

# efusA9 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       | GPIO1_IO26      | IO   | 26                    | J22_8             |
| 15 | UART_C_RXD  | UART1      | GPIO5_IO29      | IO   | 157                   | (J16_5 / J16_6)   |
| 16 | SD_A_WP     | SD1        | GPIO4_IO20      | IO   | 116                   | -                 |
| 17 | UART_C_TXD  | UART1      | GPIO5_IO28      | IO   | 156                   | (J16_5 / J16_6)   |
| 18 | SD_A_CD     | SD1        | GPIO1_IO01      | IO   | 1                     | Micro-SD J24      |
| 19 | UART_C_RTS  | UART1      | GPIO3_IO19      | IO   | 83                    | (J16_5 / J16_6)   |
| 20 | SD_A_DAT2   | SD1        | GPIO1_IO19      | IO   | 19                    | Micro-SD J24_1    |
| 21 | UART_C_CTS  | UART1      | GPIO3_IO20      | IO   | 84                    | -                 |
| 22 | SD_A_DAT3   | SD1        | GPIO1_IO21      | IO   | 21                    | Micro-SD J24_2    |
| 23 | PWM_B       | PWM        | (not available) | -    | -                     | J22_30            |
| 24 | SD_A_CMD    | SD1        | GPIO1_IO18      | IO   | 18                    | Micro-SD J24_3    |
| 25 | PWM_A       | PWM4       | GPIO2_IO10      | IO   | 42                    | J22_32            |
| 26 | SD_A_VCC    | V33        | -               | O    | -                     | Micro-SD J24_4    |
| 27 | GND         |            |                 |      |                       |                   |
| 28 | SD_A_CLK    | SD1        | GPIO1_IO20      | IO   | 20                    | Micro-SD J24_5    |
| 29 | CAN_A_TX    | FLEXCAN2   | GPIO4_IO14      | IO   | 110                   | (J13_3 / J13_4)   |
| 30 | GND         |            |                 |      |                       |                   |
| 31 | CAN_A_RX    | FLEXCAN2   | GPIO4_IO15      | IO   | 111                   | (J13_3 / J13_4)   |
| 32 | SD_A_DAT0   | SD1        | GPIO1_IO16      | IO   | 16                    | Micro-SD J24_7    |
| 33 | GND         |            |                 |      |                       |                   |
| 34 | SD_A_DAT1   | SD1        | GPIO1_IO17      | IO   | 17                    | Micro-SD J24_8    |
| 35 | CAN_B_TX    | FLEXCAN1   | GPIO4_IO10      | IO   | 106                   | J13_55 / (J13_56) |
| 36 | TAMPER      | -          | (not available) | -    | -                     | J22_15            |
| 37 | CAN_B_RX    | FLEXCAN1   | GPIO4_IO11      | IO   | 107                   | J13_56 / (J13_55) |
| 38 | ADC_D       | ADC        | (not available) | -    | -                     | J22_18            |
| 39 | GND         |            |                 |      |                       |                   |
| 40 | ADC_C       | ADC        | (not available) | -    | -                     | J22_17            |
| 41 | MPCIE_CTX_P | PCle       | -               | O    | -                     | J17_33            |

| J1 | Function        | Device     | GPIO            | Mode | /sys/class/gpio/gpio# | efus-SINTF V1.20 |
|----|-----------------|------------|-----------------|------|-----------------------|------------------|
| 42 | ADC_B           | ADC        | (not available) | -    | -                     | J22_20           |
| 43 | MPCIE_CTX_N     | PCle       | -               | O    | -                     | J17_31           |
| 44 | ADC_A           | ADC        | (not available) | -    | -                     | J22_19           |
| 45 | GND             |            |                 |      |                       |                  |
| 46 | GND             |            |                 |      |                       |                  |
| 47 | MPCIE_CRX_P     | PCle       | -               | I    | -                     | J17_25           |
| 48 | /EXT_PROG       | BOOT_MODE0 | -               | I    | -                     | J22_57           |
| 49 | MPCIE_CRX_N     | PCle       | -               | I    | -                     | J17_23           |
| 50 | SPI_B_MISO      | SPI1       | GPIO3_IO17      | IO   | 81                    | J22_23           |
| 51 | GND             |            |                 |      |                       |                  |
| 52 | SPI_B_MOSI      | SPI1       | GPIO3_IO18      | IO   | 82                    | J22_24           |
| 53 | MPCIE_CLK_P     | PCle       | -               | O    | -                     | J17_13           |
| 54 | SPI_B_CLK       | SPI1       | GPIO3_IO16      | IO   | 80                    | J22_25           |
| 55 | MPCIE_CLK_N     | PCle       | -               | O    | -                     | J17_11           |
| 56 | SPI_B_CS1       | SPI1       | GPIO3_IO24      | IO   | 88                    | J22_26           |
| 57 | GND             |            |                 |      |                       |                  |
| 58 | SPI_B_CS2       | SPI1       | GPIO3_IO25      | IO   | 89                    | J22_27           |
