

TYPE	BANK	HF35 Package
Transceiver I/O	1C	28
Transceiver I/O	1D	28
Transceiver I/O	1E	28
Transceiver I/O	1F	28
LVDS I/O	2K	48
HPS shared LVDS I/O	2L	48
HPS shared LVDS I/O	2M	48
HPS shared LVDS I/O	2N	48
LVDS I/O	3A	48
LVDS I/O	3B	48
LVDS I/O	3C	48
LVDS I/O	3D	48
3V I/O	6A	8
HPS shared LVDS I/O	HPS	48
SDM shared LVDS I/O	SDM	29

- i. Total LVDS channels per bank supporting SERDES Non-DPA and DPA mode is equivalent to (LVDS I/O per bank)/2, inclusive of clock pair. Please refer to Dedicated Tx/Rx Channel column in the pin-out table for the channel availability.
- ii. Total LVDS channels supporting SERDES Soft-CDR mode is 12 pairs per bank. Please refer to Soft CDR column in the pin out table for the channel availability.

Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/A9	DQS for X16/X18	DQS for X32/A36
1F			REFCLK_GXB11F_CHTp							L28				
1F			REFCLK_GXB11F_CHTn							L27				
1F			GXBL1F_TX_CH5n							A31				
1F			GXBL1F_TX_CH5p							A32				
1F			GXBL1F_RX_CH5n,GXBL1F_REFCLK5n							B29				
1F			GXBL1F_RX_CH5p,GXBL1F_REFCLK5p							B30				
1F			GXBL1F_TX_CH4n							C31				
1F			GXBL1F_TX_CH4p							C32				
1F			GXBL1F_RX_CH4n,GXBL1F_REFCLK4n							D29				
1F			GXBL1F_RX_CH4p,GXBL1F_REFCLK4p							D30				
1F			GXBL1F_TX_CH3n							D33				
1F			GXBL1F_TX_CH3p							D34				
1F			GXBL1F_RX_CH3n,GXBL1F_REFCLK3n							F29				
1F			GXBL1F_RX_CH3p,GXBL1F_REFCLK3p							F30				
1F			GXBL1F_TX_CH2n							E31				
1F			GXBL1F_TX_CH2p							E32				
1F			GXBL1F_RX_CH2n,GXBL1F_REFCLK2n							H29				
1F			GXBL1F_RX_CH2p,GXBL1F_REFCLK2p							H30				
1F			GXBL1F_TX_CH1n							F33				
1F			GXBL1F_TX_CH1p							F34				
1F			GXBL1F_RX_CH1n,GXBL1F_REFCLK1n							K29				
1F			GXBL1F_RX_CH1p,GXBL1F_REFCLK1p							K30				
1F			GXBL1F_TX_CH0n							G31				
1F			GXBL1F_TX_CH0p							G32				
1F			GXBL1F_RX_CH0n,GXBL1F_REFCLK0n							L31				
1F			GXBL1F_RX_CH0p,GXBL1F_REFCLK0p							L32				
1F			REFCLK_GXB11F_CH8p							N28				
1F			REFCLK_GXB11F_CH8n							N27				
1E			REFCLK_GXB11E_CHTp							R28				
1E			REFCLK_GXB11E_CHTn							R27				
1E			GXBL1E_TX_CH5n							H33				
1E			GXBL1E_TX_CH5p							H34				
1E			GXBL1E_RX_CH5n,GXBL1E_REFCLK5n							M29				
1E			GXBL1E_RX_CH5p,GXBL1E_REFCLK5p							M30				
1E			GXBL1E_TX_CH4n							J31				
1E			GXBL1E_TX_CH4p							J32				
1E			GXBL1E_RX_CH4n,GXBL1E_REFCLK4n							N31				
1E			GXBL1E_RX_CH4p,GXBL1E_REFCLK4p							N32				
1E			GXBL1E_TX_CH3n							K33				
