

efusA9X GPIO Reference Card

V1.3

13.10.2017

Pin layout for Board Rev. 1.2x

J1	Function	Device	GPIO	Mode	/sys/class/gpio/gpio#	efus-SINTF V1.20
1	V5					
2	V5					
3	V5					
4	V5					
5	V5					
6	V5					
7	GND					
8	GND					
9	VBAT					
10	V33_OUT					
11	USBD_CHD	USB DEVICE	-	I	-	J22_9
12	/RESET_IN	RESET	-	I	-	(J22_10)
13	-					
14	/RESET_OUT	GPIO	GPIO2_IO01	IO	33	J22_8
15	UART_C_RXD	UART5	GPIO2_IO18	IO	50	(J16_5 / J16_6)
16	SD_A_WP(1)	SD4	GPIO6_IO20	IO	180	-
17	UART_C_TXD	UART5	GPIO2_IO13	IO	45	(J16_5 / J16_6)
18	SD_A_CD(1)	SD4	GPIO6_IO21	IO	181	Micro-SD J24
19	UART_C_RTS(2)	UART5	GPIO2_IO17	IO	49	(J16_5 / J16_6)
20	SD_A_DAT2(1)	SD4	GPIO6_IO16	IO	176	Micro-SD J24_1
21	UART_C_CTS	UART5	GPIO2_IO12	IO	44	-
22	SD_A_DAT3(1)	SD4	GPIO6_IO17	IO	177	Micro-SD J24_2
23	-					
24	SD_A_CMD(1)	SD4	GPIO6_IO13	IO	173	Micro-SD J24_3
25	PWM_A	PWM5	GPIO3_IO24	IO	88	J22_32
26	SD_A_VCC	V33	-	O	-	Micro-SD J24_4
27	GND					
28	SD_A_CLK(1)	SD4	GPIO6_IO12	IO	172	Micro-SD J24_5
29	CAN_A_TX	FLEXCAN1	GPIO7_IO07	IO	199	(J13_3 / J13_4)
30	GND					
31	CAN_A_RX	FLEXCAN1	GPIO7_IO09	IO	201	(J13_3 / J13_4)
32	SD_A_DAT0(1)	SD4	GPIO6_IO14	IO	174	Micro-SD J24_7
33	GND					
34	SD_A_DAT1(1)	SD4	GPIO6_IO15	IO	175	Micro-SD J24_8
35	CAN_B_TX	FLEXCAN2	GPIO7_IO08	IO	200	J13_55 / (J13_56)
36	TAMPER	-	-	-	-	J22_15
37	CAN_B_RX	FLEXCAN2	GPIO7_IO06	IO	198	J13_56 / (J13_55)
38	ADC_D	ADC	-	-	-	J22_18
39	GND					
40	ADC_C	ADC	-	-	-	J22_17
41	MPCIE_CTX_P	PCIe	-	-	-	J17_33
42	ADC_B	ADC	-	-	-	J22_20

