
24	P4.0	A13	BP_SW_PIN_5	
23	P6.1	A14	SHRP_DIST_C_PIN	
2	P6.0	A15		
40	P2.7	PWM1	MOTOR_L_PWM_PIN	
39	P2.6	PWM1	MOTOR_R_PWM_PIN	
19	P2.5	PWM1		
38	P2.4	PWM1	SRV_0	
34	P2.3	PWM1	TXD(2)	

**Function descriptions**

**GPIO** **digitalRead(), digitalWrite()**  
Digital inputs or outputs

**ADC** **analogRead()**  
Analog input

**PWM** **analogWrite()**  
Pulse-width modulated output. Supports :  
up to 8 PWM1 outputs  
up to 8 PWM1 outputs

**Serial** **Serial<sup>2</sup>, Serial1, Serial2, Serial3<sup>3</sup>**  
UART serial communication

**SPI** **SPI, SPI1**  
SPI serial communication

**I2C** **Wire, Wire1**  
I2C serial communication

**Additional on-board pins**

pin#	functions		
73	P1.1	PUSH1	
74	P1.4	CS	PUSH2
75	P2.0	PWM1	RED_LED
76	P2.1	PWM1	GREEN_LED
77	P2.2	PWM1	RXD(2) BLUE_LED
78	P1.0	LED1 (BULTIN_LED)	

**MSP432P401R J5 header (RSLK robot only)**

pin#	functions		
41	P8.5	A20	LED_FR_PIN
42	P9.0	A17	SHRP_DIST_R_PIN
43	P8.4	A21	SRV_FB0
44	P8.2	A23	SRV_FB2
45	P9.2		QTR_EMITTER_PIN_ODD
46	P6.2		
47	P7.3	PWM1	QTR_3
48	P7.1	PWM1	QTR_1
49	P9.4		
50	P9.6		RXD(3)
51	P8.0		LED_FL_PIN
52	P7.4	PWM1	QTR_4
53	P7.6	PWM1	QTR_6
54	P10.0		
55	P10.2		
56	P10.4		ENCODER_ERA_PIN
57	P8.6	A19	LED_BL_PIN
58	P8.7	A18	LED_BR_PIN
59	P9.1	A16	SHRP_DIST_L_PIN
60	P8.3	A22	SRV_FB1
61	P5.3	A2	QTR_EMITTER_PIN_EVEN
62	P9.3		
63	P6.3		
64	P7.2	PWM1	QTR_2
65	P7.0	PWM1	QTR_0
66	P9.5		
67	P9.7		TXD(3)
68	P7.5	PWM1	QTR_5
69	P7.7	PWM1	QTR_7
70	P10.1		
71	P10.3		
72	P10.5		ENCODER_ELA_PIN

**RSLK** Pins used by TI RSLK robotics kit. These pins should not be used for alternate functions on the RSLK robot.

**Board** Pins connected to on-board components. These pins should not be used for alternate functions unless appropriate jumpers are removed.

<sup>1</sup> Do not use with MSP432P4111. These pins used by on-board LCD.

<sup>2</sup> Serial connected to USB (RXD/P1.2, TXD/P1.3)

<sup>3</sup> Serial3 only available on MSP432P401R