CM3588 Pinout and Interfaces

Revision History

- 2023/11/28, V1.0, Initial release

Download the latest revision:
https://wiki.friendlyelec.com/wiki/images/3/37/CM3588_Pinout_Interfaces.pdf

CON1

Pin	Signal	Description	Pin	Signal	Description
1	VDD_DCIN	Power input (+5~+20V)	2	VDD_DCIN	Power input (+5~+20V)
3	VDD_DCIN	Power input (+5~+20V)	4	VDD_DCIN	Power input (+5~+20V)
5	VDD_DCIN	Power input (+5~+20V)	6	VDD_DCIN	Power input (+5~+20V)
7	VDD_DCIN	Power input (+5~+20V)	8	VDD_DCIN	Power input (+5~+20V)
9	VDD_DCIN	Power input (+5~+20V)	10	VDD_DCIN	Power input (+5~+20V)
11	GND	Ground(0V)	12	GND	Ground(0V)
13	GND	Ground(0V)	14	SARADC_VIN6_HW_ID2	SARADC VIN6, for Carrier Board ID Only
15	BOOT_SARADC_IN0	Boot mode configuration. Pull low to enter USB Maskrom Mode	16	RESET_L	RESET input to RK3588 and PMIC, low active, 1.8V signal
17	PWRON_L	Power Key Signal, Connect to PowerKey, low active, 4V signal	18	VDC_MODE	Power-ON mode selection. Keep float: power up immediately after VDD_DCIN is powered. Short to GND: power up after PowerKey is pressed
19	PMIC_EXT_EN_OUT	Control the power of carrier board, high active, 4V signal	20	UART2_TX_M0_DEBUG	Debug UART TX, 3.3V signal
21	GPIO2_C0	GPIO, 1.8V signal	22	UART2_RX_M0_DEBUG	Debug UART RX, 3.3V signal
23	GPIO2_C1	GPIO, 1.8V signal	24	GND	Ground(0V)
25	GPIO2_C2	GPIO, 1.8V signal	26	GPIO4_C2	GPIO, 1.8V signal
27	GPIO2_C3	GPIO, 1.8V signal	28	GPIO4_C3	GPIO, 1.8V signal
29	GPIO2_C4	GPIO, 1.8V signal	30	GPIO4_C4	GPIO, 1.8V signal
31	GPIO4_C6	GPIO, 1.8V signal	32	GPIO4_C5	GPIO, 1.8V signal
33	GND	Ground(0V)	34	GND	Ground(0V)
35	MIPI_CSI1_RX_CLK1P	MIPI DPHY CSI port1 clock1 positive input	36	MIPI_CSI0_RX_CLK1P	MIPI DPHY CSI port0 clock1 positive input
37	MIPI_CSI1_RX_CLK1N	MIPI DPHY CSI port1 clock1 negative input	38	MIPI_CSI0_RX_CLK1N	MIPI DPHY CSI port0 clock1 negative input
39	GND	Ground(0V)	40	GND	Ground(0V)
41	MIPI_CSI1_RX_D3P	MIPI DPHY CSI port1 D3 positive input	42	MIPI_CSI0_RX_D3P	MIPI DPHY CSI port0 D3 positive input
43	MIPI_CSI1_RX_D3N	MIPI DPHY CSI port1 D3 negative input	44	MIPI_CSI0_RX_D3N	MIPI DPHY CSI port0 D3 negative input
45	GND	Ground(0V)	46	GND	Ground(0V)
47	MIPI_CSI1_RX_D2P	MIPI DPHY CSI port1 D2 positive input	48	MIPI_CSI0_RX_D2P	MIPI DPHY CSI port0 D2 positive input
49	MIPI_CSI1_RX_D2N	MIPI DPHY CSI port1 D2 negative input	50	MIPI_CSI0_RX_D2N	MIPI DPHY CSI port0 D2 negative input
51	GND	Ground(0V)	52	GND	Ground(0V)
53	MIPI_CSI1_RX_CLK0P	MIPI DPHY CSI port1 clock0 positive input	54	MIPI_CSI0_RX_CLK0P	MIPI DPHY CSI port0 clock0 positive input
55	MIPI_CSI1_RX_CLK0N	MIPI DPHY CSI port1 clock0 negative input	56	MIPI_CSI0_RX_CLK0N	MIPI DPHY CSI port0 clock0 negative input
57	GND	Ground(0V)	58	GND	Ground(0V)
59	MIPI_CSI1_RX_D1P	MIPI DPHY CSI port1 D1 positive input	60	MIPI_CSI0_RX_D1P	MIPI DPHY CSI port0 D1 positive input
61	MIPI_CSI1_RX_D1N	MIPI DPHY CSI port1 D1 negative input	62	MIPI_CSI0_RX_D1N	MIPI DPHY CSI port0 D1 negative input
63	GND	Ground(0V)	64	GND	Ground(0V)
65	MIPI_CSI1_RX_D0P	MIPI DPHY CSI port1 D0 positive input	66	MIPI_CSI0_RX_D0P	MIPI DPHY CSI port0 D0 positive input
67	MIPI_CSI1_RX_D0N	MIPI DPHY CSI port1 D0 negative input	68	MIPI_CSI0_RX_D0N	MIPI DPHY CSI port0 D0 positive input
69	GND	Ground(0V)	70	GND	Ground(0V)
71	GPIO1_B6	GPIO, 3.3V signal	72	LED3_25GLAN_25GLED	2.5Gbps ethernet LED signal, blinking when 2.5Gbps link is active, low active
73	GND	Ground(0V)	74	LED2_25GLAN_1GLED	2.5Gbps ethernet LED signal, blinking when 1Gbps link is active, low active
75	GPIO1_B7	GPIO, 3.3V signal	76	GND	Ground(0V)
77	GND	Ground(0V)	78	P25G_MDIP0	2.5Gbps ethernet MDI0 positive
79	GPIO2_A6	GPIO, 1.8V signal	80	P25G_MDIN0	2.5Gbps ethernet MDI0 negative
81	GPIO2_A7	GPIO, 1.8V signal	82	GND	Ground(0V)
83	GPIO2_B0	GPIO, 1.8V signal	84	P25G_MDIP1	2.5Gbps ethernet MDI1 positive
85	GPIO2_B1	GPIO, 1.8V signal	86	P25G_MDIN1	2.5Gbps ethernet MDI1 negative

