

88E1111
TFBGA-117

When the XTAL2 pin is not connected, it should be left floating
XTAL1 must be active for a minimum of 10 clock cycles before the rising edge of RESN#

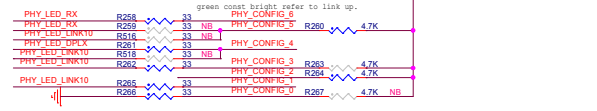
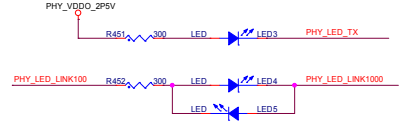
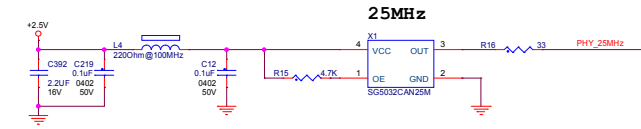
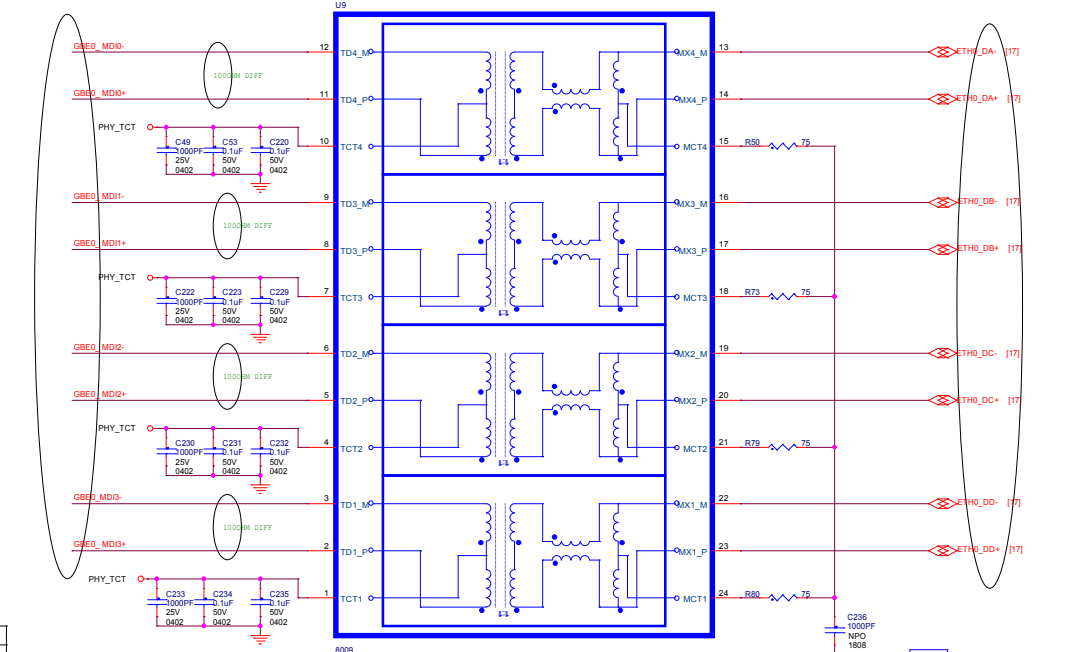
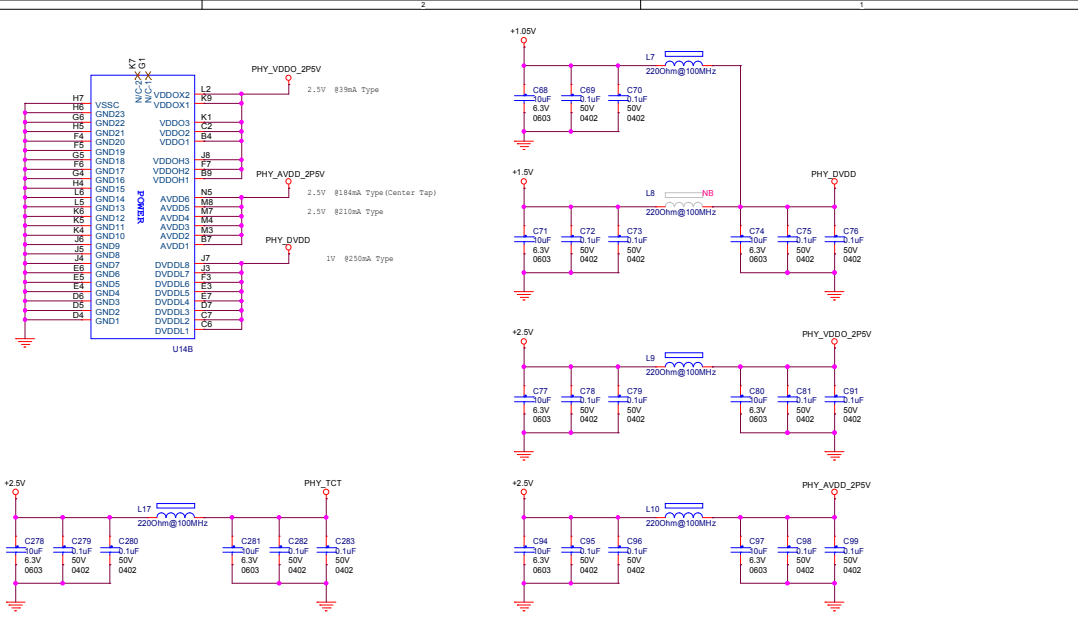


