

efusMX8X GPIO Reference Card

V1.1

11.08.2022

Pin layout for Board Rev. 1.0, 1.1

J1	Function	Device	GPIO	Mode	/sys/class/gpio/gpio#	efus-SINTF V1.30
1	V5					
2	V5					
3	V5					
4	V5					
5	V5					
6	V5					
7	GND					
8	GND					
9	VBAT					
10	V33_OUT					
11	-					
12	/RESET_IN	RESET	-	I	-	(J22_10)
13	-					
14	/RESET_OUT	GPIO	GPIO1_IO00	IO	32	J22_8
15	UART_C_RXD	UART1	GPIO0_IO22	IO	22	(J16_5 / J16_6)
16	SD_A_WP	SD1	GPIO4_IO21	IO	149	-
17	UART_C_TXD	UART1	GPIO0_IO21	IO	21	(J16_5 / J16_6)
18	SD_A_CD	SD1	GPIO4_IO22	IO	150	Micro-SD J24
19	UART_C_RTS(2)	UART1	-	IO	-	(J16_5 / J16_6)
20	SD_A_DAT2	SD1	GPIO4_IO27	IO	155	Micro-SD J24_1
21	UART_C_CTS	UART1	GPIO0_IO24	IO	24	-
22	SD_A_DAT3	SD1	GPIO4_IO28	IO	156	Micro-SD J24_2
23	PWM_B(2)	MIPI_DSI1	GPIO1_IO31	IO	63	J22_30
24	SD_A_CMD	SD1	GPIO4_IO24	IO	152	Micro-SD J24_3
25	PWM_A(1)	MIPI_DSI0	GPIO1_IO27	IO	59	J22_32
26	SD_A_VCC	V33	-	O	-	Micro-SD J24_4
27	GND					
28	SD_A_CLK	SD1	GPIO4_IO23	IO	151	Micro-SD J24_5
29	CAN_A_TX	FLEXCAN1	GPIO1_IO18	IO	50	(J13_3 / J13_4)
30	GND					
31	CAN_A_RX	FLEXCAN1	GPIO1_IO17	IO	49	(J13_3 / J13_4)
32	SD_A_DAT0	SD4	GPIO4_IO25	IO	153	Micro-SD J24_7
33	GND					
34	SD_A_DAT1	SD4	GPIO4_IO26	IO	154	Micro-SD J24_8
35	CAN_B_TX	FLEXCAN2	GPIO1_IO20	IO	52	J13_55 / (J13_56)
36	RESERVED1	ADC	GPIO1_IO10	IO	42	J22_15
37	CAN_B_RX	FLEXCAN2	GPIO1_IO19	IO	51	J13_56 / (J13_55)
38	RESERVED2	ADC	GPIO1_IO09	IO	41	J22_18
39	GND					
40	RESERVED3	ADC	GPIO1_IO12	IO	44	J22_17
41	MPCIE_CTX_P	-	-	-	-	J17_33
42	RESERVED4	ADC	GPIO1_IO11	IO	43	J22_20