| 59 | MPCIE_PERST (2) | GPIO       | GPIO6_IO14      | IO   | 174                   | J17_22           |
| 60 | SPI_B_IRQ1      | GPIO       | GPIO1_IO05      | IO   | 5                     | J22_28           |
| 61 | MPCIE_WAKE      | GPIO       | GPIO6_IO16      | IO   | 176                   | J17_1            |
| 62 | SPI_B_IRQ2      | GPIO       | GPIO1_IO06      | IO   | 6                     | J22_29           |
| 63 | GND             |            |                 |      |                       |                  |
| 64 | GND             |            |                 |      |                       |                  |
| 65 | SD_B_DAT2       | SD2        | GPIO1_IO13      | IO   | 13                    | SD J23_9         |
| 66 | SPI_A_MISO      | SPI2       | GPIO2_IO25      | IO   | 57                    | J22_33           |
| 67 | SD_B_DAT3       | SD2        | GPIO1_IO12      | IO   | 12                    | SD J23_1         |
| 68 | SPI_A_MOSI      | SPI2       | GPIO2_IO24      | IO   | 56                    | J22_34           |
| 69 | SD_B_CMD        | SD2        | GPIO1_IO11      | IO   | 11                    | SD J23_2         |
| 70 | SPI_A_CLK       | SPI2       | GPIO2_IO23      | IO   | 55                    | J22_35           |
| 71 | SD_B_VCC        | V33        | -               | O    | -                     | SD J23_4         |
| 72 | SPI_A_CS1       | SPI2       | GPIO2_IO26      | IO   | 58                    | J22_36           |
| 73 | SD_B_CLK        | SD2        | GPIO1_IO10      | IO   | 10                    | SD J23_5         |
| 74 | SPI_A_CS2       | SPI2       | GPIO2_IO27      | IO   | 59                    | J22_37           |
| 75 | GND             |            |                 |      |                       |                  |
| 76 | SPI_A_IRQ1      | GPIO       | GPIO1_IO07      | IO   | 7                     | J22_38           |
| 77 | SD_B_DAT0       | SD2        | GPIO1_IO15      | IO   | 15                    | SD J23_7         |
| 78 | SPI_A_IRQ2      | GPIO       | GPIO1_IO08      | IO   | 8                     | J22_39           |
| 79 | SD_B_DAT1       | SD2        | GPIO1_IO14      | IO   | 14                    | SD J23_8         |
| 80 | GND             |            |                 |      |                       |                  |
| 81 | SD_B_WP         | SD2        | GPIO1_IO02      | IO   | 2                     | SD J23_11        |
| 82 | I2C_B_SDA       | I2C3       | GPIO7_IO11      | IO   | 203                   | J22_45           |
| 83 | SD_B_CD         | SD2        | GPIO1_IO04      | IO   | 4                     | SD J23_12        |

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| J1  | Function   | Device     | GPIO       | Mode | /sys/class/gpio/gpio# | efus-SINTF V1.20     |
|-----|------------|------------|------------|------|-----------------------|----------------------|
| 84  | I2C_B_SCL  | I2C3       | GPIO1_IO03 | IO   | 3                     | J22_46               |
| 85  | GND        |            |            |      |                       |                      |
| 86  | I2C_B_IRQ  | GPIO       | GPIO2_IO12 | IO   | 44                    | J22_48               |
| 87  | BL_CTRL    | PWM3       | GPIO2_IO09 | IO   | 41                    | J3_10                |
| 88  | I2C_B_RST  | GPIO       | GPIO2_IO13 | IO   | 45                    | J22_47               |
| 89  | BL_VBL_ON  | GPIO       | GPIO2_IO08 | IO   | 40                    | J3_9 / (J3_7 / J3_8) |
| 90  | GND        |            |            |      |                       |                      |
| 91  | GND        |            |            |      |                       |                      |
| 92  | UART_A_RXD | UART4      | GPIO4_IO07 | IO   | 103                   | (J14_3)              |
| 93  | LCD_CLK    | IPU1_DISP0 | GPIO4_IO16 | IO   | 112                   | J2X_4                |
| 94  | UART_A_TXD | UART4      | GPIO4_IO06 | IO   | 102                   | (J14_5)              |
| 95  | GND        |            |            |      |                       |                      |
| 96  | UART_D_RXD | UART5      | GPIO4_IO09 | IO   | 105                   | J22_14               |
| 97  | LCD_HSYNC  | IPU1_DISP0 | GPIO4_IO18 | IO   | 114                   | J2X_5                |
| 98  | UART_D_TXD | UART5      | GPIO4_IO08 | IO   | 104                   | J22_16               |
| 99  | LCD_VSYNC  | IPU1_DISP0 | GPIO4_IO19 | IO   | 115                   | J2X_6                |
| 100 | GND        |            |            |      |                       |                      |
| 101 | GND        |            |            |      |                       |                      |
| 102 | UART_B_RXD | UART2      | GPIO3_IO27 | IO   | 91                    | (J15_3)              |
| 103 | LCD_R2     | IPU1_DISP0 | GPIO4_IO21 | IO   | 117                   | J2X_8                |