Table 28: Pin to Constant Mapping

Pin	Bit[2:0]
VDDO	111
LED_LINK10	110
LED_LINK100	101
LED_LINK1000	100
LED_DUPLEX	011
LED_RX	010
LED_TX	001
VSS	000



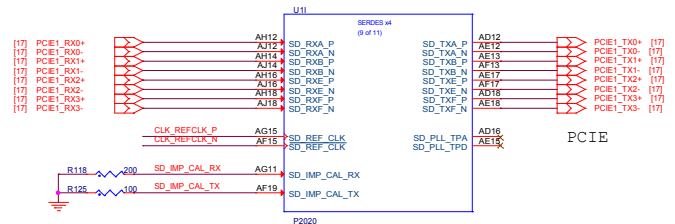
10/100/1000 Ethernet PHY

Table 30: 88E1111 Device Pin to Configuration Bit Mapping

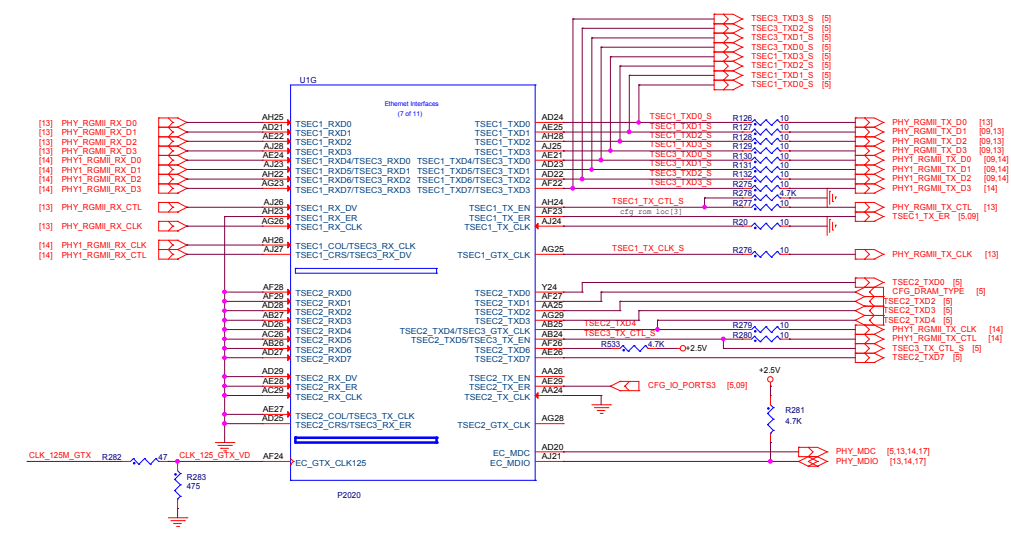
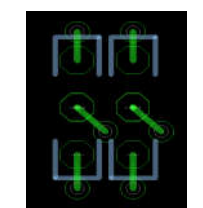
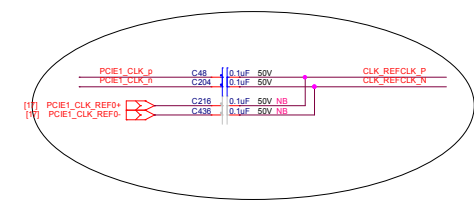
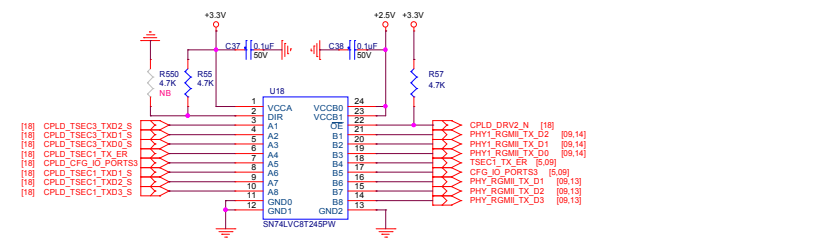
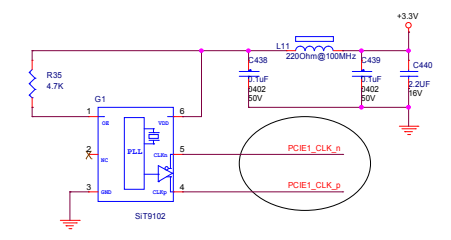
Pin	Bit[2]	Bit[1]	Bit[0]
CONFIG0	PHYADR[2]	PHYADR[1]	PHYADR[0]
CONFIG1	ENA_PAUSE	PHYADR[4]	PHYADR[3]
CONFIG2	ANEG[3]	ANEG[2]	ANEG[1]
CONFIG3	ANEG[0]	ENA_XC	DIS_125
CONFIG4	HWCFG_MODE[2]	HWCFG_MODE[1]	HWCFG_MODE[0]
CONFIG5	DIS_FC	DIS_SLEEP	HWCFG_MODE[3]
CONFIG6	SEL_TWSI	INT_POL	75/50 OHM