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43	MPCIE_CTX_N	-	-	-	-	J17_31
44	RESERVED5	ADC	GPIO1_IO14	IO	46	J22_19
45	GND					
46	GND					
47	MPCIE_CRX_P	-	-	-	-	J17_25
48	/EXT_PROG	BOOT_MODE0	-	-	-	J22_57
49	MPCIE_CRX_N	-	-	-	-	J17_23
50	SPI_B_MISO	SPI3	GPIO0_IO15	IO	15	J22_23
51	GND					
52	SPI_B_MOSI	SPI3	GPIO0_IO14	IO	14	J22_24
53	MPCIE_CLK_P	-	-	-	-	J17_13
54	SPI_B_CLK	SPI3	GPIO0_IO13	IO	13	J22_25
55	MPCIE_CLK_N	-	-	-	-	J17_11
56	SPI_B_CS1	SPI3	GPIO0_IO16	IO	16	J22_26
57	GND					
58	SPI_B_CS2	SPI3	-	-	-	J22_27
59	MPCIE_PERST	-	-	-	-	J17_22
60	SPI_B_IRQ1	GPIO	GPIO3_IO00	IO	96	J22_28
61	MPCIE_WAKE	-	-	-	-	J17_1
62	SPI_B_IRQ2	GPIO	GPIO3_IO13	IO	109	J22_29
63	GND					
64	GND					
65	SD_B_DAT2	-	-	-	-	SD J23_9
66	SPI_A_MISO	SPI0	GPIO1_IO05	IO	37	J22_33
67	SD_B_DAT3	-	-	-	-	SD J23_1
68	SPI_A_MOSI	SPI0	GPIO1_IO06	IO	38	J22_34
69	SD_B_CMD	-	-	-	-	SD J23_2
70	SPI_A_CLK	SPI0	GPIO1_IO04	IO	36	J22_35
71	SD_B_VCC	-	-	-	-	SD J23_4
72	SPI_A_CS1	SPI0	GPIO1_IO08	IO	40	J22_36
73	SD_B_CLK	-	-	-	-	SD J23_5
74	SPI_A_CS2	SPI0	GPIO1_IO07	IO	39	J22_37
75	GND					
76	SPI_A_IRQ1	GPIO	GPIO0_IO31	IO	31	J22_38
77	SD_B_DAT0	-	-	-	-	SD J23_7
78	SPI_A_IRQ2	GPIO	GPIO3_IO01	IO	97	J22_39
79	SD_B_DAT1	-	-	-	-	SD J23_8
80	GND					
81	SD_B_WP	-	-	-	-	SD J23_11
82	I2C_B_SDA	I2C2	-	-	-	J22_45
83	SD_B_CD	-	-	-	-	SD J23_12
84	I2C_B_SCL	I2C2	GPIO1_IO31	IO	63	J22_46
85	GND					

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86	I2C_B_IRQ	GPIO	GPIO4_IO19	IO	147	J22_48
87	BL_CTRL	MIPI_DSI0	GPIO1_IO27	IO	59	J3_10
88	/I2C_B_RST	GPIO	GPIO1_IO03	IO	35	J22_47
89	BL_VBL_ON	GPIO	GPIO3_IO24	IO	120	J3_9 / (J3_7 / J3_8)
90	GND					
91	GND					
92	UART_A_RXD	UART2	GPIO1_IO24	IO	56	(J14_3)
93	LCD_CLK	-	-	-	-	J2X_4
94	UART_A_TXD	UART2	GPIO1_IO23	IO	55	(J14_5)
95	GND					
96	UART_D_RXD	UART3	GPIO2_IO03	IO	419	J22_14
97	LCD_HSYNC	-	-	-	-	J2X_5
98	UART_D_TXD	UART3	-	-	-	J22_16
99	LCD_VSYNC	-	-	-	-	J2X_6
100	GND					
101	GND					
102	UART_B_RXD	UART0	GPIO1_IO21	IO	53	(J15_3)
103	LCD_R0	GPIO	GPIO3_IO15	IO	111	J2X_8
104	UART_B_TXD	UART0	GPIO1_IO22	IO	54	(J15_5)
105	LCD_R1	GPIO	GPIO3_IO22	IO	118	J2X_9
106	UART_B_RTS	UART0	GPIO1_IO15	IO	47	(J15_4)
107	LCD_R2	-	-	-	-	J2X_10
108	UART_B_CTS	UART0	GPIO1_IO16	IO	48	(J15_6)
109	LCD_R3	-	-	-	-	J2X_11
110	GND					
111	LCD_R4	-	-	-	-	J2X_12
112	I2S_MCLK	MCLK	GPIO0_IO20	IO	20	-
113	LCD_R5	-	-	-	-	J2X_13
114	GND					
115	GND					
116	I2S_LRCLK	SAI0	GPIO0_IO28	IO	28	-
117	LCD_G0	-	-	-	-	J2X_15
118	GND					
119	LCD_G1	-	-	-	-	J2X_16
120	I2S_SCLK	SAI0	GPIO0_IO26	IO	26	-
121	LCD_G2	-	-	-	-	J2X_17
122	GND					
123	LCD_G3	-	-	-	-	J2X_18
124	I2S_DOUT	SAI0	GPIO0_IO25	IO	25	-
125	LCD_G4	-	-	-	-	J2X_19
126	I2S_DIN	SAI0	GPIO0_IO27	IO	27	-
127	LCD_G5	-	-	-	-	J2X_20
128	GND					

