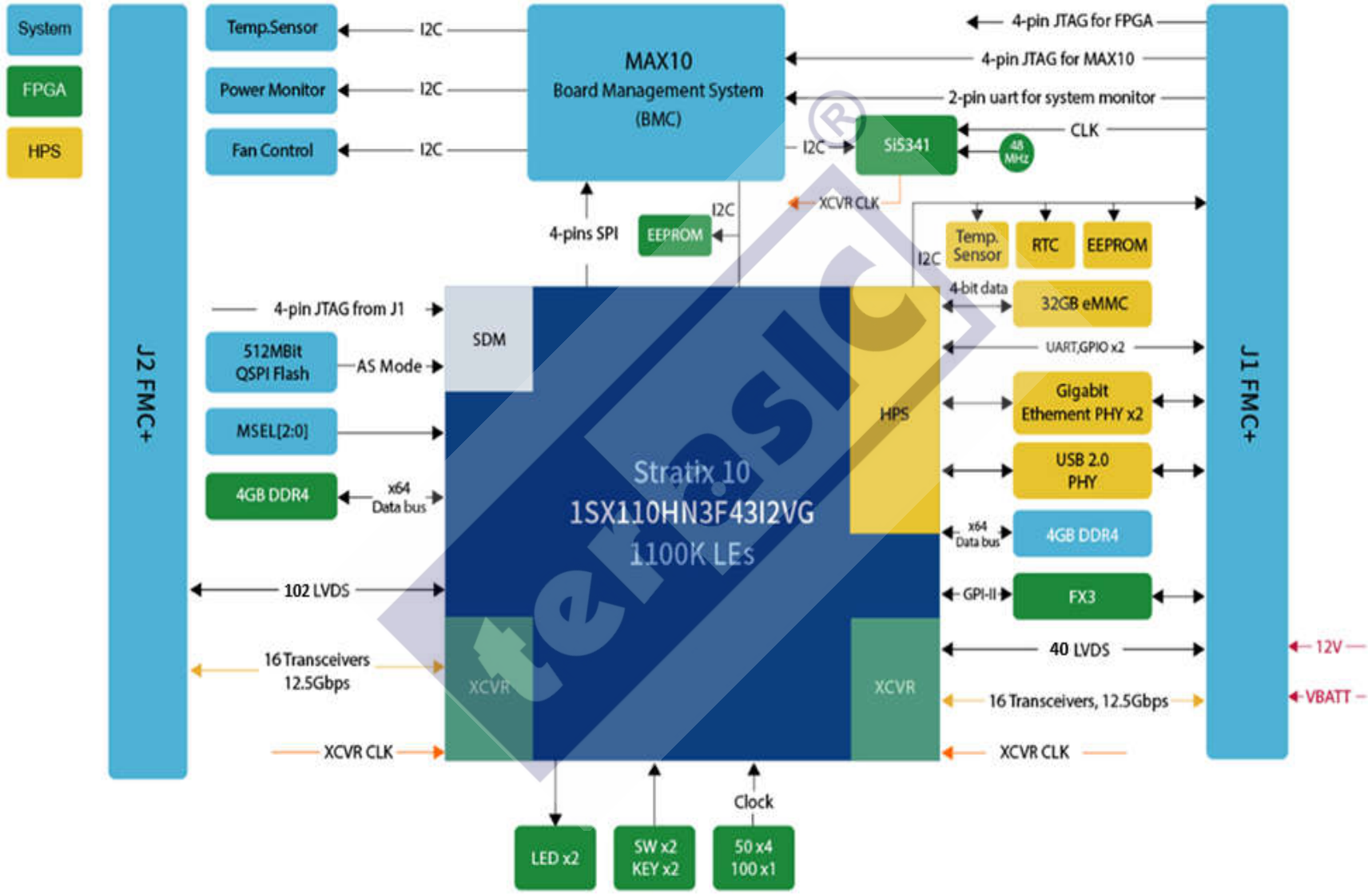
# Block Diagram

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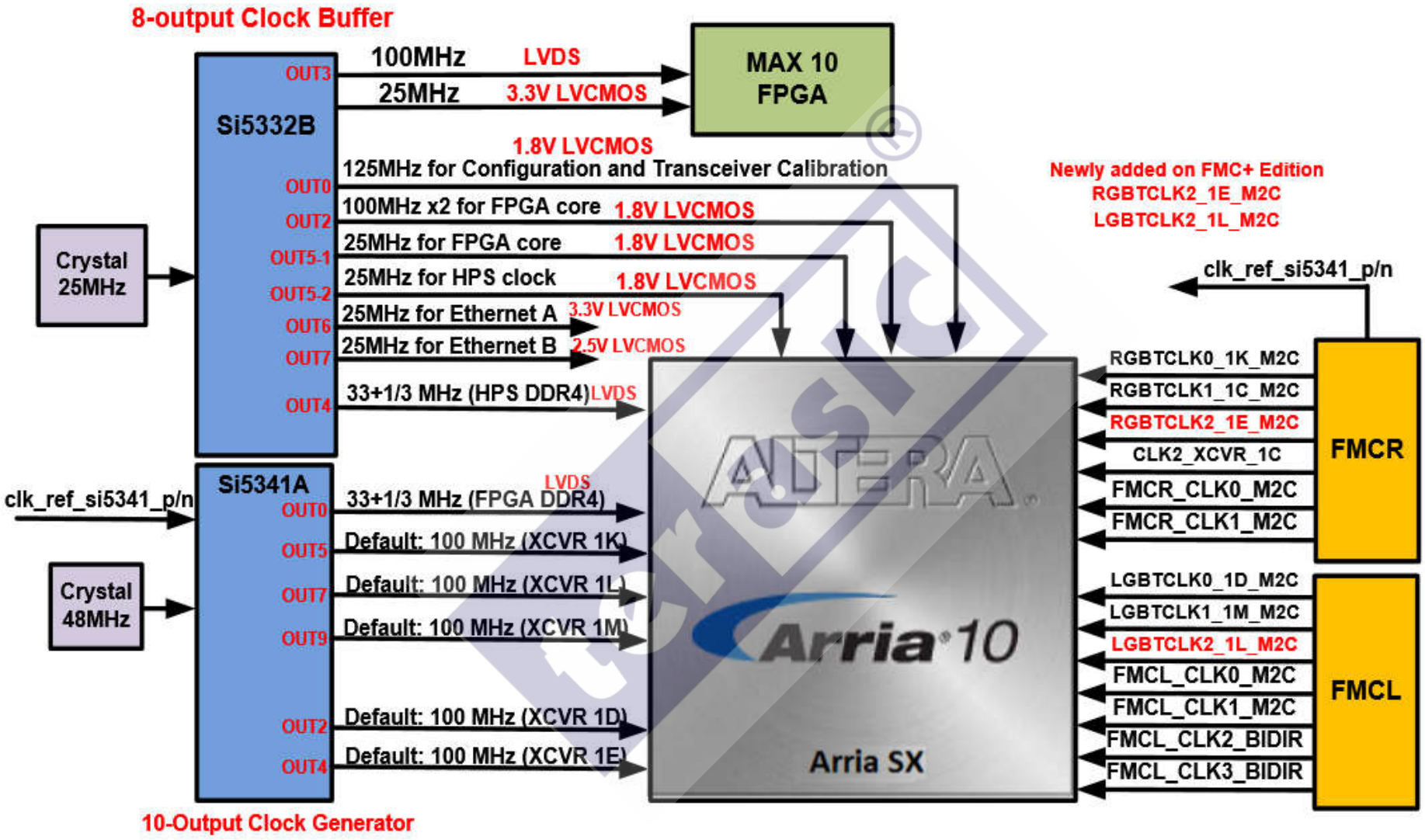
| | | |
|---|---|---|
| Title | Titan S10 SOM | |
| Size B | Document Number Block Diagram | Rev B |
| Date: Monday, August 25, 2025 | Sheet 2 of 45 | |

# Clock Tree

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| | | |
|---|---|---|
| Title | Titan S10 SOM | |
| Size B | Document Number Clock Tree | Rev B |
| Date: Wednesday, July 23, 2025 | Sheet 3 of 45 | |

# FMC+ Transceiver Mapping

FMCR DP10 ~ DP13 are located on LVDS pins

| FMC pin number | FMCL | | | | | | | | FMCR | FMC pin number |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1K | Lane 3 | | | | | |
| | | | | | Lane 2 | | | | | |
| | | | | | Lane 1 | | | | | |
| | | | | | Lane 0 | | | | | |
| 1 | | DP0 | 1K-Lane 5 | 1F | Lane 5 | | | | | 40 |
| | LGBTCLK0_1D | DP1 | 1K-Lane 4 | | Lane 4 | | | | | |
| | | DP2 | 1K-Lane 3 | | Lane 3 | | | | | |
| | | DP3 | 1K-Lane 2 | | Lane 2 | | | | | |
| PClex8 (with CvP) | | DP4 | 1K-Lane 1 | | Lane 1 | | | | | |
| | | DP5 | 1K-Lane 0 | | Lane 0 | | | | | |
| PClex8 (no CvP) | | DP6 | 1M-Lane3 | 1E | Lane 5 | | | | CLK2_XCVR_1C | |
| | | DP7 | 1M-Lane2 | | Lane 4 | | | | | |
| | | DP8 | 1M-Lane1 | | Lane 3 | 1L-Lane3 | DP15 | | | |
| | | DP9 | 1M-Lane0 | | Lane 2 | 1L-Lane2 | DP14 | | | |
| | | DP10 | 1L-Lane5 | | Lane 1 | 1L-Lane1 | DP13 | | | |
| | LGBTCLK1_1M | DP11 | 1L-Lane4 | | Lane 0 | 1L-Lane0 | DP12 | | RGBTCLK1_1C | |
| | | DP12 | 1E-Lane 3 | 1D | Lane 5 | 1D-Lane 1 | DP11 | | | |
| | | DP13 | 1E-Lane 2 | | Lane 4 | 1D-Lane 0 | DP10 | | | |
| | | DP14 | 1E-Lane 1 | | Lane 3 | 1C-Lane 5 | DP9 | | | |
| | | DP15 | 1E-Lane 0 | | Lane 2 | 1C-Lane 4 | DP8 | | | |
| | | | | | Lane 1 | 1C-Lane 3 | DP7 | | | |
| Newly added | LGBTCLK2_1L | | | | Lane 0 | 1C-Lane 2 | DP6 | | RGBTCLK2_1E | Newly added |
| | | | | 1C | Lane 5 | 1C-Lane 1 | DP5 | | | |
| | | | | | Lane 4 | 1C-Lane 0 | DP4 | | | |
| | | | | | Lane 3 | 1D-Lane 5 | DP3 | | | |
| | | | | | Lane 2 | 1D-Lane 4 | DP2 | | RGBTCLK0_1K | |
| | | | | | Lane 1 | 1D-Lane 3 | DP1 | | | |
| 40 | | | | | Lane 0 | 1D-Lane 2 | DP0 | | | 1 |

FPGA XCVR

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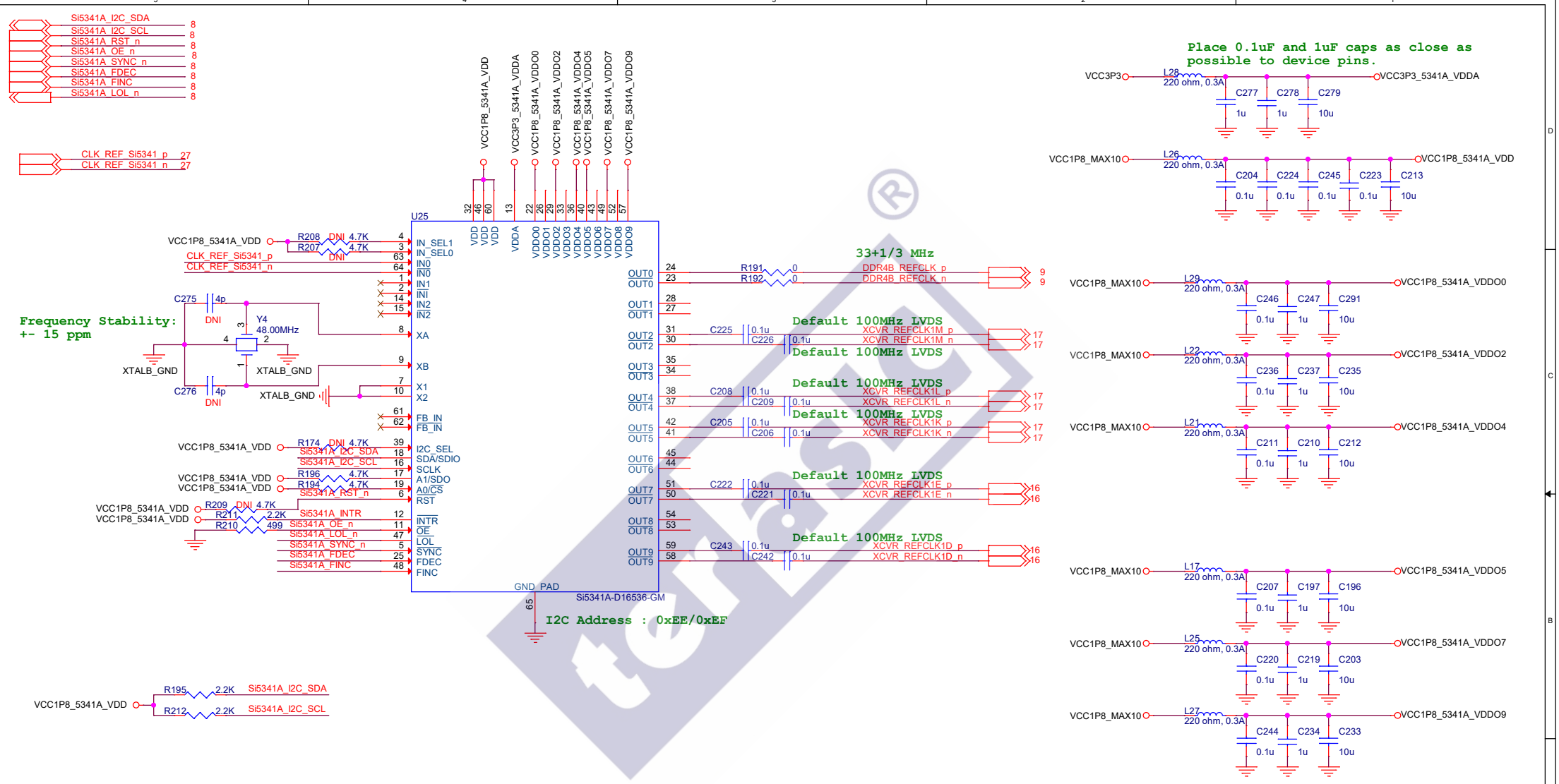
Title: Titan S10 SOM

Size: B | Document Number: FMC+ Transceiver Mapping | Rev: B

Date: Wednesday, July 23, 2025 | Sheet 4 of 45

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Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | Programmable Clock - 1 | B |

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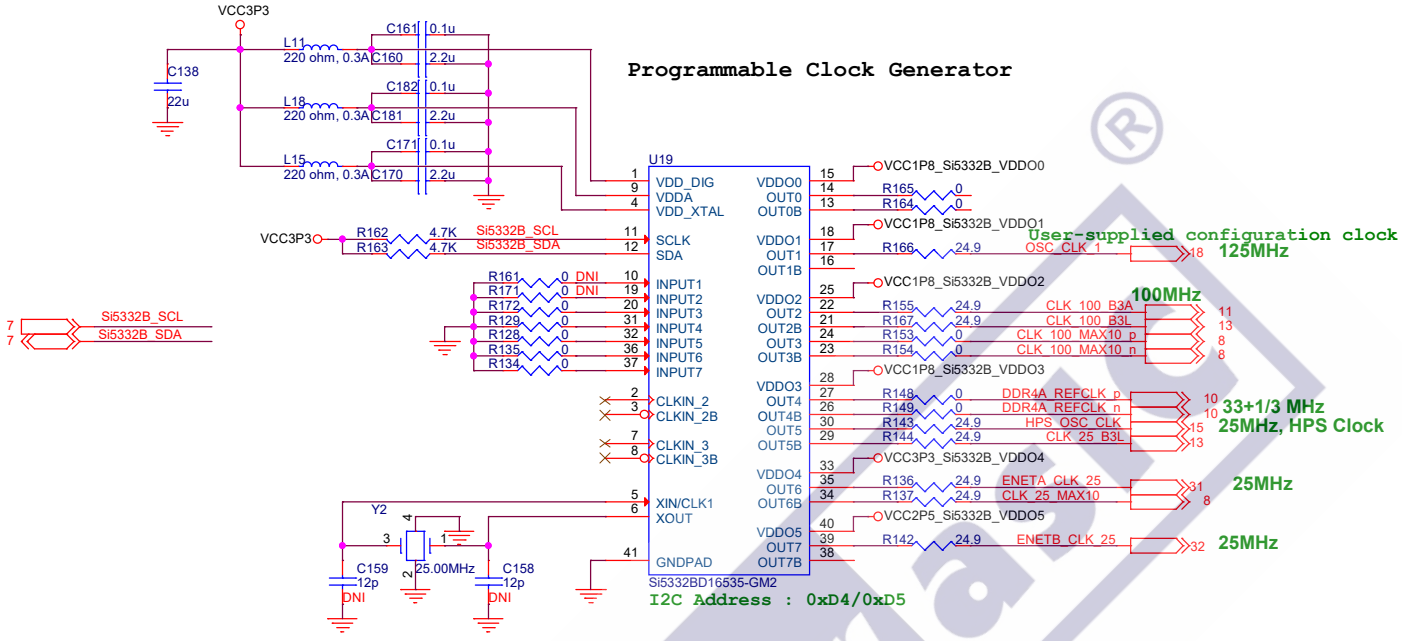


