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dsPIC33CK512MPT608 Security Plug-In Module (PIM) Information Sheet

Overview

The dsPIC33CK512MPT608 Security Plug-In Module (EV10H29A) is designed to demonstrate the capabilities of the dsPIC33CK512MPT608 family using the Explorer 16/32 Development Board. Refer to [Table 1](#) and [Table 2](#) for the mapping of the physical pins on the dsPIC33CK512MPT608 to the 100 pins on the PIM connector.

Not all predefined PIM signals found on the Explorer 16/32 are connected due to the limited amount of I/O pins available.

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Table 1: dsPIC33CK512MPT608-I/PT PIC® MCU Mapping (sorted by device pin number)

Device Pin #	PIM Pin #	Pin Description	Function	Explorer 16/32 Net Names
1	60	RE4	LED D7	P60_LED7_RE4
2	14	OA3OUT/AN4/ANB1/ANB2/CMP3B/IBIAS3/RA4	mikroBUS™ A Chip Select	P14_CSA_RA4
3	61	RE5	LED D8	P61_LED8_RE5
4	2, 16, 30, 37, 46, 62, 86	AVdd	AVdd	VDD_PIM
5	15, 31, 36, 45, 65, 75	AVss	AVss	VSS
6	18	RP76/RD12	mikroBUS B Interrupt	P18_INTB_RD12
7	3	OA3IN-/AN14/CMP1B/SRC0/RP49/RC1	LCD D5	P3_LCD05_RC1
8	23	OA3IN+/AN14/CMP2B/SRC1/RP50/RC2	mikroBUS B Chip Select	P23_CSB_RC2
9	11	AN17/ANN1/CMP4B/IBIAS1/RP54/RC6	EEPROM (MSDI) and mikroBUS A MISO	P11_MISOA_RC6
10	2, 16, 30, 37, 46, 62, 86	Vdd	Vdd	VDD_PIM
11	15, 31, 36, 45, 65, 75	Vss	Vss	VSS
12	20	AN15/ANN2/CMP2A/IBIAS2/RP51/RC3	10k Potentiometer	P20_POT_RC3
13	63	OSCI/CLKI/AN5/RP32/RB0	Primary Oscillator In	P63_OSCI_RB0
14	64	OSCO/CLKO/AN6/RP33/RB1	Primary Oscillator Out	P64_OSCO_RB1
15	24	AN19/ANB0/CMP2C/RP75/RD11	mikroBUS B Analog	P24_ANB_RD11
16	91	RE6	LED D9	P91_LED9_RE6
