

# SoM Pinout: F28P65X SoM (rev E1)

MCU SoM Standard Revision: 0.81

## Connector J1

MCU Function	MCU Pin	SoM Standard	Pin	Pin	SoM Standard	MCU Pin	MCU Function
EPWM4_B	GPIO47	PWMB	1	2	PWMB	GPIO15	EPWM8_B
EPWM4_A	GPIO46	PWMA	3	4	PWMA	GPIO14	EPWM8_A
EPWM3_B	GPIO5	PWM3B (b,d)	5	6	PWMB	GPIO13	EPWM7_B
EPWM3_A	GPIO4	PWM3A (b,d)	7	8	PWMA	GPIO12	EPWM7_A
EPWM2_B	GPIO3	PWM2B (b,d)	9	10	PWMB	GPIO11	EPWM6_B
EPWM2_A	GPIO2	PWM2A (b,d)	11	12	PWMA	GPIO10	EPWM6_A
EPWM1_B	GPIO1	PWM1B (b,d)	13	14	PWMB	GPIO9	EPWM5_B
EPWM1_A	GPIO0	PWM1A (b,d)	15	16	PWMA	GPIO8	EPWM5_A
-	GND	GND	17	18	SVD_IN (b)	SVD0	-
TDI	GPIO222	JTAG-TDI (a,b)	19	20	SVD_IN (b)	SVD0	-
TDO	GPIO223	JTAG-TDO (a,b)	21	22	JTAG-TCK (a,b)	TCK	TCK
-	EEPROM_I2CSCL	JTAG_I2CSCL (a,b)	23	24	JTAG-TMS (a,b)	TMS	TMS
-	EEPROM_I2CSDA	JTAG_I2CSDA (a,b)	25	26	15W_PD (b,e)	-	-
-	-	LPM_WAKE	27	28	3V3_OUT/SOM_DETECT (a,b)	3V3_OUT	-
XRSn	XRSn	XRSn	29	30	PMIC_WAKE1	PMIC	PMIC_WAKE1
SCIA_TX/UARTA_TX	GPIO29	UARTTX (a,b)	31	32	ERRORSTS/PMIC_SAFE_OUT1	PMIC	PMIC_SAFE_OUT1
SCIA_RX/UARTA_RX	GPIO28	UARTRX (a,b)	33	34	SVD_OUT_CAN	SVD0_OUT_CAN	-
MCANB_RX/LINA_RX	GPIO6	CANTX/LINTX	35	36	CANTX	GPIO19	CANA_TX/MCANA_TX
MCANB_TX/LINA_TX	GPIO7	CANRX/LINRX	37	38	CANRX	GPIO18	CANA_RX/MCANA_RX
SPIA_PTE	GPIO57	SPIPTE	39	40	ENCODER4/QEPH	GPIO103	EQEP2_INDEX
SPIA_CLK	GPIO56	SPICLK (c)	41	42	ENCODER3/QEP5	GPIO27	EQEP2_STROBE
SPIA_POCI	GPIO55	SPIPOCI (c)	43	44	ENCODER2/QEPB	GPIO101	EQEP2_B
SPIA_PICO	GPIO54	SPIPICO (c)	45	46	ENCODER1/QEPA	GPIO100	EQEP2_A
-	Rsvd	Rsv	47	48	SD2-C	GPIO40	SD2_C1
FSITXA_CLK	GPIO102	FSITX-CLK	49	50	SD2-D	GPIO50	SD2_D2
FSITXA_D1	GPIO152	FSITX-D1	51	52	SD2-D	GPIO49	SD2_D1
FSITXA_D0	GPIO151	FSITX-D0	53	54	SD1-C	GPIO123	SD1_C1
FSIRXA_CLK	GPIO156	FSIRX-CLK	55	56	SD1-D	GPIO126	SD1_D3
FSIRXA_D1	GPIO155	FSIRX-D1	57	58	SD1-D	GPIO124	SD1_D2