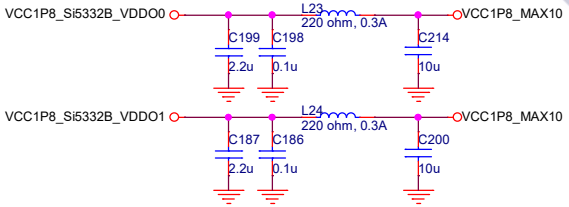


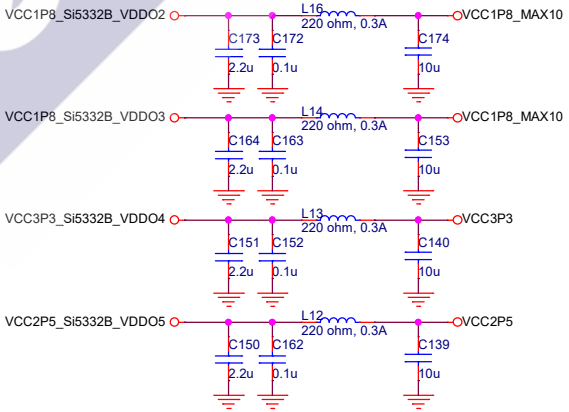


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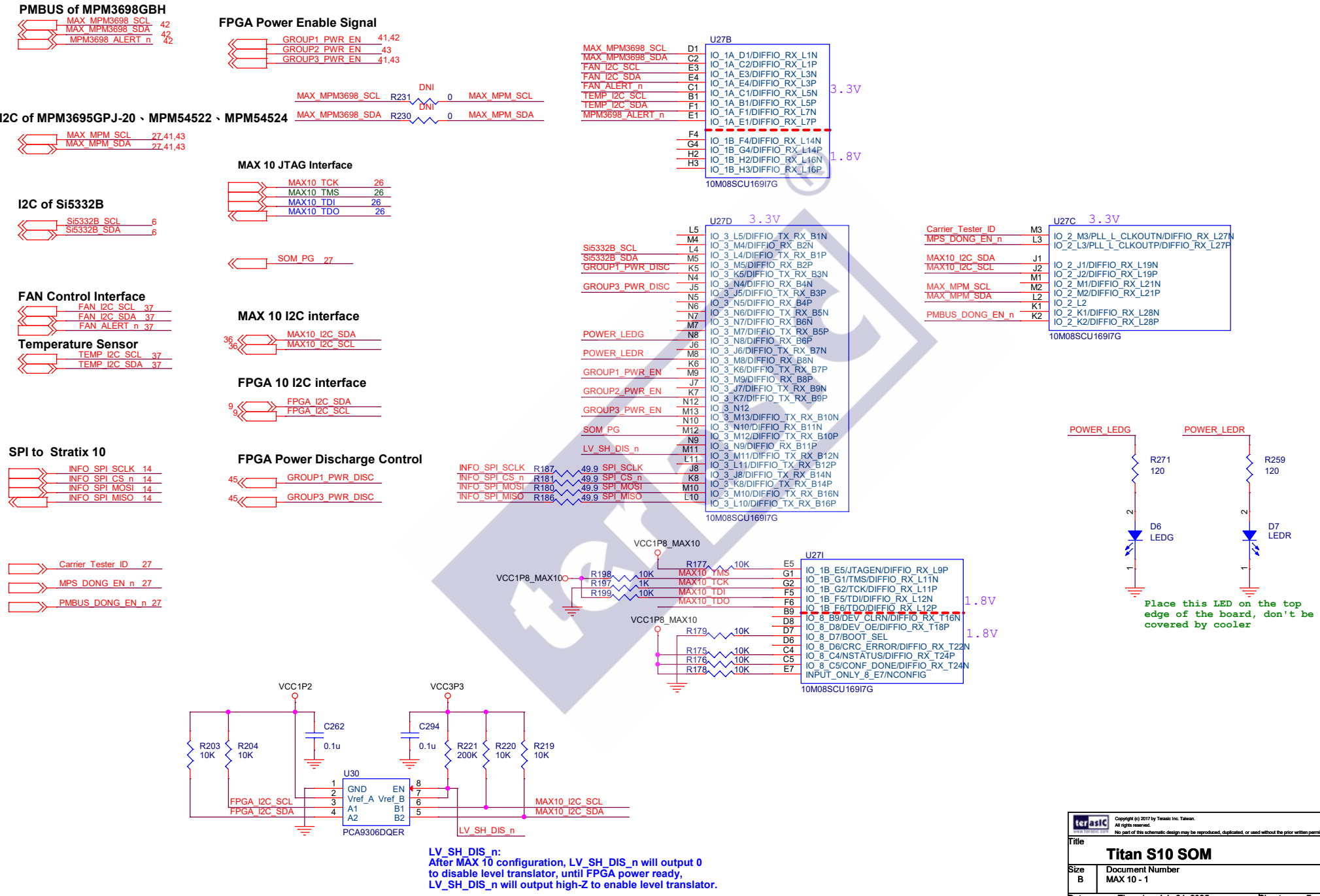
Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | Programmable Clock - 2 | B |

Date: Thursday, July 24, 2025 Sheet 6 of 45

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Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | MAX 10 - 1 | B |

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## Stratix 10 Configuration Setting

FPGA_nCONFIG 18
FPGA_nSTATUS 18
FPGA_CONF_DONE 18
CvP_DONE 18
EPCQ_RST_n 30

## FPGA Power Good

VCC_CORE_PG 42
VCC1P03_PG 41
VCC0P9_VCCERAM_PG 41
VCC1P8_PG 43
VCC1P2_PG 41
VCC2P4_VCCFUSE_SDM_PG 43
VCC3_VCCIO_PG 43
VCC2P5_PG 43
VCC2P5_VPP_PG 43

VCC3P3_PG 41

## Interface of Si5341A

Si5341A_I2C_SDA 5
Si5341A_I2C_SCL 5
Si5341A_RST_n 5
Si5341A_OE_n 5
Si5341A_SYNC_n 5
Si5341A_FDEC 5
Si5341A_FINC 5
Si5341A_LOL_n 5

## HPS Peripheral and FX3 Reset

ENETA_RESET_n 31
ENETB_RESET_n 13,32
USBOTG_RESET_n 33
FX3_RESET_n 34
EMMC_RST_n 35

## MAX 10 UART

MAX10_UART_RX 26
MAX10_UART_TX 26

SOM_RST_M2C 27
SOM_RST_C2M 27
SYS_HPS_RST_n 18,35

FPGA_RST 13

HPS_RST 13

SOM_CG_M2C 27
SOM_CG_C2M 27

TEMP_FAULT 27

FMCL_PG_M2C 29

FMCL_PG_C2M 29

FMCL_PRSNT_M2C_n 29

S10_MAX10_RSV[1..0] 13

## MAX 10 CLK

CLK_100_MAX10_p 6
CLK_100_MAX10_n 6

CLK_25_MAX10 6

## ADC

ADC_CS_n 40
ADC_SDO 40
ADC_SCLK 40

PMODE[2..0] 34

USBFX3_USB_MODE 13

R359 4.7K

U27F 1.8V

| | | |
|---|---|---|
| ENETB_RESET_n | F12 | IO_6_F12/DIFFIO_RX_R18P |
| FX3_RESET_n | E12 | IO_6_E12/DIFFIO_RX_R18N |
| USBFX3_USB_MODE | C13 | IO_6_C13 |
| ENETA_RESET_n | F8 | IO_6_F8/DIFFIO_RX_R27P |
| EPCQ_RST_n | B12 | IO_6_B12/DIFFIO_RX_R28P |
| EMMC_RST_n | E9 | IO_6_E9/DIFFIO_RX_R27N |
| USBOTG_RESET_n | B11 | IO_6_B11/DIFFIO_RX_R28N |
| ADC_CS_n | C12 | IO_6_C12/DIFFIO_RX_R29P |
| ADC_SDO | B13 | IO_6_B13/DIFFIO_RX_R30P |
| ADC_SCLK | C11 | IO_6_C11/DIFFIO_RX_R29N |
| S10_MAX10_RSV1 | A12 | IO_6_A12/DIFFIO_RX_R30N |
| FPGA_RST | E10 | IO_6_E10/DIFFIO_RX_R31P |
| PMODE0 | D9 | IO_6_D9/DIFFIO_RX_R31N |
| PMODE1 | D12 | IO_6_D12/DIFFIO_RX_R33P |
| PMODE2 | D11 | IO_6_D11/DIFFIO_RX_R33N |

10M08SCU169I7G

U27G 1.8V

| | | |
|---|---|---|
| FPGA_nCONFIG | C10 | IO_8_C10/DIFFIO_RX_T14P |
| FPGA_nSTATUS | A8 | IO_8_A8/DIFFIO_RX_T15P |
| FPGA_CONF_DONE | C9 | IO_8_C9/DIFFIO_RX_T14N |
| S10_MAX10_RSV0 | A9 | IO_8_A9/DIFFIO_RX_T15N |
| HPS_RST | B10 | IO_8_B10/DIFFIO_RX_T16P |
| CvP_DONE | A10 | IO_8_A10/DIFFIO_RX_T17P |
| | A11 | IO_8_A11/DIFFIO_RX_T17N |
| SYS_HPS_RST_n | E8 | IO_8_E8/DIFFIO_RX_T18N |
| | A7 | IO_8_A7/DIFFIO_RX_T19P |
| Si5341A_I2C_SDA | A6 | IO_8_A6/DIFFIO_RX_T19N |
| Si5341A_I2C_SCL | B6 | IO_8_B6/DIFFIO_RX_T20P |
| | A4 | IO_8_A4/DIFFIO_RX_T21P |
| Si5341A_RST_n | B5 | IO_8_B5/DIFFIO_RX_T20N |
| Si5341A_OE_n | A3 | IO_8_A3/DIFFIO_RX_T21N |
| Si5341A_SYNC_n | E6 | IO_8_E6/DIFFIO_RX_T22P |
| | B3 | IO_8_B3/DIFFIO_RX_T23P |
| Si5341A_FDEC | B4 | IO_8_B4/DIFFIO_RX_T23N |
| | A5 | IO_8_A5/DIFFIO_RX_T25P |
| Si5341A_FINC | A2 | IO_8_A2/DIFFIO_RX_T26P |
| Si5341A_LOL_n | B2 | IO_8_B2/DIFFIO_RX_T26N |

10M08SCU169I7G

U27E 3.3V

| | | |
|---|---|---|
| | K10 | IO_5_K10/DIFFIO_RX_R1P |
| | K11 | IO_5_K11/DIFFIO_RX_R2P |
| VCC2P5_VPP_PG | J10 | IO_5_J10/DIFFIO_RX_R1N |
| | L12 | IO_5_L12/DIFFIO_RX_R2N |
| VCC2P5_PG | K12 | IO_5_K12/DIFFIO_RX_R7P |
| VCC_CORE_PG | L13 | IO_5_L13 |
| VCC1P03_PG | J12 | IO_5_J12/DIFFIO_RX_R7N |
| VCC0P9_VCCERAM_PG | J9 | IO_5_J9/DIFFIO_RX_R8P |
| VCC1P8_PG | J13 | IO_5_J13/DIFFIO_RX_R9P |
| VCC2P4_VCCFUSE_SDM_PG | H10 | IO_5_H10/DIFFIO_RX_R8N |
| VCC1P2_PG | H13 | IO_5_H13/DIFFIO_RX_R9N |
| VCC3P3_PG | H9 | IO_5_H9/DIFFIO_RX_R10P |
| VCC3_VCCIO_PG | G13 | IO_5_G13/DIFFIO_RX_R11P |
| FMCL_PG_C2M | H8 | IO_5_H8/DIFFIO_RX_R10N |
| SOM_CG_M2C | G12 | IO_5_G12/DIFFIO_RX_R11N |

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U27J

| | |
|---|---|
| A1 | GND__A1 |
| A13 | GND__A13 |
| B8 | GND__B8 |
| C3 | GND__C3 |
| D2 | GND__D2 |
| D5 | GND__D5 |
| E11 | GND__E11 |
| E2 | GND__E2 |
| F3 | GND__F3 |
| G7 | GND__G7 |
| H12 | GND__H12 |
| J4 | GND__J4 |
| L9 | GND__L9 |
| M6 | GND__M6 |
| N1 | GND__N1 |
| N13 | GND__N13 |

10M08SCU169I7G

**MAX 10 instant mode has power ramp up requirement**

U27H

| | | |
|---|---|---|
| SOM_RST_M2C | G5 | IO_2_G5/CLK0N/DIFFIO_RX_L18N |
| CLK_25_MAX10 | H6 | IO_2_H6/CLK0P/DIFFIO_RX_L18P |
| SOM_CG_C2M | H5 | IO_2_H5/CLK1N/DIFFIO_RX_L20N |
| | H4 | IO_2_H4/CLK1P/DIFFIO_RX_L20P |
| TEMP_FAULT | N2 | IO_2_N2/DPCLK0/DIFFIO_RX_L22N |
| SOM_RST_C2M | N3 | IO_2_N3/DPCLK1/DIFFIO_RX_L22P 3.3V |
| CLK_100_MAX10_p | G9 | IO_6_G9/CLK2P/DIFFIO_RX_R14P 1.8V |
| CLK_100_MAX10_n | G10 | IO_6_G10/CLK2N/DIFFIO_RX_R14N |
| | F13 | IO_6_F13/CLK3P/DIFFIO_RX_R16P |
| | E13 | IO_6_E13/CLK3N/DIFFIO_RX_R16N |
| MAX10_UART_RX | F9 | IO_6_F9/DPCLK3/DIFFIO_RX_R26P |
| MAX10_UART_TX | F10 | IO_6_F10/DPCLK2/DIFFIO_RX_R26N |
| | H1 | IO_1B_H1/VREFB1N0 1.8V |
| FMCL_PRSNT_M2C_n | L1 | IO_2_L1/VREFB2N0 3.3V |
| FMCL_PG_M2C | N11 | IO_3_N11/VREFB3N0 3.3V |
| | K13 | IO_5_K13/VREFB5N0 3.3V |
| | D13 | IO_6_D13/VREFB6N0 1.8V |
| | B7 | IO_8_B7/VREFB8N0 1.8V |

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U27A

| | | |
|---|---|---|
| VCC3P3 | F2 | VCCIO1A__F2 |
| VCC1P8_MAX10 | G3 | VCCIO1B__G3 |
| | K3 | VCCIO2__K3 |
| | J3 | VCCIO2__J3 |
| | L8 | VCCIO3__L8 |
| | L7 | VCCIO3__L7 |
| | L6 | VCCIO3__L6 |
| VCC1P8_MAX10 | J11 | VCCIO5__J11 |
| | H11 | VCCIO5__H11 |
| | G11 | VCCIO6__G11 |
| | F11 | VCCIO6__F11 |
| | C8 | VCCIO8__C8 |
| MAX10VCCA | C7 | VCCIO8__C7 |
| | C6 | VCCIO8__C6 |
| | D3 | VCCA3__D3 |
| | K4 | VCCA1__K4 |
| | D10 | VCCA2__D10 |
| | D4 | VCCA3__D4 |
| VCC3P3 | K9 | VCCA4__K9 |
| | H7 | VCC_ONE__H7 |
| | G8 | VCC_ONE__G8 |
| | G6 | VCC_ONE__G6 |
| | F7 | VCC_ONE__F7 |

10M08SCU169I7G

**PLACE CLOSE MAX 10 PWR PIN**

VCC3P3: C227 10u, C312 0.1u, C305 0.1u, C259 0.1u, C292 0.1u, C293 0.1u, C238 0.1u, C308 0.1u, C280 0.1u, C310 0.1u, C304 0.1u, C311 0.1u

VCC1P8_MAX10: C855 10u, C239 0.1u, C306 0.1u, C229 0.1u, C228 0.1u, C258 0.1u, C230 0.1u, C313 0.1u

MAX10VCCA: C282 0.1u, C309 0.1u, C281 0.1u, C322 0.1u

VCC3P3 — L30 0.35 ohm, 300mA — MAX10VCCA: C323 10u, C307 0.1u

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Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | MAX 10 - 2 | B |

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## DDR4 SDRAM - B

DDR4B_CK 25
DDR4B_CK_n 25
DDR4B_BA[1..0] 25
DDR4B_BG[1..0] 25

DDR4B_ODT 25
DDR4B_CS_n 25
DDR4B_DQ[63..0] 25
DDR4B_DQS[7..0] 25
DDR4B_DQS_n[7..0] 25
DDR4B_A[16..0] 25
DDR4B_DBI_n[7..0] 25
DDR4B_CKE 25

DDR4B_RESET_n 25
DDR4B_PAR 25
DDR4B_ACT_n 25

DDR4B_ALERT_n 25

RAS_n is a multiplexed function with A16
CAS_n is a multiplexed function with A15
WE_n is a multiplexed function with A14

DDR4B_REFCLK_p 5
DDR4B_REFCLK_n 5

## User Interface

SW[1..0] 38

LED[1..0] 38

## FPGA/MAX 10 I2C interface

7 FPGA_I2C_SDA
7 FPGA_I2C_SCL

DDR4B_RZQ
R383 100
R382 240

U18-7

### Stratix 10 BANK 2K

VCCIO = 1.2V

| | | | | | |
|---|---|---|---|---|---|
| DDR4B_DBI_n7 | AN17 | IO_2K/LVDS2K_1N/DQ12/47 | IO_2K/CLK_2K_0N/LVDS2K_13N/DQ14/23 | AP18 | DDR4B_DBI_n5 |
| DDR4B_DQ63 | AM17 | IO_2K/LVDS2K_1P/DQ12/46 | IO_2K/CLK_2K_0P/LVDS2K_13P/DQ14/22 | AP19 | DDR4B_DQ44 |
| DDR4B_DQ59 | AK18 | IO_2K/LVDS2K_2N/DQ12/45 | IO_2K/LVDS2K_14N/DQ14/21 | AR17 | DDR4B_DQ40 |
| DDR4B_DQ61 | AJ19 | IO_2K/LVDS2K_2P/DQ12/44 | IO_2K/LVDS2K_14P/DQ14/20 | AR18 | DDR4B_DQ45 |
| DDR4B_DQ58 | AL19 | IO_2K/LVDS2K_3N/DQ12/43 | IO_2K/PLL_2K_CLKOUT0N/LVDS2K_15N/DQ14/19 | AT19 | DDR4B_DQ41 |
| DDR4B_DQ56 | AK19 | IO_2K/LVDS2K_3P/DQ12/42 | IO_2K/PLL_2K_CLKOUT0P,PLL_2K_CLKOUT0,PLL_2K_FB0/LVDS2K_15P/DQ14/18 | AR19 | DDR4B_DQ42 |
| DDR4B_DQS_n7 | AJ18 | IO_2K/LVDS2K_4N/DQSN12/CQN12/41 | IO_2K/LVDS2K_16N/DQSN14/CQN14/17 | AN18 | DDR4B_DQS_n5 |
| DDR4B_DQS7 | AH18 | IO_2K/LVDS2K_4P/DQS12/CQ12/40 | IO_2K/LVDS2K_16P/DQS14/CQ14/16 | AM18 | DDR4B_DQS5 |
| DDR4B_DQ60 | AM20 | IO_2K/LVDS2K_5N/DQ12/39 | IO_2K/LVDS2K_17N/DQ14/15 | AR16 | DDR4B_DQ46 |
| DDR4B_DQ62 | AM19 | IO_2K/LVDS2K_5P/DQ12/38 | IO_2K/LVDS2K_17P/DQ14/14 | AT16 | DDR4B_DQ47 |
| DDR4B_DQ57 | AK17 | IO_2K/LVDS2K_6N/DQ12/37 | IO_2K/LVDS2K_18N/DQ14/13 | AT17 | DDR4B_DQ43 |
| | AL17 | IO_2K/LVDS2K_6P/DQ12/36 | IO_2K/LVDS2K_18P/DQ14/12 | AU17 | |
| DDR4B_DBI_n6 | AH24 | IO_2K/LVDS2K_7N/DQ13/35 | IO_2K/LVDS2K_19N/DQ15/11 | AY18 | DDR4B_DBI_n4 |
| DDR4B_DQ49 | AJ23 | IO_2K/LVDS2K_7P/DQ13/34 | IO_2K/LVDS2K_19P/DQ15/10 | AW18 | DDR4B_DQ37 |
| DDR4B_DQ55 | AK24 | IO_2K/LVDS2K_8N/DQ13/33 | IO_2K/LVDS2K_20N/DQ15/9 | AV17 | DDR4B_DQ39 |
| DDR4B_DQ52 | AJ24 | IO_2K/LVDS2K_8P/DQ13/32 | IO_2K/LVDS2K_20P/DQ15/8 | AV16 | DDR4B_DQ36 |
| DDR4B_DQ53 | AL21 | IO_2K/LVDS2K_9N/DQ13/31 | IO_2K/LVDS2K_21N/DQ15/7 | AV18 | DDR4B_DQ32 |
| DDR4B_DQ51 | AL20 | IO_2K/LVDS2K_9P/DQ13/30 | IO_2K/LVDS2K_21P/DQ15/6 | AU18 | DDR4B_DQ38 |
| DDR4B_DQS_n6 | AK21 | IO_2K/PLL_2K_CLKOUT1N/LVDS2K_10N/DQSN13/CQN13/29 | IO_2K/LVDS2K_22N/DQSN15/CQN15/5 | BB17 | DDR4B_DQS_n4 |
| DDR4B_DQS6 | AK22 | IO_2K/PLL_2K_CLKOUT1P,PLL_2K_CLKOUT1,PLL_2K_FB1/LVDS2K_10P/DQS13/CQ13/28 | IO_2K/LVDS2K_22P/DQS15/CQ15/4 | BB18 | DDR4B_DQS4 |
| DDR4B_DQ50 | AL22 | IO_2K/LVDS2K_11N/DQ13/27 | IO_2K/LVDS2K_23N/DQ15/3 | AW16 | DDR4B_DQ34 |
| DDR4B_DQ48 | AK23 | IO_2K/RZQ_2K/LVDS2K_11P/DQ13/26 | IO_2K/LVDS2K_23P/DQ15/2 | AY16 | DDR4B_DQ35 |
| DDR4B_DQ54 | AJ25 | IO_2K/CLK_2K_1N/LVDS2K_12N/DQ13/25 | IO_2K/LVDS2K_24N/DQ15/1 | BA17 | DDR4B_DQ33 |
| | AJ26 | IO_2K/CLK_2K_1P/LVDS2K_12P/DQ13/24 | IO_2K/LVDS2K_24P/DQ15/0 | AY17 | |