Pin	Signal	Description	Pin	Signal	Description
87	GPIO2_B2	GPIO, 1.8V signal	88	GND	Ground(0V)
89	GPIO2_B3	GPIO, 1.8V signal	90	P25G_MDIP2	2.5Gbps ethernet MDI2 positive
91	GND	Ground(0V)	92	P25G_MDIN2	2.5Gbps ethernet MDI2 negative
93	GPIO2_B4	GPIO, 1.8V signal	94	GND	Ground(0V)
95	GPIO2_B5	GPIO, 1.8V signal	96	P25G_MDIP3	2.5Gbps ethernet MDI3 positive
97	GPIO2_B6	GPIO, 1.8V signal	98	P25G_MDIN3	2.5Gbps ethernet MDI3 negative
99	GPIO2_B7	GPIO, 1.8V signal	100	GND	Ground(0V)

CON2

Pin	Signal	Description	Pin	Signal	Description
1	RECOVERY	Connected to SARADC_IN1 which is used by bootloader, pull low to enter Recovery/Loader mode, internally pulled up to 1.8V	2	GND_AUDUO	Audio ground, Audio signals(including HPR, HPL and MIC_IN) return path
3	HPR	Headphone output Right channel	4	HPL	Headphone output Left channel
5	I2C7_SDA_M0	I2C7 data, 1.8V signal, internally pulled up to 1.8V and also connected to audio codec(ALC5616)	6	MIC_IN	Single-end mcirophone input, internally pulled up to Bais power
7	I2C7_SCL_M0	I2C7 clock, 1.8V signal, internally pulled up to 1.8V and also connected to audio codec(ALC5616)	8	GPIO1_C4/HP_DET_L	GPIO used as Headphone insert detection input, internally pulled up to 1.8V, low active
9	GND	Ground(0V)	10	GND	Ground(0V)
11	MIPI_DPHY0_RX_D2P	MIPI D/CPHY CSI port0 D2 positive input	12	MIPI_DPHY0_RX_D3P	MIPI D/CPHY CSI port0 D3 positive input
13	MIPI_DPHY0_RX_D2N	MIPI D/CPHY CSI port0 D2 negative input	14	MIPI_DPHY0_RX_D3N	MIPI D/CPHY CSI port0 D3 negative input
15	GND	Ground(0V)	16	GND	Ground(0V)
17	MIPI_DPHY0_RX_D1P	MIPI D/CPHY CSI port0 D1 positive input	18	MIPI_DPHY0_RX_CLKP	MIPI D/CPHY CSI port0 clock positive input
19	MIPI_DPHY0_RX_D1N	MIPI D/CPHY CSI port0 D1 negative input	20	MIPI_DPHY0_RX_CLKN	MIPI D/CPHY CSI port0 clock negative input
21	GND	Ground(0V)	22	GND	Ground(0V)
23	MIPI_DPHY0_TX_D3P	MIPI D/CPHY DSI port0 D3 positive output	24	MIPI_DPHY0_RX_D0P	MIPI D/CPHY CSI port0 D0 positive input
25	MIPI_DPHY0_TX_D3N	MIPI D/CPHY DSI port0 D3 negative output	26	MIPI_DPHY0_RX_D0N	MIPI D/CPHY CSI port0 D0 negative input
27	GND	Ground(0V)	28	GND	Ground(0V)
29	MIPI_DPHY0_TX_D2P	MIPI D/CPHY DSI port0 D2 positive output	30	MIPI_DPHY1_RX_D3P	MIPI D/CPHY CSI port1 D3 positive input
31	MIPI_DPHY0_TX_D2N	MIPI D/CPHY DSI port0 D2 negative output	32	MIPI_DPHY1_RX_D3N	MIPI D/CPHY CSI port1 D3 negative input
33	GND	Ground(0V)	34	GND	Ground(0V)
35	MIPI_DPHY0_TX_CLKP	MIPI D/CPHY DSI port0 clock positive output	36	MIPI_DPHY1_RX_D2P	MIPI D/CPHY CSI port1 D2 positive input
37	MIPI_DPHY0_TX_CLKN	MIPI D/CPHY DSI port0 clock negative output	38	MIPI_DPHY1_RX_D2N	MIPI D/CPHY CSI port1 D2 negative input
39	GND	Ground(0V)	40	GND	Ground(0V)
41	MIPI_DPHY0_TX_D1P	MIPI D/CPHY DSI port0 D1 positive output	42	MIPI_DPHY1_RX_CLKP	MIPI D/CPHY CSI port1 clock positive input
43	MIPI_DPHY0_TX_D1N	MIPI D/CPHY DSI port0 D1 negative output	44	MIPI_DPHY1_RX_CLKN	MIPI D/CPHY CSI port1 clock negative input
45	GND	Ground(0V)	46	GND	Ground(0V)
47	MIPI_DPHY0_TX_D0P	MIPI D/CPHY DSI port0 D0 positive output	48	MIPI_DPHY1_RX_D1P	MIPI D/CPHY CSI port1 D1 positive input
49	MIPI_DPHY0_TX_D0N	MIPI D/CPHY DSI port0 D0 negative output	50	MIPI_DPHY1_RX_D1N	MIPI D/CPHY CSI port1 D1 negative input
51	GND	Ground(0V)	52	GND	Ground(0V)
53	TYPEC0_SSTX2P	USB 3.0 OTG TX2 positive/DP1.4 Alt of TYPEC0, AC coupling capacitor included on CM3588	54	MIPI_DPHY1_RX_D0P	MIPI D/CPHY CSI port1 D0 positive input
55	TYPEC0_SSTX2N	USB 3.0 OTG TX2 negative/DP1.4 Alt of TYPEC0, AC coupling capacitor included on CM3588	56	MIPI_DPHY1_RX_D0N	MIPI D/CPHY CSI port1 D0 negative input