PIN	bit[2]	bit[1]	bit[0]	Copper	SGMI	Fiber	NOTE
conf0	PHYADR[2]	PHYADR[1]	PHYADR[0]	000	000	000	MDIO_ADDR is 1010000
conf1	ENA_PAUSE	PHYADR[4]	PHYADR[3]	110	110	110	Auto-gep, advertise all
conf2	ANEG[3]	ANEG[2]	ANEG[1]	111	111	111	
conf3	ANEG[0]	ENA_XC	DIS_125	110	110	110	capabilities, prefer slave enable crossover, DISABLE 125M clock
conf4	HWCFG_MODE[2]	HWCFG_MODE[1]	HWCFG_MODE[0]	011	110	011	RMII to Copper/SGMI/Fiber
conf5	DIS_FC	DIS_SLEEP	HWCFG_MODE[3]	111	110	110	
conf6	SEL_TWSI	INT_POL	75/50 OHM	010	010	010	MDIO, INT, LOW, 50MHz

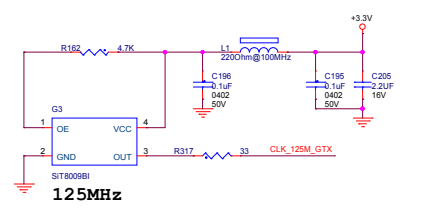
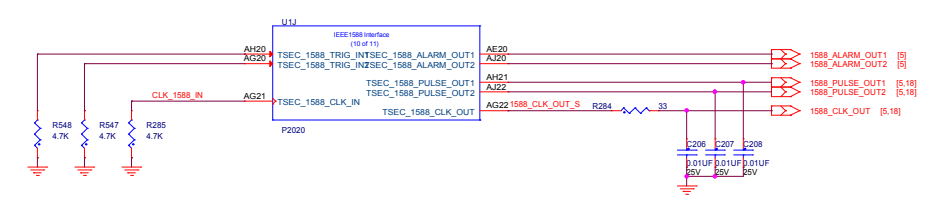
1 For the TWSI device address, the lower 5 bits (PHYADR[4:0]), are latched during hardware reset, and the device address bits [28:5] are fixed at 10.