1E			GXBL1E_TX_CH3p							K34				
1E			GXBL1E_RX_CH3n,GXBL1E_REFCLK3n							P29				
1E			GXBL1E_RX_CH3p,GXBL1E_REFCLK3p							P30				
1E			GXBL1E_TX_CH2n							M33				
1E			GXBL1E_TX_CH2p							M34				
1E			GXBL1E_RX_CH2n,GXBL1E_REFCLK2n							R31				
1E			GXBL1E_RX_CH2p,GXBL1E_REFCLK2p							R32				
1E			GXBL1E_TX_CH1n							P33				
1E			GXBL1E_TX_CH1p							P34				
1E			GXBL1E_RX_CH1n,GXBL1E_REFCLK1n							T29				
1E			GXBL1E_RX_CH1p,GXBL1E_REFCLK1p							T30				
1E			GXBL1E_TX_CH0n							T33				
1E			GXBL1E_TX_CH0p							T34				
1E			GXBL1E_RX_CH0n,GXBL1E_REFCLK0n							U31				
1E			GXBL1E_RX_CH0p,GXBL1E_REFCLK0p							U32				
1E			REFCLK_GXB11E_CH8p							U28				
1E			REFCLK_GXB11E_CH8n							U27				
1D			REFCLK_GXB11D_CHTp							W28				
1D			REFCLK_GXB11D_CHTn							W27				
1D			GXBL1D_TX_CH5n							V33				
1D			GXBL1D_TX_CH5p							V34				
1D			GXBL1D_RX_CH5n,GXBL1D_REFCLK5n							V29				
1D			GXBL1D_RX_CH5p,GXBL1D_REFCLK5p							V30				
1D			GXBL1D_TX_CH4n							Y33				
1D			GXBL1D_TX_CH4p							Y34				
1D			GXBL1D_RX_CH4n,GXBL1D_REFCLK4n							W31				
1D			GXBL1D_RX_CH4p,GXBL1D_REFCLK4p							W32				
1D			GXBL1D_TX_CH3n							AB33				
1D			GXBL1D_TX_CH3p							AB34				
1D			GXBL1D_RX_CH3n,GXBL1D_REFCLK3n							Y29				
1D			GXBL1D_RX_CH3p,GXBL1D_REFCLK3p							Y30				
1D			GXBL1D_TX_CH2n							AD33				
1D			GXBL1D_TX_CH2p							AD34				
1D			GXBL1D_RX_CH2n,GXBL1D_REFCLK2n							AA31				
1D			GXBL1D_RX_CH2p,GXBL1D_REFCLK2p							AA32				
1D			GXBL1D_TX_CH1n							AF33				
1D			GXBL1D_TX_CH1p							AF34				
1D			GXBL1D_RX_CH1n,GXBL1D_REFCLK1n							AB29				
1D			GXBL1D_RX_CH1p,GXBL1D_REFCLK1p							AB30				
1D			GXBL1D_TX_CH0n							AG31				
1D			GXBL1D_TX_CH0p							AG32				
1D			GXBL1D_RX_CH0n,GXBL1D_REFCLK0n							AC31				
1D			GXBL1D_RX_CH0p,GXBL1D_REFCLK0p							AC32				
1D			REFCLK_GXB11D_CH8p							AA28				
1D			REFCLK_GXB11D_CH8n							AA27				
1C			REFCLK_GXB11C_CHTp							AC28				
1C			REFCLK_GXB11C_CHTn							AC27				
1C			GXBL1C_TX_CH5n							AH33				
1C			GXBL1C_TX_CH5p							AH34				
1C			GXBL1C_RX_CH5n,GXBL1C_REFCLK5n							AD29				
1C			GXBL1C_RX_CH5p,GXBL1C_REFCLK5p							AD30				
1C			GXBL1C_TX_CH4n							AJ31				
1C			GXBL1C_TX_CH4p							AJ32				
1C			GXBL1C_RX_CH4n,GXBL1C_REFCLK4n							AE31				
1C			GXBL1C_RX_CH4p,GXBL1C_REFCLK4p							AE32				
1C			GXBL1C_TX_CH3n							AK33				
1C			GXBL1C_TX_CH3p							AK34				
1C			GXBL1C_RX_CH3n,GXBL1C_REFCLK3n							AF29				











Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/X9	DQS for X16/X18	DQS for X32/X36
			GND							AN16				
			GND							AM16				
			GND							Y8				
			GND							Y32				
			GND							Y31				
			GND							Y3				
			GND							Y25				
			GND							Y23				
			GND							Y18				
			GND							Y13				
			GND							W5				
			GND							W34				
			GND							W33				
			GND							W30				
			GND							W29				
			GND							W26				
			GND							W25				
			GND							W20				
			GND							W15				
			GND							W10				
			GND							V7				
			GND							V32				
			GND							V31				
			GND							V25				
			GND							V22				
			GND							V2				
			GND							V17				
			GND							V12				
			GND							U9				
			GND							U4				
			GND							U34				
			GND							U33				
			GND							U30				
			GND							U29				
			GND							U26				
			GND							U25				
			GND							U24				
			GND							U19				
			GND							U14				
			GND							T6				
			GND							T32				
			GND							T31				
			GND							T25				
			GND							T21				
			GND							T16				
			GND							T11				
			GND							T1				
			GND							R8				
			GND							R34				
			GND							R33				
			GND							R30				
			GND							R3				
			GND							R29				
			GND							R26				
			GND							R25				
			GND							R23				
			GND							R18				
			GND							R13				
			GND							P5				
			GND							P32				
			GND							P31				
			GND							P25				
			GND							P20				
			GND							P15				
			GND							P10				
			GND							N7				
			GND							N34				
			GND							N33				
			GND							N30				
			GND							N29				
			GND							N26				
			GND							N25				
			GND							N22				
			GND							N2				
			GND							N17				
			GND							N12				
			GND							M9				
			GND							M4				
			GND							M32				
			GND							M31				
			GND							M25				
			GND							M24				
			GND							M19				
			GND							M14				
			GND							L6				
			GND							L34				
			GND							L33				
			GND							L30				
			GND							L29				
			GND							L26				
			GND							L25				
			GND							L21				
			GND							L16				
			GND							L11				
			GND							L1				
			GND							K8				
			GND							K32				



Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/X9	DQS for X16/X18	DQS for X32/X36
			GND							K31				
			GND							K3				
			GND							K25				
			GND							K23				
			GND							K18				
			GND							K13				
			GND							J5				
			GND							J34				
			GND							J33				
			GND							J30				
			GND							J29				
			GND							J28				
			GND							J27				
			GND							J26				
			GND							J25				
			GND							J20				
			GND							J15				
			GND							J10				
			GND							H7				
			GND							H32				
			GND							H31				
			GND							H28				
			GND							H27				
			GND							H22				
			GND							H2				
			GND							H17				
			GND							H12				
			GND							G9				
			GND							G4				
			GND							G34				
			GND							G33				
			GND							G30				
			GND							G29				
			GND							G28				
			GND							G24				
			GND							G19				
			GND							G14				
			GND							F6				
			GND							F32				
			GND							F31				
			GND							F28				
			GND							F26				
			GND							F21				
			GND							F16				
			GND							F11				
			GND							F1				
			GND							E8				
			GND							E34				
			GND							E33				
			GND							E30				
			GND							E3				
			GND							E29				
			GND							E28				
			GND							E23				
			GND							E18				
			GND							E13				
			GND							D5				
			GND							D32				
			GND							D31				
			GND							D28				
			GND							D25				
			GND							D20				
			GND							D15				
			GND							D10				
			GND							C7				
			GND							C34				
			GND							C33				
			GND							C30				
			GND							C29				
			GND							C28				
			GND							C27				
			GND							C22				
			GND							C2				
			GND							C17				
			GND							C12				
			GND							B5				
			GND							B4				
			GND							B34				
			GND							B33				
			GND							B32				
			GND							B31				
			GND							B28				
			GND							B24				
			GND							B19				
			GND							B14				
			GND							B1				
			GND							AP5				
			GND							AP33				
			GND							AP32				
			GND							AP31				
			GND							AP30				
			GND							AP25				
			GND							AP20				
			GND							AP2				
			GND							AP15				
			GND							AP10				
			GND							AN7				

Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/X9	DQS for X16/X18	DQS for X32/X36
			GND							AN34				
			GND							AN33				
			GND							AN30				
			GND							AN29				
			GND							AN28				
			GND							AN27				
			GND							AN22				
			GND							AN2				
			GND							AN17				
			GND							AN12				
			GND							AN1				
			GND							AM9				
			GND							AM4				
			GND							AM32				
			GND							AM31				
			GND							AM28				
			GND							AM24				
			GND							AM19				
			GND							AM14				
			GND							AL5				
			GND							AL34				
			GND							AL33				
			GND							AL30				
			GND							AL29				
			GND							AL28				
			GND							AL26				
			GND							AL21				
			GND							AL16				
			GND							AL11				
			GND							AK1				
			GND							AK9				
			GND							AK32				
			GND							AK31				
			GND							AK3				
			GND							AK28				
			GND							AK23				
			GND							AK18				
			GND							AK13				
			GND							AJ5				
			GND							AJ34				
			GND							AJ33				
			GND							AJ30				
			GND							AJ29				
			GND							AJ28				
			GND							AJ25				
			GND							AJ20				
			GND							AJ15				
			GND							AJ10				
			GND							AH7				
			GND							AH32				
			GND							AH31				
			GND							AH28				
			GND							AH27				
			GND							AH22				
			GND							AH2				
			GND							AH17				
			GND							AH12				
			GND							AG9				
			GND							AG4				
			GND							AG34				
			GND							AG33				
			GND							AG30				
			GND							AG29				
			GND							AG28				
			GND							AG24				
			GND							AG19				
			GND							AG14				
			GND							AF6				
			GND							AF32				
			GND							AF31				
			GND							AF28				
			GND							AF27				
			GND							AF26				
			GND							AF21				
			GND							AF16				
			GND							AF11				
			GND							AF1				
			GND							AE8				
			GND							AE34				
			GND							AE33				
			GND							AE30				
			GND							AE3				
			GND							AE29				
			GND							AE26				
			GND							AE25				
			GND							AE23				
			GND							AE18				
			GND							AE13				
			GND							AD5				
			GND							AD32				
			GND							AD31				
			GND							AD25				
			GND							AD20				
			GND							AD15				
			GND							AD10				
			GND							AC7				
			GND							AC34				

Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/A9	DQS for X16/X18	DQS for X32/X36
			GND							AC33				
			GND							AC30				
			GND							AC29				
			GND							AC26				
			GND							AC25				
			GND							AC22				
			GND							AC2				
			GND							AC17				
			GND							AC12				
			GND							AB9				
			GND							AB4				
			GND							AB32				
			GND							AB31				
			GND							AB25				
			GND							AB24				
			GND							AB19				
			GND							AB14				
			GND							AA6				
			GND							AA34				
			GND							AA33				
			GND							AA30				
			GND							AA29				
			GND							AA26				
			GND							AA25				
			GND							AA21				
			GND							AA16				
			GND							AA11				
			GND							AA1				
			GND							A6				
			GND							A33				
			GND							A30				
			GND							A29				
			GND							A28				
			GND							A26				
			GND							A21				
			GND							A2				
			GND							A16				
			GND							A11				
			GNDSENSE							T14				
			VCC							Y9				
			VCC							Y7				
			VCC							Y22				
			VCC							Y21				
			VCC							Y20				
			VCC							Y19				
			VCC							Y17				
			VCC							Y16				
			VCC							Y15				
			VCC							Y14				
			VCC							Y12				
			VCC							Y10				
			VCC							W9				
			VCC							W8				
			VCC							W7				
			VCC							W22				
			VCC							W21				
			VCC							W19				
			VCC							W18				
			VCC							W17				
			VCC							W16				
			VCC							W14				
			VCC							W13				
			VCC							W12				
			VCC							W11				
			VCC							U22				
			VCC							T9				
			VCC							T8				
			VCC							T7				
			VCC							T22				
			VCC							T20				
			VCC							T19				
			VCC							T18				
			VCC							T17				
			VCC							T13				
			VCC							T12				
			VCC							T10				
			VCC							R9				
			VCC							R7				
			VCC							R22				
			VCC							R21				
			VCC							R20				
			VCC							R19				
			VCC							R17				
			VCC							R16				
			VCC							R15				
			VCC							R14				
			VCC							R12				
			VCC							R11				
			VCC							R10				
			VCC							P9				
			VCC							P8				
			VCC							P7				
			VCC							P22				
			VCC							P21				
			VCC							P19				
			VCC							P17				

Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/A9	DQS for X16/X18	DQS for X32/X36
			VCC							P16				
			VCC							P14				
			VCC							P13				
			VCC							P12				
			VCC							N9				
			VCC							N8				
			VCC							N21				
			VCC							N19				
			VCC							N15				
			VCC							N14				
			VCC							AB8				
			VCC							AB7				
			VCC							AB22				
			VCC							AB21				
			VCC							AB17				
			VCC							AB15				
			VCC							AB12				
			VCC							AA9				
			VCC							AA8				
			VCC							AA7				
			VCC							AA22				
			VCC							AA20				
			VCC							AA19				
			VCC							AA17				
			VCC							AA15				
			VCC							AA14				
			VCC							AA13				
			VCC							AA12				
			VCC							AA10				
			VCCPT							V9				
			VCCPT							V8				
			VCCPT							V21				
			VCCPT							V20				
			VCCPT							V19				
			VCCPT							V18				
			VCCPT							V16				
			VCCPT							V13				
			VCCPT							V11				
			VCCPT							V10				
			VCCPT							U8				
			VCCPT							U21				
			VCCPT							U20				
			VCCPT							U18				
			VCCPT							U17				
			VCCPT							U16				
			VCCPT							U15				
			VCCPT							U13				
			VCCPT							U12				
			VCCPT							U11				
			VCCPT							U10				
			DNU							AG27				
			DNU							AN25				
			DNU							AN25				
			DNU							IR				
			DNU							H8				
			DNU							AP18				
			DNU							AN19				
			DNU							AN18				
			DNU							AN20				
			DNU							AP28				
			DNU							AP27				
			TEMPDIODE0n							AN15				
			TEMPDIODE0p							AM15				
			TEMPDIODE1n							AJ27				
			TEMPDIODE1p							AH26				
			VCCBAT							AE15				
			VCCA_PLL							V15				
			VCCA_PLL							V14				
			VCCIO2K							AD19				
			VCCIO2K							AC20				
			VCCIO2K							AC19				
			VCCIO2L							M21				
			VCCIO2L							M20				
			VCCIO2L							L20				
			VCCIO2M							M18				
			VCCIO2M							L19				
			VCCIO2M							L18				
			VCCIO2N							M17				
			VCCIO2N							M16				
			VCCIO2N							L17				
			VCCIO3A							AD13				
			VCCIO3A							AC14				
			VCCIO3A							AC13				
			VCCIO3B							AC9				
			VCCIO3B							AC8				
			VCCIO3B							AC10				
			VCCIO3C							W6				
			VCCIO3C							V6				
			VCCIO3C							V5				
			VCCIO3D							M10				
			VCCIO3D							I9				
			VCCIO3D							L10				
			VCCIO3V							AC24				
			VCCIO3V							AC23				
			VCCIO_HPS							M12				
			VCCIO_HPS							M11				
			VCCIO_SBM							AD16				