FSIRXA_D0	GPIO154	FSIRX-D0	59	60	SD1-D	GPIO122	SD1_D1
J1_GND				J1_GND			
I2CA_SCL	GPIO105	I2CSCL	61	62	SENT/PMBBUS_SDA (e)	GPIO97	GPIO
I2CA_SDA	GPIO104	I2CSDA	63	64	SENT/PMBUS_SCL (e)	GPIO75	GPIO
EQEP1_INDEX	GPIO99	ENCODER4/QEPI	65	66	SENT/PMBUS_ALERT (e)	GPIO69	GPIO
EQEP1_STROBE	GPIO98	ENCODER3/QEP5	67	68	PMBBUS_CTL	GPIO62	GPIO
EQEP1_B	GPIO21	ENCODER2/QEPB	69	70	GPIO	GPIO53	GPIO
EQEP1_A	GPIO20	ENCODER1/QEPA	71	72	GPIO	GPIO52	GPIO
GPIO	GPIO32	GPIO	73	74	GPIO	GPIO51	GPIO
GPIO	GPIO25	GPIO	75	76	GPIO	GPIO33 (c)	GPIO
-	GND	GND	77	78	GND	GND	-
-	Rsvd	Rsv	79	80	Rsv	Rsvd	-
-	Rsvd	Rsv	81	82	Rsv	Rsvd	-
-	Rsvd	Rsv	83	84	Rsv	Rsvd	-
VREFHIA	VREFHIA	VREFHI2	85	86	Rsv	Rsvd	-
-	-	VREFHI1	87	88	Rsv	Rsvd	-
-	GND	ADC	89	90	Rsv	Rsvd	-
Analog (1,2)	B5/A29/GPIO216	ADC	91	92	ADCI15	GND	-
Analog (1,2)	B4/A28/GPIO215	ADC	93	94	ADCI14	C11	Analog (1,2)
Analog (1,2)	B3/A27/C23/ADCINCAL1	ADC	95	96	ADC	C10	Analog (1,2)
Analog (1,2)	B2/A26/C22/ADCINCAL0	ADC4	97	98	ADC	C5/B29/GPIO204	Analog (1,2)
-	GND	ADC4	99	99	ADC4	C4/B28/GPIO205	Analog (1,2)
Analog (1,2)	B1/A25/DACOUTC	ADC3	101	100	ADC4	GND	-
Analog (1,2)	B0/A24/VDAC	ADC3	103	102	ADC4	C3/B27/GPIO206	Analog (1,2)
Analog (1,2)	A7/GPIO210	ADC3	105	104	ADC4	C2/B26	Analog (1,2)
Analog (1,2)	A6/GPIO209	ADC3	107	106	ADC3	A15/B15/C15/TESTANA1	Analog (1,2)
-	GND	ADC2	109	108	ADC3	A14/B14/C14/TESTANA0	Analog (1,2)
Analog (1,2)	A3/B21	ADC2	111	110	ADC2	GND	-
Analog (1,2)	A2/B20	ADC1	113	112	ADC2	A11/C27/GPIO214	Analog (1,2)
-	GND	ADC1	115	114	ADC2	A10/C26/GPIO213	Analog (1,2)
Analog (1,2)	A1/B19	ADC1 (and/or DACB) (b,d)	117	116	ADC2	GND	-
Analog (1,2)	A0/A12/B12/C12/DACOUTA	ADC1 (and/or DACA) (b,d)	119	118	ADC1 (b,d)	A9/C25/GPIO212	Analog (1,2)
				120	ADC1 (b,d)	A8/C24/GPIO211	Analog (1,2)