100MHz FOR PCIe



NOTE: 1588 Interface Powered off LVDD = 2.5V



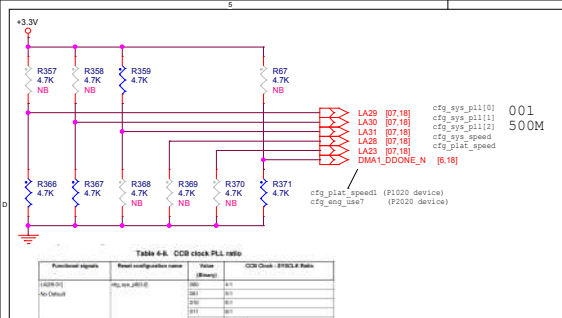


Table 4-8. CS0 clock PLL ratio

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	CS0 Clock PLL Ratio
		001	00
		010	01
		011	02
		100	10
		101	11
		110	12
		111	13

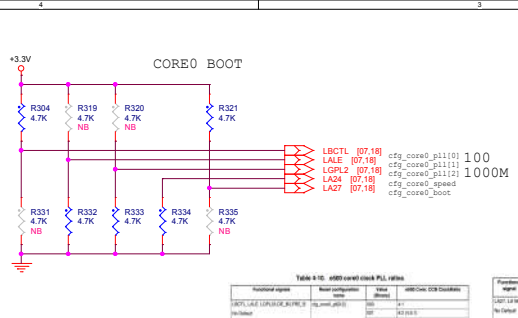


Table 4-9. CORE0 boot clock PLL ratios

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	CORE0 Boot Clock PLL Ratio
		001	100
		010	1000
		011	10000
		100	100000
		101	1000000
		110	10000000
		111	100000000

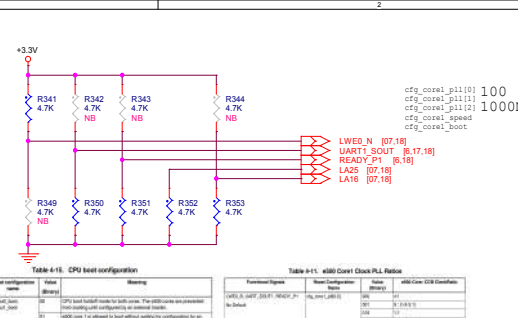


Table 4-10. CPU boot configuration

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	CPU Boot Configuration
		001	100
		010	1000
		011	10000
		100	100000
		101	1000000
		110	10000000
		111	100000000

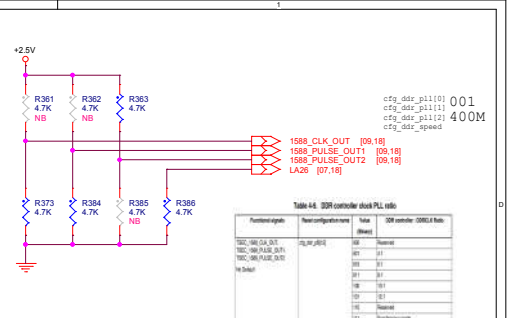


Table 4-11. CS0 control clock PLL ratio

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	CS0 Control Clock PLL Ratio
		001	00
		010	01
		011	02
		100	10
		101	11
		110	12
		111	13

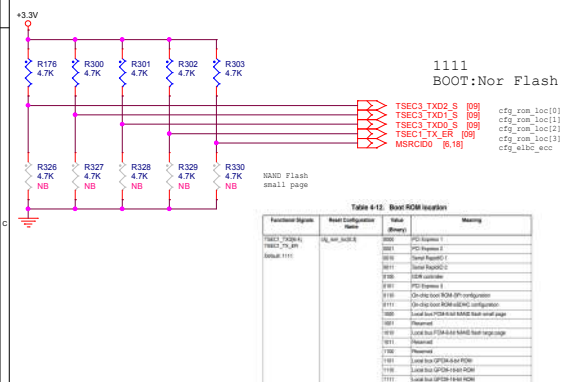


Table 4-10. Boot ROM location

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	Boot ROM location
		001	00
		010	01
		011	02
		100	10
		101	11
		110	12
		111	13

