5.5 Signal Multiplexing Characteristics

Up to 80 of the UCM-iMX8M-Plus carrier board interface pins are multifunctional. Multifunctional pins enable extensive functional flexibility of the UCM-iMX8M-Plus CoM/SoM by allowing usage of a single carrier board interface pin for one of several functions. Up-to 6 functions (MUX modes) are accessible through each multifunctional carrier board interface pin. The multifunctional capabilities of UCM-iMX8M-Plus pins are derived from the i.MX8M Plus SoC control module

NOTE: Pin function selection is controlled by software.

NOTE: Each pin can be used for a single function at a time.

NOTE: Only one pin can be used for each function (in case a function is available on more than one carrier board interface pin).

NOTE: An empty MUX mode is a "RESERVED" function and must not be used.

Table 42 Multifunctional Signals

Pin #	SoC Pin Name	GPIO	SAI	ENET1	SDIO	I2C	UART	SPI	PWM	CAN	SPDIF	Availability
P1-19	UART1_RXD	GPIO5_IO22					UART1_RX	ECSPI3_SCLK				Always
P1-21	UART3_RXD	GPIO5_IO26					UART3_RX UART1_CTS_B			CAN2_TX		Always
P1-26	SAI3_TXD	GPIO5_IO1	SAI3_TXD0 SAI5_RXD3								SPDIF1_EXT_CLK	Always
P1-28	SAI3_RXD	GPIO4_IO30	SAI3_RXD0 SAI5_RXD0				UART2_RTS_B					Always
P1-30	SAI3_MCLK	GPIO5_IO2	SAI3_MCLK SAI5_MCLK						PWM4_OUT		SPDIF1_OUT	Always
P1-32	SAI3_RXC	GPIO4_IO29	SAI3_RXC SAI5_RXC				UART2_CTS_B					Always
P1-33	SAI2_TXD0	GPIO4_IO26	SAI5_TXD3							CAN2_TX		Always
P1-34	SAI3_RXFS	GPIO4_IO28	SAI3_RXFS SAI3_RXD1								SPDIF1_IN	Always
P1-36	SAI3_TXC	GPIO5_IO0	SAI3_TXC SAI5_RXD2				UART2_TX					Always
P1-38	SAI3_TXFS	GPIO4_IO31	SAI3_TXFX SAI5_RXD1 SAI3_TXD1				UART2_RX					Always
P1-49	SAI2_MCLK	GPIO4_IO27	SAI5_MCLK SAI3_MCLK							CAN2_RX		Always

P1-51	SAI2_TXC	GPIO4_IO25	SAI5_TXD2							CAN1_RX		Always
P1-53	SAI2_RXC	GPIO4_IO22	SAI5_TXC				UART1_RXD			CAN1_TX		Always
P1-59	GPIO1_IO00	GPIO1_IO0										Always
P1-60	SAI1_TXD7	GPIO4_IO19										Always
P1-61	UART3_TXD	GPIO5_IO27					UART3_TXD UART1_RTS_B			CAN2_RX		Always
P1-63	HDMI_DDC_SDA	GPIO3_IO27				I2C5_SDA				CAN1_RX		Always
P1-70	HDMI_DDC_SCL	GPIO3_IO26				I2C5_SCL				CAN1_TX		Always
P1-72	UART1_TXD	GPIO5_IO23					UART1_TXD	ECSPI3_MOSI				Always
P1-74	UART2_TXD	GPIO5_IO25					UART2_TXD	ECSPI3_SS0				Always
P1-76	UART2_RXD	GPIO5_IO24					UART2_RXD	ECSPI3_MISO				Always
P1-77	SPDIF_EXT_CLK	GPIO5_IO5							PWM1_OUT		SPDIF1_EXT_CLK	Always
P1-79	SPDIF_RX	GPIO5_IO4				I2C5_SDA			PWM2_OUT	CAN1_RX	SPDIF1_IN	Always
P1-81	SPDIF_TX	GPIO5_IO3				I2C5_SCL			PWM3_OUT	CAN1_TX	SPDIF1_OUT	Always
P1-84	UART4_RXD	GPIO5_IO28				I2C6_SCL	UART4_RXD UART2_CTS_B					Always
P1-85	HDMI_CEC	GPIO3_IO28				I2C6_SCL				CAN2_TX		
P1-86	UART4_TXD	GPIO5_IO29				I2C6_SDA	UART4_TXD UART2_RTS_B					Always
P1-87	SAI5_RXFS	GPIO3_IO19	SAI5_RXFS			I2C6_SCL			PWM4_OUT			Always
P1-89	SAI5_RXC	GPIO3_IO20	SAI5_RXC			I2C6_SDA			PWM3_OUT			Always
P1-91	I2C3_SDA	GPIO5_IO19				I2C3_SDA		ECSPI2_MOSI	PWM3_OUT			Always
P1-92	HDMI_HPD	GPIO3_IO29				I2C6_SDA				CAN2_RX		Always
P1-94	I2C3_SCL	GPIO5_IO18				I2C3_SCL		ECSPI2_SCLK	PWM4_OUT			Always
P1-96	SAI5_MCLK	GPIO3_IO25	SAI5_MCLK			I2C5_SDA			PWM1_OUT	CAN2_RX		Always
P1-98	GPIO1_IO01	GPIO1_IO1							PWM1_OUT			Always
P1-100	SAI5_RXD0	GPIO3_IO21	SAI5_RXD0			I2C5_SCL			PWM2_OUT			Always
P2-41	SD1_DATA2	GPIO2_IO4		ENET1_RGMII_RD0	SD1_DATA2	I2C4_SCL	UART2_TXD					Always
P2-43	SD1_DATA3	GPIO2_IO5		ENET1_RGMII_RD1	SD1_DATA3	I2C4_SDA	UART2_RXD					Always
P2-45	SAI1_RXD6	GPIO4_IO8		ENET1_RGMII_RD2								Always
P2-47	SAI1_RXD7	GPIO4_IO9		ENET1_RGMII_RD3								Always
P2-49	SD2_WP	GPIO2_IO20			SD2_WP							Always
P2-51	SD2_RESET_B	GPIO2_IO19			SD2_RESET_B							Always
P2-52	SAI1_MCLK	GPIO4_IO20	SAI5_MCLK									Always
P2-53	SAI1_TXFS	GPIO4_IO10	SAI5_TXFS	ENET1_RGMII_RX_CTL								Always
P2-55	SAI1_TXC	GPIO4_IO11	SAI5_TXC	ENET1_RGMII_RXC								Always