Pin	Signal	Description	Pin	Signal	Description
57	GND	Ground(0V)	58	GND	Ground(0V)
59	TYPEC0_SSRX2P	USB 3.0 OTG RX2 positive/DP1.4 Alt of TYPEC0, external AC coupling capacitor required	60	MIPI_DPHY1_TX_D3P	MIPI D/CPHY DSI port1 D3 positive output
61	TYPEC0_SSRX2N	USB 3.0 OTG RX2 negative/DP1.4 Alt of TYPEC0, external AC coupling capacitor required	62	MIPI_DPHY1_TX_D3N	MIPI D/CPHY DSI port1 D3 negative output
63	GND	Ground(0V)	64	GND	Ground(0V)
65	TYPEC0_SSTX1P	USB 3.0 OTG TX1 positive/DP1.4 Alt of TYPEC0, AC coupling capacitor included on CM3588	66	MIPI_DPHY1_TX_D2P	MIPI D/CPHY DSI port1 D2 positive output
67	TYPEC0_SSTX1N	USB 3.0 OTG TX1 negative/DP1.4 Alt of TYPEC0, AC coupling capacitor included on CM3588	68	MIPI_DPHY1_TX_D2N	MIPI D/CPHY DSI port1 D2 negative output
69	GND	Ground(0V)	70	GND	Ground(0V)
71	TYPEC0_SSRX1P	USB 3.0 OTG RX1 positive/DP1.4 Alt of TYPEC0, external AC coupling capacitor required	72	MIPI_DPHY1_TX_CLKP	MIPI D/CPHY DSI port1 clock positive output
73	TYPEC0_SSRX1N	USB 3.0 OTG RX1 negative/DP1.4 Alt of TYPEC0, external AC coupling capacitor required	74	MIPI_DPHY1_TX_CLKN	MIPI D/CPHY DSI port1 clock negative output
75	GND	Ground(0V)	76	GND	Ground(0V)
77	TYPEC1_SSTX2P	USB 3.0 OTG TX2 positive/DP1.4 Alt of TYPEC1, AC coupling capacitor included on CM3588	78	MIPI_DPHY1_TX_D1P	MIPI D/CPHY DSI port1 D1 positive output
79	TYPEC1_SSTX2N	USB 3.0 OTG TX2 negative/DP1.4 Alt of TYPEC1, AC coupling capacitor included on CM3588	80	MIPI_DPHY1_TX_D1N	MIPI D/CPHY DSI port1 D1 negative output
81	GND	Ground(0V)	82	GND	Ground(0V)
83	TYPEC1_SSRX2P	USB 3.0 OTG RX2 positive/DP1.4 Alt of TYPEC1, external AC coupling capacitor required	84	MIPI_DPHY1_TX_D0P	MIPI D/CPHY DSI port1 D0 positive output
85	TYPEC1_SSRX2N	USB 3.0 OTG RX2 negative/DP1.4 Alt of TYPEC1, external AC coupling capacitor required	86	MIPI_DPHY1_TX_D0N	MIPI D/CPHY DSI port1 D0 negative output
87	GND	Ground(0V)	88	GND	Ground(0V)
89	TYPEC1_SSTX1P	USB 3.0 OTG TX1 positive/DP1.4 Alt of TYPEC1, AC coupling capacitor included on CM3588	90	TYPEC0_OTG_DP	USB 2.0 OTG DP of TYPEC0
91	TYPEC1_SSTX1N	USB 3.0 OTG TX1 negative/DP1.4 Alt of TYPEC1, AC coupling capacitor included on CM3588	92	TYPEC0_OTG_DM	USB 2.0 OTG DM of TYPEC0
93	GND	Ground(0V)	94	GND	Ground(0V)
95	TYPEC1_SSRX1P	USB 3.0 OTG RX1 positive/DP1.4 Alt of TYPEC1, external AC coupling capacitor required	96	TYPEC1_OTG_DP	USB 2.0 OTG DP of TYPEC1
97	TYPEC1_SSRX1N	USB 3.0 OTG RX1 negative/DP1.4 Alt of TYPEC1, external AC coupling capacitor required	98	TYPEC1_OTG_DM	USB 2.0 OTG DM of TYPEC1
99	GND	Ground(0V)	100	GND	Ground(0V)

CON3

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground(0V)	2	GND	Ground(0V)
3	PCIE20_1_TXP/SATA30_1_TXP	PCIe2.0/SATA3.0 Combo PHY1 output positive, AC coupling capacitor included on CM3588	4	PCIE30_PORT0_RX0P	PCIe 3.0 PHY0 Lane0 input positive, external AC coupling capacitor required
5	PCIE20_1_TXN/SATA30_1_TXN	PCIe2.0/SATA3.0 Combo PHY1 output negative, AC coupling capacitor included on CM3588	6	PCIE30_PORT0_RX0N	PCIe 3.0 PHY0 Lane0 input negative, external AC coupling capacitor required
7	GND	Ground(0V)	8	GND	Ground(0V)
9	PCIE20_1_RXP/SATA30_1_RXP	PCIe2.0/SATA3.0 Combo PHY1 input positive, external AC coupling capacitor required	10	PCIE30_PORT0_RX1P	PCIe 3.0 PHY0 Lane1 input positive, external AC coupling capacitor required
11	PCIE20_1_RXN/SATA30_1_RXN	PCIe2.0/SATA3.0 Combo PHY1 input negative, external AC coupling capacitor required	12	PCIE30_PORT0_RX1N	PCIe 3.0 PHY0 Lane1 input negative, external AC coupling capacitor required
13	GND	Ground(0V)	14	GND	Ground(0V)
15	PCIE20_1_REFCLKP	PCIe2.0/SATA3.0 Combo PHY1 PCIe 2.0 refclk output positive	16	PCIE30_PORT0_REFCLKP_IN	PCIe 3.0 PHY0 refclk input positive
17	PCIE20_1_REFCLKN	PCIe2.0/SATA3.0 Combo PHY1 PCIe 2.0 refclk output negative	18	PCIE30_PORT0_REFCLKN_IN	PCIe 3.0 PHY0 refclk input negative
19	GND	Ground(0V)	20	GND	Ground(0V)