| 104 | UART_B_TXD | UART2      | GPIO3_IO26 | IO   | 90                    | (J15_5)              |
| 105 | LCD_R3     | IPU1_DISP0 | GPIO4_IO22 | IO   | 118                   | J2X_9                |
| 106 | UART_B_RTS | UART2      | GPIO3_IO28 | IO   | 92                    | (J15_4)              |
| 107 | LCD_R4     | IPU1_DISP0 | GPIO4_IO23 | IO   | 119                   | J2X_10               |
| 108 | UART_B_CTS | UART2      | GPIO3_IO29 | IO   | 93                    | (J15_6)              |
| 109 | LCD_R5     | IPU1_DISP0 | GPIO4_IO24 | IO   | 120                   | J2X_11               |
| 110 | GND        |            |            |      |                       |                      |
| 111 | LCD_R6     | IPU1_DISP0 | GPIO4_IO25 | IO   | 121                   | J2X_12               |
| 112 | I2S_MCLK   | CLKO1      | GPIO1_IO00 | IO   | 0                     | -                    |
| 113 | LCD_R7     | IPU1_DISP0 | GPIO4_IO26 | IO   | 122                   | J2X_13               |
| 114 | GND        |            |            |      |                       |                      |
| 115 | GND        |            |            |      |                       |                      |
| 116 | I2S_LRCLK  | AUD4       | GPIO5_IO16 | IO   | 144                   | -                    |
| 117 | LCD_G2     | IPU1_DISP0 | GPIO4_IO27 | IO   | 123                   | J2X_15               |
| 118 | GND        |            |            |      |                       |                      |
| 119 | LCD_G3     | IPU1_DISP0 | GPIO4_IO28 | IO   | 124                   | J2X_16               |
| 120 | I2S_SCLK   | AUD4       | GPIO5_IO14 | IO   | 142                   | -                    |
| 121 | LCD_G4     | IPU1_DISP0 | GPIO4_IO29 | IO   | 125                   | J2X_17               |
| 122 | GND        |            |            |      |                       |                      |
| 123 | LCD_G5     | IPU1_DISP0 | GPIO4_IO30 | IO   | 126                   | J2X_18               |
| 124 | I2S_DOUT   | AUD4       | GPIO5_IO17 | IO   | 145                   | -                    |
| 125 | LCD_G6     | IPU1_DISP0 | GPIO4_IO31 | IO   | 127                   | J2X_19               |

| J1  | Function                            | Device                | GPIO                   | Mode    | /sys/class/gpio/gpio# | efus-SINTF V1.20                     |
|-----|-------------------------------------|-----------------------|------------------------|---------|-----------------------|--------------------------------------|
| 126 | I2S_DIN                             | AUD4                  | GPIO5_IO15             | IO      | 143                   | -                                    |
| 127 | LCD_G7                              | IPU1_DISP0            | GPIO5_IO05             | IO      | 133                   | J2X_20                               |
| 128 | GND                                 |                       |                        |         |                       |                                      |
| 129 | GND                                 |                       |                        |         |                       |                                      |
| 130 | I2C_C_SDA                           | I2C1                  | (also used internally) | -       | -                     | J18_3 / J20_14                       |
| 131 | LCD_B2                              | IPU1_DISP0            | GPIO5_IO06             | IO      | 134                   | J2X_22                               |
| 132 | I2C_C_SCL                           | I2C1                  | (also used internally) | -       | -                     | J18_5 / J20_13                       |
| 133 | LCD_B3                              | IPU1_DISP0            | GPIO5_IO07             | IO      | 135                   | J2X_23                               |
| 134 | DVI_DDC_VOUT                        | V33                   | -                      | O       | -                     | -                                    |
| 135 | LCD_B4                              | IPU1_DISP0            | GPIO5_IO08             | IO      | 136                   | J2X_24                               |
| 136 | GND                                 |                       |                        |         |                       |                                      |
| 137 | LCD_B5                              | IPU1_DISP0            | GPIO5_IO09             | IO      | 137                   | J2X_25                               |
| 138 | DVI_DATA2_P                         | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_1                            |
| 139 | LCD_B6                              | IPU1_DISP0            | GPIO5_IO10             | IO      | 138                   | J2X_26                               |