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### Stratix 10 BANK 2F

VCCIO = 1.2V

| | | | | | |
|---|---|---|---|---|---|
| | AR21 | IO_2F/LVDS2F_1N/DQ16/47 | IO_2F/CLK_2F_0N/LVDS2F_13N/DQ18/23 | AR24 | DDR4B_A11 |
| LED0 | AP21 | IO_2F/LVDS2F_1P/DQ16/46 | IO_2F/CLK_2F_0P/LVDS2F_13P/DQ18/22 | AR23 | DDR4B_A10 |
| LED1 | AT20 | IO_2F/LVDS2F_2N/DQ16/45 | IO_2F/LVDS2F_14N/DQ18/21 | AN23 | DDR4B_A9 |
| SW0 | AT21 | IO_2F/LVDS2F_2P/DQ16/44 | IO_2F/LVDS2F_14P/DQ18/20 | AP23 | DDR4B_A8 |
| SW1 | AM22 | IO_2F/LVDS2F_3N/DQ16/43 | IO_2F/PLL_2F_CLKOUT0N/LVDS2F_15N/DQ18/19 | AL25 | DDR4B_A7 |
| | AM23 | IO_2F/LVDS2F_3P/DQ16/42 | IO_2F/PLL_2F_CLKOUT0P,PLL_2F_CLKOUT0,PLL_2F_FB0/LVDS2F_15P/DQ18/18 | AL26 | DDR4B_A6 |
| FPGA_I2C_SDA | AU20 | IO_2F/LVDS2F_4N/DQSN16/CQN16/41 | IO_2F/LVDS2F_16N/DQSN18/CQN18/17 | AM24 | DDR4B_A5 |
| FPGA_I2C_SCL | AU19 | IO_2F/LVDS2F_4P/DQS16/CQ16/40 | IO_2F/LVDS2F_16P/DQS18/CQ18/16 | AL24 | DDR4B_A4 |
| | AN21 | IO_2F/LVDS2F_5N/DQ16/39 | IO_2F/LVDS2F_17N/DQ18/15 | AP25 | DDR4B_A3 |
| | AN22 | IO_2F/LVDS2F_5P/DQ16/38 | IO_2F/LVDS2F_17P/DQ18/14 | AP24 | DDR4B_A2 |
| | AP20 | IO_2F/LVDS2F_6N/DQ16/37 | IO_2F/LVDS2F_18N/DQ18/13 | AN25 | DDR4B_A1 |
| | AN20 | IO_2F/LVDS2F_6P/DQ16/36 | IO_2F/LVDS2F_18P/DQ18/12 | AM25 | DDR4B_A0 |
| DDR4B_BG0 | AV20 | IO_2F/LVDS2F_7N/DQ17/35 | IO_2F/LVDS2F_19N/DQ19/11 | AW23 | DDR4B_PAR |
| DDR4B_BA1 | AW20 | IO_2F/LVDS2F_7P/DQ17/34 | IO_2F/LVDS2F_19P/DQ19/10 | AY23 | |
| DDR4B_BA0 | BA20 | IO_2F/LVDS2F_8N/DQ17/33 | IO_2F/LVDS2F_20N/DQ19/9 | AV22 | DDR4B_CK_n |
| | BB20 | IO_2F/LVDS2F_8P/DQ17/32 | IO_2F/LVDS2F_20P/DQ19/8 | AU22 | DDR4B_CK |
| DDR4B_A16 | AV21 | IO_2F/LVDS2F_9N/DQ17/31 | IO_2F/LVDS2F_21N/DQ19/7 | AU23 | |
| DDR4B_A15 | AW21 | IO_2F/LVDS2F_9P/DQ17/30 | IO_2F/LVDS2F_21P/DQ19/6 | AV23 | DDR4B_CKE |
| DDR4B_A14 | BA19 | IO_2F/PLL_2F_CLKOUT1N/LVDS2F_10N/DQSN17/CQN17/29 | IO_2F/LVDS2F_22N/DQSN19/CQN19/5 | BB22 | |
| DDR4B_A13 | BB19 | IO_2F/PLL_2F_CLKOUT1P,PLL_2F_CLKOUT1,PLL_2F_FB1/LVDS2F_10P/DQS17/CQ17/28 | IO_2F/LVDS2F_22P/DQS19/CQ19/4 | BB23 | DDR4B_ODT |
| DDR4B_A12 | AY21 | IO_2F/LVDS2F_11N/DQ17/27 | IO_2F/LVDS2F_23N/DQ19/3 | AR22 | DDR4B_ACT_n |
| | BA21 | IO_2F/RZQ_2F/LVDS2F_11P/DQ17/26 | IO_2F/LVDS2F_23P/DQ19/2 | AT22 | DDR4B_CS_n |
| DDR4B_REFCLK_n | AW19 | IO_2F/CLK_2F_1N/LVDS2F_12N/DQ17/25 | IO_2F/LVDS2F_24N/DQ19/1 | AY22 | DDR4B_RESET_n |
| DDR4B_REFCLK_p | AY19 | IO_2F/CLK_2F_1P/LVDS2F_12P/DQ17/24 | IO_2F/LVDS2F_24P/DQ19/0 | BA22 | DDR4B_BG1 |

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### Stratix 10 BANK 2C

VCCIO = 1.2V

| | | | | | |
|---|---|---|---|---|---|
| DDR4B_DBI_n2 | AT31 | IO_2C/LVDS2C_1N/DQ20/47 | IO_2C/CLK_2C_0N/LVDS2C_13N/DQ22/23 | AV26 | DDR4B_DBI_n1 |
| DDR4B_DQ21 | AT30 | IO_2C/LVDS2C_1P/DQ20/46 | IO_2C/CLK_2C_0P/LVDS2C_13P/DQ22/22 | AV27 | DDR4B_DQ14 |
| DDR4B_DQ19 | AM30 | IO_2C/LVDS2C_2N/DQ20/45 | IO_2C/LVDS2C_14N/DQ22/21 | BB27 | DDR4B_DQ12 |
| DDR4B_DQ23 | AL30 | IO_2C/LVDS2C_2P/DQ20/44 | IO_2C/LVDS2C_14P/DQ22/20 | BA27 | DDR4B_DQ15 |
| DDR4B_DQ18 | AP30 | IO_2C/LVDS2C_3N/DQ20/43 | IO_2C/PLL_2C_CLKOUT0N/LVDS2C_15N/DQ22/19 | AY27 | DDR4B_DQ10 |
| DDR4B_DQ22 | AN30 | IO_2C/LVDS2C_3P/DQ20/42 | IO_2C/PLL_2C_CLKOUT0P,PLL_2C_CLKOUT0,PLL_2C_FB0/LVDS2C_15P/DQ22/18 | BA26 | DDR4B_DQ8 |
| DDR4B_DQS_n2 | AR30 | IO_2C/LVDS2C_4N/DQSN20/CQN20/41 | IO_2C/LVDS2C_16N/DQSN22/CQN22/17 | BA25 | DDR4B_DQS_n1 |
| DDR4B_DQS2 | AP29 | IO_2C/LVDS2C_4P/DQS20/CQ20/40 | IO_2C/LVDS2C_16P/DQS22/CQ22/16 | BB25 | DDR4B_DQS1 |
| DDR4B_DQ20 | AR28 | IO_2C/LVDS2C_5N/DQ20/39 | IO_2C/LVDS2C_17N/DQ22/15 | AY26 | DDR4B_DQ9 |
| DDR4B_DQ16 | AP28 | IO_2C/LVDS2C_5P/DQ20/38 | IO_2C/LVDS2C_17P/DQ22/14 | AW26 | DDR4B_DQ13 |
| DDR4B_DQ17 | AT29 | IO_2C/LVDS2C_6N/DQ20/37 | IO_2C/LVDS2C_18N/DQ22/13 | BA24 | DDR4B_DQ11 |
| | AR29 | IO_2C/LVDS2C_6P/DQ20/36 | IO_2C/LVDS2C_18P/DQ22/12 | BB24 | |
| DDR4B_DBI_n3 | AL27 | IO_2C/LVDS2C_7N/DQ21/35 | IO_2C/LVDS2C_19N/DQ23/11 | AU24 | DDR4B_DBI_n0 |
| DDR4B_DQ29 | AM27 | IO_2C/LVDS2C_7P/DQ21/34 | IO_2C/LVDS2C_19P/DQ23/10 | AT24 | DDR4B_DQ5 |
| DDR4B_DQ30 | AK30 | IO_2C/LVDS2C_8N/DQ21/33 | IO_2C/LVDS2C_20N/DQ23/9 | AW25 | DDR4B_DQ2 |
| DDR4B_DQ26 | AK29 | IO_2C/LVDS2C_8P/DQ21/32 | IO_2C/LVDS2C_20P/DQ23/8 | AV25 | DDR4B_DQ0 |
| DDR4B_DQ27 | AN27 | IO_2C/LVDS2C_9N/DQ21/31 | IO_2C/LVDS2C_21N/DQ23/7 | AT26 | DDR4B_DQ4 |
| DDR4B_DQ25 | AP26 | IO_2C/LVDS2C_9P/DQ21/30 | IO_2C/LVDS2C_21P/DQ23/6 | AR27 | DDR4B_DQ6 |
| DDR4B_DQS_n3 | AK27 | IO_2C/PLL_2C_CLKOUT1N/LVDS2C_10N/DQSN21/CQN21/29 | IO_2C/LVDS2C_22N/DQSN23/CQN23/5 | AU27 | DDR4B_DQS_n0 |
| DDR4B_DQS3 | AK28 | IO_2C/PLL_2C_CLKOUT1P,PLL_2C_CLKOUT1,PLL_2C_FB1/LVDS2C_10P/DQS21/CQ21/28 | IO_2C/LVDS2C_22P/DQS23/CQ23/4 | AT27 | DDR4B_DQS0 |
| DDR4B_DQ31 | AN28 | IO_2C/LVDS2C_11N/DQ21/27 | IO_2C/LVDS2C_23N/DQ23/3 | AY24 | DDR4B_DQ3 |
| DDR4B_DQ24 | AM28 | IO_2C/RZQ_2C/LVDS2C_11P/DQ21/26 | IO_2C/LVDS2C_23P/DQ23/2 | AW24 | DDR4B_DQ1 |
| DDR4B_DQ28 | AL29 | IO_2C/CLK_2C_1N/LVDS2C_12N/DQ21/25 | IO_2C/LVDS2C_24N/DQ23/1 | AU25 | DDR4B_DQ7 |
| | AM29 | IO_2C/CLK_2C_1P/LVDS2C_12P/DQ21/24 | IO_2C/LVDS2C_24P/DQ23/0 | AT25 | DDR4B_ALERT_n |

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Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Bank 2C, 2F, 2K | B |

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## DDR4 SDRAM - A

DDR4A_CK 24
DDR4A_CK_n 24
DDR4A_BA[1..0] 24
DDR4A_BG[1..0] 24

DDR4A_ODT 24
DDR4A_CS_n 24
DDR4A_DQ[63..0] 24
DDR4A_DQS[7..0] 24
DDR4A_DQS_n[7..0] 24
DDR4A_A[16..0] 24
DDR4A_DBI_n[7..0] 24
DDR4A_CKE 24

DDR4A_RESET_n 24
DDR4A_PAR 24
DDR4A_ACT_n 24

DDR4A_ALERT_n 24

RAS_n is a multiplexed function with A16
CAS_n is a multiplexed function with A15
WE_n is a multiplexed function with A14

DDR4A_REFCLK_p 6
DDR4A_REFCLK_n 6

DDR4A_RZQ
R354 100 DDR4A_REFCLK_n
DDR4A_REFCLK_p
R364 240

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### Stratix 10 BANK 2L

VCCIO = 1.2V

| | | | |
|---|---|---|---|
| DDR4A_DBI_n7 | H16 | IO_2L/LVDS2L_1N/DQ8/47 | |
| DDR4A_DQ61 | H17 | IO_2L/LVDS2L_1P/DQ8/46 | |
| DDR4A_DQ60 | N18 | IO_2L/LVDS2L_2N/DQ8/45 | |
| DDR4A_DQ56 | M18 | IO_2L/LVDS2L_2P/DQ8/44 | |
| DDR4A_DQ58 | F17 | IO_2L/LVDS2L_3N/DQ8/43 | |
| DDR4A_DQ59 | G17 | IO_2L/LVDS2L_3P/DQ8/42 | |
| DDR4A_DQS_n7 | M17 | IO_2L/LVDS2L_4N/DQSN8/CQN8/41 | |
| DDR4A_DQS7 | N17 | IO_2L/LVDS2L_4P/DQS8/CQ8/40 | |
| DDR4A_DQ62 | L17 | IO_2L/LVDS2L_5N/DQ8/39 | |
| DDR4A_DQ63 | K17 | IO_2L/LVDS2L_5P/DQ8/38 | |
| DDR4A_DQ57 | E16 | IO_2L/LVDS2L_6N/DQ8/37 | |
| | F16 | IO_2L/LVDS2L_6P/DQ8/36 | |
| DDR4A_DBI_n6 | L15 | IO_2L/LVDS2L_7N/DQ9/35 | |
| DDR4A_DQ52 | L16 | IO_2L/LVDS2L_7P/DQ9/34 | |
| DDR4A_DQ51 | N15 | IO_2L/LVDS2L_8N/DQ9/33 | |
| DDR4A_DQ54 | M15 | IO_2L/LVDS2L_8P/DQ9/32 | |
| DDR4A_DQ49 | N16 | IO_2L/LVDS2L_9N/DQ9/31 | |
| DDR4A_DQ53 | P16 | IO_2L/LVDS2L_9P/DQ9/30 | |
| DDR4A_DQS_n6 | P18 | IO_2L/PLL_2L_CLKOUT1N/LVDS2L_10N/DQSN9/CQN9/29 | |
| DDR4A_DQS6 | R17 | IO_2L/PLL_2L_CLKOUT1P,PLL_2L_CLKOUT1,PLL_2L_FB1/LVDS2L_10P/DQS9/CQ9/28 | |
| DDR4A_DQ48 | J16 | IO_2L/LVDS2L_11N/DQ9/27 | |
| DDR4A_DQ50 | K16 | IO_2L/RZQ_2L/LVDS2L_11P/DQ9/26 | |
| DDR4A_DQ55 | P15 | IO_2L/CLK_2L_1N/LVDS2L_12N/DQ9/25 | |
| | R16 | IO_2L/CLK_2L_1P/LVDS2L_12P/DQ9/24 | |

| | | | |
|---|---|---|---|
| IO_2L/CLK_2L_0N/LVDS2L_13N/DQ10/23 | F15 | DDR4A_DBI_n5 | |
| IO_2L/CLK_2L_0P/LVDS2L_13P/DQ10/22 | G15 | DDR4A_DQ45 | |
| IO_2L/LVDS2L_14N/DQ10/21 | D14 | DDR4A_DQ43 | |
| IO_2L/LVDS2L_14P/DQ10/20 | D15 | DDR4A_DQ41 | |
| IO_2L/PLL_2L_CLKOUT0N/LVDS2L_15N/DQ10/19 | H15 | DDR4A_DQ47 | |
| IO_2L/PLL_2L_CLKOUT0P,PLL_2L_CLKOUT0,PLL_2L_FB0/LVDS2L_15P/DQ10/18 | J15 | DDR4A_DQ46 | |
| IO_2L/LVDS2L_16N/DQSN10/CQN10/17 | F14 | DDR4A_DQS_n5 | |
| IO_2L/LVDS2L_16P/DQS10/CQ10/16 | E14 | DDR4A_DQS5 | |
| IO_2L/LVDS2L_17N/DQ10/15 | G13 | DDR4A_DQ44 | |
| IO_2L/LVDS2L_17P/DQ10/14 | G14 | DDR4A_DQ40 | |
| IO_2L/LVDS2L_18N/DQ10/13 | E13 | DDR4A_DQ42 | |
| IO_2L/LVDS2L_18P/DQ10/12 | D13 | | |
| IO_2L/LVDS2L_19N/DQ11/11 | E12 | DDR4A_DBI_n4 | |
| IO_2L/LVDS2L_19P/DQ11/10 | D11 | DDR4A_DQ32 | |
| IO_2L/LVDS2L_20N/DQ11/9 | C11 | DDR4A_DQ39 | |
| IO_2L/LVDS2L_20P/DQ11/8 | C10 | DDR4A_DQ38 | |
| IO_2L/LVDS2L_21N/DQ11/7 | F12 | DDR4A_DQ35 | |
| IO_2L/LVDS2L_21P/DQ11/6 | G12 | DDR4A_DQ37 | |
| IO_2L/LVDS2L_22N/DQSN11/CQN11/5 | C8 | DDR4A_DQS_n4 | |
| IO_2L/LVDS2L_22P/DQS11/CQ11/4 | D8 | DDR4A_DQS4 | |
| IO_2L/LVDS2L_23N/DQ11/3 | E11 | DDR4A_DQ33 | |
| IO_2L/LVDS2L_23P/DQ11/2 | F11 | DDR4A_DQ36 | |
| IO_2L/LVDS2L_24N/DQ11/1 | D10 | DDR4A_DQ34 | |
| IO_2L/LVDS2L_24P/DQ11/0 | D9 | | |