Pin	Signal	Description	Pin	Signal	Description
21	PCIE20_2_RXP/SATA30_2_RXP/USB30_2_SSRXP	PCIe2.0/SATA3.0/USB3.0 HOST Combo PHY2 input positive, external AC coupling capacitor required	22	PCIE30_PORT0_TX0P	PCIe 3.0 PHY0 Lane0 output positive, AC coupling capacitor included on CM3588
23	PCIE20_2_RXN/SATA30_2_RXN/USB30_2_SSRXN	PCIe2.0/SATA3.0/USB3.0 HOST Combo PHY2 input negative, external AC coupling capacitor required	24	PCIE30_PORT0_TX0N	PCIe 3.0 PHY0 Lane0 output negative, AC coupling capacitor included on CM3588
25	GND	Ground(0V)	26	GND	Ground(0V)
27	PCIE20_2_REFCLKP	PCIe2.0/SATA3.0/USB3.0 HOST Combo PHY2 PCIe 2.0 refclk output positive	28	PCIE30_PORT0_TX1P	PCIe 3.0 PHY0 Lane1 output positive, AC coupling capacitor included on CM3588
29	PCIE20_2_REFCLKN	PCIe2.0/SATA3.0/USB3.0 HOST Combo PHY2 PCIe 2.0 refclk output negative	30	PCIE30_PORT0_TX1N	PCIe 3.0 PHY0 Lane1 output negative, AC coupling capacitor included on CM3588
31	GND	Ground(0V)	32	GND	Ground(0V)
33	PCIE20_2_TXP/SATA30_2_TXP/USB30_2_SSTXP	PCIe2.0/SATA3.0/USB3.0 HOST Combo PHY2 output positive, AC coupling capacitor included on CM3588	34	PCIE30_PORT1_RX2P	PCIe 3.0 PHY1 Lane0 input positive, external AC coupling capacitor required
35	PCIE20_2_TXN/SATA30_2_TXN/USB30_2_SSTXN	PCIe2.0/SATA3.0/USB3.0 HOST Combo PHY2 output negative, AC coupling capacitor included on CM3588	36	PCIE30_PORT1_RX2N	PCIe 3.0 PHY1 Lane0 input negative, external AC coupling capacitor required
37	GND	Ground(0V)	38	GND	Ground(0V)
39	GPIO1_D2	GPIO, 1.8V signal	40	PCIE30_PORT1_RX3P	PCIe 3.0 PHY1 Lane1 input positive, external AC coupling capacitor required
41	GPIO1_D3	GPIO, 1.8V signal	42	PCIE30_PORT1_RX3N	PCIe 3.0 PHY1 Lane1 input negative, external AC coupling capacitor required
43	GPIO1_C1	GPIO, 1.8V signal	44	GND	Ground(0V)
45	GPIO1_C0	GPIO, 1.8V signal	46	PCIE30_PORT1_TX2P	PCIe 3.0 PHY1 Lane0 output positive, AC coupling capacitor included on CM3588
47	GPIO0_B2	GPIO, 1.8V signal	48	PCIE30_PORT1_TX2N	PCIe 3.0 PHY1 Lane0 output negative, AC coupling capacitor included on CM3588
49	GND	Ground(0V)	50	GND	Ground(0V)
51	GPIO4_A0	GPIO, 3.3V signal	52	PCIE30_PORT1_TX3P	PCIe 3.0 PHY1 Lane1 output positive, AC coupling capacitor included on CM3588
53	GPIO4_A1	GPIO, 3.3V signal	54	PCIE30_PORT1_TX3N	PCIe 3.0 PHY1 Lane1 output negative, AC coupling capacitor included on CM3588
55	GPIO4_A2	GPIO, 3.3V signal	56	GND	Ground(0V)
57	GPIO4_A3	GPIO, 3.3V signal	58	PCIE30_PORT1_REFCLKP_IN	PCIe 3.0 PHY1 refclk input positive
59	GND	Ground(0V)	60	PCIE30_PORT1_REFCLKN_IN	PCIe 3.0 PHY1 refclk input negative
61	GPIO4_B0	GPIO, 3.3V signal	62	GND	Ground(0V)
63	GPIO4_B3	GPIO, 3.3V signal	64	GPIO0_D3	GPIO, 3.3V signal
65	GPIO4_B4	GPIO, 3.3V signal	66	GPIO0_D4	GPIO, 3.3V signal
67	GPIO4_B5	GPIO, 3.3V signal	68	GPIO0_D5	GPIO, 3.3V signal
69	GPIO4_B6	GPIO, 3.3V signal	70	GPIO0_C4	GPIO, 3.3V signal
71	GND	Ground(0V)	72	GPIO0_C5	GPIO, 3.3V signal
73	GPIO1_A0	GPIO, 3.3V signal	74	GPIO0_C6	GPIO, 3.3V signal
75	GPIO1_A1	GPIO, 3.3V signal	76	GPIO1_B0	GPIO, 3.3V signal
77	GPIO1_A2	GPIO, 3.3V signal	78	GPIO1_B1	GPIO, 3.3V signal
79	GPIO1_A3	GPIO, 3.3V signal	80	GPIO1_B2	GPIO, 3.3V signal
81	GPIO1_A4	GPIO, 3.3V signal	82	GPIO1_B3	GPIO, 3.3V signal
83	GPIO1_A7	GPIO, 3.3V signal	84	GND	Ground(0V)
85	GND	Ground(0V)	86	GPIO1_D6	GPIO, 3.3V signal

Pin	Signal	Description	Pin	Signal	Description
87	GPIO3_C0	GPIO, 3.3V signal	88	GPIO1_D7	GPIO, 3.3V signal
89	GPIO3_C1	GPIO, 3.3V signal	90	GPIO1_B4	GPIO, 3.3V signal
91	GPIO3_C2	GPIO, 3.3V signal	92	GPIO1_B5	GPIO, 3.3V signal
93	GPIO3_C3	GPIO, 3.3V signal	94	GND	Ground(0V)
95	HDMITX0_HPDIN_M0	HDMI TX0 hot plug detect input, high active, 3.3V signal	96	I2C6_SCL_M0	I2C6 clock, 3.3V signal, internally pulled up to 3.3V and also connected to RTC IC(HYM8563TS)
97	HDMITX1_HPDIN_M0	HDMI TX1 hot plug detect input, high active, 3.3V signal	98	I2C6_SDA_M0	I2C6 data, 3.3V signal, internally pulled up to 3.3V and also connected to RTC IC(HYM8563TS)
99	GPIO1_D5/HDMIIRX_DET_L	HDMI RX hot plug detect input, low active, 1.8V signal	100	VBAT_RTC	RTC IC(HYM8563TS) backup battery input, typically a 3V coin cell