17	33	AN18/ANC2/CMP3C/SRC3/RP74/RD10	USB Type-C™ CC1 Sense Line	P33_CC1_RD10
18	92	RE7	LED D10, Switch S5	P92_S5_LED10_RE7
19	21	DACOUT2/AN16/CMP4C/SRC2/RP55/RC7	TC1047A Temp. Sensor	P21_TEMP_RC7
20	32	OA2OUT/AN1/AN7/ANA0/ANA2/ANA3/CMP1D/CMP2D/CMP3D/CMP4D/CMP5D/CMP6D/RP34/SCL3/INT0/RB2	USB Type-C CC2 Sense Line	P32_CC2_RB2
21	4	RE8	LCD D6	P4_LCD06_RE8
22	10	PGD2/OA2IN-/AN8/CMP4A/RP35/RB3	EEPROM (SCK) and mikroBUS A SCK	P10_SCKA_RB3
23	5	RE9	LCD D7	P5_LCD07_RE9
24	12	PGC2/OA2IN+/RP36/RB4	EEPROM (MSDO) and mikroBUS A MOSI	P12_MOSIA_RB4
25	55	RP56/ASDA1/SCK2/RC8	mikroBUS B SCKB	P55_SCKB_RC8
26	54	RP57/ASCL1/SDI2/RC9	mikroBUS B MISO	P54_MISOB_RC9
27	41	RP73/PCI20/RD9	General Purpose I/O	P41_RD9
28	53	RP72/SDO2/PCI19/RD8	mikroBUS B MOSI	P53_MOSIB_RD8
29	15, 31, 36, 45, 65, 75	Vss	Vss	VSS
30	2, 16, 30, 37, 46, 62, 86	Vdd	Vdd	VDD_PIM
31	42	RP71/RD7	General Purpose I/O	P42_RD7
32	43	RP70/RD6	General Purpose I/O	P43_RD6
33	44	RP69/RD5	LCD RS	P44_LCDRS_RD5
34	56	PGD3/RP37/SDA2/RB5	Shared I²C SDA	P56_SDA_RB5
35	57	PGC3/RP38/SCL2/RB6	Shared I²C SCL	P57_SCL_RB6
36	47	RE10	General Purpose I/O	P47_RE10
37	25	TDO/AN2/AN26/CMP3A/RP39/SDA3/RB7	mikroBUS A Analog or USB Overcurrent Sense	P25_ANA_USBOC_RB7
38	48	RE11	General Purpose I/O	P48_RE11
39	27	PGD1/AN10/CMP6A/RP40/SCL1/RB8	ICSP™ PGD	P27_PGD_RB8
40	26	PGC1/AN11/CMP5A/RP41/SDA1/RB9	ICSP PGC	P26_PGC_RB9
41	1	N/C	USB Type-C Vbus	P1
42	6	N/C	General Purpose I/O	P6
43	15, 31, 36, 45, 65, 75	Vss	Vss	VSS
44	2, 16, 30, 37, 46, 62, 86	Vdd	Vdd	VDD_PIM
45	7	N/C	General Purpose I/O	P7
46	8	N/C	General Purpose I/O	P8
47	9	N/C	General Purpose I/O	P9
48	22	N/C	General Purpose I/O	P22