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### Stratix 10 BANK 2M

VCCIO = 1.2V

| | | | |
|---|---|---|---|
| F25 | IO_2M/LVDS2M_1N/DQ4/47 | | |
| F26 | IO_2M/LVDS2M_1P/DQ4/46 | | |
| C26 | IO_2M/LVDS2M_2N/DQ4/45 | | |
| C27 | IO_2M/LVDS2M_2P/DQ4/44 | | |
| E26 | IO_2M/LVDS2M_3N/DQ4/43 | | |
| D26 | IO_2M/LVDS2M_3P/DQ4/42 | | |
| B25 | IO_2M/LVDS2M_4N/DQSN4/CQN4/41 | | |
| B24 | IO_2M/LVDS2M_4P/DQS4/CQ4/40 | | |
| C25 | IO_2M/LVDS2M_5N/DQ4/39 | | |
| D25 | IO_2M/LVDS2M_5P/DQ4/38 | | |
| A24 | IO_2M/LVDS2M_6N/DQ4/37 | | |
| A25 | IO_2M/LVDS2M_6P/DQ4/36 | | |
| F27 | IO_2M/LVDS2M_7N/DQ5/35 | | |
| G27 | IO_2M/LVDS2M_7P/DQ5/34 | | |
| H27 | IO_2M/LVDS2M_8N/DQ5/33 | | |
| H28 | IO_2M/LVDS2M_8P/DQ5/32 | | |
| H30 | IO_2M/LVDS2M_9N/DQ5/31 | | |
| H31 | IO_2M/LVDS2M_9P/DQ5/30 | | |
| K28 | IO_2M/PLL_2M_CLKOUT1N/LVDS2M_10N/DQSN5/CQN5/29 | | |
| J28 | IO_2M/PLL_2M_CLKOUT1P,PLL_2M_CLKOUT1,PLL_2M_FB1/LVDS2M_10P/DQS5/CQ5/28 | | |
| J29 | IO_2M/LVDS2M_11N/DQ5/27 | | |
| J30 | IO_2M/RZQ_2M/LVDS2M_11P/DQ5/26 | | |
| E27 | IO_2M/CLK_2M_1N/LVDS2M_12N/DQ5/25 | | |
| D27 | IO_2M/CLK_2M_1P/LVDS2M_12P/DQ5/24 | | |

| | | | |
|---|---|---|---|
| DDR4A_BG0 | IO_2M/CLK_2M_0N/LVDS2M_13N/DQ6/23 | M27 | DDR4A_A11 |
| DDR4A_BA1 | IO_2M/CLK_2M_0P/LVDS2M_13P/DQ6/22 | L27 | DDR4A_A10 |
| DDR4A_BA0 | IO_2M/LVDS2M_14N/DQ6/21 | N27 | DDR4A_A9 |
| | IO_2M/LVDS2M_14P/DQ6/20 | N26 | DDR4A_A8 |
| DDR4A_A16 | IO_2M/PLL_2M_CLKOUT0N/LVDS2M_15N/DQ6/19 | K27 | DDR4A_A7 |
| DDR4A_A15 | IO_2M/PLL_2M_CLKOUT0P,PLL_2M_CLKOUT0,PLL_2M_FB0/LVDS2M_15P/DQ6/18 | K26 | DDR4A_A6 |
| DDR4A_A14 | IO_2M/LVDS2M_16N/DQSN6/CQN6/17 | R27 | DDR4A_A5 |
| DDR4A_A13 | IO_2M/LVDS2M_16P/DQS6/CQ6/16 | P28 | DDR4A_A4 |
| DDR4A_A12 | IO_2M/LVDS2M_17N/DQ6/15 | P26 | DDR4A_A3 |
| | IO_2M/LVDS2M_17P/DQ6/14 | R26 | DDR4A_A2 |
| | IO_2M/LVDS2M_18N/DQ6/13 | N28 | DDR4A_A1 |
| | IO_2M/LVDS2M_18P/DQ6/12 | M28 | DDR4A_A0 |
| | IO_2M/LVDS2M_19N/DQ7/11 | P29 | DDR4A_PAR |
| | IO_2M/LVDS2M_19P/DQ7/10 | P30 | |
| | IO_2M/LVDS2M_20N/DQ7/9 | L30 | DDR4A_CK_n |
| | IO_2M/LVDS2M_20P/DQ7/8 | K31 | DDR4A_CK |
| | IO_2M/LVDS2M_21N/DQ7/7 | M31 | |
| | IO_2M/LVDS2M_21P/DQ7/6 | M30 | DDR4A_CKE |
| | IO_2M/LVDS2M_22N/DQSN7/CQN7/5 | K29 | |
| | IO_2M/LVDS2M_22P/DQS7/CQ7/4 | K30 | DDR4A_ODT |
| | IO_2M/LVDS2M_23N/DQ7/3 | L29 | DDR4A_ACT_n |
| | IO_2M/LVDS2M_23P/DQ7/2 | M29 | DDR4A_CS_n |
| | IO_2M/LVDS2M_24N/DQ7/1 | P31 | DDR4A_RESET_n |
| | IO_2M/LVDS2M_24P/DQ7/0 | N30 | DDR4A_BG1 |

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### Stratix 10 BANK 2N

VCCIO = 1.2V

| | | | |
|---|---|---|---|
| DDR4A_DBI_n3 | H22 | IO_2N/LVDS2N_1N/DQ0/47 | |
| DDR4A_DQ29 | G22 | IO_2N/LVDS2N_1P/DQ0/46 | |
| DDR4A_DQ24 | F21 | IO_2N/LVDS2N_2N/DQ0/45 | |
| DDR4A_DQ26 | E21 | IO_2N/LVDS2N_2P/DQ0/44 | |
| DDR4A_DQ31 | J21 | IO_2N/LVDS2N_3N/DQ0/43 | |
| DDR4A_DQ28 | H21 | IO_2N/LVDS2N_3P/DQ0/42 | |
| DDR4A_DQS_n3 | H23 | IO_2N/LVDS2N_4N/DQSN0/CQN0/41 | |
| DDR4A_DQS3 | J23 | IO_2N/LVDS2N_4P/DQS0/CQ0/40 | |
| DDR4A_DQ30 | E22 | IO_2N/LVDS2N_5N/DQ0/39 | |
| DDR4A_DQ25 | F22 | IO_2N/LVDS2N_5P/DQ0/38 | |
| DDR4A_DQ27 | D21 | IO_2N/LVDS2N_6N/DQ0/37 | |
| | C21 | IO_2N/LVDS2N_6P/DQ0/36 | |
| DDR4A_DBI_n2 | P24 | IO_2N/LVDS2N_7N/DQ1/35 | |
| DDR4A_DQ22 | P23 | IO_2N/LVDS2N_7P/DQ1/34 | |
| DDR4A_DQ16 | K22 | IO_2N/LVDS2N_8N/DQ1/33 | |
| DDR4A_DQ18 | K23 | IO_2N/LVDS2N_8P/DQ1/32 | |
| DDR4A_DQ19 | M22 | IO_2N/LVDS2N_9N/DQ1/31 | |
| DDR4A_DQ17 | L22 | IO_2N/LVDS2N_9P/DQ1/30 | |
| DDR4A_DQS_n2 | R24 | IO_2N/PLL_2N_CLKOUT1N/LVDS2N_10N/DQSN1/CQN1/29 | |
| DDR4A_DQS2 | T23 | IO_2N/PLL_2N_CLKOUT1P,PLL_2N_CLKOUT1,PLL_2N_FB1/LVDS2N_10P/DQS1/CQ1/28 | |
| DDR4A_DQ23 | N23 | IO_2N/LVDS2N_11N/DQ1/27 | |
| DDR4A_DQ21 | N22 | IO_2N/RZQ_2N/LVDS2N_11P/DQ1/26 | |
| DDR4A_DQ20 | M23 | IO_2N/CLK_2N_1N/LVDS2N_12N/DQ1/25 | |
| | M24 | IO_2N/CLK_2N_1P/LVDS2N_12P/DQ1/24 | |

| | | | |
|---|---|---|---|
| IO_2N/CLK_2N_0N/LVDS2N_13N/DQ2/23 | G24 | DDR4A_DBI_n1 | |
| IO_2N/CLK_2N_0P/LVDS2N_13P/DQ2/22 | G25 | DDR4A_DQ9 | |
| IO_2N/LVDS2N_14N/DQ2/21 | M25 | DDR4A_DQ14 | |
| IO_2N/LVDS2N_14P/DQ2/20 | L25 | DDR4A_DQ10 | |
| IO_2N/PLL_2N_CLKOUT0N/LVDS2N_15N/DQ2/19 | J24 | DDR4A_DQ11 | |
| IO_2N/PLL_2N_CLKOUT0P,PLL_2N_CLKOUT0,PLL_2N_FB0/LVDS2N_15P/DQ2/18 | J25 | DDR4A_DQ8 | |
| IO_2N/LVDS2N_16N/DQSN2/CQN2/17 | P25 | DDR4A_DQS_n1 | |
| IO_2N/LVDS2N_16P/DQS2/CQ2/16 | N25 | DDR4A_DQS1 | |
| IO_2N/LVDS2N_17N/DQ2/15 | L24 | DDR4A_DQ12 | |
| IO_2N/LVDS2N_17P/DQ2/14 | K24 | DDR4A_DQ15 | |
| IO_2N/LVDS2N_18N/DQ2/13 | H26 | DDR4A_DQ13 | |
| IO_2N/LVDS2N_18P/DQ2/12 | H25 | | |
| IO_2N/LVDS2N_19N/DQ3/11 | G23 | DDR4A_DBI_n0 | |
| IO_2N/LVDS2N_19P/DQ3/10 | F24 | DDR4A_DQ0 | |
| IO_2N/LVDS2N_20N/DQ3/9 | E24 | DDR4A_DQ2 | |
| IO_2N/LVDS2N_20P/DQ3/8 | D24 | DDR4A_DQ4 | |
| IO_2N/LVDS2N_21N/DQ3/7 | E23 | DDR4A_DQ6 | |
| IO_2N/LVDS2N_21P/DQ3/6 | D23 | DDR4A_DQ3 | |
| IO_2N/LVDS2N_22N/DQSN3/CQN3/5 | C22 | DDR4A_DQS_n0 | |
| IO_2N/LVDS2N_22P/DQS3/CQ3/4 | C23 | DDR4A_DQS0 | |
| IO_2N/LVDS2N_23N/DQ3/3 | A21 | DDR4A_DQ7 | |
| IO_2N/LVDS2N_23P/DQ3/2 | A22 | DDR4A_DQ5 | |
| IO_2N/LVDS2N_24N/DQ3/1 | B22 | DDR4A_DQ1 | |
| IO_2N/LVDS2N_24P/DQ3/0 | B23 | DDR4A_ALERT_n | |

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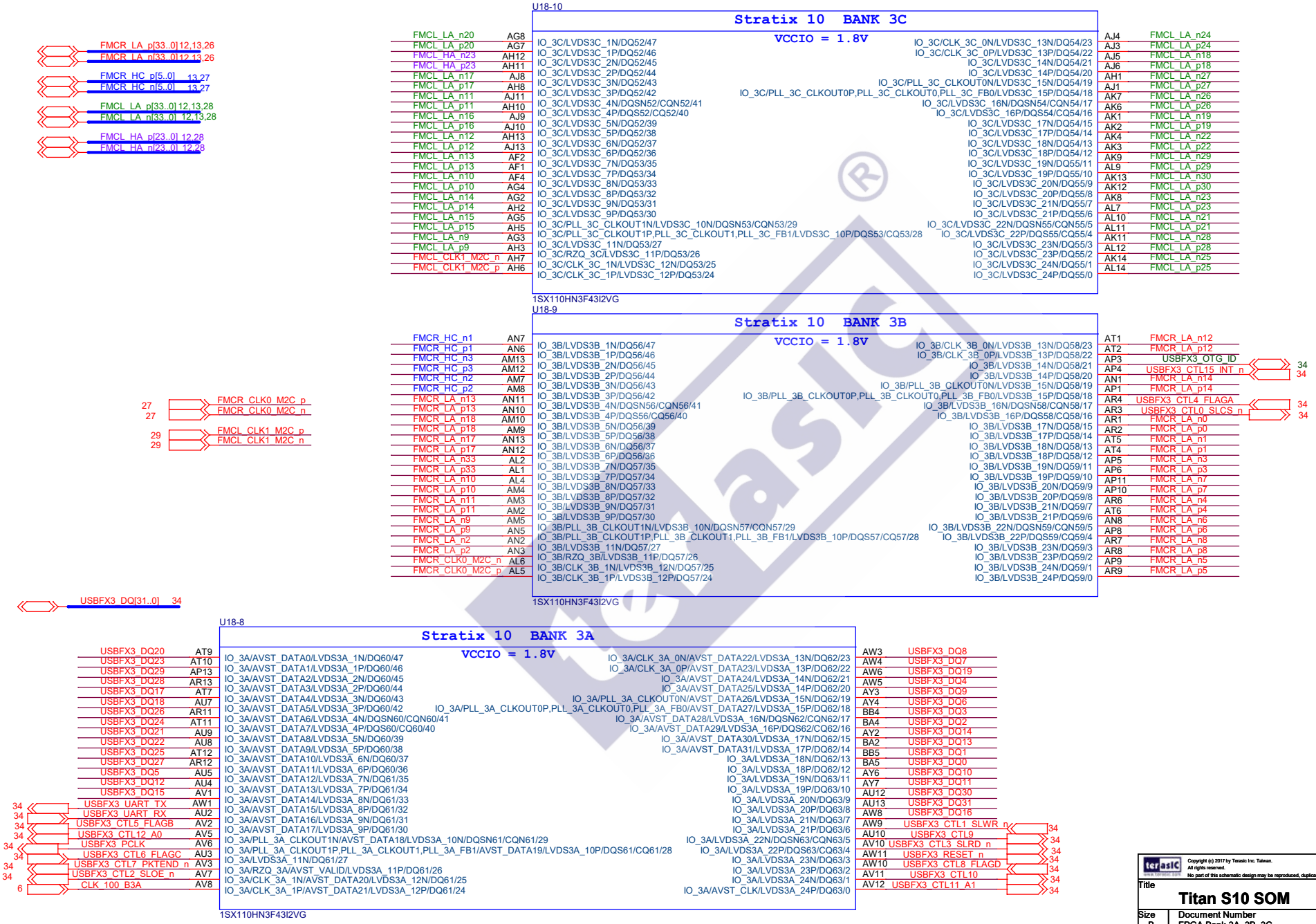
Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Bank 2L, 2M, 2N | B |

Date: Wednesday, July 23, 2025 Sheet 10 of 45

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Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Bank 3A, 3B, 3C | B |

Date: Thursday, July 24, 2025 Sheet 11 of 45

| | |
|---|---|
| 11,13,26 | FMCR_LA_p[33..0] |
| 11,13,26 | FMCR_LA_n[33..0] |
| 11,13,28 | FMCL_LA_p[33..0] |
| 11,13,28 | FMCL_LA_n[33..0] |
| 11,28 | FMCL_HA_p[23..0] |
| 11,28 | FMCL_HA_n[23..0] |
| 28 | FMCL_HB_p[21..0] |
| 28 | FMCL_HB_n[21..0] |
| 29 | FMCL_CLK0_M2C_p |
| 29 | FMCL_CLK0_M2C_n |
| 29 | FMCL_CLK2_BIDIR_p |
| 29 | FMCL_CLK2_BIDIR_n |
| 29 | FMCL_CLK3_BIDIR_p |
| 29 | FMCL_CLK3_BIDIR_n |

U18-13

## Stratix 10 BANK 3J

VCCIO = 1.8V

| | | | |
|---|---|---|---|
| FMCL_HB_n3 | R1 | IO_3J/LVDS3J_1N/DQ40/47 | |
| FMCL_HB_p3 | T1 | IO_3J/LVDS3J_1P/DQ40/46 | |
| FMCL_HB_n15 | M2 | IO_3J/LVDS3J_2N/DQ40/45 | |
| FMCL_HB_p15 | N2 | IO_3J/LVDS3J_2P/DQ40/44 | |
| FMCL_HB_n5 | R2 | IO_3J/LVDS3J_3N/DQ40/43 | |
| FMCL_HB_p5 | T2 | IO_3J/LVDS3J_3P/DQ40/42 | |
| FMCL_HB_n7 | N1 | IO_3J/LVDS3J_4N/DQSN40/CQN40/41 | |
| FMCL_HB_p7 | P1 | IO_3J/LVDS3J_4P/DQS40/CQ40/40 | |
| FMCL_HB_n9 | R4 | IO_3J/LVDS3J_5N/DQ40/39 | |
| FMCL_HB_p9 | R3 | IO_3J/LVDS3J_5P/DQ40/38 | |
| FMCL_HB_n1 | P3 | IO_3J/LVDS3J_6N/DQ40/37 | |
| FMCL_HB_p1 | N3 | IO_3J/LVDS3J_6P/DQ40/36 | |
| FMCL_HB_n10 | N8 | IO_3J/LVDS3J_7N/DQ41/35 | |
| FMCL_HB_p10 | N7 | IO_3J/LVDS3J_7P/DQ41/34 | |
| FMCL_HB_n4 | P6 | IO_3J/LVDS3J_8N/DQ41/33 | |
| FMCL_HB_p4 | R6 | IO_3J/LVDS3J_8P/DQ41/32 | |
| FMCL_HB_n0 | N6 | IO_3J/LVDS3J_9N/DQ41/31 | |
| FMCL_HB_p0 | N5 | IO_3J/LVDS3J_9P/DQ41/30 | |
| FMCL_HB_n11 | P8 | IO_3J/PLL_3J_CLKOUT1N/LVDS3J_10N/DQSN41/CQN41/29 | |
| FMCL_HB_p11 | P9 | IO_3J/PLL_3J_CLKOUT1P,PLL_3J_CLKOUT1,PLL_3J_FB1/LVDS3J_10P/DQS41/CQ41/28 | |
| FMCL_LA_n31 | P4 | IO_3J/LVDS3J_11N/DQ41/27 | |
| FMCL_LA_p31 | P5 | IO_3J/RZQ_3J/LVDS3J_11P/DQ41/26 | |
| FMCL_HB_n2 | N10 | IO_3J/CLK_3J_1N/LVDS3J_12N/DQ41/25 | |
| FMCL_HB_p2 | P10 | IO_3J/CLK_3J_1P/LVDS3J_12P/DQ41/24 | |

| | | | |
|---|---|---|---|
| IO_3J/CLK_3J_0N/LVDS3J_13N/DQ42/23 | U2 | FMCL_CLK2_BIDIR_n | |
| IO_3J/CLK_3J_0P/LVDS3J_13P/DQ42/22 | U3 | FMCL_CLK2_BIDIR_p | |
| IO_3J/LVDS3J_14N/DQ42/21 | R8 | FMCL_HB_n13 | |
| IO_3J/LVDS3J_14P/DQ42/20 | R7 | FMCL_HB_p13 | |
| IO_3J/PLL_3J_CLKOUT0N/LVDS3J_15N/DQ42/19 | T4 | FMCL_HB_n14 | |
| IO_3J/PLL_3J_CLKOUT0P,PLL_3J_CLKOUT0,PLL_3J_FB0/LVDS3J_15P/DQ42/18 | U4 | FMCL_HB_p14 | |
| IO_3J/LVDS3J_16N/DQSN42/CQN42/17 | T7 | FMCL_HB_n12 | |
| IO_3J/LVDS3J_16P/DQS42/CQ42/16 | T6 | FMCL_HB_p12 | |
| IO_3J/LVDS3J_17N/DQ42/15 | T5 | FMCL_HB_n8 | |
| IO_3J/LVDS3J_17P/DQ42/14 | U5 | FMCL_HB_p8 | |
| IO_3J/LVDS3J_18N/DQ42/13 | T9 | FMCL_HB_n6 | |
| IO_3J/LVDS3J_18P/DQ42/12 | R9 | FMCL_HB_p6 | |
| IO_3J/LVDS3J_19N/DQ43/11 | N11 | FMCL_HB_n18 | |
| IO_3J/LVDS3J_19P/DQ43/10 | N12 | FMCL_HB_p18 | |
| IO_3J/LVDS3J_20N/DQ43/9 | P11 | FMCL_HB_n16 | |
| IO_3J/LVDS3J_20P/DQ43/8 | R11 | FMCL_HB_p16 | |
| IO_3J/LVDS3J_21N/DQ43/7 | R12 | FMCL_HB_n21 | |
| IO_3J/LVDS3J_21P/DQ43/6 | T12 | FMCL_HB_p21 | |
| IO_3J/LVDS3J_22N/DQSN43/CQN43/5 | N13 | FMCL_HB_n17 | |
| IO_3J/LVDS3J_22P/DQS43/CQ43/4 | P13 | FMCL_HB_p17 | |
| IO_3J/LVDS3J_23N/DQ43/3 | R14 | FMCL_HB_n20 | |
| IO_3J/LVDS3J_23P/DQ43/2 | R13 | FMCL_HB_p20 | |
| IO_3J/LVDS3J_24N/DQ43/1 | T11 | FMCL_HB_n19 | |
| IO_3J/LVDS3J_24P/DQ43 | T10 | FMCL_HB_p19 | |