CON4

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground(0V)	2	GND	Ground(0V)
3	HDMI1_TX2P_PORT	HDMI2.1/eDP TX Port1 D2P, AC coupling capacitor included on CM3588	4	TYPEC0_SBU1_OUT	USB 3.0 OTG/DP1.4 Alt of TYPEC0 SBU1/AUXP , AC coupling capacitor included on CM3588, connect directly to type-c connector
5	HDMI1_TX2N_PORT	HDMI2.1/eDP TX Port1 D2N, AC coupling capacitor included on CM3588	6	TYPEC0_SBU2_OUT	USB 3.0 OTG/DP1.4 Alt of TYPEC0 SBU2/AUXN , AC coupling capacitor included on CM3588, connect directly to type-c connector
7	GND	Ground(0V)	8	GND	Ground(0V)
9	HDMI1_TX1P_PORT	HDMI2.1/eDP TX Port1 D1P, AC coupling capacitor included on CM3588	10	TYPEC1_SBU1	USB 3.0 OTG/DP1.4 Alt of TYPEC1 SBU1/AUXP , AC coupling capacitor included on CM3588
11	HDMI1_TX1N_PORT	HDMI2.1/eDP TX Port1 D1N, AC coupling capacitor included on CM3588	12	TYPEC1_SBU2	USB 3.0 OTG/DP1.4 Alt of TYPEC1 SBU2/AUXN , AC coupling capacitor included on CM3588
13	GND	Ground(0V)	14	GND	Ground(0V)
15	HDMI1_TX0P_PORT	HDMI2.1/eDP TX Port1 D0P, AC coupling capacitor included on CM3588	16	USB20_HOST1_DP	USB 2.0 HOST1 DP
17	HDMI1_TX0N_PORT	HDMI2.1/eDP TX Port1 D0N, AC coupling capacitor included on CM3588	18	USB20_HOST1_DM	USB 2.0 HOST1 DM
19	GND	Ground(0V)	20	GND	Ground(0V)
21	HDMI1_TX3P_PORT	HDMI2.1/eDP TX Port1 D3P, AC coupling capacitor included on CM3588	22	USB20_HOST0_DP	USB 2.0 HOST0 DP
23	HDMI1_TX3N_PORT	HDMI2.1/eDP TX Port1 D3N, AC coupling capacitor included on CM3588	24	USB20_HOST0_DM	USB 2.0 HOST0 DM
25	GND	Ground(0V)	26	GND	Ground(0V)
27	HDMI1_TX_SBDP	HDMI2.1/eDP TX Port1 SBDP/AUXP, AC coupling capacitor included on CM3588	28	HDMI_RX_D2P_PORT	HDMI RX D2P, 2.2R resistor included on CM3588
29	HDMI1_TX_SBDN	HDMI2.1/eDP TX Port1 SBDN/AUXN, AC coupling capacitor included on CM3588	30	HDMI_RX_D2N_PORT	HDMI RX D2N, 2.2R resistor included on CM3588
31	GND	Ground(0V)	32	GND	Ground(0V)
33	HDMI0_TX2P_PORT	HDMI2.1/eDP TX Port0 D2P, AC coupling capacitor included on CM3588	34	HDMI_RX_D1P_PORT	HDMI RX D1P, 2.2R resistor included on CM3588
35	HDMI0_TX2N_PORT	HDMI2.1/eDP TX Port0 D2N, AC coupling capacitor included on CM3588	36	HDMI_RX_D1N_PORT	HDMI RX D1N, 2.2R resistor included on CM3588
37	GND	Ground(0V)	38	GND	Ground(0V)
39	HDMI0_TX1P_PORT	HDMI2.1/eDP TX Port0 D1P, AC coupling capacitor included on CM3588	40	HDMI_RX_D0P_PORT	HDMI RX D0P, 2.2R resistor included on CM3588
41	HDMI0_TX1N_PORT	HDMI2.1/eDP TX Port0 D1N, AC coupling capacitor included on CM3588	42	HDMI_RX_D0N_PORT	HDMI RX D0N, 2.2R resistor included on CM3588
43	GND	Ground(0V)	44	GND	Ground(0V)
45	HDMI0_TX0P_PORT	HDMI2.1/eDP TX Port0 D0P, AC coupling capacitor included on CM3588	46	HDMI_RX_CLKP_PORT	HDMI RX CLKP, 2.2R resistor included on CM3588