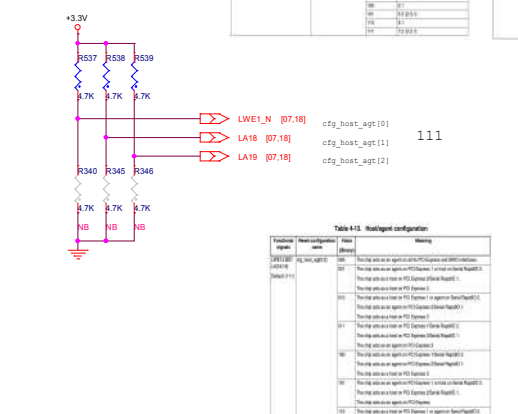


Table 4-13. Mailbox configuration

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	Mailbox configuration
		001	00
		010	01
		011	02
		100	10
		101	11
		110	12
		111	13

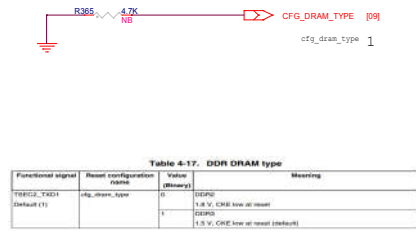
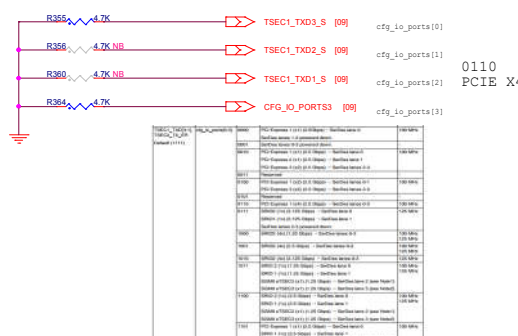


Table 4-17. DDR DRAM type

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	cfg_dram_type	0	DDR4
		1	1.8 V, DDR4 Low Latency (DDR4LL)
		2	DDR5
		3	1.8 V, DDR5 Low Latency (DDR5LL)

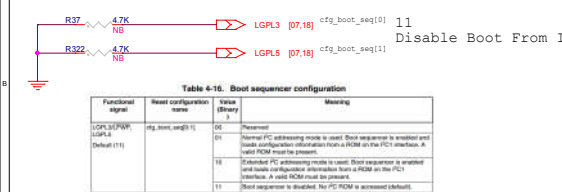


Table 4-16. Boot sequencer configuration

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	cfg_boot_seq[0]	00	Boot sequencer
		01	Normal PC booting mode is used. Boot sequencer is enabled and boot configuration information from PC boot ROM is used. PC boot ROM must be present.
		10	Normal PC booting mode is used. Boot sequencer is disabled and boot configuration information from a PCROM on the PC1 interface is used. PCROM must be present.
		11	Boot sequencer is disabled. No PC ROM is accessed further.

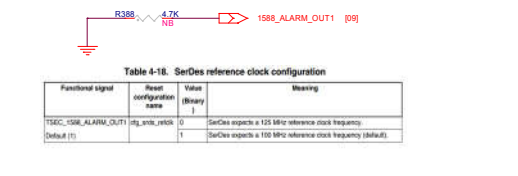


Table 4-18. SerDes reference clock configuration

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	cfg_serdes_refclk	0	SerDes expects a 125 MHz reference clock frequency.
		1	SerDes expects a 100 MHz reference clock frequency (default).

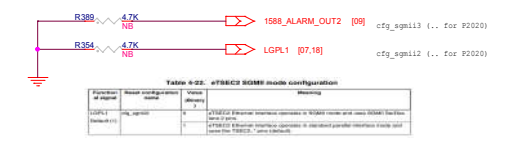


Table 4-22. eTSEC3 SerDes mode configuration

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	cfg_serdes1	0	eTSEC3 SerDes mode configuration
		1	eTSEC3 SerDes mode configuration

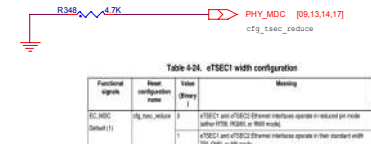


Table 4-24. eTSEC1 with configuration

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	cfg_serdes1	0	eTSEC1 and eTSEC2 SerDes modules operate in reduced pin mode (only 178 pins or 188 pins)
		1	eTSEC1 and eTSEC2 SerDes modules operate in their standard mode (198 pins or 198 pins)