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U18-12

## Stratix 10 BANK 3I

VCCIO = 1.8V

| | | | |
|---|---|---|---|
| FMCL_LA_n8 | V6 | IO_3I/LVDS3I_1N/DQ44/47 | |
| FMCL_LA_p8 | V7 | IO_3I/LVDS3I_1P/DQ44/46 | |
| FMCL_LA_n6 | U7 | IO_3I/LVDS3I_2N/DQ44/45 | |
| FMCL_LA_p6 | U8 | IO_3I/LVDS3I_2P/DQ44/44 | |
| FMCL_LA_n2 | V8 | IO_3I/LVDS3I_3N/DQ44/43 | |
| FMCL_LA_p2 | W8 | IO_3I/LVDS3I_3P/DQ44/42 | |
| FMCL_LA_n5 | U9 | IO_3I/LVDS3I_4N/DQSN44/CQN44/41 | |
| FMCL_LA_p5 | U10 | IO_3I/LVDS3I_4P/DQS44/CQ44/40 | |
| FMCL_LA_n4 | V11 | IO_3I/LVDS3I_5N/DQ44/39 | |
| FMCL_LA_p4 | V10 | IO_3I/LVDS3I_5P/DQ44/38 | |
| FMCL_LA_n3 | U12 | IO_3I/LVDS3I_6N/DQ44/37 | |
| FMCL_LA_p3 | V12 | IO_3I/LVDS3I_6P/DQ44/36 | |
| FMCL_LA_n0 | V1 | IO_3I/LVDS3I_7N/DQ45/35 | |
| FMCL_LA_p0 | W1 | IO_3I/LVDS3I_7P/DQ45/34 | |
| FMCR_LA_n26 | V2 | IO_3I/LVDS3I_8N/DQ45/33 | |
| FMCR_LA_p26 | V3 | IO_3I/LVDS3I_8P/DQ45/32 | |
| FMCR_LA_n22 | Y1 | IO_3I/LVDS3I_9N/DQ45/31 | |
| FMCR_LA_p22 | AA1 | IO_3I/LVDS3I_9P/DQ45/30 | |
| FMCR_LA_n21 | W3 | IO_3I/PLL_3I_CLKOUT1N/LVDS3I_10N/DQSN45/CQN45/29 | |
| FMCR_LA_p21 | W4 | IO_3I/PLL_3I_CLKOUT1P,PLL_3I_CLKOUT1,PLL_3I_FB1/LVDS3I_10P/DQS45/CQ45/28 | |
| FMCR_LA_n30 | Y2 | IO_3I/LVDS3I_11N/DQ45/27 | |
| FMCR_LA_p30 | Y3 | IO_3I/RZQ_3I/LVDS3I_11P/DQ45/26 | |
| FMCL_CLK0_M2C_n | V5 | IO_3I/CLK_3I_1N/LVDS3I_12N/DQ45/25 | |
| FMCL_CLK0_M2C_p | W5 | IO_3I/CLK_3I_1P/LVDS3I_12P/DQ45/24 | |

| | | | |
|---|---|---|---|
| IO_3I/CLK_3I_0N/LVDS3I_13N/DQ46/23 | Y4 | FMCR_LA_n28 | |
| IO_3I/CLK_3I_0P/LVDS3I_13P/DQ46/22 | AA4 | FMCR_LA_p28 | |
| IO_3I/LVDS3I_14N/DQ46/21 | Y6 | FMCL_LA_n1 | |
| IO_3I/LVDS3I_14P/DQ46/20 | W6 | FMCL_LA_p1 | |
| IO_3I/PLL_3I_CLKOUT0N/LVDS3I_15N/DQ46/19 | AA2 | FMCR_LA_n32 | |
| IO_3I/PLL_3I_CLKOUT0P,PLL_3I_CLKOUT0,PLL_3I_FB0/LVDS3I_15P/DQ46/18 | AB2 | FMCR_LA_p32 | |
| IO_3I/LVDS3I_16N/DQSN46/CQN46/17 | AA6 | FMCR_LA_n29 | |
| IO_3I/LVDS3I_16P/DQS46/CQ46/16 | AA5 | FMCR_LA_p29 | |
| IO_3I/LVDS3I_17N/DQ46/15 | AB3 | FMCR_LA_n25 | |
| IO_3I/LVDS3I_17P/DQ46/14 | AB4 | FMCR_LA_p25 | |
| IO_3I/LVDS3I_18N/DQ46/13 | AA7 | FMCL_LA_n7 | |
| IO_3I/LVDS3I_18P/DQ46/12 | Y7 | FMCL_LA_p7 | |
| IO_3I/LVDS3I_19N/DQ47/11 | Y12 | FMCR_LA_n20 | |
| IO_3I/LVDS3I_19P/DQ47/10 | Y13 | FMCR_LA_p20 | |
| IO_3I/LVDS3I_20N/DQ47/9 | W10 | FMCR_LA_n23 | |
| IO_3I/LVDS3I_20P/DQ47/8 | W9 | FMCR_LA_p23 | |
| IO_3I/LVDS3I_21N/DQ47/7 | AA9 | FMCR_LA_n16 | |
| IO_3I/LVDS3I_21P/DQ47/6 | AA10 | FMCR_LA_p16 | |
| IO_3I/LVDS3I_22N/DQSN47/CQN47/5 | W11 | FMCR_LA_n19 | |
| IO_3I/LVDS3I_22P/DQS47/CQ47/4 | Y11 | FMCR_LA_p19 | |
| IO_3I/LVDS3I_23N/DQ47/3 | AA11 | FMCR_LA_n15 | |
| IO_3I/LVDS3I_23P/DQ47/2 | AA12 | FMCR_LA_p15 | |
| IO_3I/LVDS3I_24N/DQ47/1 | Y9 | FMCR_LA_n31 | |
| IO_3I/LVDS3I_24P/DQ47/0 | Y8 | FMCR_LA_p31 | |

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U18-11

## Stratix 10 BANK 3D

VCCIO = 1.8V

| | | | |
|---|---|---|---|
| FMCL_HA_n5 | AB10 | IO_3D/LVDS3D_1N/DQ48/47 | |
| FMCL_HA_p5 | AB9 | IO_3D/LVDS3D_1P/DQ48/46 | |
| FMCL_HA_n0 | AB12 | IO_3D/LVDS3D_2N/DQ48/45 | |
| FMCL_HA_p0 | AB13 | IO_3D/LVDS3D_2P/DQ48/44 | |
| FMCL_HA_n4 | AB8 | IO_3D/LVDS3D_3N/DQ48/43 | |
| FMCL_HA_p4 | AB7 | IO_3D/LVDS3D_3P/DQ48/42 | |
| FMCL_HA_n12 | AC13 | IO_3D/LVDS3D_4N/DQSN48/CQN48/41 | |
| FMCL_HA_p12 | AC12 | IO_3D/LVDS3D_4P/DQS48/CQ48/40 | |
| FMCL_HA_n3 | AC11 | IO_3D/LVDS3D_5N/DQ48/39 | |
| FMCL_HA_p3 | AC10 | IO_3D/LVDS3D_5P/DQ48/38 | |
| FMCL_HA_n18 | AD10 | IO_3D/LVDS3D_6N/DQ48/37 | |
| FMCL_HA_p18 | AD11 | IO_3D/LVDS3D_6P/DQ48/36 | |
| FMCL_HA_n13 | AC2 | IO_3D/LVDS3D_7N/DQ49/35 | |
| FMCL_HA_p13 | AC3 | IO_3D/LVDS3D_7P/DQ49/34 | |
| FMCL_HA_n9 | AB5 | IO_3D/LVDS3D_8N/DQ49/33 | |
| FMCL_HA_p9 | AC6 | IO_3D/LVDS3D_8P/DQ49/32 | |
| FMCL_HA_n10 | AC5 | IO_3D/LVDS3D_9N/DQ49/31 | |
| FMCL_HA_p10 | AD5 | IO_3D/LVDS3D_9P/DQ49/30 | |
| FMCL_HA_n2 | AC8 | IO_3D/PLL_3D_CLKOUT1N/LVDS3D_10N/DQSN49/CQN49/29 | |
| FMCL_HA_p2 | AC7 | IO_3D/PLL_3D_CLKOUT1P,PLL_3D_CLKOUT1,PLL_3D_FB1/LVDS3D_10P/DQS49/CQ49/28 | |
| FMCL_HA_n8 | AD4 | IO_3D/LVDS3D_11N/DQ49/27 | |
| FMCL_HA_p8 | AD3 | IO_3D/RZQ_3D/LVDS3D_11P/DQ49/26 | |
| FMCL_CLK3_BIDIR_n | AD9 | IO_3D/CLK_3D_1N/LVDS3D_12N/DQ49/25 | |
| FMCL_CLK3_BIDIR_p | AD8 | IO_3D/CLK_3D_1P/LVDS3D_12P/DQ49/24 | |

| | | | |
|---|---|---|---|
| IO_3D/CLK_3D_0N/LVDS3D_13N/DQ50/23 | AD6 | FMCL_HA_n1 | |
| IO_3D/CLK_3D_0P/LVDS3D_13P/DQ50/22 | AE6 | FMCL_HA_p1 | |
| IO_3D/LVDS3D_14N/DQ50/21 | AE4 | FMCL_HA_n17 | |
| IO_3D/LVDS3D_14P/DQ50/20 | AE3 | FMCL_HA_p17 | |
| IO_3D/PLL_3D_CLKOUT0N/LVDS3D_15N/DQ50/19 | AC1 | FMCL_HA_n7 | |
| IO_3D/PLL_3D_CLKOUT0P,PLL_3D_CLKOUT0,PLL_3D_FB0/LVDS3D_15P/DQ50/18 | AD1 | FMCL_HA_p7 | |
| IO_3D/LVDS3D_16N/DQSN50/CQN50/17 | AF7 | FMCL_HA_n15 | |
| IO_3D/LVDS3D_16P/DQS50/CQ50/16 | AE7 | FMCL_HA_p15 | |
| IO_3D/LVDS3D_17N/DQ50/15 | AE1 | FMCL_HA_n14 | |
| IO_3D/LVDS3D_17P/DQ50/14 | AE2 | FMCL_HA_p14 | |
| IO_3D/LVDS3D_18N/DQ50/13 | AF6 | FMCL_HA_n20 | |
| IO_3D/LVDS3D_18P/DQ50/12 | AF5 | FMCL_HA_p20 | |
| IO_3D/LVDS3D_19N/DQ51/11 | AE9 | FMCL_HA_n16 | |
| IO_3D/LVDS3D_19P/DQ51/10 | AE8 | FMCL_HA_p16 | |
| IO_3D/LVDS3D_20N/DQ51/9 | AF11 | FMCL_HA_n11 | |
| IO_3D/LVDS3D_20P/DQ51/8 | AF12 | FMCL_HA_p11 | |
| IO_3D/LVDS3D_21N/DQ51/7 | AF10 | FMCL_HA_n22 | |
| IO_3D/LVDS3D_21P/DQ51/6 | AG10 | FMCL_HA_p22 | |
| IO_3D/LVDS3D_22N/DQSN51/CQN51/5 | AE11 | FMCL_HA_n21 | |
| IO_3D/LVDS3D_22P/DQS51/CQ51/4 | AE12 | FMCL_HA_p21 | |
| IO_3D/LVDS3D_23N/DQ51/3 | AF9 | FMCL_HA_n19 | |
| IO_3D/LVDS3D_23P/DQ51/2 | AG9 | FMCL_HA_p19 | |
| IO_3D/LVDS3D_24N/DQ51/1 | AG12 | FMCL_HA_n6 | |
| IO_3D/LVDS3D_24P/DQ51/0 | AG13 | FMCL_HA_p6 | |

1SX110HN3F43I2VG

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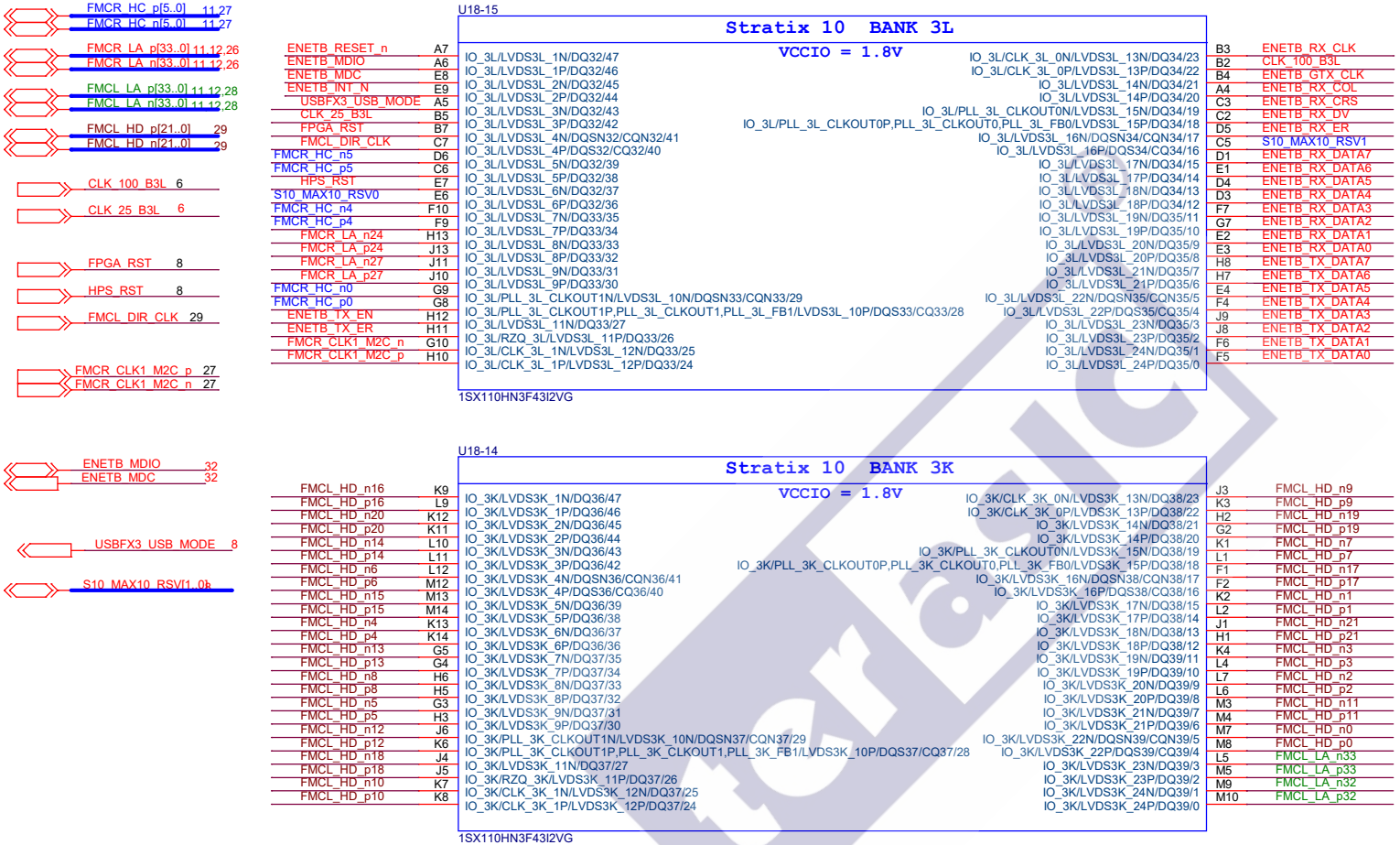
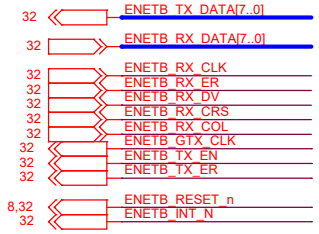
Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Bank 3D, 3I, 3J | B |

Date: Thursday, July 24, 2025 Sheet 12 of 45




## Ethernet B (GMII)

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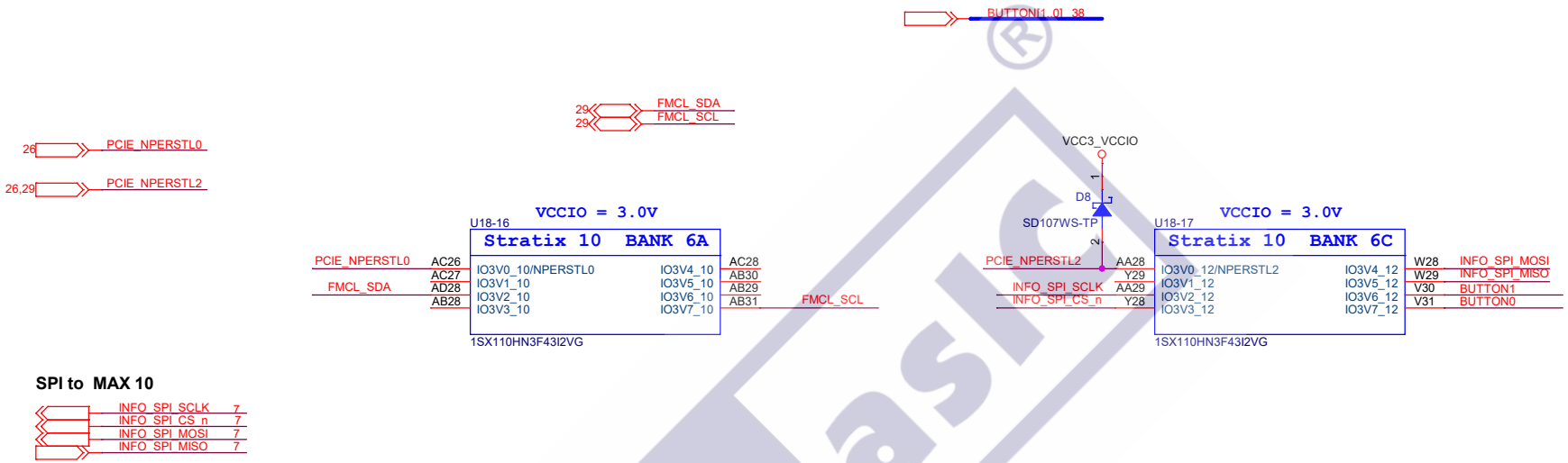
Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Bank 3K, 3L | B |

Date: Thursday, July 24, 2025 Sheet 13 of 45




**SPI to MAX 10**

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Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Bank 6A, 6C | B |

