40-pin header for MSP432P4xx

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

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 (BUILTIN_LED)	
RXD	P1.2	RXD	Serial (USB cable)
TXD	P1.3	TXD	Serial (USB cable)

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	

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 4 PWM2 outputs

Serial — **Serial, Serial1, Serial2, Serial3**[2]
UART serial communication

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

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

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.

[1] Do not use with MSP432P4111. These pins used by on-board LCD.

[2] Serial3 only available on MSP432P401R