Pin	Signal	Description	Pin	Signal	Description
47	HDMI0_TX0N_PORT	HDMI2.1/eDP TX Port0 D0N, AC coupling capacitor included on CM3588	48	HDMI_RX_CLKN_PORT	HDMI RX CLKN, 2.2R resistor included on CM3588
49	GND	Ground(0V)	50	GND	Ground(0V)
51	HDMI0_TX3P_PORT	HDMI2.1/eDP TX Port0 D3P, AC coupling capacitor included on CM3588	52	SDMMC0_D2	SDMMC0, SD card D2, connect directly to card slot pin
53	HDMI0_TX3N_PORT	HDMI2.1/eDP TX Port0 D3N, AC coupling capacitor included on CM3588	54	SDMMC0_D3	SDMMC0, SD card D3, connect directly to card slot pin
55	GND	Ground(0V)	56	SDMMC0_CMD	SDMMC0, SD card CMD, connect directly to card slot pin
57	HDMI0_TX_SBDP	HDMI2.1/eDP TX Port0 SBDP/AUXP, AC coupling capacitor included on CM3588	58	VCC3V3_SD_S0	3.3V power out for SDMMC0 SD card, 300mA Max, connect directly to card slot pin
59	HDMI0_TX_SBDN	HDMI2.1/eDP TX Port0 SBDN/AUXN, AC coupling capacitor included on CM3588	60	SD_CLK	SDMMC0, SD card CLK, 22R resistor included on CM3588, connect directly to card slot pin
61	GND	Ground(0V)	62	GND	Ground(0V)
63	HDMITX0_SCL_M0	HDMI2.1 TX Port0 DDC clock, 3.3V signal	64	SDMMC0_D0	SDMMC0, SD card D0, connect directly to card slot pin
65	HDMITX0_SDA_M0	HDMI2.1 TX Port0 DDC data input and output, 3.3V signal	66	SDMMC0_D1	SDMMC0, SD card D1, connect directly to card slot pin
67	HDMITX0_CEC_M0	HDMI2.1 TX Port0 CEC signal, 3.3V signal	68	GND	Ground(0V)
69	HDMI0_TX_ON_H	HDMI2.1 TX Port0, HDMI mode configuration output signal, 3.3V signal; Working in HDMI2.1 mode, it Outputs low level, otherwise high level	70	GPIO0_A4/SDMMC_DET_L	SDMMC0, card insert detect input, low active, 1.8V signal, connect directly to card slot pin
71	HDMITX1_SCL_M1	HDMI2.1 TX Port1 DDC clock, 3.3V signal	72	HDMI_RX_SCL_M1	HDMI RX DDC clock, 3.3V signal
73	HDMITX1_SDA_M1	HDMI2.1 TX Port1 DDC data input and output, 3.3V signal	74	HDMI_RX_SDA_M1	HDMI RX DDC data input and output, 3.3V signal
75	HDMITX1_CEC_M2	HDMI2.1 TX Port1 CEC signal, 3.3V signal	76	HDMI_RX_CEC	HDMI RX CEC signal, 3.3V signal
77	HDMI1_TX_ON_H	HDMI2.1 TX Port1, HDMI mode configuration output signal, 3.3V signal; Working in HDMI2.1 mode, it outputs low level, otherwise high level	78	HDMIIRX_HPDOUT_H	HDMI RX HPD output, high active, 3.3V signal
79	GPIO3_D0	GPIO, 3.3V signal	80	GND	Ground(0V)
81	GPIO3_C7	GPIO, 3.3V signal	82	GPIO3_B0	GPIO, 3.3V signal
83	GND	Ground(0V)	84	GPIO3_B1	GPIO, 3.3V signal
85	GPIO3_D5	GPIO, 3.3V signal	86	GPIO3_B2	GPIO, 3.3V signal
87	GPIO3_A0	GPIO, 3.3V signal	88	GPIO3_B3	GPIO, 3.3V signal
89	GPIO3_A1	GPIO, 3.3V signal	90	GPIO3_B4	GPIO, 3.3V signal
91	GPIO3_A2	GPIO, 3.3V signal	92	GPIO3_B5	GPIO, 3.3V signal
93	GPIO3_A3	GPIO, 3.3V signal	94	GPIO3_B6	GPIO, 3.3V signal
95	GPIO3_A4	GPIO, 3.3V signal	96	GND	Ground(0V)
97	GPIO3_A5	GPIO, 3.3V signal	98	GPIO3_B7	GPIO, 3.3V signal
99	GPIO3_A6	GPIO, 3.3V signal	100	GPIO3_A7	GPIO, 3.3V signal

UART

- UARTs below are available;
- UARTs are multiplexed in several different power domains, and the suffixes _M0/_M1/_M2 are used to distinguish different multiplexing positions. _M0/_M1/_M2 cannot be used at the same time. You can only select one of them when assigning. You cannot select M0 for some signals, M1 for some, and M2 for some, such situation is not supported;
- Both contain two 64-byte FIFOs for data reception and transmission;
- Support 115.2Kbps, 460.8Kbps, 921.6Kbps, 1.5Mbps, 3Mbps, 4Mbps;
- Support interrupt-based or DMA-based mode;
- Support programmable baud rate, support non-integer clock divider;
- Support 5-8bit width transmission.

UART	GPIO	Pin	Signal level
UART0_RX_M0	GPIO0_C4	CON3.70	3.3V
UART0_TX_M0	GPIO0_C5	CON3.72	3.3V
UART1_RX_M1	GPIO1_B7	CON1.75	3.3V

UART	GPIO	Pin	Signal level
UART1_TX_M1	GPIO1_B6	CON1.71	3.3V
UART1_RX_M0	GPIO2_B6	CON1.97	1.8V
UART1_TX_M0	GPIO2_B7	CON1.99	1.8V
UART3_RX_M1	GPIO3_B6	CON1.92	3.3V
UART3_TX_M1	GPIO3_B5	CON1.94	3.3V
UART3_RX_M0	GPIO1_C0	CON3.45	1.8V
UART3_TX_M0	GPIO1_C1	CON3.43	1.8V
UART4_RX_M2	GPIO1_B2	CON3.80	3.3V
UART4_TX_M2	GPIO1_B3	CON3.82	3.3V
UART6_RX_M1	GPIO1_A0	CON3.73	3.3V
UART6_TX_M1	GPIO1_A1	CON3.75	3.3V
UART6_RX_M0	GPIO2_A6	CON1.79	1.8V
UART6_TX_M0	GPIO2_A7	CON1.81	1.8V
UART7_RX_M2	GPIO1_B4	CON3.90	3.3V
UART7_TX_M2	GPIO1_B5	CON3.92	3.3V
UART7_RX_M1	GPIO3_C1	CON3.89	3.3V
UART7_TX_M1	GPIO3_C0	CON3.87	3.3V
UART7_RX_M0	GPIO2_B4	CON1.93	1.8V
UART7_TX_M0	GPIO2_B5	CON1.95	1.8V
UART8_RX_M1	GPIO3_A3	CON4.93	3.3V
UART8_TX_M1	GPIO3_A2	CON4.91	3.3V
UART9_RX_M1	GPIO4_B5	CON3.67	3.3V
UART9_TX_M1	GPIO4_B4	CON3.65	3.3V

I2C

- I2Cs below are available;
- I2Cs are multiplexed in several different power domains, and the suffix _M0/_M1/_M2/_M3/_M4 is used to distinguish different multiplexing positions. _M0/_M1/_M2/_M3/_M4 cannot be used at the same time, only one of them can be selected. You cannot select M0 for SCL, M1 for SDA, etc, such situation is not supported;
- I2C1 I2C3 I2C4 I2C5 and I2C8 need external 2.2K pull-up resistors;
- I2C6 is internally pulled up to 3.3V and also connected to RTC IC(HYM8563TS);
- I2C7 is internally pulled up to 1.8V and also connected to audio codec(ALC5616);
- Support I2C bus master mode;
- Support software programmable clock frequency and transmission rate up to 400Kbit/s;
- Supports 7-bit and 10-bit addressing modes.