### Standard Notes:

- Pin also connects to XDS110ISO-EVM through emulator header.
- Pin also connects to XDS110ISO-EVM through J1.
- Pin also connects to DAC on XDS110ISO-EVM through emulator header.
- Pin also connects to debug header on XDS110ISO-EVM through J1.
- 5V tolerant input pin.

### F28P65X SoM (rev E1) Notes

- Boot mode pin.
- Connects to PMIC SPI bus.
- Alternate location for CANA pins. Other location is in J1.36 and J1.38.
- Connects to PMIC DIAG\_OUT pin.
- Connects to user LED.
- May be optionally connected to PMIC SAFE\_OUT1 pin through 0-ohm resistor.

## Connector J2

MCU Function	MCU Pin	SoM Standard	Pin	Pin	SoM Standard	MCU Pin	MCU Function
-	-	ETH_PHY_CLK	1	2	ETH_TXD3	-	-
-	-	ETH_TX_EN	3	4	ETH_TXD2	-	-
-	-	ETH_TX_ERR	5	6	ETH_TXD1	-	-
-	-	ETH_INT	7	8	ETH_TXD0	-	-
-	-	ETH_COL	9	10	ETH_TX_CLK	-	-
-	-	ETH_CRS	11	12	ETH_RMII_CLK	-	-
-	-	ETH_RX_DV	13	14	ETH_RXD3	-	-
-	-	ETH_RX_ERR	15	16	ETH_RXD2	-	-
-	-	ETH_MDIO_CLK	17	18	ETH_RXD1	-	-
-	-	ETH_MDIO_DATA	19	20	ETH_RXD0	-	-
MCANB_RX	GPIO120	CANRX	21	22	ETH_RX_CLK	-	-
MCANB_TX	GPIO119	CANTX	23	24	Rsv	Rsvd	-
FSITXB_CLK	GPIO108	SD-D	25	26	UARTRX	GPIO39	SCIB_RX/UARTA_RX
FSITXB_D1	GPIO107	SD-C	27	28	UARTTX	GPIO38	SCIB_TX/UARTA_TX
FSITXB_D0	GPIO106	SD-D	29	30	SPIPCO	GPIO91	SPID_PICO
FSIRXB_CLK	GPIO112	SD-C	31	32	SPIPOCI	GPIO92	SPID_POCI
FSIRXB_D1	GPIO111	SD-D	33	34	SPICLK	GPIO93	SPID_CLK
FSIRXB_D0	GPIO110	SD-C	35	36	SPIPTE	GPIO94	SPID_PTE
-	Rsvd	Rsv	37	38	USB_DP	GPIO43	USBODP
-	Rsvd	Rsv	39	40	USB_DM	GPIO42	USBODM
-	Rsvd	Rsv	41	42	Rsv	Rsvd	-
-	Rsvd	Rsv	43	44	Rsv	Rsvd	-
EPWM15_A	GPIO89	PWMB	45	46	PWMB	GPIO167	EPWM12_A
EPWM15_B	GPIO90	PWMA	47	48	PWMA	GPIO168	EPWM12_B
EPWM14_A	GPIO132	PWMB	49	50	PWMB	GPIO165	EPWM11_A
EPWM14_B	GPIO134	PWMA	51	52	PWMA	GPIO166	EPWM11_B
EPWM13_A	GPIO130	PWMB	53	54	PWMB	GPIO78	EPWM10_A
EPWM13_B	GPIO131	PWMA	55	56	PWMA	GPIO79	EPWM10_B
SD3_D4	GPIO87	PWMB	57	58	PWMB	GPIO133	EPWM9_A
SD3_C4	GPIO88	PWMA	59	60	PWMA	GPIO77	EPWM9_B
J2 GND				J2 GND			
SD3_D3	GPIO81	Rsv	61	62	Rsv	GPIO115	GPIO
SD3_C3	GPIO86	Rsv	63	64	Rsv	GPIO114	GPIO
SD3_D1	GPIO85	Rsv	65	66	Rsv	GPIO113	GPIO
SD3_C1	GPIO76	Rsv	67	68	Rsv	GPIO109	GPIO
-	Rsvd	Rsv	69	70	Rsv	Rsvd	-
-	GND	Rsv	71	72	Rsv	GND	-
-	-	ADC	73	74	ADC	-	-
-	-	ADC	75	76	ADC	-	-
-	-	ADC	77	78	ADC	-	-
-	-	ADC	79	80	ADC	-	-
-	GND	ADC	81	82	ADC	GND	-
-	-	ADC	83	84	ADC	C9/GPIO201	Analog (1)
-	-	ADC	85	86	ADC	C8/GPIO202	Analog (1)
-	-	ADC	87	88	ADC	C7/B31/GPIO198	Analog (1)
-	-	ADC	89	90	ADC	C6/B30/GPIO203	Analog (1)
-	GND	ADC	91	92	ADC	GND	-
-	-	ADC	93	94	ADC	C1/B25/GPIO200	Analog (1)
-	-	ADC	95	96	ADC	C0/B24/GPIO199	Analog (1)
-	-	ADC	97	98	ADC	A5/B23	Analog (1)
-	-	ADC	99	100	ADC	A4/B22	Analog (1)
-	GND	ADC	101	102	ADC	GND	-
-	-	ADC	103	104	ADC	B13	Analog
-	-	ADC	105	106	ADC	-	-
-	-	ADC	107	108	ADC	B11/C31	Analog (1)
-	-	ADC	109	110	ADC	B10/C30/GPIO219	Analog (1)
-	GND	ADC	111	112	ADC	GND	-
-	-	ADC/R1_A3	113	114	ADC/R1_A1	B9/C29/GPIO218	Analog (1)
-	-	ADC/R1_A2	115	116	ADC/R1_A0	B8/C28/GPIO217	Analog (1)
-	-	ADC/R0_A3	117	118	ADC/R0_A1	B7/A31/GPIO208	Analog (1)
-	-	ADC/R0_A2	119	120	ADC/R0_A0	B6/A30/GPIO207	Analog (1)

### Standard Notes:

- Pin also connects to XDS110ISO-EVM through emulator header.
- Pin also connects to XDS110ISO-EVM through J1.
- Pin also connects to DAC on XDS110ISO-EVM through emulator header.
- Pin also connects to debug header on XDS110ISO-EVM through J1.
- 5V tolerant input pin.