Note 1: This device pin is connected to PIM Pin #13.

Table 1: dsPIC33CK512MPT608-I/PT PIC® MCU Mapping (sorted by device pin number) (Cont.)

Device Pin #	PIM Pin #	Pin Description	Function	Explorer 16/32 Net Names
49	28	N/C	General Purpose I/O	P28
50	29	N/C	General Purpose I/O	P29
51	34	N/C	General Purpose I/O	P34
52	70	MCLR	General Purpose I/O ⁽¹⁾	P70_MCLR
53	35	N/C	General Purpose I/O	P35
54	39	N/C	General Purpose I/O	P39
55	40	N/C	General Purpose I/O	P40
56	68	N/C	General Purpose I/O	P68
57	69	N/C	General Purpose I/O	P69
58	71	N/C	General Purpose I/O	P71
59	73	N/C	SOSC In	P73_SOSCI
60	74	N/C	SOSC Out	P74_SOSCO
61	76	N/C	General Purpose I/O	P76
62	77	N/C	General Purpose I/O	P77
63	66	N/C	General Purpose I/O	P66
64	15, 31, 36, 45, 65, 75	Vss	Vss	VSS
65	2, 16, 30, 37, 46, 62, 86	Vdd	Vdd	VDD_PIM
66	87	N/C	General Purpose I/O	P87
67	88	N/C	General Purpose I/O	P88
68	97	N/C	General Purpose I/O	P97
69	15, 31, 36, 45, 65, 75	Vss	Vss	VSS
70	2, 16, 30, 37, 46, 62, 86	Vdd	Vdd	VDD_PIM
71	49	RP66/RD2	MCP2221A/mikroBUS™ B RX	P49_RXB_RD2
72	50	RP65/PWM4H/RD1	MCP2221A/mikroBUS B TX	P50_TXB_RD1
73	51	RP64/PWM4L/RD0	mikroBUS A TX	P51_TXA_RD0
74	52	TMS/RP42/PWM3H/RB10	mikroBUS A RX	P52_RXA_RB10
75	72	TCR/RP43/PWM3L/RB11	mikroBUS A PWM	P72_PWMA_RB11
76	67	RE14	mikroBUS A Interrupt (Digital)	P67_INTA_RE14
77	79	TDI/RP44/PWM2H/RB12	EEPROM CS	P79_EECS_RB12
78	19	RE15	mikroBUS B Reset Pin-2	P19_RSTB_RE15
79	78	RP45/PWM2L/RB13	mikroBUS B PWM	P78_PWMB_RB13
80	80	RP46/PWM1H/RB14	Switch S4	P80_S4_RB14
81	17	AN20/ANC0/CMP5C/RE0	LED D3	P17_LED3_RE0
82	81	RP47/PWM1L/RB15	LCD E	P81_LCD_E_RB15
83	38	AN21/ANC1/CMP6B/RE1	LED D4	P38_LED4_RE1
84	82	RP60/PWM8H/RC12	LCD RW	P82_LCDRW_RC12
85	83	RP61/PWM8L/RC13	Switch S3	P83_S3_RC13
86	84	RP62/PWM6H/RC14	Switch S6	P84_S6_RC14
87	89	RP63/PWM6L/RC15	USB D- to Type-C/A	P89_USBDN_RC15
88	13	MCLR	MCLR	P13_MCLR
89	90	RP79/PCI22/RD15	USB D+ to Type-C/A	P90_USBDP_RD15
90	15, 31, 36, 45, 65, 75	Vss	Vss	VSS
91	2, 16, 30, 37, 46, 62, 86	Vdd	Vdd	VDD_PIM
92	96	RP78/PCI21/RD14	Vbus Output Enable for USB Type-C™	P96_VBUSON_RD14
93	94	ANN4/CMP5B/RP77/RD13	LCD D1	P94_LCD01_RD13
94	95	AN12/ANNO/RP48/RC0	mikroBUS A Reset Pin	P95_RSTA_RC0
95	93	OA1OUT/ANO/CMP1A/IBIAS0/RA0	LCD D0	P93_LCD00_RA0
96	58	AN22/ANB3/CMP6C/RE2	LED D5	P58_LED5_RE2
97	98	OA1IN-/ANA1/RA1	LCD D2	P98_LCD02_RA1
98	59	AN23/ANN3/RE3	LED D6	P59_LED6_RE3
99	99	OA1IN+/AN9/RA2	LCD D3	P99_LCD03_RA2
100	100	DACOUT1/AN27/AN3/CMP1C/RA3	LCD D4	P100_LCD04_RA3

Note 1: This device pin is connected to PIM Pin #13.

Table 2: dsPIC33CK512MPT608-I/PT PIM Mapping (sorted by PIM pin number)

