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## dsPIC33EP256MC506 Plug-In Module (PIM) Information Sheet for External Op Amp Configuration

The dsPIC33EP256MC506 External Op Amp Motor Control PIM is designed to demonstrate the capabilities of the dsPIC33EP256MC506 motor control device, using external on-board op amps with development boards, such as the dsPICDEM™ MCLV-2 Development Board (DM330021-2) and the dsPICDEM MCHV-2 Development Board (DM330023-2), which support 100-pin PIM interfaces.

The dsPIC33EP256MC506 is a high-performance, 16-bit Digital Signal Controller (DSC) in a 64-pin TQFP package.

To operate this PIM with the dsPICDEM MCLV-2 and dsPICDEM MCHV-2 Development Boards, please insert the External Op Amp Configuration Board into the header, J4, (for the dsPICDEM MCHV-2 Development Board) or header, J14 (for the dsPICDEM MCLV-2 Development Board).

Figure 1 shows the connection location for the dsPICDEM MCHV-2 Development Board.

**FIGURE 1: EXTERNAL OP AMP CONFIGURATION BOARD**



### Hardware Compatibility

Table 1 provides information on the hardware versions of the motor control boards that are compatible with this PIM. Refer to the user's guide for the specific motor control board for hardware version identification information.

**TABLE 1: HARDWARE COMPATIBILITY**

Development Board	Part Number	Compatible Hardware Version(s)
dsPICDEM™ MCHV Development Board	DM330023	Not compatible
dsPICDEM™ MCLV Development Board	DM330021	Not compatible
dsPICDEM™ MCSM Development Board	DM330022	Not compatible
dsPICDEM™ MCHV-2 Development Board	DM330023-2	All revisions
dsPICDEM™ MCLV-2 Development Board	DM330021-2	All revisions

**Warning:** Do not connect non-isolated oscilloscope probes to the test points on the dsPIC33EP256MC506 External Op Amp Motor Control PIM while using the PIM with the dsPICDEM™ MCHV-2 Development Board. Use a high-voltage differential probe, rated in excess of 600 VRMS (Common mode). Failure to heed this warning could result in hardware damage.

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Table 2 provides the static mapping between the 100-pin PIM pins and the device pins.

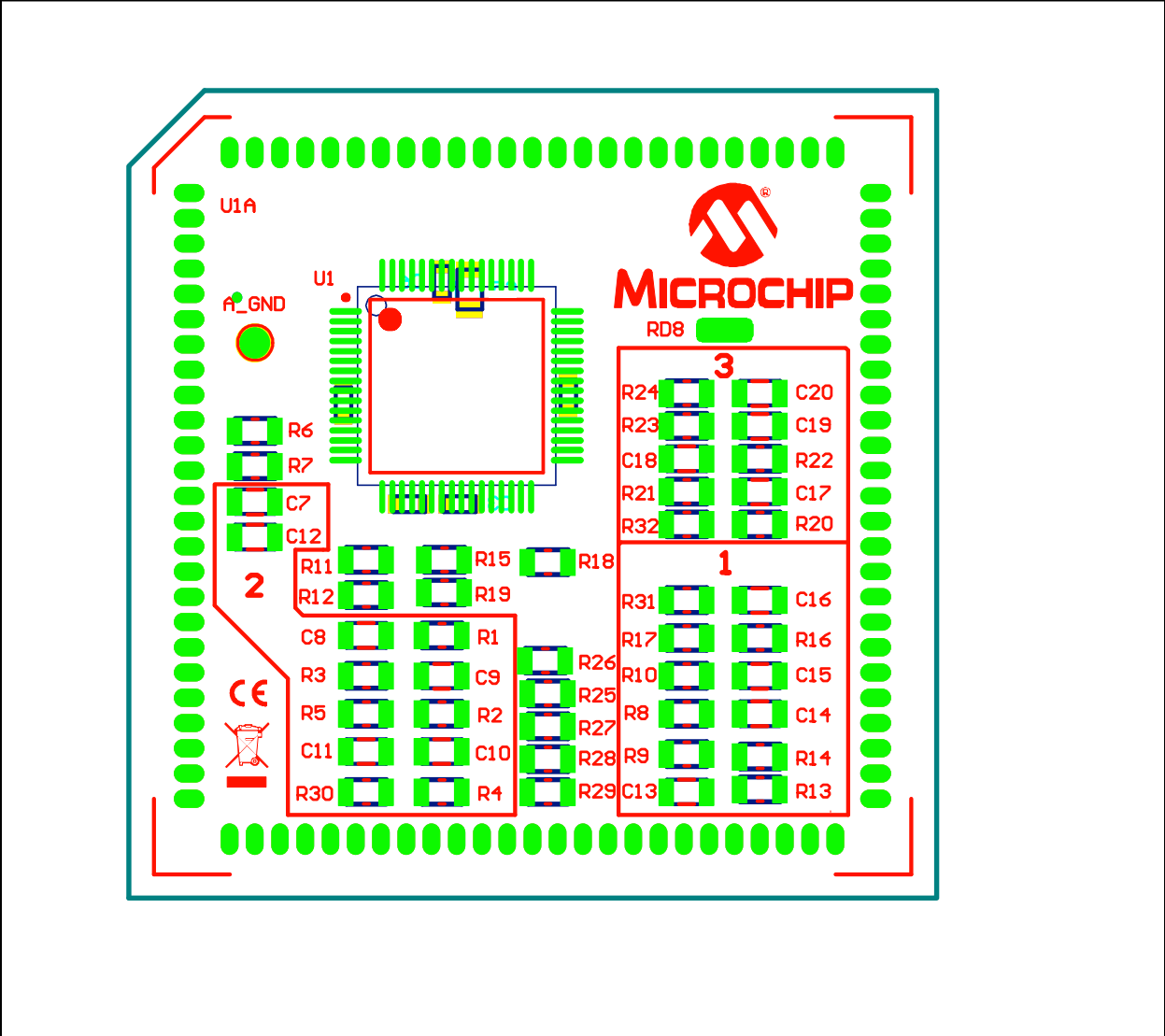
**TABLE 2: 64-PIN DEVICE TO 100-PIN PIM MAPPING**