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43	MPCIE_CTX_N	PCIe	-	-	-	J17_31
44	ADC_A	ADC	-	-	-	J22_19
45	GND					
46	GND					
47	MPCIE_CRX_P	PCIe	-	-	-	J17_25
48	/EXT_PROG	BOOT_MODE0	-	-	-	J22_57
49	MPCIE_CRX_N	PCIe	-	-	-	J17_23
50	SPI_B_MISO	SPI1	GPIO4_IO17	IO	113	J22_23
51	GND					
52	SPI_B_MOSI	SPI1	GPIO4_IO16	IO	112	J22_24
53	MPCIE_CLK_P	PCIe	-	-	-	J17_13
54	SPI_B_CLK(4)	SPI1	GPIO4_IO21	IO	117	J22_25
55	MPCIE_CLK_N	PCIe	-	-	-	J17_11
56	SPI_B_CS1(4)	SPI1	GPIO4_IO22	IO	118	J22_26
57	GND					
58	SPI_B_CS2(2)	SPI1	GPIO2_IO17	IO	49	J22_27
59	MPCIE_PERST	GPIO	GPIO2_IO01	IO	-	J17_22
60	SPI_B_IRQ1	GPIO	GPIO1_IO13	IO	13	J22_28
61	MPCIE_WAKE	GPIO	GPIO2_IO00	IO	-	J17_1
62	SPI_B_IRQ2	GPIO	GPIO4_IO19	IO	115	J22_29
63	GND					
64	GND					
65	SD_B_DAT2	SD2	GPIO6_IO10	IO	170	SD J23_9
66	SPI_A_MISO	SPI5	GPIO4_IO23	IO	119	J22_33
67	SD_B_DAT3	SD2	GPIO6_IO11	IO	171	SD J23_1
68	SPI_A_MOSI	SPI5	GPIO4_IO20	IO	116	J22_34
69	SD_B_CMD	SD2	GPIO6_IO07	IO	167	SD J23_2
70	SPI_A_CLK	SPI5	GPIO4_IO31	IO	127	J22_35
71	SD_B_VCC	V33	-	O	-	SD J23_4
72	SPI_A_CS1	SPI5	GPIO4_IO28	IO	124	J22_36
73	SD_B_CLK	SD2	GPIO6_IO06	IO	166	SD J23_5
74	SPI_A_CS2	SPI5	GPIO4_IO18	IO	114	J22_37
75	GND					
76	SPI_A_IRQ1	GPIO	GPIO2_IO15	IO	47	J22_38
77	SD_B_DAT0	SD2	GPIO6_IO08	IO	168	SD J23_7
78	SPI_A_IRQ2	GPIO	GPIO2_IO10	IO	42	J22_39
79	SD_B_DAT1	SD2	GPIO6_IO09	IO	169	SD J23_8
80	GND					
81	SD_B_WP	SD2	GPIO1_IO07	IO	7	SD J23_11
82	I2C_B_SDA	I2C3	GPIO2_IO19	IO	51	J22_45
83	SD_B_CD	SD2	GPIO1_IO06	IO	6	SD J23_12
84	I2C_B_SCL	I2C3	GPIO2_IO14	IO	46	J22_46
85	GND					

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86	I2C_B_IRQ	GPIO	GPIO7_IO01	IO	193	J22_48
87	BL_CTRL	PWM6	GPIO3_IO23	IO	87	J3_10
88	/I2C_B_RST	GPIO	GPIO3_IO22	IO	86	J22_47
89	BL_VBL_ON	GPIO	GPIO3_IO20	IO	84	J3_9 / (J3_7 / J3_8)
90	GND					
91	GND					
92	UART_A_RXD	UART1	GPIO1_IO05	IO	5	(J14_3)
93	LCD_CLK	LCD1	GPIO3_IO00	IO	64	J2X_4
94	UART_A_TXD	UART1	GPIO1_IO04	IO	4	(J14_5)
95	GND					
96	UART_D_RXD	UART6	GPIO2_IO16	IO	48	J22_14
97	LCD_HSYNC	LCD1	GPIO3_IO26	IO	90	J2X_5
98	UART_D_TXD	UART6	GPIO2_IO11	IO	43	J22_16
99	LCD_VSYNC	LCD1	GPIO3_IO28	IO	92	J2X_6
100	GND					
101	GND					
102	UART_B_RXD	UART3	GPIO4_IO29	IO	125	(J15_3)
103	LCD_R0	LCD1	GPIO3_IO13	IO	77	J2X_8
104	UART_B_TXD	UART3	GPIO4_IO30	IO	126	(J15_5)
105	LCD_R1	LCD1	GPIO3_IO14	IO	78	J2X_9
106	UART_B_RTS	UART3	GPIO4_IO24	IO	120	(J15_4)
107	LCD_R2	LCD1	GPIO3_IO15	IO	79	J2X_10
108	UART_B_CTS	UART3	GPIO4_IO25	IO	121	(J15_6)
109	LCD_R3	LCD1	GPIO3_IO16	IO	80	J2X_11
110	GND					
111	LCD_R4	LCD1	GPIO3_IO17	IO	81	J2X_12
112	I2S_MCLK	CLKO1	GPIO2_IO03	IO	35	-
113	LCD_R5	LCD1	GPIO3_IO18	IO	82	J2X_13
114	GND					
115	GND					
116	I2S_LRCLK	AUD6	GPIO7_IO04	IO	196	-
117	LCD_G0	LCD1	GPIO3_IO07	IO	71	J2X_15
118	GND					
119	LCD_G1	LCD1	GPIO3_IO08	IO	72	J2X_16
120	I2S_SCLK	AUD6	GPIO7_IO03	IO	195	-
121	LCD_G2	LCD1	GPIO3_IO09	IO	73	J2X_17
122	GND					
123	LCD_G3	LCD1	GPIO3_IO10	IO	74	J2X_18
124	I2S_DOUT	AUD6	GPIO7_IO02	IO	194	-
125	LCD_G4	LCD1	GPIO3_IO11	IO	75	J2X_19
126	I2S_DIN	AUD6	GPIO7_IO05	IO	197	-
127	LCD_G5	LCD1	GPIO3_IO12	IO	76	J2X_20
128	GND					