| 140 | DVI_DATA2_N                         | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_3                            |
| 141 | LCD_B7                              | IPU1_DISP0            | GPIO5_IO11             | IO      | 139                   | J2X_27                               |
| 142 | DVI_DATA1_P                         | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_4                            |
| 143 | GND                                 |                       |                        |         |                       |                                      |
| 144 | DVI_DATA1_N                         | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_6                            |
| 145 | LCD_DE                              | IPU1_DISP0            | GPIO4_IO17             | IO      | 113                   | J2X_29                               |
| 146 | DVI_DATA0_P                         | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_7                            |
| 147 | GND                                 |                       |                        |         |                       |                                      |
| 148 | DVI_DATA0_N                         | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_9                            |
| 149 | LCD_VLCD_ON                         | GPIO                  | GPIO2_IO11             | IO      |                       | J2X_30 / J2X_31                      |
| 150 | DVI_CLK_P                           | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_10                           |
| 151 | I2C_A_SDA                           | I2C2                  | GPIO4_IO13             | IO      |                       | J22_41 / J2X_32                      |
| 152 | DVI_CLK_N                           | HDMI/LVDS/DP          | -                      | O       | -                     | HDMI J6_12                           |
| 153 | I2C_A_IRQ                           | GPIO                  | GPIO1_IO30             | IO      |                       | J22_44 / J2X_33                      |
| 154 | DP_AUX_P                            | LVDS/DP               | (not available)        |         |                       |                                      |
| 155 | I2C_A_SCL                           | I2C2                  | GPIO4_IO12             | IO      |                       | J22_42 / J2X_34                      |
| 156 | DVI_DDCCEC/DP_AUX_N                 | HDMI/LVDS/DP          | GPIO5_IO02             | IO      | 130                   | HDMI J6_13                           |
| 157 | I2C_A_RST                           | GPIO                  | GPIO1_IO29             | IO      |                       | J22_43                               |
| 158 | DVI_HPD                             | HDMI/DP               | -                      | I       | -                     | HDMI J6_19                           |
| 159 | GND                                 |                       |                        |         |                       |                                      |
| 160 | GND                                 |                       |                        |         |                       |                                      |
| 161 | CAM_YDATA0 (1)<br>MIPI_CSI_D0_N (1) | IPU1_CSI0<br>MIPI-CSI | (not available)<br>-   | -<br>O  | -<br>-                | J18_24 / (J20_2)<br>J20_2 / (J18_24) |
| 162 | ETH_B_D4-                           | -                     | (not available)        | -       | -                     | J10A_9                               |
| 163 | CAM_YDATA1 (1)<br>MIPI_CSI_D0_P (1) | IPU1_CSI0<br>MIPI-CSI | (not available)<br>-   | -<br>O  | -<br>-                | J18_23 / (J20_3)<br>J20_3 / (J18_23) |
| 164 | ETH_B_D4+                           | -                     | (not available)        | -       | -                     | J10A_8                               |
| 165 | CAM_YDATA4 (1)<br>MIPI_CSI_D1_N (1) | IPU1_CSI0<br>MIPI-CSI | GPIO6_IO00<br>-        | IO<br>O | 160<br>-              | J18_22 / (J20_5)<br>J20_5 / (J18_22) |

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| J1  | Function                             | Device                | GPIO                          | Mode     | /sys/class/gpio/gpio# | efus-SINTF V1.20                     |
|-----|--------------------------------------|-----------------------|-------------------------------|----------|-----------------------|--------------------------------------|
| 166 | ETH_B_LED_ACT                        | -                     | (not available)               | -        | -                     | (J10_LED2)                           |
| 167 | CAM_YDATA3 (1)<br>MIPI_CSI_D1_P (1)  | IPU1_CSI0<br>MIPI-CSI | GPIO5_IO31<br>-               | IO<br>O  | 159<br>-              | J18_21 / (J20_6)<br>J20_6 / (J18_21) |