### F28P65X SoM (rev E1) Notes

- Boot mode pin.
- Connects to PMIC SPI bus.
- Alternate location for CANA pins. Other location is in J1.36 and J1.38.
- Connects to PMIC DIAG\_OUT pin.
- Connects to user LED.
- May be optionally connected to PMIC SAFE\_OUT1 pin through 0-ohm resistor.

## Connector J3

MCU Function	MCU Pin	SoM Standard	Pin	Pin	SoM Standard	MCU Pin	MCU Function
-	Rsvd		Rsv	2	PWMA	GPIO31 (7)	EPWM16_B
-	Rsvd		Rsv	4	PWMB	GPIO30	EPWM16_A
-	Rsvd		Rsv	6	PWMA	GPIO68	EPWM17_B
-	Rsvd		Rsv	8	PWMB	GPIO67	EPWM17_A
-	Rsvd		Rsv	10	PWMA	GPIO96	EPWM18_B
-	Rsvd		Rsv	12	PWMB	GPIO95	EPWM18_A
-	Rsvd		Rsv	14	PWMA	-	-
-	Rsvd		Rsv	16	PWMB	-	-
-	Rsvd		Rsv	18	PWMA	-	-
-	Rsvd		Rsv	20	PWMB	-	-
-	Rsvd		Rsv	22	PWMA	-	-
-	Rsvd		Rsv	24	PWMB	-	-
-	Rsvd		Rsv	26	PWMA	-	-
-	Rsvd		Rsv	28	PWMB	-	-
-	SVO_IN		Rsv	30	PWMA	-	-
PMIC_SAFE_OUT2	PMIC	PMIC_SAFE_OUT2	29	32	PWMB	-	-
PMIC_COMP2_IN-	PMIC	PMIC_COMP2_IN-	31	34	PWMA	-	-
PMIC_COMP2_IN+	PMIC	PMIC_COMP2_IN+	33	36	PWMB	-	-
PMIC_COMP1_IN-	PMIC	PMIC_COMP1_IN-	35	38	PWMA	-	-
PMIC_COMP1_IN+	PMIC	PMIC_COMP1_IN+	37	40	PWMB	-	-
PMIC_WAKE2	PMIC	PMIC_WAKE2	39	42	PWMA	-	-
-	Rsvd		Rsv	44	PWMB	-	-
-	Rsvd		Rsv	46	PWMA	-	-
-	Rsvd		Rsv	48	PWMB	-	-
-	Rsvd		Rsv	50	Rsv	Rsvd	-
-	Rsvd		Rsv	52	Rsv	Rsvd	-
-	Rsvd		Rsv	54	CANTX	GPIO37 (5)	CANA_TX
-	Rsvd		Rsv	56	CANRX	GPIO36 (5)	CANA_RX
GPIO	GPIO116		GPIO	58	UARTTX	GPIO70	UARTB_TX
GPIO	GPIO125		GPIO	60	UARTRX	GPIO45	UARTB_RX
-	-	FSIRX-D0	61	62	SPIPTE	GPIO66	SPIB_PTE
GPIO	GPIO128 (8)	FSIRX-D1	63	64	SPICLK	GPIO65 (4)	SPIB_CLK
GPIO	GPIO147	FSIRX-CLK	65	66	SPIPOCI	GPIO61 (4)	SPIB_POCI
GPIO	GPIO221	FSITX-D0	67	68	SPIPICO	GPIO60 (4)	SPIB_PICO
-	-	FSITX-D1	69	70	I2CSCL	GPIO35	I2CB_SCL
-	-	FSITX-CLK	71	72	I2CSDA	GPIO34 (7)	I2CB_SDA
-	Rsvd		Rsv	74	Rsv	Rsvd	-
-	Rsvd		Rsv	76	ECAT_RX1_CLK/CANRX	GPIO16	ESC_RX1_CLK
-	Rsvd		Rsv	78	ECAT_RX1_DATA0/CANTX	GPIO63	ESC_RX1_DATA0
-	Rsvd		Rsv	80	ECAT_RX1_DATA1/CANRX	GPIO64	ESC_RX1_DATA1
-	Rsvd		Rsv	82	ECAT_RX1_DATA2/CANTX	GPIO141	ESC_RX1_DATA2
-	Rsvd		Rsv	84	ECAT_RX1_DATA3/CANRX	GPIO142	ESC_RX1_DATA3
ESC_LED_LINK0_ACTIVE	GPIO58	ECAT_LED_LINK0_ACTIVE	83	86	Rsv	Rsvd	-
ESC_LED_LINK1_ACTIVE	GPIO59	ECAT_LED_LINK1_ACTIVE/LINRX	85	88	ECAT_TX1_CLK/CANTX	GPIO44	ESC_TX1_CLK