J1	Function	Device	GPIO	Mode	/sys/class/gpio/gpio#	efus-SINTF V1.20
129	GND					
130	I2C_C_SDA	I2C1	GPIO1_IO01	IO	1	J18_3 / J20_14
131	LCD_B0	LCD1	GPIO3_IO01	IO	65	J2X_22
132	I2C_C_SCL	I2C1	GPIO1_IO00	IO	0	J18_5 / J20_13
133	LCD_B1	LCD1	GPIO3_IO02	IO	66	J2X_23
134	DVI_DDC_VOUT	V33	-	-	-	-
135	LCD_B2	LCD1	GPIO3_IO03	IO	67	J2X_24
136	GND					
137	LCD_B3	LCD1	GPIO3_IO04	IO	68	J2X_25
138	LVDS_DATA2_P(3)	LVDS	-	-	-	-
139	LCD_B4	LCD1	GPIO3_IO05	IO	69	J2X_26
140	LVDS_DATA2_N(3)	LVDS	-	-	-	-
141	LCD_B5	LCD1	GPIO3_IO06	IO	70	J2X_27
142	LVDS_DATA1_P(3)	LVDS	-	-	-	-
143	GND					
144	LVDS_DATA1_N(3)	LVDS	-	-	-	-
145	LCD_DE	LCD1	GPIO3_IO25	IO	89	J2X_29
146	LVDS_DATA0_P(3)	LVDS	-	-	-	-
147	GND					
148	LVDS_DATA0_N(3)	LVDS	-	-	-	-
149	LCD_VLCD_ON	GPIO	GPIO3_IO19	IO	83	J2X_30 / J2X_31
150	LVDS_CLK_P(3)	LVDS	-	-	-	-
151	I2C_A_SDA	I2C2	GPIO4_IO26	IO	122	J22_41 / J2X_32
152	LVDS_CLK_N(3)	LVDS	-	-	-	-
153	I2C_A_IRQ	GPIO	GPIO7_IO00	IO	192	J22_44 / J2X_33
154	LVDS_DATA3_P(3)	LVDS	-	-	-	-
155	I2C_A_SCL	I2C2	GPIO4_IO27	IO	123	J22_42 / J2X_34
156	LVDS_DATA3_N(3)	LVDS	-	-	-	-
157	/I2C_A_RST	GPIO	GPIO3_IO21	IO	85	J22_43
158	-	-	-	-	-	-
159	GND					
160	GND					
161	CAM_YDATA0(4)	CSI1	GPIO4_IO22	IO	118	J18_24 / (J20_2)
162	ETH_B_D4-	RGMI2 (PHY)	-	-	-	J10A_9
163	CAM_YDATA1(4)	CSI1	GPIO4_IO21	IO	117	J18_23 / (J20_3)
164	ETH_B_D4+	RGMI2 (PHY)	-	-	-	J10A_8
165	CAM_YDATA4	CSI1	GPIO1_IO16	IO	16	J18_22 / (J20_5)
166	ETH_B_LED_ACT	RGMI2 (PHY)	-	-	-	(J10_LED2)
167	CAM_YDATA3	CSI1	GPIO1_IO15	IO	15	J18_21 / (J20_6)
168	ETH_B_D3-	RGMI2 (PHY)	-	-	-	J10A_7
169	CAM_YDATA5	CSI1	GPIO1_IO17	IO	17	J18_20
170	ETH_B_D3+	RGMI2 (PHY)	-	-	-	J10A_6
171	CAM_YDATA2	CSI1	GPIO1_IO14	IO	14	J18_19