I2C	GPIO	Pin	Signal level
I2C1_SCL_M2	GPIO0_D4	CON3.66	3.3V
I2C1_SDA_M2	GPIO0_D5	CON3.68	3.3V
I2C3_SCL_M0	GPIO1_C1	CON3.43	1.8V
I2C3_SDA_M0	GPIO1_C0	CON3.45	1.8V
I2C3_SCL_M1	GPIO3_B7	CON4.98	3.3V
I2C3_SDA_M1	GPIO3_C0	CON3.87	3.3V
I2C3_SCL_M3	GPIO2_B2	CON1.87	1.8V
I2C3_SDA_M3	GPIO2_B3	CON1.89	1.8V
I2C4_SCL_M0	GPIO3_A6	CON4.99	3.3V
I2C4_SDA_M0	GPIO3_A5	CON4.97	3.3V
I2C4_SCL_M1	GPIO2_B5	CON1.95	1.8V
I2C4_SDA_M1	GPIO2_B4	CON1.93	1.8V

I2C	GPIO	Pin	Signal level
I2C4_SCL_M2	GPIO0_C5	CON3.72	3.3V
I2C4_SDA_M2	GPIO0_C4	CON3.70	3.3V
I2C4_SCL_M3	GPIO1_A3	CON3.79	3.3V
I2C4_SDA_M3	GPIO1_A2	CON3.77	3.3V
I2C5_SCL_M0	GPIO3_C7	CON4.81	3.3V
I2C5_SDA_M0	GPIO3_D0	CON4.79	3.3V
I2C5_SCL_M3	GPIO1_B6	CON1.71	3.3V
I2C5_SDA_M3	GPIO1_B7	CON1.75	3.3V
I2C5_SCL_M4	GPIO2_B6	CON1.97	1.8V
I2C5_SDA_M4	GPIO2_B7	CON1.99	1.8V
I2C6_SCL_M0	/	CON3.96	3.3V
I2C6_SDA_M0	/	CON3.98	3.3V
I2C7_SCL_M0	/	CON2.7	1.8V
I2C7_SDA_M0	/	CON2.5	1.8V
I2C8_SCL_M1	GPIO2_B0	CON1.83	1.8V
I2C8_SDA_M1	GPIO2_B1	CON1.85	1.8V
I2C8_SCL_M2	GPIO1_D6	CON3.86	3.3V
I2C8_SDA_M2	GPIO1_D7	CON3.88	3.3V
I2C8_SCL_M4	GPIO3_C2	CON3.91	3.3V
I2C8_SDA_M4	GPIO3_C3	CON3.93	3.3V

SPI

- SPIs below are available;
- SPIs are multiplexed in several different power domains, and the suffix _M0/_M1/_M2/_M3/_M4 is used to distinguish different multiplexing positions. _M0/_M1/_M2/_M3/_M4 cannot be used at the same time, only one of them can be selected. You cannot select M0 for some signals, M1 for some, and M2 for some, such situation is not supported;
- Support two modes of master and slave;
- Support 4, 8, 16 bit serial data transmission;
- Support full-duplex and half-duplex mode transmission.

SPI	GPIO	Pin	Signal level
SPI0_CLK_M2	GPIO1_B3	CON3.82	3.3V
SPI0_MISO_M2	GPIO1_B1	CON3.78	3.3V
SPI0_MOSI_M2	GPIO1_B2	CON3.80	3.3V
SPI0_CS0_M2	GPIO1_B4	CON3.90	3.3V
SPI0_CS1_M0	GPIO1_B5	CON3.92	3.3V
SPI1_CLK_M0	GPIO2_C0	CON1.21	1.8V
SPI1_MISO_M0	GPIO2_C1	CON1.23	1.8V
SPI1_MOSI_M0	GPIO2_C2	CON1.25	1.8V
SPI1_CS0_M0	GPIO2_C3	CON1.27	1.8V
SPI1_CS1_M0	GPIO2_C4	CON1.29	1.8V
SPI1_CLK_M1	GPIO3_C1	CON3.89	3.3V
SPI1_MISO_M1	GPIO3_C0	CON3.87	3.3V
SPI1_MOSI_M1	GPIO3_B7	CON4.98	3.3V
SPI1_CS0_M1	GPIO3_C2	CON3.91	3.3V
SPI1_CS1_M1	GPIO3_C3	CON3.93	3.3V
SPI4_CLK_M1	GPIO3_A2	CON4.91	3.3V
SPI4_MISO_M1	GPIO3_A0	CON4.87	3.3V
SPI4_MOSI_M1	GPIO3_A1	CON4.89	3.3V

SPI	GPIO	Pin	Signal level
SPI4_CS0_M1	GPIO3_A3	CON4.93	3.3V
SPI4_CS1_M1	GPIO3_A4	CON4.95	3.3V
SPI4_CLK_M2	GPIO1_A2	CON3.77	3.3V
SPI4_MISO_M2	GPIO1_A0	CON3.73	3.3V
SPI4_MOSI_M2	GPIO1_A1	CON3.75	3.3V
SPI4_CS0_M2	GPIO1_A3	CON3.79	3.3V

I2S

- I2Ss below are available;
- I2Ss are multiplexed in several different power domains, and the suffix _M0/_M1/_M2/_M3/_M4 is used to distinguish different multiplexing positions. _M0/_M1/_M2/_M3/_M4 cannot be used at the same time, only one of them can be selected. You cannot select M0 for some signals, M1 for some, and M2 for some, such situation is not supported.