PIM Pin #	Device Pin #	Pin Description	Function	Explorer 16/32 Net Names
1	41	N/C	USB Type-C™ Vbus	P1
2	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	Vdd/AVdd	VDD_PIM
3	7	OA3IN-/AN13/CMP1B/ISRC0/RP49/RC1	LCD D5	P3_LCDD5_RC1
4	21	RE8	LCD D6	P4_LCDD6_RE8
5	23	RE9	LCD D7	P5_LCDD7_RE9
6	42	N/C	General Purpose I/O	P6
7	45	N/C	General Purpose I/O	P7
8	46	N/C	General Purpose I/O	P8
9	47	N/C	General Purpose I/O	P9
10	22	PGD2/OA2IN-/AN8/CMP4A/RP35/RB3	EEPROM (SCK) and mikroBUS™ A SCK	P10_SCKA_RB3
11	9	AN17/ANN1/CMP4B/IBIAS1/RP54/RC6	EEPROM (MSDI) and mikroBUS A MISO	P11_MISOA_RC6
12	24	PGC2/OA2IN+/RP36/RB4	EEPROM (MSDO) and mikroBUS A MOSI	P12_MOSIA_RB4
13	88	MCLR	MCLR	P13_MCLR
14	2	OA3OUT/AN4/ANB1/ANB2/CMP3B/IBIAS3/RA4	mikroBUS A Chip Select	P14_CSA_RA4
15	5, 11, 29, 43, 64, 69, 90	Vss/AVss	Vss/AVss	VSS
16	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	Vdd	VDD_PIM
17	81	AN20/ANC0/CMP5C/RE0	LED D3	P17_LED3_RE0
18	6	RP76/RD12	mikroBUS B Interrupt	P18_INTB_RD12
19	78	RE15	mikroBUS B Reset	P19_RSTB_RE15
20	12	AN15/ANN2/CMP2A/IBIAS2/RP51/RC3	10k Potentiometer	P20_POT_RC3
21	19	DACOUT2/AN16/CMP4C/ISRC2/RP55/RC7	TC1047A Temp. Sensor	P21_TEMP_RC7
22	48	N/C	General Purpose I/O	P22
23	8	OA3IN+/AN14/CMP2B/ISRC1/RP50/RC2	mikroBUS B Chip Select	P23_CSB_RC2
24	15	AN19/ANB0/CMP2C/RP75/RD11	mikroBUS B Analog	P24_ANB_RD11
25	37	TDO/AN2/AN26/CMP3A/RP39/SDA3/RB7	mikroBUS A Analog or USB Overcurrent Sense	P25_ANA_USBOC_RB7
26	40	PGC1/AN11/CMP5A/RP41/SDA1/RB9	ICSP™ PGC	P26_PGC_RB9
27	39	PGD1/AN10/CMP6A/RP40/SCL1/RB8	ICSP PGD	P27_PGD_RB8
28	49	N/C	General Purpose I/O	P28
29	50	N/C	General Purpose I/O	P29
30	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	Vdd	VDD_PIM
31	5, 11, 29, 43, 64, 69, 90	Vss/AVss	Vss	VSS
32	20	OA2OUT/AN1/AN7/ANA0/ANA2/ANA3/CMP1D/CMP2D/CMP3D/CMP4D/CMP5D/CMP6D/RP34/SCL3/INT0/RB2	USB Type-C CC2 Sense Line	P32_CC2_RB2
33	17	AN18/ANC2/CMP3C/ISRC3/RP74/RD10	USB Type-C CC1 Sense Line	P33_CC1_RD10
34	51	N/C	General Purpose I/O	P34
35	53	N/C	General Purpose I/O	P35
36	5, 11, 29, 43, 64, 69, 90	Vss/AVss	Vss	VSS
37	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	Vdd	VDD_PIM
38	83	AN21/ANC1/CMP6B/RE1	LED D4	P38_LED4_RE1
39	54	N/C	General Purpose I/O	P39
40	55	N/C	General Purpose I/O	P40
41	27	RP73/PC120/RD9	General Purpose I/O	P41_RD9
42	31	RP71/RD7	General Purpose I/O	P42_RD7
43	32	RP70/RD6	General Purpose I/O	P43_RD6
44	33	RP69/RD5	LCD RS	P44_LCDRS_RD5
45	5, 11, 29, 43, 64, 69, 90	Vss/AVss	Vss	VSS
46	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	Vdd	VDD_PIM
47	36	RE10	General Purpose I/O	P47_RE10
48	38	RE11	General Purpose I/O	P48_RE11
49	71	RP66/RD2	MCP2221A/mikroBUS B RX	P49_RXB_RD2

Note 1: This device pin is connected to PIM Pin #13.

Table 2: dsPIC33CK512MPT608-I/PT PIM Mapping (sorted by PIM pin number) (Cont.)