| 168 | ETH_B_D3-                            | -                     | (not available)               | -        | -                     | J10A_7                               |
| 169 | CAM_YDATA5 (1)<br>MIPI_CSI_D2_N (1)  | IPU1_CSI0<br>MIPI-CSI | GPIO6_IO01<br>-               | IO<br>O  | 161<br>-              | J18_20<br>(J18_20)                   |
| 170 | ETH_B_D3+                            | -                     | (not available)               | -        | -                     | J10A_6                               |
| 171 | CAM_YDATA2 (1)<br>MIPI_CSI_D2_P (1)  | IPU1_CSI0<br>MIPI-CSI | GPIO5_IO30<br>-               | IO<br>O  | 158<br>-              | J18_19<br>(J18_19)                   |
| 172 | GND                                  |                       |                               |          |                       |                                      |
| 173 | CAM_YDATA6 (1)<br>MIPI_CSI_D3_N (1)  | IPU1_CSI0<br>MIPI-CSI | GPIO6_IO02<br>-               | IO<br>O  | 162<br>-              | J18_18<br>(J18_18)                   |
| 174 | ETH_B_D2-                            | -                     | (not available)               | -        | -                     | J10A_5                               |
| 175 | CAM_PCLK (1)<br>MIPI_CSI_D3_P (1)    | IPU1_CSI0<br>MIPI-CSI | GPIO5_IO18<br>-               | IO<br>O  | 146<br>-              | J18_17<br>(J18_17)                   |
| 176 | ETH_B_D2+                            | -                     | (not available)               | -        | -                     | J10A_4                               |
| 177 | CAM_YDATA7 (1)<br>MIPI_CSI_CLK_N (1) | IPU1_CSI0<br>MIPI-CSI | GPIO6_IO03<br>-               | IO<br>O  | 163<br>-              | J18_16 / (J20_8)<br>J20_8 / (J18_16) |
| 178 | ETH_B_LED_LINK                       | -                     | (not available)               | -        | -                     | (J10_LED1)                           |
| 179 | CAM_YDATA8 (1)<br>MIPI_CSI_CLK_P (1) | IPU1_CSI0<br>MIPI-CSI | GPIO6_IO04<br>-               | IO<br>O  | 164<br>-              | J18_14 / (J20_9)<br>J20_9 / (J18_14) |
| 180 | ETH_B_D1-                            | -                     | (not available)               | -        | -                     | J10A_3                               |
| 181 | GND                                  |                       |                               |          |                       |                                      |
| 182 | ETH_B_D1+                            | -                     | (not available)               | -        | -                     | J10A_2                               |
| 183 | CAM_MCLK (2)                         | CLKO2                 | GPIO6_IO15                    | IO       | 175                   | J18_13 / J20_12                      |
| 184 | GND                                  |                       |                               |          |                       |                                      |
| 185 | GND                                  |                       |                               |          |                       |                                      |
| 186 | ETH_CTREF                            | -                     | (not available)               | -        | -                     | J10A_1 / J11A_1                      |
| 187 | CAM_YDATA9 (1)<br>- (1)              | IPU1_CSI0<br>MIPI-CSI | GPIO6_IO05<br>(not available) | IO<br>-  | 165<br>-              | J18_12<br>-                          |
| 188 | ETH_A_D4-                            | RGMII / PHY           | -                             | IO       | -                     | J11A_9                               |
| 189 | CAM_VCAM                             | V28                   | -                             | O        | -                     | J18_4+11 / J20_15                    |
| 190 | ETH_A_D4+                            | RGMII / PHY           | -                             | IO       | -                     | J11A_8                               |
| 191 | CAM_HREF (1)<br>- (1)                | IPU1_CSI0<br>GPIO     | GPIO5_IO19<br>GPIO5_IO19      | IO<br>IO | 147<br>147            | J18_9<br>J18_9                       |
| 192 | ETH_A_LED_ACT (2)                    | PHY                   | -                             | O        | -                     | (J11_LED2)                           |
| 193 | CAM_PWDN                             | GPIO                  | GPIO5_IO24                    | IO       | 152                   | J18_8 / J20_11                       |
| 194 | ETH_A_D3-                            | RGMII / PHY           | -                             | IO       | -                     | J11A_7                               |
| 195 | CAM_VSYNC (1)<br>- (1)               | IPU1_CSI0<br>GPIO     | GPIO5_IO21<br>GPIO5_IO21      | IO<br>IO | 149<br>149            | J18_7<br>J18_7                       |