Date: Wednesday, July 23, 2025 Sheet 14 of 45

## Ethernet PHY A Interface (RGMII)

31 HPS_ENETA_TX_DATA[3..0]
31 HPS_ENETA_TX_CLK
31 HPS_ENETA_TX_CTL

31 HPS_ENETA_RX_DATA[3..0]
31 HPS_ENETA_RX_CLK
31 HPS_ENETA_RX_CTL
31 HPS_ENETA_MDC
31 HPS_ENETA_MDIO

## UBS PHY Interface (ULPI)

33 HPS_USB_DATA[7..0]
33 HPS_USB_CLK
33 HPS_USB_NXT
33 HPS_USB_DIR
33 HPS_USB_STP

## SD Card Interface

35 HPS_EMMC_DATA[3..0]
35 HPS_EMMC_CLK
35 HPS_EMMC_CMD

## HPS 25MHz Clock

6 HPS_OSC_CLK

## UART Interface

26 HPS_UART_RX
26 HPS_UART_TX
26 HPS_UART_CTS
26 HPS_UART_RTS

## HPS I2C Interface (RTC)

26,35,36,37 HPS_I2C_SDA
26,35,36,37 HPS_I2C_SCL

## HPS GPIO

26 HPS_GPIO[1..0]

VCCIO = 1.8V

U18-18

### Stratix 10 HPS

#### HPS IO

| | | |
|---|---|---|
| HPS_USB_CLK | A15 | HPS_IOA_1/GPIO0_IO0,SPIM0_SS1_N,SPIS0_CLK,UART0_CTS_N,NAND_ADQ0,USB0_CLK,SDMMC_CCLK/HPS_IOA_1 |
| HPS_USB_STP | B15 | HPS_IOA_2/GPIO0_IO1,SPIM1_SS1_N,SPIS0_MOSI,UART0_RTS_N,NAND_ADQ1,USB0_STP,SDMMC_CMD/HPS_IOA_2 |
| HPS_USB_DIR | C18 | HPS_IOA_3/GPIO0_IO2,SPIS0_SS0_N,UART0_TX,I2C1_SDA,NAND_WE_N,USB0_DIR,SDMMC_DATA0/HPS_IOA_3 |
| HPS_USB_DATA0 | A11 | HPS_IOA_4/GPIO0_IO3,SPIS0_MISO,UART0_RX,I2C1_SCL,NAND_RE_N,USB0_DATA0,SDMMC_DATA1/HPS_IOA_4 |
| HPS_USB_DATA1 | B13 | HPS_IOA_5/GPIO0_IO4,SPIM0_CLK,UART1_CTS_N,I2C0_SDA,NAND_WP_N,USB0_DATA1,SDMMC_DATA2/HPS_IOA_5 |
| HPS_USB_NXT | A14 | HPS_IOA_6/GPIO0_IO5,SPIM0_MOSI,UART1_RTS_N,I2C0_SCL,NAND_ADQ2,USB0_NXT,SDMMC_DATA3/HPS_IOA_6 |
| HPS_USB_DATA2 | B14 | HPS_IOA_7/GPIO0_IO6,SPIM0_MISO,MDIO2_MDIO,UART1_TX,I2C_EMAC2_SDA,NAND_ADQ3,USB0_DATA2,SDMMC_DATA4/HPS_IOA_7 |
| HPS_USB_DATA3 | B17 | HPS_IOA_8/GPIO0_IO7,SPIM0_SS0_N,MDIO2_MDC,UART1_RX,I2C_EMAC2_SCL,NAND_CLE,USB0_DATA3,SDMMC_DATA5/HPS_IOA_8 |
| HPS_USB_DATA4 | A10 | HPS_IOA_9/GPIO0_IO8,SPIM1_CLK,SPIS1_CLK,MDIO1_MDIO,I2C_EMAC1_SDA,NAND_ADQ4,USB0_DATA4,SDMMC_DATA6/HPS_IOA_9 |
| HPS_USB_DATA5 | A16 | HPS_IOA_10/GPIO0_IO9,SPIM1_MOSI,SPIS1_MOSI,MDIO1_MDC,I2C_EMAC1_SCL,NAND_ADQ5,USB0_DATA5,SDMMC_DATA7/HPS_IOA_10 |
| HPS_USB_DATA6 | A12 | HPS_IOA_11/GPIO0_IO10,SPIM1_MISO,SPIS1_SS0_N,MDIO0_MDIO,I2C_EMAC0_SDA,NAND_ADQ6,USB0_DATA6,SDMMC_PWR_EN/HPS_IOA_11 |
| HPS_USB_DATA7 | C16 | HPS_IOA_12/GPIO0_IO11,SPIM1_SS0_N,SPIS1_MISO,MDIO0_MDC,I2C_EMAC0_SCL,NAND_ADQ7,USB0_DATA7/HPS_IOA_12 |
| HPS_ENETA_TX_CLK | A19 | HPS_IOA_13/GPIO0_IO12,NAND_ALE,USB1_CLK,EMAC0_TX_CLK/HPS_IOA_13 |
| HPS_ENETA_TX_CTL | C17 | HPS_IOA_14/GPIO0_IO13,NAND_RB,USB1_STP,EMAC0_TX_CTL/HPS_IOA_14 |
| HPS_ENETA_RX_CLK | B10 | HPS_IOA_15/GPIO0_IO14,NAND_CE_N,USB1_DIR,EMAC0_RX_CLK/HPS_IOA_15 |
| HPS_ENETA_RX_CTL | A17 | HPS_IOA_16/GPIO0_IO15,USB1_DATA0,EMAC0_RX_CTL/HPS_IOA_16 |
| HPS_ENETA_TX_DATA0 | A9 | HPS_IOA_17/GPIO0_IO16,NAND_ADQ8,USB1_DATA1,EMAC0_TXD0/HPS_IOA_17 |
| HPS_ENETA_TX_DATA1 | B18 | HPS_IOA_18/GPIO0_IO17,NAND_ADQ9,USB1_NXT,EMAC0_TXD1/HPS_IOA_18 |
| HPS_ENETA_RX_DATA0 | B9 | HPS_IOA_19/GPIO0_IO18,NAND_ADQ10,USB1_DATA2,EMAC0_RXD0/HPS_IOA_19 |
| HPS_ENETA_RX_DATA1 | A20 | HPS_IOA_20/GPIO0_IO19,SPIM1_SS1_N,NAND_ADQ11,USB1_DATA3,EMAC0_RXD1/HPS_IOA_20 |
| HPS_ENETA_TX_DATA2 | B12 | HPS_IOA_21/GPIO0_IO20,SPIM1_CLK,SPIS0_CLK,UART0_CTS_N,I2C1_SDA,NAND_ADQ12,USB1_DATA4,EMAC0_TXD2/HPS_IOA_21 |
| HPS_ENETA_TX_DATA3 | C15 | HPS_IOA_22/GPIO0_IO21,SPIM1_MOSI,SPIS0_MOSI,UART0_RTS_N,I2C1_SCL,NAND_ADQ13,USB1_DATA5,EMAC0_TXD3/HPS_IOA_22 |
| HPS_ENETA_RX_DATA2 | B19 | HPS_IOA_23/GPIO0_IO22,SPIM1_MISO,SPIS0_SS0_N,UART0_TX,I2C0_SDA,NAND_ADQ14,USB1_DATA6,EMAC0_RXD2/HPS_IOA_23 |
| HPS_ENETA_RX_DATA3 | B8 | HPS_IOA_24/GPIO0_IO23,SPIM1_SS0_N,SPIS0_MISO,UART0_RX,I2C0_SCL,NAND_ADQ15,USB1_DATA7,EMAC0_RXD3/HPS_IOA_24 |
| HPS_UART_CTS | M19 | HPS_IOB_1/GPIO1_IO0,SPIM1_CLK,UART0_CTS_N,NAND_ADQ0,EMAC1_TX_CLK/HPS_IOB_1 |
| HPS_UART_RTS | F19 | HPS_IOB_2/GPIO1_IO1,SPIM1_MOSI,UART0_RTS_N,NAND_ADQ1,EMAC1_TX_CTL/HPS_IOB_2 |
| HPS_UART_TX | D19 | HPS_IOB_3/GPIO1_IO2,SPIM1_MISO,UART0_TX,I2C0_SDA,NAND_WE_N,EMAC1_RX_CLK/HPS_IOB_3 |
| HPS_UART_RX | F20 | HPS_IOB_4/GPIO1_IO3,SPIM1_SS0_N,UART0_RX,I2C0_SCL,NAND_RE_N,EMAC1_RX_CTL/HPS_IOB_4 |
| HPS_OSC_CLK | E17 | HPS_IOB_5/GPIO1_IO4,SPIM1_SS1_N,SPIS1_CLK,UART1_CTS_N,NAND_WP_N,EMAC1_TXD0/HPS_IOB_5 |
| | M20 | HPS_IOB_6/GPIO1_IO5,SPIS1_MOSI,UART1_RTS_N,NAND_ADQ2,EMAC1_TXD1/HPS_IOB_6 |
| HPS_I2C_SDA | G18 | HPS_IOB_7/GPIO1_IO6,SPIS1_SS0_N,UART1_TX,I2C1_SDA,NAND_ADQ3,EMAC1_RXD0/HPS_IOB_7 |
| HPS_I2C_SCL | N20 | HPS_IOB_8/GPIO1_IO7,SPIS1_MISO,UART1_RX,I2C1_SCL,NAND_CLE,EMAC1_RXD1/HPS_IOB_8 |
| | E19 | HPS_IOB_9/GPIO1_IO8,JTAG_TCK,SPIS0_CLK,MDIO2_MDIO,I2C_EMAC2_SDA,NAND_ADQ4,EMAC1_TXD2/HPS_IOB_9 |
| | G20 | HPS_IOB_10/GPIO1_IO9,JTAG_TMS,SPIS0_MOSI,MDIO2_MDC,I2C_EMAC2_SCL,NAND_ADQ5,EMAC1_TXD3/HPS_IOB_10 |
| | K18 | HPS_IOB_11/GPIO1_IO10,JTAG_TDO,SPIS0_SS0_N,MDIO0_MDIO,I2C_EMAC0_SDA,NAND_ADQ6,EMAC1_RXD2/HPS_IOB_11 |
| | E18 | HPS_IOB_12/GPIO1_IO11,JTAG_TDI,SPIS0_MISO,MDIO0_MDC,I2C_EMAC0_SCL,NAND_ADQ7,EMAC1_RXD3/HPS_IOB_12 |
| HPS_EMMC_DATA0 | J18 | HPS_IOB_13/GPIO1_IO12,I2C1_SDA,NAND_ALE,SDMMC_DATA0,EMAC2_TX_CLK/HPS_IOB_13 |
| HPS_EMMC_CMD | L21 | HPS_IOB_14/GPIO1_IO13,I2C1_SCL,NAND_RB,SDMMC_CMD,EMAC2_TX_CTL/HPS_IOB_14 |
| HPS_EMMC_CLK | C20 | HPS_IOB_15/GPIO1_IO14,UART1_TX,NAND_CE_N,SDMMC_CCLK,EMAC2_RX_CLK/HPS_IOB_15 |
| HPS_EMMC_DATA1 | K21 | HPS_IOB_16/GPIO1_IO15,UART1_RX,SDMMC_DATA1,EMAC2_RX_CTL/HPS_IOB_16 |
| HPS_EMMC_DATA2 | H18 | HPS_IOB_17/GPIO1_IO16,UART1_CTS_N,NAND_ADQ8,SDMMC_DATA2,EMAC2_TXD0/HPS_IOB_17 |
| HPS_EMMC_DATA3 | P19 | HPS_IOB_18/GPIO1_IO17,SPIM0_SS1_N,UART1_RTS_N,NAND_ADQ9,SDMMC_DATA3,EMAC2_TXD1/HPS_IOB_18 |
| HPS_GPIO0 | D18 | HPS_IOB_19/GPIO1_IO18,SPIM0_MISO,MDIO1_MDIO,I2C_EMAC1_SDA,NAND_ADQ10,SDMMC_DATA4,EMAC2_RXD0/HPS_IOB_19 |
| HPS_GPIO1 | D20 | HPS_IOB_20/GPIO1_IO19,SPIM0_SS0_N,MDIO1_MDC,I2C_EMAC1_SCL,NAND_ADQ11,SDMMC_DATA5,EMAC2_RXD1/HPS_IOB_20 |
| | G19 | HPS_IOB_21/GPIO1_IO20,SPIM0_CLK,SPIS1_CLK,I2C_EMAC2_SDA,NAND_ADQ12,SDMMC_DATA6,EMAC2_TXD2/HPS_IOB_21 |
| | D16 | HPS_IOB_22/GPIO1_IO21,SPIM0_MOSI,SPIS1_MOSI,I2C_EMAC2_SCL,NAND_ADQ13,SDMMC_DATA7,EMAC2_TXD3/HPS_IOB_22 |
| HPS_ENETA_MDIO | R19 | HPS_IOB_23/GPIO1_IO22,SPIM0_MISO,SPIS1_SS0_N,MDIO0_MDIO,I2C_EMAC0_SDA,NAND_ADQ14,EMAC2_RXD2,SDMMC_PWR_EN/HPS_IOB_23 |
| HPS_ENETA_MDC | B20 | HPS_IOB_24/GPIO1_IO23,SPIM0_SS0_N,SPIS1_MISO,MDIO0_MDC,I2C_EMAC0_SCL,NAND_ADQ15,EMAC2_RXD3/HPS_IOB_24 |

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Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | HPS Bank | B |

Date: Wednesday, July 23, 2025 Sheet 15 of 45

## FMCR Transceiver

FMCR_DP_C2M_p[15..0] 17,26,27
FMCR_DP_C2M_n[15..0] 17,26,27
FMCR_DP_M2C_p[15..0] 17,26,27
FMCR_DP_M2C_n[15..0] 17,26,27

## FMCL Transceiver

FMCL_DP_C2M_p[15..0] 17,29
FMCL_DP_C2M_n[15..0] 17,29
FMCL_DP_M2C_p[15..0] 17,29
FMCL_DP_M2C_n[15..0] 17,29

RGBTCLK1_1C_p 27
RGBTCLK1_1C_n 27
RGBTCLK2_1E_p 27
RGBTCLK2_1E_n 27
CLK2_XCVR_1C_p 27
CLK2_XCVR_1C_n 27
LGBTCLK0_1D_p 29
LGBTCLK0_1D_n 29

## Si5341A output XCVR REFCLK

XCVR_REFCLK1D_p5
XCVR_REFCLK1D_n5
XCVR_REFCLK1E_p5
XCVR_REFCLK1E_n5

### U18-20 — Stratix 10 Transceiver BANK 1D

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| AU36 | FMCR_DP_M2C_p10 | AW40 | FMCR_DP_C2M_p10 |
| AU35 | FMCR_DP_M2C_n10 | AW39 | FMCR_DP_C2M_n10 |
| AW36 | FMCR_DP_M2C_p11 | AV42 | FMCR_DP_C2M_p11 |
| AW35 | FMCR_DP_M2C_n11 | AV41 | FMCR_DP_C2M_n11 |
| AR36 | FMCR_DP_M2C_p0 | AU40 | FMCR_DP_C2M_p0 |
| AR35 | FMCR_DP_M2C_n0 | AU39 | FMCR_DP_C2M_n0 |
| AN36 | FMCR_DP_M2C_p1 | AT42 | FMCR_DP_C2M_p1 |
| AN35 | FMCR_DP_M2C_n1 | AT41 | FMCR_DP_C2M_n1 |
| AT38 | FMCR_DP_M2C_p2 | AR40 | FMCR_DP_C2M_p2 |
| AT37 | FMCR_DP_M2C_n2 | AR39 | FMCR_DP_C2M_n2 |
| AP38 | FMCR_DP_M2C_p3 | AP42 | FMCR_DP_C2M_p3 |
| AP37 | FMCR_DP_M2C_n3 | AP41 | FMCR_DP_C2M_n3 |
| AM34 | XCVR_REFCLK1D_p | | |
| AM33 | XCVR_REFCLK1D_n | | |
| AP34 | LGBTCLK0_1D_p | | |
| AP33 | LGBTCLK0_1D_n | | |

GXBL1D_RX_CH0P,GXBL1D_REFCLK0P / GXBL1D_RX_CH0N,GXBL1D_REFCLK0N — GXBL1D_TX_CH0P / GXBL1D_TX_CH0N
GXBL1D_RX_CH1P,GXBL1D_REFCLK1P / GXBL1D_RX_CH1N,GXBL1D_REFCLK1N — GXBL1D_TX_CH1P / GXBL1D_TX_CH1N
GXBL1D_RX_CH2P,GXBL1D_REFCLK2P / GXBL1D_RX_CH2N,GXBL1D_REFCLK2N — GXBL1D_TX_CH2P / GXBL1D_TX_CH2N
GXBL1D_RX_CH3P,GXBL1D_REFCLK3P / GXBL1D_RX_CH3N,GXBL1D_REFCLK3N — GXBL1D_TX_CH3P / GXBL1D_TX_CH3N
GXBL1D_RX_CH4P,GXBL1D_REFCLK4P / GXBL1D_RX_CH4N,GXBL1D_REFCLK4N — GXBL1D_TX_CH4P / GXBL1D_TX_CH4N
GXBL1D_RX_CH5P,GXBL1D_REFCLK5P / GXBL1D_RX_CH5N,GXBL1D_REFCLK5N — GXBL1D_TX_CH5P / GXBL1D_TX_CH5N
REFCLK_GXBL1D_CHTP / REFCLK_GXBL1D_CHTN
REFCLK_GXBL1D_CHBP / REFCLK_GXBL1D_CHBN

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### U18-22 — Stratix 10 Transceiver BANK 1F

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| AG36 | | AG40 | |
| AG35 | | AG39 | |
| AD38 | | AF42 | |
| AD37 | | AF41 | |
| AE36 | | AE40 | |
| AE35 | | AE39 | |
| AB38 | | AD42 | |
| AB37 | | AD41 | |
| AC36 | | AC40 | |
| AC35 | | AC39 | |
| AA36 | | AB42 | |
| AA35 | | AB41 | |
| AD34 | | | |
| AD33 | | | |
| AF34 | | | |
| AF33 | | | |

GXBL1F_RX_CH0P,GXBL1F_REFCLK0P / GXBL1F_RX_CH0N,GXBL1F_REFCLK0N — GXBL1F_TX_CH0P / GXBL1F_TX_CH0N
GXBL1F_RX_CH1P,GXBL1F_REFCLK1P / GXBL1F_RX_CH1N,GXBL1F_REFCLK1N — GXBL1F_TX_CH1P / GXBL1F_TX_CH1N
GXBL1F_RX_CH2P,GXBL1F_REFCLK2P / GXBL1F_RX_CH2N,GXBL1F_REFCLK2N — GXBL1F_TX_CH2P / GXBL1F_TX_CH2N
GXBL1F_RX_CH3P,GXBL1F_REFCLK3P / GXBL1F_RX_CH3N,GXBL1F_REFCLK3N — GXBL1F_TX_CH3P / GXBL1F_TX_CH3N
GXBL1F_RX_CH4P,GXBL1F_REFCLK4P / GXBL1F_RX_CH4N,GXBL1F_REFCLK4N — GXBL1F_TX_CH4P / GXBL1F_TX_CH4N
GXBL1F_RX_CH5P,GXBL1F_REFCLK5P / GXBL1F_RX_CH5N,GXBL1F_REFCLK5N — GXBL1F_TX_CH5P / GXBL1F_TX_CH5N
REFCLK_GXBL1F_CHTP / REFCLK_GXBL1F_CHTN
REFCLK_GXBL1F_CHBP / REFCLK_GXBL1F_CHBN

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### U18-19 — Stratix 10 Transceiver BANK 1C

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| AV30 | FMCR_DP_M2C_p4 | BB34 | FMCR_DP_C2M_p4 |
| AV29 | FMCR_DP_M2C_n4 | BB33 | FMCR_DP_C2M_n4 |
| AY30 | FMCR_DP_M2C_p5 | BA36 | FMCR_DP_C2M_p5 |
| AY29 | FMCR_DP_M2C_n5 | BA35 | FMCR_DP_C2M_n5 |
| BB30 | FMCR_DP_M2C_p6 | BB38 | FMCR_DP_C2M_p6 |
| BB29 | FMCR_DP_M2C_n6 | BB37 | FMCR_DP_C2M_n6 |
| AW32 | FMCR_DP_M2C_p7 | AY38 | FMCR_DP_C2M_p7 |
| AW31 | FMCR_DP_M2C_n7 | AY37 | FMCR_DP_C2M_n7 |
| BA32 | FMCR_DP_M2C_p8 | BA40 | FMCR_DP_C2M_p8 |
| BA31 | FMCR_DP_M2C_n8 | BA39 | FMCR_DP_C2M_n8 |
| AY34 | FMCR_DP_M2C_p9 | AV38 | FMCR_DP_C2M_p9 |
| AY33 | FMCR_DP_M2C_n9 | AV37 | FMCR_DP_C2M_n9 |
| AT34 | CLK2_XCVR_1C_p | | |
| AT33 | CLK2_XCVR_1C_n | | |
| AV34 | RGBTCLK1_1C_p | | |
| AV33 | RGBTCLK1_1C_n | | |