J1	Function	Device	GPIO	Mode	/sys/class/gpio/gpio#	efus-SINTF V1.30
129	GND					
130	I2C_C_SDA	I2C3	GPIO3_IO03	IO	99	J18_3 / J20_14
131	LCD_B0	-	-	-	-	J2X_22
132	I2C_C_SCL	I2C3	GPIO3_IO02	IO	98	J18_5 / J20_13
133	LCD_B1	-	-	-	-	J2X_23
134	LVDS_DDC_VOUT	V33	-	-	-	J27_20
135	LCD_B2	-	-	-	-	J2X_24
136	GND					
137	LCD_B3	-	-	-	-	J2X_25
138	LVDS_DATA2_P(3)	LVDS	-	-	-	J6_1 / J27_1
139	LCD_B4	-	-	-	-	J2X_26
140	LVDS_DATA2_N(3)	LVDS	-	-	-	J6_3 / J27_3
141	LCD_B5	-	-	-	-	J2X_27
142	LVDS_DATA1_P(3)	LVDS	-	-	-	J6_4 / J27_4
143	GND					
144	LVDS_DATA1_N(3)	LVDS	-	-	-	J6_6 / J27_6
145	LCD_DE	-	-	-	-	J2X_29
146	LVDS_DATA0_P(3)	LVDS	-	-	-	J6_7 / J27_7
147	GND					
148	LVDS_DATA0_N(3)	LVDS	-	-	-	J6_9 / J27_9
149	VLCD_ON	GPIO	GPIO1_IO30	IO	62	J2X_30 / J2X_31
150	LVDS_CLK_P(3)	LVDS	-	-	-	J6_10 / J27_10
151	I2C_A_SDA	I2C1	GPIO4_IO06	IO	134	J22_41 / J2X_32
152	LVDS_CLK_N(3)	LVDS	-	-	-	J6_12 / J27_12
153	I2C_A_IRQ	GPIO	GPIO1_IO02	IO	34	J22_44 / J2X_33
154	LVDS_DATA3_P(3)	LVDS	-	-	-	J27_15
155	I2C_A_SCL	I2C1	GPIO4_IO04	IO	132	J22_42 / J2X_34
156	LVDS_DATA3_N(3)	LVDS	-	-	-	J27_17
157	/I2C_A_RST	GPIO	GPIO1_IO01	IO	33	J22_43
158	-	-	-	-	-	-
159	GND					
160	GND					
161	CAM_YDATA0	MIPI_CSI0	-	-	-	J18_24 / (J20_2)
162	ETH_B_D4-	RGMI12 (PHY)	-	-	-	J10A_9
163	CAM_YDATA1	MIPI_CSI0	-	-	-	J18_23 / (J20_3)
164	ETH_B_D4+	RGMI12 (PHY)	-	-	-	J10A_8
165	CAM_YDATA4	MIPI_CSI0	-	-	-	J18_22 / (J20_5)
166	ETH_B_LED_ACT	RGMI12 (PHY)	-	-	-	(J10_LED2)
167	CAM_YDATA3	MIPI_CSI0	-	-	-	J18_21 / (J20_6)
168	ETH_B_D3-	RGMI12 (PHY)	-	-	-	J10A_7
169	CAM_YDATA5	MIPI_CSI0	-	-	-	J18_20
170	ETH_B_D3+	RGMI12 (PHY)	-	-	-	J10A_6