Bank Number	Index within I/O Bank	VREF	Pin Name/Function	Optional Function(s)	Configuration Function	HPS Function	Dedicated Tx/Rx Channel	Soft CDR Support	GT support	HF35	DQS for X4	DQS for X8/A9	DQS for X16/X18	DQS for X32/X36
2K			VREFB2KNO	VREFB2KNO						AC21				
2L			VREFB2LNO	VREFB2LNO						K20				
2M			VREFB2MNO	VREFB2MNO						K19				
2N			VREFB2NNO	VREFB2NNO						M15				
3A			VREFB3ANO	VREFB3ANO						AC15				
3B			VREFB3BNO	VREFB3BNO						AC11				
3C			VREFB3CNO	VREFB3CNO						V6				
3D			VREFB3DNO	VREFB3DNO						M8				
			NC							V6				
			NC							R6				
			NC							P6				
			NC							N6				
			NC							AG26				
			NC							AD28				
			NC							AC6				
			NC							AC18				
			VCCX_GXBLCF							V26				
			VCCX_GXBLCF							P26				
			VCCX_GXBLCF							K26				
			VCCX_GXBLCF							AB26				
			VCCR_GXBLLC							AD28				
			VCCR_GXBLLC							AD27				
			VCCR_GXBLLC							AD26				
			VCCR_GXBLLD							V28				
			VCCR_GXBLLD							V27				
			VCCR_GXBLLD							V26				
			VCCR_GXBLL1E							T28				
			VCCR_GXBLL1E							T27				
			VCCR_GXBLL1E							T26				
			VCCR_GXBLL1F							M28				
			VCCR_GXBLL1F							M27				
			VCCR_GXBLL1F							M26				
			VCCT_GXBLLC							AB28				
			VCCT_GXBLLC							AB27				
			VCCT_GXBLLD							V28				
			VCCT_GXBLLD							V27				
			VCCT_GXBLL1E							P28				
			VCCT_GXBLL1E							P27				
			VCCT_GXBLL1F							K28				
			VCCT_GXBLL1F							K27				
			RREF_BI							AP29				
			VCCAOC							AF15				
			VCCERAM							V24				
			VCCERAM							W24				
			VCCERAM							W23				
			VCCERAM							V24				
			VCCERAM							V23				
			VCCERAM							T24				
			VCCERAM							T23				
			VCCERAM							R24				
			VCCERAM							P24				
			VCCERAM							P23				
			VCCERAM							N24				
			VCCERAM							N23				
			VCCERAM							N20				
			VCCERAM							N16				
			VCCERAM							N13				
			VCCERAM							N10				
			VCCERAM							AB23				
			VCCERAM							AB20				
			VCCERAM							AB16				
			VCCERAM							AB13				
			VCCERAM							AB10				
			VCCERAM							AA24				
			VCCERAM							AA23				
			VCCFUSEWR_SDM							AE16				
			VCCLSENSE							T15				
			VCCL_HPS							M13				
			VCCL_HPS							L14				
			VCCL_HPS							L13				
			VCCL_HPS							L12				
			VCCL_HPS							K14				
			VCCP							V11				
			VCCP							P18				
			VCCP							P11				
			VCCP							N18				
			VCCP							N11				
			VCCP							AB18				
			VCCP							AB11				
			VCCP							AK18				
			VCCPLL1DIG_HPS							J11				
			VCCPLL1DIG_SDM							AD17				
			VCCPLL_HPS							K11				
			VCCPLL_SDM							AC16				

Date	Version	Changes
October 2019	2019.10.08	Initial release.

(1) For more information about pin definition and pin connection guidelines, refer to the [Intel® Stratix® 10 Device Family Pin Connection Guidelines](#)