GXBL1C_RX_CH0P,GXBL1C_REFCLK0P / GXBL1C_RX_CH0N,GXBL1C_REFCLK0N — GXBL1C_TX_CH0P / GXBL1C_TX_CH0N
GXBL1C_RX_CH1P,GXBL1C_REFCLK1P / GXBL1C_RX_CH1N,GXBL1C_REFCLK1N — GXBL1C_TX_CH1P / GXBL1C_TX_CH1N
GXBL1C_RX_CH2P,GXBL1C_REFCLK2P / GXBL1C_RX_CH2N,GXBL1C_REFCLK2N — GXBL1C_TX_CH2P / GXBL1C_TX_CH2N
GXBL1C_RX_CH3P,GXBL1C_REFCLK3P / GXBL1C_RX_CH3N,GXBL1C_REFCLK3N — GXBL1C_TX_CH3P / GXBL1C_TX_CH3N
GXBL1C_RX_CH4P,GXBL1C_REFCLK4P / GXBL1C_RX_CH4N,GXBL1C_REFCLK4N — GXBL1C_TX_CH4P / GXBL1C_TX_CH4N
GXBL1C_RX_CH5P,GXBL1C_REFCLK5P / GXBL1C_RX_CH5N,GXBL1C_REFCLK5N — GXBL1C_TX_CH5P / GXBL1C_TX_CH5N
REFCLK_GXBL1C_CHTP / REFCLK_GXBL1C_CHTN
REFCLK_GXBL1C_CHBP / REFCLK_GXBL1C_CHBN

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### U18-21 — Stratix 10 Transceiver BANK 1E

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| AL36 | FMCL_DP_M2C_p15 | AN40 | FMCL_DP_C2M_p15 |
| AL35 | FMCL_DP_M2C_n15 | AN39 | FMCL_DP_C2M_n15 |
| AM38 | FMCL_DP_M2C_p14 | AM42 | FMCL_DP_C2M_p14 |
| AM37 | FMCL_DP_M2C_n14 | AM41 | FMCL_DP_C2M_n14 |
| AK38 | FMCL_DP_M2C_p13 | AL40 | FMCL_DP_C2M_p13 |
| AK37 | FMCL_DP_M2C_n13 | AL39 | FMCL_DP_C2M_n13 |
| AJ36 | FMCL_DP_M2C_p12 | AK42 | FMCL_DP_C2M_p12 |
| AJ35 | FMCL_DP_M2C_n12 | AK41 | FMCL_DP_C2M_n12 |
| AH38 | | AJ40 | |
| AH37 | | AJ39 | |
| AF38 | | AH42 | |
| AF37 | | AH41 | |
| AH34 | XCVR_REFCLK1E_p | | |
| AH33 | XCVR_REFCLK1E_n | | |
| AK34 | RGBTCLK2_1E_p | | |
| AK33 | RGBTCLK2_1E_n | | |

GXBL1E_RX_CH0P,GXBL1E_REFCLK0P / GXBL1E_RX_CH0N,GXBL1E_REFCLK0N — GXBL1E_TX_CH0P / GXBL1E_TX_CH0N
GXBL1E_RX_CH1P,GXBL1E_REFCLK1P / GXBL1E_RX_CH1N,GXBL1E_REFCLK1N — GXBL1E_TX_CH1P / GXBL1E_TX_CH1N
GXBL1E_RX_CH2P,GXBL1E_REFCLK2P / GXBL1E_RX_CH2N,GXBL1E_REFCLK2N — GXBL1E_TX_CH2P / GXBL1E_TX_CH2N
GXBL1E_RX_CH3P,GXBL1E_REFCLK3P / GXBL1E_RX_CH3N,GXBL1E_REFCLK3N — GXBL1E_TX_CH3P / GXBL1E_TX_CH3N
GXBL1E_RX_CH4P,GXBL1E_REFCLK4P / GXBL1E_RX_CH4N,GXBL1E_REFCLK4N — GXBL1E_TX_CH4P / GXBL1E_TX_CH4N
GXBL1E_RX_CH5P,GXBL1E_REFCLK5P / GXBL1E_RX_CH5N,GXBL1E_REFCLK5N — GXBL1E_TX_CH5P / GXBL1E_TX_CH5N
REFCLK_GXBL1E_CHTP / REFCLK_GXBL1E_CHTN
REFCLK_GXBL1E_CHBP / REFCLK_GXBL1E_CHBN

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Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA GXB 1C, 1D, 1E, 1F | B |

Date: Thursday, July 24, 2025 — Sheet 16 of 45

## FMCR Transceiver

FMCR_DP_C2M_p[15..0] 16,26,27
FMCR_DP_C2M_n[15..0] 16,26,27
FMCR_DP_M2C_p[15..0] 16,26,27
FMCR_DP_M2C_n[15..0] 16,26,27

## FMCL Transceiver

FMCL_DP_C2M_p[15..0] 16,29
FMCL_DP_C2M_n[15..0] 16,29
FMCL_DP_M2C_p[15..0] 16,29
FMCL_DP_M2C_n[15..0] 16,29

LGBTCLK1_1M_p 29
LGBTCLK1_1M_n 29
LGBTCLK2_1L_p 29
LGBTCLK2_1L_n 29
RGBTCLK0_1K_p 27
RGBTCLK0_1K_n 27

## Si5341A output XCVR REFCLK

XCVR_REFCLK1K_p 5
XCVR_REFCLK1K_n 5
XCVR_REFCLK1L_p 5
XCVR_REFCLK1L_n 5
XCVR_REFCLK1M_p 5
XCVR_REFCLK1M_n 5

### U18-24 Stratix 10 Transceiver BANK 1L

| | | | | | |
|---|---|---|---|---|---|
| FMCR_DP_M2C_p12 | P38 | GXBL1L_RX_CH0P,GXBL1L_REFCLK0P | GXBL1L_TX_CH0P | R40 | FMCR_DP_C2M_p12 |
| FMCR_DP_M2C_n12 | P37 | GXBL1L_RX_CH0N,GXBL1L_REFCLK0N | GXBL1L_TX_CH0N | R39 | FMCR_DP_C2M_n12 |
| FMCR_DP_M2C_p13 | N36 | GXBL1L_RX_CH1P,GXBL1L_REFCLK1P | GXBL1L_TX_CH1P | P42 | FMCR_DP_C2M_p13 |
| FMCR_DP_M2C_n13 | N35 | GXBL1L_RX_CH1N,GXBL1L_REFCLK1N | GXBL1L_TX_CH1N | P41 | FMCR_DP_C2M_n13 |
| FMCR_DP_M2C_p14 | M38 | GXBL1L_RX_CH2P,GXBL1L_REFCLK2P | GXBL1L_TX_CH2P | N40 | FMCR_DP_C2M_p14 |
| FMCR_DP_M2C_n14 | M37 | GXBL1L_RX_CH2N,GXBL1L_REFCLK2N | GXBL1L_TX_CH2N | N39 | FMCR_DP_C2M_n14 |
| FMCR_DP_M2C_p15 | K38 | GXBL1L_RX_CH3P,GXBL1L_REFCLK3P | GXBL1L_TX_CH3P | M42 | FMCR_DP_C2M_p15 |
| FMCR_DP_M2C_n15 | K37 | GXBL1L_RX_CH3N,GXBL1L_REFCLK3N | GXBL1L_TX_CH3N | M41 | FMCR_DP_C2M_n15 |
| FMCL_DP_M2C_p11 | L36 | GXBL1L_RX_CH4P,GXBL1L_REFCLK4P | GXBL1L_TX_CH4P | L40 | FMCL_DP_C2M_p11 |
| FMCL_DP_M2C_n11 | L35 | GXBL1L_RX_CH4N,GXBL1L_REFCLK4N | GXBL1L_TX_CH4N | L39 | FMCL_DP_C2M_n11 |
| FMCL_DP_M2C_p10 | H38 | GXBL1L_RX_CH5P,GXBL1L_REFCLK5P | GXBL1L_TX_CH5P | K42 | FMCL_DP_C2M_p10 |
| FMCL_DP_M2C_n10 | H37 | GXBL1L_RX_CH5N,GXBL1L_REFCLK5N | GXBL1L_TX_CH5N | K41 | FMCL_DP_C2M_n10 |
| LGBTCLK2_1L_p | T34 | REFCLK_GXBL1L_CHTP | | | |
| LGBTCLK2_1L_n | T33 | REFCLK_GXBL1L_CHTN | | | |
| XCVR_REFCLK1L_p | V34 | REFCLK_GXBL1L_CHBP | | | |
| XCVR_REFCLK1L_n | V33 | REFCLK_GXBL1L_CHBN | | | |

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### U18-26 Stratix 10 Transceiver BANK 1N

| | | | | | |
|---|---|---|---|---|---|
| C32 | GXBL1N_RX_CH0P,GXBL1N_REFCLK0P | GXBL1N_TX_CH0P | F38 | | |
| C31 | GXBL1N_RX_CH0N,GXBL1N_REFCLK0N | GXBL1N_TX_CH0N | F37 | | |
| B30 | GXBL1N_RX_CH1P,GXBL1N_REFCLK1P | GXBL1N_TX_CH1P | C40 | | |
| B29 | GXBL1N_RX_CH1N,GXBL1N_REFCLK1N | GXBL1N_TX_CH1N | C39 | | |
| E32 | GXBL1N_RX_CH2P,GXBL1N_REFCLK2P | GXBL1N_TX_CH2P | D38 | | |
| E31 | GXBL1N_RX_CH2N,GXBL1N_REFCLK2N | GXBL1N_TX_CH2N | D37 | | |
| A28 | GXBL1N_RX_CH3P,GXBL1N_REFCLK3P | GXBL1N_TX_CH3P | B38 | | |
| A27 | GXBL1N_RX_CH3N,GXBL1N_REFCLK3N | GXBL1N_TX_CH3N | B37 | | |
| D30 | GXBL1N_RX_CH4P,GXBL1N_REFCLK4P | GXBL1N_TX_CH4P | A36 | | |
| D29 | GXBL1N_RX_CH4N,GXBL1N_REFCLK4N | GXBL1N_TX_CH4N | A35 | | |
| F30 | GXBL1N_RX_CH5P,GXBL1N_REFCLK5P | GXBL1N_TX_CH5P | B34 | | |
| F29 | GXBL1N_RX_CH5N,GXBL1N_REFCLK5N | GXBL1N_TX_CH5N | B33 | | |
| H34 | REFCLK_GXBL1N_CHTP | | | | |
| H33 | REFCLK_GXBL1N_CHTN | | | | |
| K34 | REFCLK_GXBL1N_CHBP | | | | |
| K33 | REFCLK_GXBL1N_CHBN | | | | |

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### U18-23 Stratix 10 Transceiver BANK 1K

| | | | | | |
|---|---|---|---|---|---|
| FMCL_DP_M2C_p5 | W36 | GXBL1K_RX_CH0P,GXBL1K_REFCLK0P | GXBL1K_TX_CH0P | AA40 | FMCL_DP_C2M_p5 |
| FMCL_DP_M2C_n5 | W35 | GXBL1K_RX_CH0N,GXBL1K_REFCLK0N | GXBL1K_TX_CH0N | AA39 | FMCL_DP_C2M_n5 |
| FMCL_DP_M2C_p4 | Y38 | GXBL1K_RX_CH1P,GXBL1K_REFCLK1P | GXBL1K_TX_CH1P | Y42 | FMCL_DP_C2M_p4 |
| FMCL_DP_M2C_n4 | Y37 | GXBL1K_RX_CH1N,GXBL1K_REFCLK1N | GXBL1K_TX_CH1N | Y41 | FMCL_DP_C2M_n4 |
| FMCL_DP_M2C_p3 | U36 | GXBL1K_RX_CH2P,GXBL1K_REFCLK2P | GXBL1K_TX_CH2P | W40 | FMCL_DP_C2M_p3 |
| FMCL_DP_M2C_n3 | U35 | GXBL1K_RX_CH2N,GXBL1K_REFCLK2N | GXBL1K_TX_CH2N | W39 | FMCL_DP_C2M_n3 |
| FMCL_DP_M2C_p2 | V38 | GXBL1K_RX_CH3P,GXBL1K_REFCLK3P | GXBL1K_TX_CH3P | V42 | FMCL_DP_C2M_p2 |
| FMCL_DP_M2C_n2 | V37 | GXBL1K_RX_CH3N,GXBL1K_REFCLK3N | GXBL1K_TX_CH3N | V41 | FMCL_DP_C2M_n2 |
| FMCL_DP_M2C_p1 | T38 | GXBL1K_RX_CH4P,GXBL1K_REFCLK4P | GXBL1K_TX_CH4P | U40 | FMCL_DP_C2M_p1 |
| FMCL_DP_M2C_n1 | T37 | GXBL1K_RX_CH4N,GXBL1K_REFCLK4N | GXBL1K_TX_CH4N | U39 | FMCL_DP_C2M_n1 |
| FMCL_DP_M2C_p0 | R36 | GXBL1K_RX_CH5P,GXBL1K_REFCLK5P | GXBL1K_TX_CH5P | T42 | FMCL_DP_C2M_p0 |
| FMCL_DP_M2C_n0 | R35 | GXBL1K_RX_CH5N,GXBL1K_REFCLK5N | GXBL1K_TX_CH5N | T41 | FMCL_DP_C2M_n0 |
| RGBTCLK0_1K_p | Y34 | REFCLK_GXBL1K_CHTP | | | |
| RGBTCLK0_1K_n | Y33 | REFCLK_GXBL1K_CHTN | | | |
| XCVR_REFCLK1K_p | AB34 | REFCLK_GXBL1K_CHBP | | | |
| XCVR_REFCLK1K_n | AB33 | REFCLK_GXBL1K_CHBN | | | |

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### U18-25 Stratix 10 Transceiver BANK 1M

| | | | | | |
|---|---|---|---|---|---|
| FMCL_DP_M2C_p9 | J36 | GXBL1M_RX_CH0P,GXBL1M_REFCLK0P | GXBL1M_TX_CH0P | J40 | FMCL_DP_C2M_p9 |
| FMCL_DP_M2C_n9 | J35 | GXBL1M_RX_CH0N,GXBL1M_REFCLK0N | GXBL1M_TX_CH0N | J39 | FMCL_DP_C2M_n9 |
| FMCL_DP_M2C_p8 | G36 | GXBL1M_RX_CH1P,GXBL1M_REFCLK1P | GXBL1M_TX_CH1P | H42 | FMCL_DP_C2M_p8 |
| FMCL_DP_M2C_n8 | G35 | GXBL1M_RX_CH1N,GXBL1M_REFCLK1N | GXBL1M_TX_CH1N | H41 | FMCL_DP_C2M_n8 |
| FMCL_DP_M2C_p7 | C36 | GXBL1M_RX_CH2P,GXBL1M_REFCLK2P | GXBL1M_TX_CH2P | G40 | FMCL_DP_C2M_p7 |
| FMCL_DP_M2C_n7 | C35 | GXBL1M_RX_CH2N,GXBL1M_REFCLK2N | GXBL1M_TX_CH2N | G39 | FMCL_DP_C2M_n7 |
| FMCL_DP_M2C_p6 | E36 | GXBL1M_RX_CH3P,GXBL1M_REFCLK3P | GXBL1M_TX_CH3P | F42 | FMCL_DP_C2M_p6 |
| FMCL_DP_M2C_n6 | E35 | GXBL1M_RX_CH3N,GXBL1M_REFCLK3N | GXBL1M_TX_CH3N | F41 | FMCL_DP_C2M_n6 |
| A32 | GXBL1M_RX_CH4P,GXBL1M_REFCLK4P | GXBL1M_TX_CH4P | D42 | | |
| A31 | GXBL1M_RX_CH4N,GXBL1M_REFCLK4N | GXBL1M_TX_CH4N | D41 | | |
| D34 | GXBL1M_RX_CH5P,GXBL1M_REFCLK5P | GXBL1M_TX_CH5P | E40 | | |
| D33 | GXBL1M_RX_CH5N,GXBL1M_REFCLK5N | GXBL1M_TX_CH5N | E39 | | |
| XCVR_REFCLK1M_p | M34 | REFCLK_GXBL1M_CHTP | | | |
| XCVR_REFCLK1M_n | M33 | REFCLK_GXBL1M_CHTN | | | |
| LGBTCLK1_1M_p | P34 | REFCLK_GXBL1M_CHBP | | | |
| LGBTCLK1_1M_n | P33 | REFCLK_GXBL1M_CHBN | | | |

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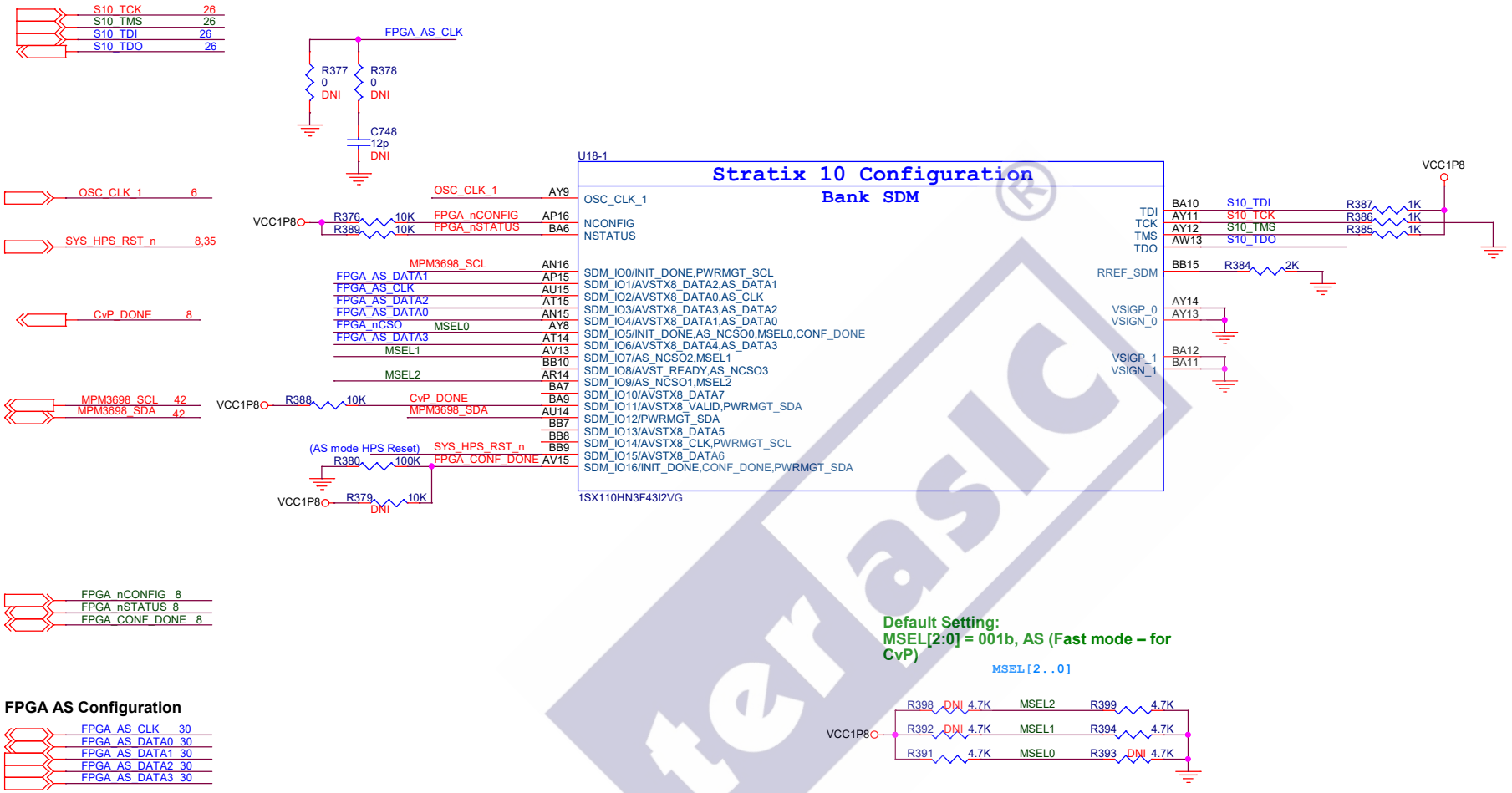
Title: **Titan S10 SOM**