P2-59	SD1_DATA1	GPIO2_IO3		ENET1_RGMII_TD0	SD1_DATA1	I2C6_SDA	UART1_CTS_B					Always
P2-60	SAI1_TXD0	GPIO4_IO12	SAI5_TXD0	ENET1_RGMII_TD0								Always
P2-61	SD1_DATA0	GPIO2_IO2		ENET1_RGMII_TD1	SD1_DATA0	I2C6_SCL	UART1_RTS_B					Always
P2-62	SD1_RESET_B	GPIO2_IO10			SD1_RESET_B	I2C3_SCL	UART3_RTS_B					Always
P2-63	SAI1_TXD2	GPIO4_IO14	SAI5_TXD2	ENET1_RGMII_TD2								Always
P2-65	SAI1_TXD3	GPIO4_IO15	SAI5_TXD3	ENET1_RGMII_TD3								Always
P2-67	SAI1_TXD4	GPIO4_IO16		ENET1_RGMII_TX_CTL								Always
P2-68	SD1_CLK	GPIO2_IO0		ENET1_MDC	SD1_CLK	I2C5_SCL	UART1_TXD					Always
P2-69	SAI1_TXD5	GPIO4_IO17		ENET1_RGMII_TXC								Always
P2-70	SD1_CMD	GPIO2_IO1		ENET1_MDIO	SD1_CMD	I2C5_SDA	UART1_RXD					Always
P2-73	ENET_TD3	GPIO1_IO18										NOT “E”
P2-74	ENET_TX_CTL	GPIO1_IO22									SPDIF1_OUT	NOT “E”
P2-75	ENET_TD0	GPIO1_IO21										NOT “E”
P2-76	SAI2_TXFS	GPIO4_IO24	SAI5_TXD1				UART1_CTS_B					Always
P2-77	ENET_TD2	GPIO1_IO19										NOT “E”
P2-78	ENET_TD1	GPIO1_IO20										NOT “E”
P2-79	ENET_RX_CTL	GPIO1_IO24	SAI7_TXFS									NOT “E”
P2-80	ENET_RXC	GPIO1_IO25	SAI7_TXC									NOT “E”
P2-81	ENET_TXC	GPIO1_IO23	SAI7_TXD0									NOT “E”
P2-83	ENET_RD1	GPIO1_IO27	SAI7_RXFS									NOT “E”
P2-84	ENET_RD2	GPIO1_IO28	SAI7_RXC									NOT “E”
P2-85	ENET_RD3	GPIO1_IO29	SAI7_MCLK								SPDIF1_IN	NOT “E”
P2-86	ENET_RD0	GPIO1_IO26	SAI7_RXD0									NOT “E”
P2-88	SAI2_RXFS	GPIO4_IO21	SAI5_TXFS				UART1_TX					Always
P2-89	ECSPI2_MISO	GPIO5_IO12	SAI7_MCLK			I2C4_SCL	UART4_CTS_B	ECSPI2_MISO				Always
P2-90	I2C4_SCL	GPIO5_IO20				I2C4_SCL		ECSPI2_MISO	PWM2_OUT			Always
P2-91	ECSPI2_SS0	GPIO5_IO13				I2C4_SDA	UART4_RTS_B	ECSPI2_SS0				Always
P2-92	SD2_CD_B	GPIO2_IO12			SD2_CD_B							Always
P2-93	ECSPI2_SCLK	GPIO5_IO10	SAI7_TXC			I2C3_SCL	UART4_RXD	ECSPI2_SCLK				Always
P2-94	SD2_DATA2	GPIO2_IO17			SD2_DATA2			ECSPI2_SS0			SPDIF1_OUT	Always
P2-95	ECSPI2_MOSI	GPIO5_IO11	SAI7_TXD0			I2C3_SDA	UART4_TXD	ECSPI2_MOSI				Always
P2-96	SD2_CLK	GPIO2_IO13			SD2_CLK		UART4_RXD	ECSPI2_SCLK				Always
P2-97	SD2_DATA0	GPIO2_IO15			SD2_DATA0	I2C4_SDA	UART2_RXD					Always
P2-98	SD2_DATA3	GPIO2_IO18			SD2_DATA3			ECSPI2_MISO			SPDIF1_IN	Always
P2-99	SD2_DATA1	GPIO2_IO16			SD2_DATA1	I2C4_SCL	UART2_TXD					Always
P2-100	SD2_CMD	GPIO2_IO14			SD2_CMD		UART4_TXD	ECSPI2_MOSI				Always