| 196 | ETH_A_D3+                            | RGMII / PHY           | -                             | IO       | -                     | J11A_6                               |
| 197 | /CAM_RST                             | GPIO                  | GPIO5_IO23                    | IO       | 151                   | J18_6                                |
| 198 | ETH_VLED_OUT                         | V33                   | -                             | O        | -                     | -                                    |
| 199 | GND                                  |                       |                               |          |                       |                                      |
| 200 | ETH_A_D2-                            | RGMII / PHY           | -                             | IO       | -                     | J11A_5                               |
| 201 | SATA_RX_P                            | SATA                  | -                             | I        | -                     | SATA J21_6                           |

| J1  | Function           | Device      | GPIO            | Mode | /sys/class/gpio/gpio# | efus-SINTF V1.20 |
|-----|--------------------|-------------|-----------------|------|-----------------------|------------------|
| 202 | ETH_A_D2+          | RGMII / PHY | -               | IO   | -                     | J11A_4           |
| 203 | SATA_RX_N          | SATA        | -               | I    | -                     | SATA J21_5       |
| 204 | ETH_A_LED_LINK (2) | PHY         | -               | O    | -                     | (J11_LED1)       |
| 205 | SATA_TX_N          | SATA        | -               | O    | -                     | SATA J21_3       |
| 206 | ETH_A_D1-          | RGMII / PHY | -               | IO   | -                     | J11A_3           |
| 207 | SATA_TX_P          | SATA        | -               | O    | -                     | SATA J21_2       |
| 208 | ETH_A_D1+          | RGMII / PHY | -               | IO   | -                     | J11A_2           |
| 209 | GND                |             |                 |      |                       |                  |
| 210 | GND                |             |                 |      |                       |                  |
| 211 | CAM_A_IN           | -           | (not available) | -    | -                     | J19_2            |
| 212 | USBH_A_PWR         | USB_H1      | GPIO3_IO31      | IO   | 95                    | (USB J7_1)       |
| 213 | CAM_A_GND          | -           | (not available) | -    | -                     | J19_1            |
| 214 | USBH_A_DN          | USB_H1      | -               | IO   | -                     | (USB J7_2)       |
| 215 | GND                |             |                 |      |                       |                  |
| 216 | USBH_A_DP          | USB_H1      | -               | IO   | -                     | (USB J7_3)       |
| 217 | USB_D_VBUS         | USB_OTG     | -               | I    | -                     | Mini-USB J9_1    |
| 218 | GND                |             |                 |      |                       |                  |
| 219 | USB_D_PWR          | USB_OTG     | GPIO3_IO22      | IO   | 86                    | (Mini-USB J9_1)  |
| 220 | USBH_A_SSRX_N      | USB HOST    | (not available) | -    | -                     | -                |
| 221 | USB_D_OC           | USB_OTG     | GPIO3_IO21      | IO   | 85                    | -                |
| 222 | USBH_A_SSRX_P      | USB HOST    | (not available) | -    | -                     | -                |
| 223 | USB_D_ID           | USB_OTG     | GPIO1_IO24      | IO   | 24                    | Mini-USB J9_4    |
| 224 | GND                |             |                 |      |                       |                  |
| 225 | USB_D_DN           | USB_OTG     | -               | IO   | -                     | Mini-USB J9_2    |
| 226 | USBH_A_SSTX_N      | USB HOST    | (not available) | -    | -                     | -                |
| 227 | USB_D_DP           | USB_OTG     | -               | IO   | -                     | Mini-USB J9_3    |
| 228 | USBH_A_SSTX_P      | USB HOST    | (not available) | -    | -                     | -                |
| 229 | GND                |             |                 |      |                       |                  |
| 230 | GND                |             |                 |      |                       |                  |

(1) Camera signals depend on board configuration, either parallel CSI (upper row) or serial CSI (lower row). Parallel Camera does not work before board revision V1.2x.

(2) This signal was different on board revisions before V1.2x.

### 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 efusA9 Hardware Documentation for hardware development.