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172	GND					
173	CAM_YDATA6	CSI1	GPIO1_IO18	IO	18	J18_18
174	ETH_B_D2-	RGMI2 (PHY)	-	-	-	J10A_5
175	CAM_PCLK	CSI1	GPIO1_IO24	IO	24	J18_17
176	ETH_B_D2+	RGMI2 (PHY)	-	-	-	J10A_4
177	CAM_YDATA7	CSI1	GPIO1_IO19	IO	19	J18_16 / (J20_8)
178	ETH_B_LED_LINK	RGMI2 (PHY)	-	-	-	(J10_LED1)
179	CAM_YDATA8	CSI1	GPIO1_IO20	IO	20	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	GPIO1_IO23	IO	23	J18_13 / J20_12
184	GND					
185	GND					
186	ETH_CTREF	-	-	-	-	J10A_1 / J11A_1
187	CAM_YDATA9	CSI1	GPIO1_IO21	IO	21	J18_12
188	ETH_A_D4-	RGMI1 (PHY)	-	-	-	J11A_9
189	CAM_VCAM	V28	-	O	-	J18_4+11 / J20_15
190	ETH_A_D4+	RGMI1 (PHY)	-	-	-	J11A_8
191	CAM_HREF	CSI1	GPIO1_IO22	IO	22	J18_9
192	ETH_A_LED_ACT	RGMI1 (PHY)	-	-	-	(J11_LED2)
193	CAM_PWDN	GPIO				J18_8 / J20_11
194	ETH_A_D3-	RGMI1 (PHY)	-	-	-	J11A_7
195	CAM_VSYNC	CSI1	GPIO1_IO25	IO	25	J18_7
196	ETH_A_D3+	RGMI1 (PHY)	-	-	-	J11A_6
197	/CAM_RST	GPIO	GPIO3_IO27	IO	91	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	CAM_C_IN	VADC_IN2	-	-	-	SATA J21_3
206	ETH_A_D1-	RGMI1 (PHY)	-	-	-	J11A_3
207	CAM_B_IN	VADC_IN1	-	-	-	SATA J21_2
208	ETH_A_D1+	RGMI1 (PHY)	-	-	-	J11A_2
209	GND					
210	GND					
211	CAM_A_IN	VADC_IN0	-	-	-	J19_2
212	USBH_A_PWR	USB_OTG2	GPIO1_IO12	IO	12	(USB J7_1)
213	CAM_A_GND	-	-	-	-	J19_1
214	USBH_A_DN	USB_OTG2	-	-	-	(USB J7_2)

J1	Function	Device	GPIO	Mode	/sys/class/gpio/gpio#	efus-SINTF V1.20
215	GND					
216	USBH_A_DP	USB_OTG2	-	-	-	(USB J7_3)
217	USBH_VBUS	USB_OTG1	-	-	-	Mini-USB J9_1
218	GND					
219	USBH_PWR	USB_OTG1	GPIO1_IO09	IO	9	(Mini-USB J9_1)
220	USBH_A_SSRX_N	-	-	-	-	-
221	USBH_OC	USB_OTG1	GPIO1_IO08	IO	8	-
222	USBH_A_SSRX_P	-	-	-	-	-
223	USBH_ID	USB_OTG1	GPIO1_IO10	IO	10	Mini-USB J9_4
224	GND					
225	USBH_DN	USB_OTG1	-	-	-	Mini-USB J9_2
226	USBH_A_SSTX_N	-	-	-	-	-
227	USBH_DP	USB_OTG1	-	-	-	Mini-USB J9_3
228	USBH_A_SSTX_P	-	-	-	-	-
229	GND					
230	GND					

- (1) On efusA9X, SD_A is only available if on-board eMMC is not equipped. This is a hardware option.
- (2) On efusA9X, SPI_B has only a second chip select (pin 58), if UART_C does not use RTS/CTS (pin 19). 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.
- (4) On efusA9X, if camera uses 10 bit resolution (pins 161+163), SPI_B (pins 54+56) can not be used. This is a hardware option.

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 efusA9X Hardware Documentation for hardware development.