ESC_PHY0_LINKSTATUS	GPIO148	ECAT_PHY0_LINKSTATUS/LINTX	87	90	ECAT_TX1_DATA0/CANRX	GPIO22	ESC_TX1_DATA0
ESC_PHY1_LINKSTATUS	GPIO149	ECAT_PHY1_LINKSTATUS/LINRX	89	92	ECAT_TX1_DATA1/CANTX	GPIO74	ESC_TX1_DATA1
ESC_TX1_ENA	GPIO129	ECAT_TX1_EN/LINTX	91	94	ECAT_TX1_DATA2/CANRX	GPIO73	ESC_TX1_DATA2
ESC_RX1_DV	GPIO17	ECAT_RX1_DV/LINRX	93	96	ECAT_TX1_DATA3/CANTX	GPIO72 (3)	ESC_TX1_DATA3
ESC_RX1_ERR	GPIO71	ECAT_RX1_ERR/LINTX	95	98	Rsv	Rsvd	-
ESC_MDIO_CLK	GPIO26	ECAT_MDIO_CLK/LINRX	97	100	ECAT_RX0_CLK/ETH_RX_CLK	GPIO163	ESC_RX0_CLK
ESC_MDIO_DATA	GPIO153	ECAT_MDIO_DATA/LINTX	99	102	ECAT_RX0_DATA0/ETH_RXD0	GPIO80	ESC_RX0_DATA0
ESC_PHY_RESETh	GPIO23	ECAT_PHY_RST/ETH_MDIO_DATA	101	104	ECAT_RX0_DATA1/ETH_RXD1	GPIO24	ESC_RX0_DATA1
ESC_LED_RUN	GPIO146	ECAT_LED_RUN/ETH_MDIO_CLK	103	106	ECAT_RX0_DATA2/ETH_RXD2	GPIO82	ESC_RX0_DATA2
ESC_LED_ERR	GPIO145	ECAT_LED_ERR/ETH_RX_ERR	105	108	ECAT_RX0_DATA3/ETH_RXD3	GPIO83	ESC_RX0_DATA3
ESC_I2C_SDA	GPIO150	ECAT_I2C_SDA/ETH_RX_DV	107	110	ETH_RMII_CLK	Rsvd	-
ESC_I2C_SCL	GPIO41	ECAT_I2C_SCL/ETH_CRIS	109	112	ECAT_TX0_CLK/ETH_TX_CLK	GPIO157	ESC_TX0_CLK
ESC_RX0_ERR	GPIO164	ECAT_RX0_ERR/ETH_COL	111	114	ECAT_TX0_DATA0/ETH_TXD0	GPIO158	ESC_TX0_DATA0
ESC_RX0_DV	GPIO162	ECAT_RX0_DV/ETH_INT	113	116	ECAT_TX0_DATA1/ETH_TXD1	GPIO159	ESC_TX0_DATA1
ESC_TX0_ENA	GPIO84 (3)	ECAT_TX0_ENA/ETH_TX_ERR	115	118	ECAT_TX0_DATA2/ETH_TXD2	GPIO160	ESC_TX0_DATA2
-	PHY_QSC	ECAT_PHY0_CLK/ETH_TX_EN	117	120	ECAT_TX0_DATA3/ETH_TXD3	GPIO161	ESC_TX0_DATA3
-	PHY_OSC	ECAT_PHY1_CLK/ETH_PHY_CLK	119				

### Standard Notes:

- Pin also connects to XD5110ISO-EVM through emulator header.
- Pin also connects to XD5110ISO-EVM through J1.
- Pin also connects to DAC on XD5110ISO-EVM through emulator header.
- Pin also connects to debug header on XD5110ISO-EVM through J1.
- 5V tolerant input pin.

### F28P65X SoM (rev E1) Notes

- Boot mode pin.
- Connects to PMIC SPI bus.
- Alternate location for CANA pins. Other location is in J1.36 and J1.38.
- Connects to PMIC DIAG\_OUT pin.
- Connects to user LED.
- May be optionally connected to PMIC\_SAFE\_OUT1 pin through 0-ohm resistor.