PIM Pin #	Device Pin #	Pin Description	Function	Explorer 16/32 Net Names
50	72	RP65/PWM4H/RD1	MCP2221A/mikroBUS™ B TX	P50_TXB_RD1
51	73	RP64/PWM4L/RD0	mikroBUS A TX	P51_TXA_RD0
52	74	TMS/RP42/PWM3H/RB10	mikroBUS A RX	P52_RXA_RB10
53	28	RP72/SDO2/PC119/RD8	mikroBUS B MOSI	P53_MOSIB_RD8
54	26	RP57/ASCL1/SD12/RC9	mikroBUS B MISO	P54_MISOB_RC9
55	25	RP56/ASDA1/SCK2/RC8	mikroBUS B SCKB	P55_SCKB_RC8
56	34	PGD3/RP37/SDA2/RB5	Shared I ² C SDA	P56_SDA_RB5
57	35	PGC3/RP38/SCL2/RB6	Shared I ² C SCL	P57_SCL_RB6
58	96	AN22/ANB3/CMP6C/RE2	LED D5	P58_LED5_RE2
59	98	AN23/ANN3/RE3	LED D6	P59_LED6_RE3
60	1	RE4	LED D7	P60_LED7_RE4
61	3	RE5	LED D8	P61_LED8_RE5
62	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	Vdd	VDD_PIM
63	13	OSCI/CLKI/AN5/RP32/RB0	Primary Oscillator In	P63_OSCI_RB0
64	14	OSCO/CLKO/AN6/RP33/RB1	Primary Oscillator Out	P64_OSOC_RB1
65	5, 11, 29, 43, 64, 69, 90	Vss/AVss	Vss	VSS
66	63	N/C	General Purpose I/O	P66
67	76	RE14	mikroBUS A Interrupt (Digital)	P67_INTA_RE14
68	56	N/C	General Purpose I/O	P68
69	57	N/C	General Purpose I/O	P69
70	52	MCLR	General Purpose I/O ⁽¹⁾	P70_MCLR
71	58	N/C	General Purpose I/O	P71
72	75	TCK/RP43/PWM3L/RB11	mikroBUS A PWM	P72_PWM_A_RB11
73	59	N/C	SOSC In	P73
74	60	N/C	SOSC Out	P74
75	5, 11, 29, 43, 64, 69, 90	Vss/AVss	Vss	VSS
76	61	N/C	General Purpose I/O	P76
77	62	N/C	General Purpose I/O	P77
78	79	RP45/PWM2L/RB13	mikroBUS B PWM	P78_PWM_B_RB13
79	78	TDI/RP44/PWM2H/RB12	EEPROM CS	P79_EECS_RB12
80	77	RP46/PWM1H/RB14	Switch S4	P80_S4_RB14
81	82	RP47/PWM1L/RB15	LCD E	P81_LCD_E_RB15
82	84	RP60/PWM8H/RC12	LCD R/W	P82_LCDRW_RC12
83	85	RP61/PWM8L/RC13	Switch S3	P83_S3_RC13
84	86	RP62/PWM6H/RC14	Switch S6	P84_S6_RC14
85	—	—	V _{CAP} , 10 µF Capacitor	—
86	4, 10, 30, 44, 65, 70, 91	Vdd/AVdd	ENV/REG	VDD_PIM
87	66	N/C	General Purpose I/O	P87
88	67	N/C	General Purpose I/O	P88
89	87	RP63/PWM6L/RC15	USB D- to Type-C/A	P89_USBDN_RC15
90	89	RP79/PC122/RD15	USB D+ to Type-C/A	P90_USBDP_RD15
91	16	RE6	LED D9	P91_LED9_RE6
92	18	RE7	LED D10, Switch S5	P92_S5_LED10_RE7
93	95	OA1OUT/ANO/CMP1A/IBIAS0/RA0	LCD D0	P93_LCDD0_RA0
94	93	ANN4/CMP5B/RP77/RD13	LCD D1	P94_LCDD1_RD13
95	94	AN12/ANNO/RP48/RC0	mikroBUS A Reset Pin	P95_RSTA_RC0
96	92	RP78/PC121/RD14	Vbus Output Enable for USB Type-C™	P96_VBUSON_RD14
97	68	N/C	General Purpose I/O	P97
98	97	OA1IN-/ANA1/RA1	LCD D2	P98_LCDD2_RA1
99	99	OA1IN+/AN9/RA2	LCD D3	P99_LCDD3_RA2
100	100	DACOUT1/AN27/AN3/CMP1C/RA3	LCD D4	P100_LCDD4_RA3

Note 1: This device pin is connected to PIM Pin #13.