I2S	GPIO	Pin	Signal level
I2S1_MCLK_M0	GPIO4_A0	CON3.51	3.3V
I2S1_SCLK_M0	GPIO4_A1	CON3.53	3.3V
I2S1_LRCK_M0	GPIO4_A2	CON3.55	3.3V
I2S1_SDI3_M0	GPIO4_B0	CON3.61	3.3V
I2S1_SDO2_M0	GPIO4_B3	CON3.63	3.3V
I2S1_SDO3_M0	GPIO4_B4	CON3.65	3.3V
I2S2_MCLK_M0	GPIO2_B6	CON1.97	1.8V
I2S2_SCLK_M0	GPIO2_B7	CON1.99	1.8V
I2S2_LRCK_M0	GPIO2_C0	CON1.21	1.8V
I2S2_SDI_M0	GPIO2_C3	CON1.27	1.8V
I2S2_SDO_M0	GPIO4_C3	CON1.28	1.8V
I2S2_MCLK_M1	GPIO3_B4	CON4.90	3.3V
I2S2_SCLK_M1	GPIO3_B5	CON4.92	3.3V
I2S2_LRCK_M1	GPIO3_B6	CON4.94	3.3V
I2S2_SDI_M1	GPIO3_B2	CON4.86	3.3V
I2S2_SDO_M1	GPIO3_B3	CON4.88	3.3V
I2S3_MCLK	GPIO3_A0	CON4.87	3.3V
I2S3_SCLK	GPIO3_A1	CON4.89	3.3V
I2S3_LRCK	GPIO3_A2	CON4.91	3.3V
I2S3_SDI	GPIO3_A4	CON4.95	3.3V
I2S3_SDO	GPIO3_A3	CON4.93	3.3V

PWM

- PWMs below are available;
- PWMs are multiplexed in several different power domains, and the suffix _M0/_M1/_M2/_M3/_M4 is used to distinguish different multiplexing positions. _M0/_M1/_M2/_M3/_M4 cannot be used at the same time, only one of them can be selected;
- Optimized for infrared applications of PWM3, PWM7, PWM11 and PWM15.

PWM	GPIO	Pin	Signal level
PWM0_M1	GPIO1_D2	CON3.39	1.8V
PWM0_M2	GPIO1_A2	CON3.77	3.3V
PWM1_M1	GPIO1_D3	CON3.41	1.8V
PWM1_M2	GPIO1_A3	CON3.79	3.3V
PWM2_M0	GPIO0_C4	CON3.70	3.3V
PWM2_M1	GPIO3_B1	CON4.84	3.3V

PWM	GPIO	Pin	Signal level
PWM2_M2	GPIO4_C2	CON1.26	1.8V
PWM3_IR_M0	GPIO0_D4	CON3.66	3.3V
PWM3_IR_M1	GPIO3_B2	CON4.86	3.3V
PWM3_IR_M3	GPIO1_A7	CON3.83	3.3V
PWM4_M0	GPIO0_C5	CON3.72	3.3V
PWM4_M1	GPIO4_C3	CON1.28	1.8V
PWM5_M1	GPIO0_C6	CON3.74	3.3V
PWM5_M2	GPIO4_C4	CON1.30	1.8V
PWM6_M2	GPIO4_C5	CON1.32	1.8V
PWM7_IR_M3	GPIO4_C6	CON1.31	1.8V
PWM8_M0	GPIO3_A7	CON4.100	3.3V
PWM8_M2	GPIO3_D0	CON4.79	3.3V
PWM9_M0	GPIO3_B0	CON4.82	3.3V
PWM10_M0	GPIO3_A0	CON4.87	3.3V
PWM11_IR_M0	GPIO3_A1	CON4.89	3.3V
PWM11_IR_M1	GPIO4_B4	CON3.65	3.3V
PWM11_IR_M3	GPIO3_D5	CON4.85	3.3V
PWM12_M0	GPIO3_B5	CON4.92	3.3V
PWM12_M1	GPIO4_B5	CON3.67	3.3V
PWM13_M0	GPIO3_B6	CON4.94	3.3V
PWM13_M1	GPIO4_B6	CON3.69	3.3V
PWM13_M2	GPIO1_B7	CON1.75	3.3V
PWM14_M0	GPIO3_C2	CON3.91	3.3V
PWM14_M2	GPIO1_D6	CON3.86	3.3V
PWM15_IR_M0	GPIO3_C3	CON3.93	3.3V
PWM15_IR_M1	GPIO4_B3	CON3.63	3.3V
PWM15_IR_M3	GPIO1_D7	CON3.88	3.3V

CAN

- CANs below are available;
- CANs are multiplexed in several different power domains, and the suffix _M0/_M1/_M2/_M3/_M4 is used to distinguish different multiplexing positions. _M0/_M1/_M2/_M3/_M4 cannot be used at the same time, only one of them can be selected;
- Support CAN 2.0B protocol;
- Support 1Mbps, 8Mbps.

CAN	GPIO	Pin	Signal level
CAN1_RX_M0	GPIO3_B5	CON4.92	3.3V
CAN1_TX_M0	GPIO3_B6	CON4.94	3.3V
CAN2_RX_M1	GPIO0_D4	CON3.66	3.3V
CAN2_TX_M1	GPIO0_D5	CON3.68	3.3V

SPDIF

- SPDIFs below are available;

- SPDIFs are multiplexed in several different power domains, and the suffix _M0/_M1/_M2/_M3/_M4 is used to distinguish different multiplexing positions. _M0/_M1/_M2/_M3/_M4 cannot be used at the same time, only one of them can be selected;

SPDIF	GPIO	Pin	Signal level
SPDIF0_TX_M0	GPIO1_B6	CON1.71	3.3V
SPDIF0_TX_M1	GPIO4_B4	CON3.65	3.3V
SPDIF1_TX_M0	GPIO1_B7	CON1.75	3.3V

SDIO

- SDIO below is available;
- SDIO is multiplexed in several different power domains, and the suffix _M0/_M1 is used to distinguish different multiplexing positions. _M0/_M1 cannot be used at the same time, only one of them can be selected. You cannot select M0 for some signals, M1 for some, such situation is not supported;

SDIO	GPIO	Pin	Signal level
SDIO_CLK_M0	GPIO2_B3	CON1.89	1.8V
SDIO_CMD_M0	GPIO2_B2	CON1.87	1.8V
SDIO_D0_M0	GPIO2_A6	CON1.79	1.8V
SDIO_D1_M0	GPIO2_A7	CON1.81	1.8V
SDIO_D2_M0	GPIO2_B0	CON1.83	1.8V
SDIO_D3_M0	GPIO2_B1	CON1.85	1.8V
SDIO_CLK_M1	GPIO3_A5	CON4.97	3.3V
SDIO_CMD_M1	GPIO3_A4	CON4.95	3.3V
SDIO_D0_M1	GPIO3_A0	CON4.87	3.3V
SDIO_D1_M1	GPIO3_A1	CON4.89	3.3V
SDIO_D2_M1	GPIO3_A2	CON4.91	3.3V
SDIO_D3_M1	GPIO3_A3	CON4.93	3.3V