Device Pin #	dsPIC33EP256MC506 Device Functional Description	PIM Pin #	Device Pin #	dsPIC33EP256MC506 Device Functional Description	PIM Pin #
1	TDI/RA7	—	33	CVREF20/SDO1/RP20/T1CK/RA4	—
2	RPI46/PWM1H/T3CK/RB14	94	34	SDI1/RPI25/RA9	77
3	RPI47/PWM1LT5CK/RB15	93	35	SCK1/RPI51/RC3	79
4	RP118/RG6	84	36	SDA1/RPI52/RC4	69
5	RP119/RG7	83	37	SCL1/RPI53/RC5	49
6	RP120/RG8	76	38	VDD	2, 16, 37, 46, 62, 86
7	MCLR	13	39	OSC1/CLKI/RC12	63
8	RPI121/RG9	72	40	OSC2/CLKO/RC15	64
9	VSS	15, 36, 45, 65, 75	41	VSS	15, 36, 45, 65, 75
10	VDD	2, 16, 37, 46, 62, 86	42	RD8	—
11	AN10/RPI28/RA12	35	43	PGED2/ASDA2/RP37/RB5	27
12	AN9/RPI27/RA11	25	44	PGEC2/ASCL2/RP38/RB6	26
13	AN0/OA2OUT/RA0	42	45	RPI58/RC10	61
14	AN1/C2IN1+/RA1	22, 41	46	RP39/INT0/RB7	19
15	PGED3/VREF-/AN2/C2IN1-/SS1/RPI32/CTED2/RB0	43	47	RC13	82
16	PGEC3/VREF+/AN3/OA1OUT/RPI33/CTED1/RB1	59	48	TCK/CVREF10/ASCL1/RP40/T4CK/RB8	68
17	PGEC1/AN4/C1IN1+/RPI34/RB2	21	49	TMS/ASDA1/RP41/RB9	78
18	PGED1/AN5/C1IN1-/RP35/RB3	29	50	RP54/RC6	47
19	AVDD	30	51	RP55/RC7	70
20	AVSS	31	52	RP56/RC8	88
21	AN6/OA3OUT/C4IN1+/OCFB/RC0	58	53	RD5	60
22	AN7/C3IN1-/C4IN1-/RC1	29	54	RD6	1
23	AN8/C3IN1+/U1RTS/BCLK1/FLT3/RC2	20	55	RP57/RC9	87
24	AN11/C1IN2-/U1CTS/FLT4/RC11	24	56	VCAP	—
25	VSS	15, 36, 45, 65, 75	57	VDD	2, 16, 37, 46, 62, 86
26	VDD	2, 16, 37, 46, 62, 86	58	RPI96/RF0	48
27	AN12/C2IN2-/U2RTS/BCLK2/RE12	29	59	RP97/RF1	50
28	AN13/C3IN2-/U2CTS/RE13	32, 33	60	RP42/PWM3H/RB10	3
29	AN14/RPI94/RE14	23	61	RP43/PWM3L/RB11	100
30	AN15/RPI95/RE15	34	62	RPI44/PWM2H/RB12	99
31	SDA2/RPI24/RA8	80	63	RPI45/PWM2L/CTPLS/RB13	98
32	FLT32/SCL2/RP36/RB4	18	64	TDO/RA10	—



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FIGURE 3: PIM LAYOUT



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