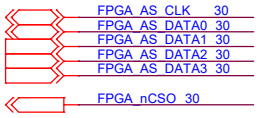
| Size | Document Number | Rev |
|---|---|---|
| B | FPGA GXB 1K, 1L, 1M, 1N | B |

Date: Wednesday, July 23, 2025 Sheet 17 of 45

## Stratix 10 JTAG Interface




## FPGA AS Configuration

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Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FPGA Configuration | B |

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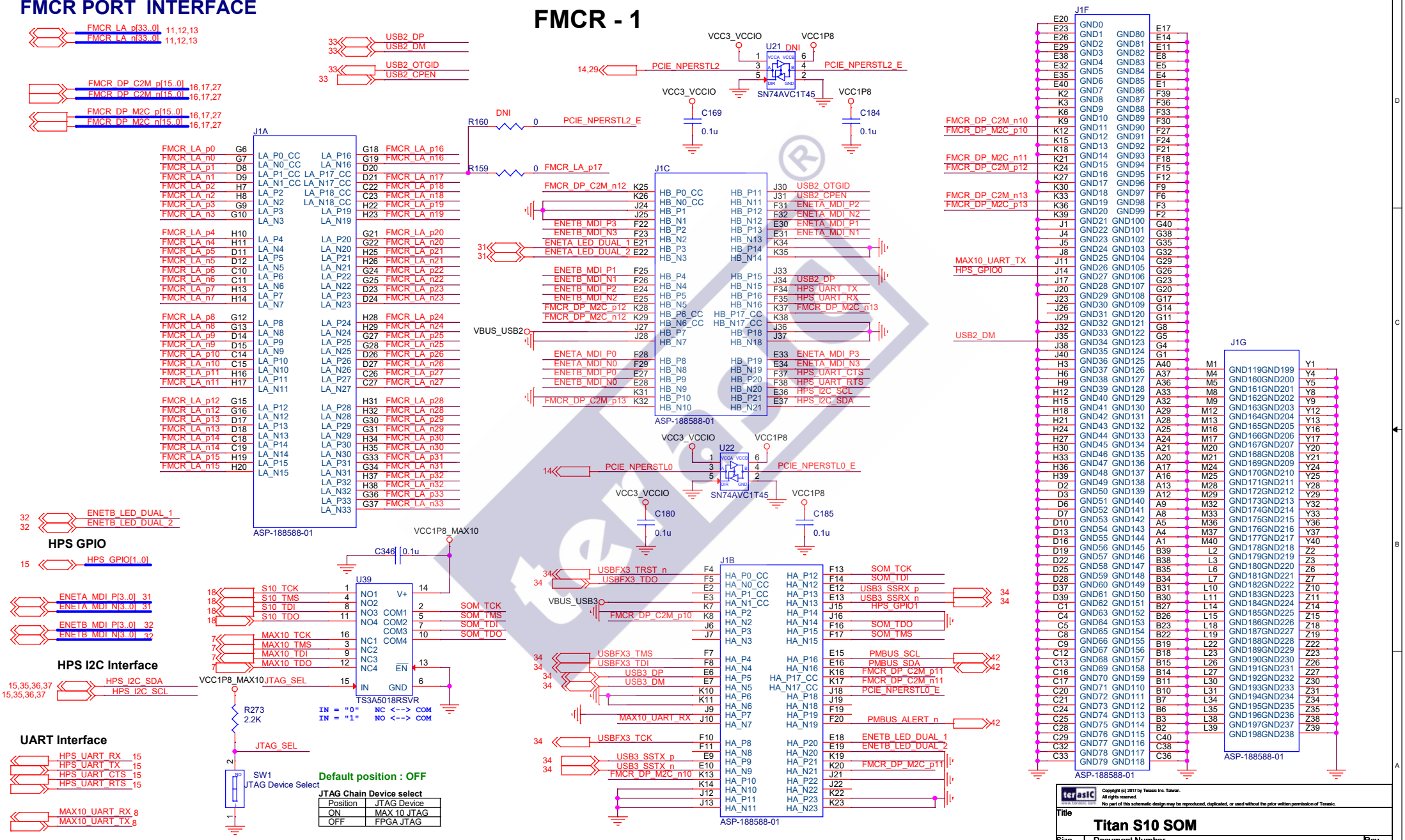
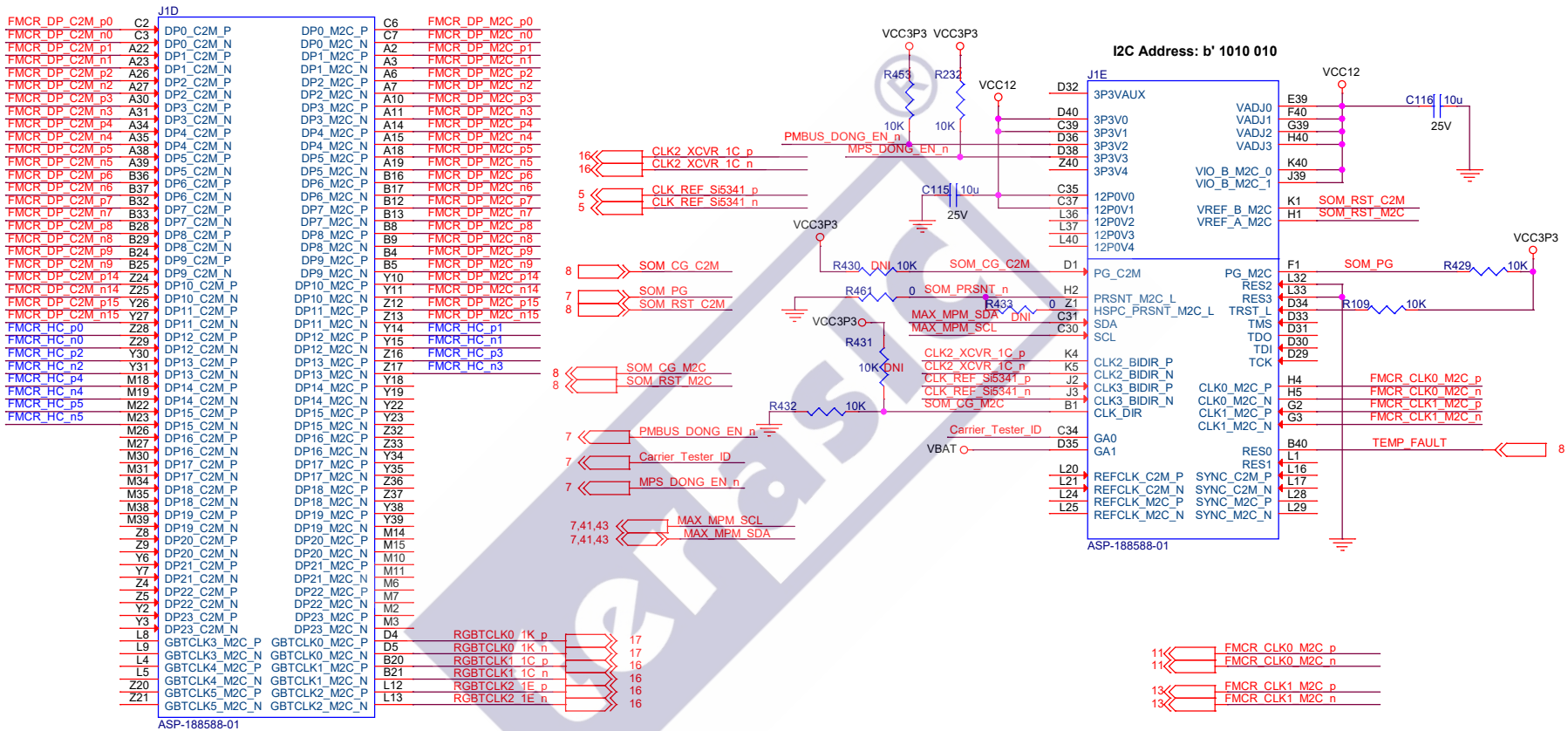
# FMCR PORT INTERFACE

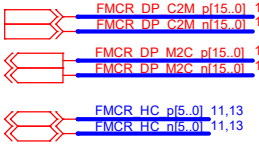
# FMCR - 1



# FMCR - 2




## FMCR PORT INTERFACE

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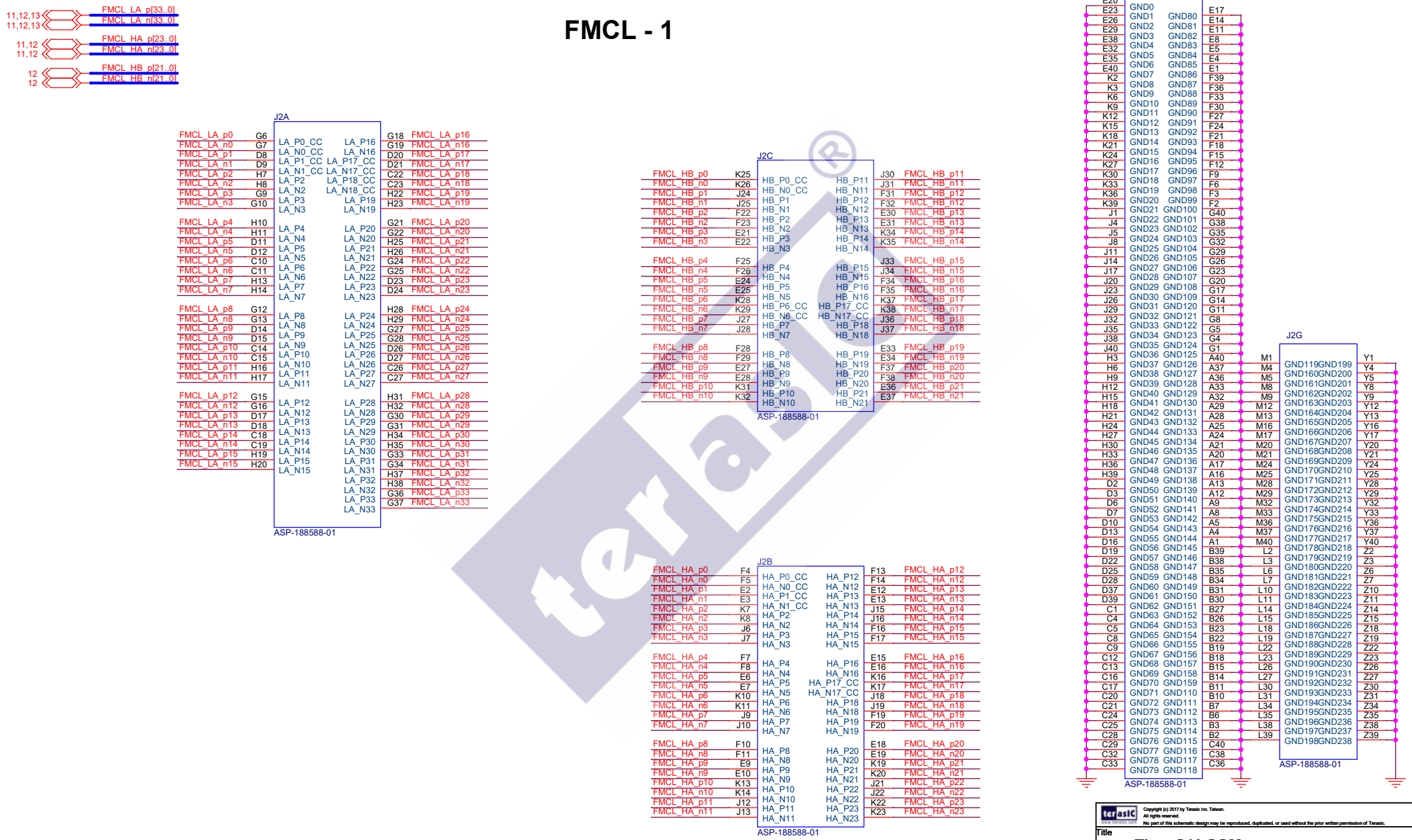
| | |
|---|---|
| Title | Titan S10 SOM |
| Size B | Document Number FMCR - 2 |
| Rev | B |
| Date: Thursday, July 24, 2025 | Sheet 27 of 45 |

# FMCL PORT INTERFACE

# FMCL - 1

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Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FMCL - 1 | B |

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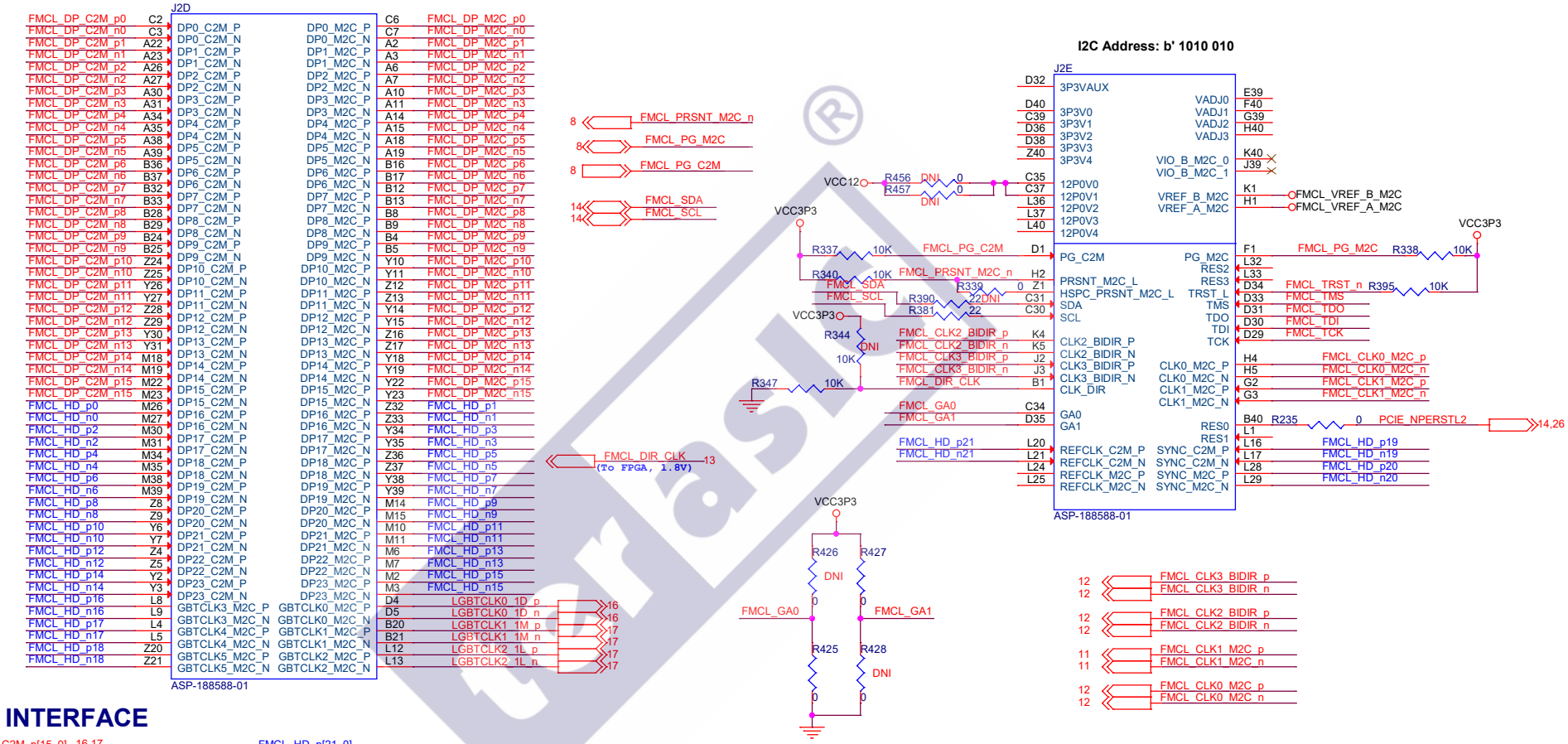
# FMCL - 2




## FMCL PORT INTERFACE

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Title: **Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | FMCL - 2 | B |

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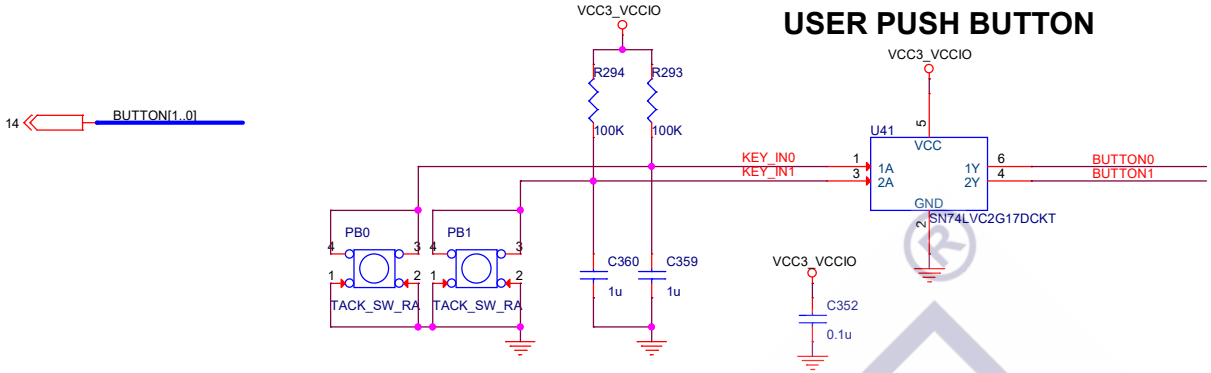
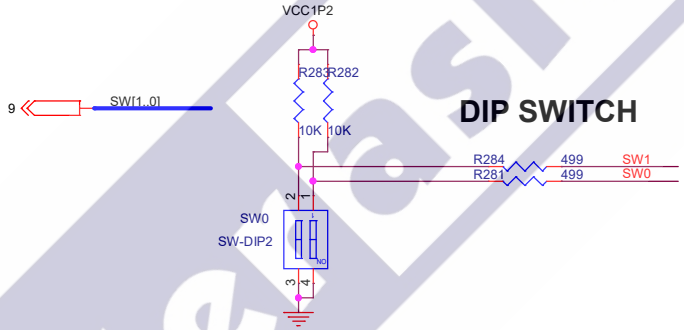
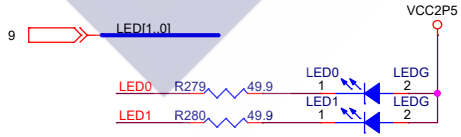
# USER PUSH BUTTON




# DIP SWITCH




# USER LEDS

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Title
**Titan S10 SOM**

| Size | Document Number | Rev |
|---|---|---|
| B | Button, Switch, User LED | B |

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