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171	CAM_YDATA2	MIPI_CSI0	-	-	-	J18_19
172	GND					
173	CAM_YDATA6	MIPI_CSI0	-	-	-	J18_18
174	ETH_B_D2-	RGMI2 (PHY)	-	-	-	J10A_5
175	CAM_PCLK	MIPI_CSI0	-	-	-	J18_17
176	ETH_B_D2+	RGMI2 (PHY)	-	-	-	J10A_4
177	CAM_YDATA7	MIPI_CSI0	-	-	-	J18_16 / (J20_8)
178	ETH_B_LED_LINK	RGMI2 (PHY)	-	-	-	(J10_LED1)
179	CAM_YDATA8	MIPI_CSI0	-	-	-	J18_14 / (J20_9)
180	ETH_B_D1-	RGMI2 (PHY)	-	-	-	J10A_3
181	GND					
182	ETH_B_D1+	RGMI2 (PHY)	-	-	-	J10A_2
183	CAM_MCLK	MCLK	GPIO3_IO04	IO	100	J18_13 / J20_12
184	GND					
185	GND					
186	ETH_CTREF	-	-	-	-	J10A_1 / J11A_1
187	CAM_YDATA9	-	-	-	-	J18_12
188	ETH_A_D4-	RGMI1 (PHY)	-	-	-	J11A_9
189	CAM_VCAM	V18	-	O	-	J18_4+11 / J20_15
190	ETH_A_D4+	RGMI1 (PHY)	-	-	-	J11A_8
191	CAM_HREF	MIPI_CSI0	GPIO3_IO05	IO	101	J18_9
192	ETH_A_LED_ACT	RGMI1 (PHY)	-	-	-	(J11_LED2)
193	CAM_PWDN	GPIO	GPIO3_IO08	IO	104	J18_8 / J20_11
194	ETH_A_D3-	RGMI1 (PHY)	-	-	-	J11A_7
195	CAM_VSYNC	MIPI_CSI0	GPIO3_IO06	IO	102	J18_7
196	ETH_A_D3+	RGMI1 (PHY)	-	-	-	J11A_6
197	/CAM_RST	GPIO	GPIO3_IO07	IO	103	J18_6
198	ETH_VLED_OUT	V33	-	O	-	-
199	GND					
200	ETH_A_D2-	RGMI1 (PHY)	-	-	-	J11A_5
201	SATA_RX_P	-	-	-	-	SATA J21_6
202	ETH_A_D2+	RGMI1 (PHY)	-	-	-	J11A_4
203	SATA_RX_N	-	-	-	-	SATA J21_5
204	ETH_A_LED_LINK	RGMI1 (PHY)	-	-	-	(J11_LED1)
205	SATA_TX_N	-	-	-	-	SATA J21_3
206	ETH_A_D1-	RGMI1 (PHY)	-	-	-	J11A_3
207	SATA_TX_P	-	-	-	-	SATA J21_2
208	ETH_A_D1+	RGMI1 (PHY)	-	-	-	J11A_2
209	GND					
210	GND					
211	CAM_A_IN	-	-	-	-	J19_2
212	USBH_A_PWR	USB_OTG2 (HUB)	-	-	-	(USB J7_1)

J1	Function	Device	GPIO	Mode	/sys/class/gpio/gpio#	efus-SINTF V1.30
213	CAM_A_GND	-	-	-	-	J19_1
214	USBH_A_DN	USB_OTG2 (HUB)	-	-	-	(USB J7_2)
215	GND					
216	USBH_A_DP	USB_OTG2 (HUB)	-	-	-	(USB J7_3)
217	USB_D_VBUS	USB_OTG1	-	-	-	Mini-USB J9_1
218	GND					
219	USB_D_PWR	USB_OTG1	GPIO4_IO03	IO	131	(Mini-USB J9_1)
220	USBH_A_SSRX_N	USB_SS3	-	-	-	-
221	USB_D_OC	USB_OTG1	GPIO4_IO05	IO	133	-
222	USBH_A_SSRX_P	USB_SS3	-	-	-	-
223	USB_D_ID	USB_OTG1	-	-	-	Mini-USB J9_4
224	GND					
225	USB_D_DN	USB_OTG1	-	-	-	Mini-USB J9_2
226	USBH_A_SSTX_N	USB_SS3	-	-	-	-
227	USB_D_DP	USB_OTG1	-	-	-	Mini-USB J9_3
228	USBH_A_SSTX_P	USB_SS3	-	-	-	-
229	GND					
230	GND					

- (1) On efusMX8X PWM_A (pin 25) is only available if not used for BL_CTRL (pin 87). This is a hardware option.
- (2) On efusMX8X PWM_B (pin 23) is only available if not used for I2C_B_CLK (pin 84). This is a hardware option.
- (3) LVDS is available on the goldfinger connector only as a hardware option. The regular output is on the LVDS connector on the module itself.

Remark

The GPIO Reference Card is a software development tool. It lists the numbers needed for accessing GPIO ports in Linux under `/sys/class/gpio`. Pin names are given from the software point of view. For example the names of the LCD color signals indicate that the least significant two bits 0 and 1 are missing and only bits 2 to 7 are available. This differs from the Hardware Documentation where the bits are numbered from 0 to 5. Please refer to the efusMX8X Hardware Documentation for hardware development.