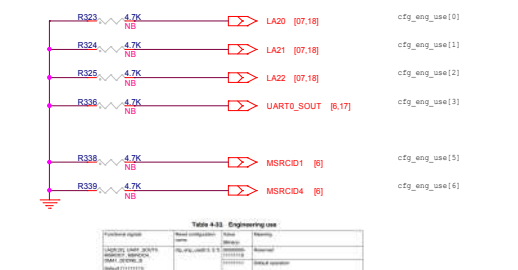
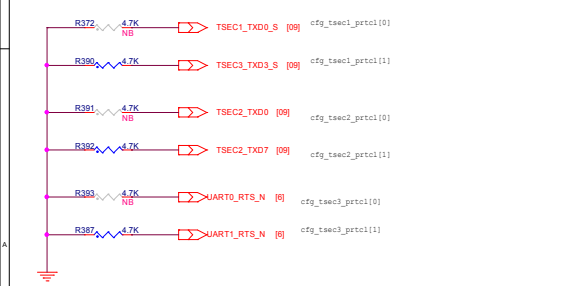


Table 4-23. Engineering use

Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	PLLA0_RATIO	001	Engineering use
		001	00
		010	01
		011	02
		100	10
		101	11
		110	12
		111	13

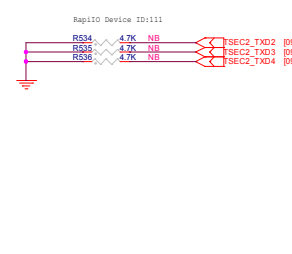
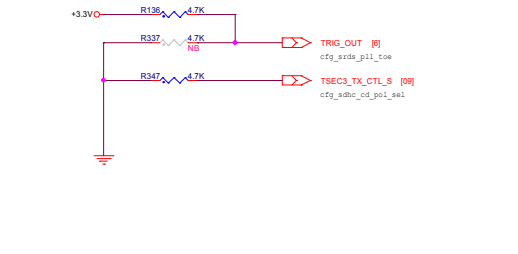
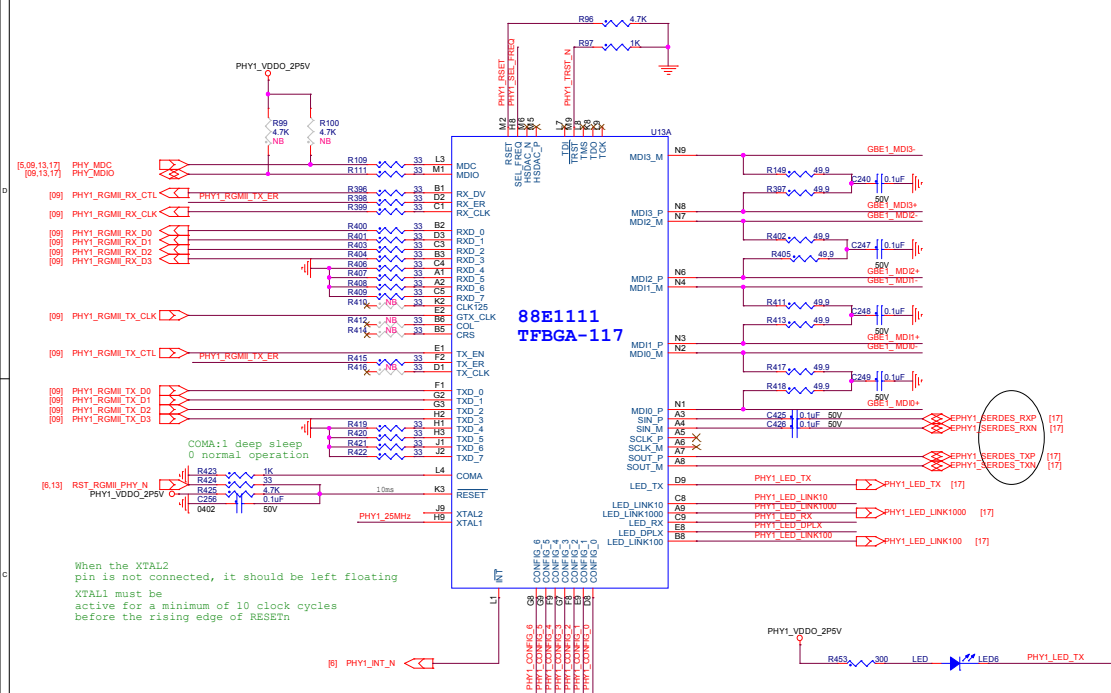


Table 4-25. eTSEC1 protocol configuration

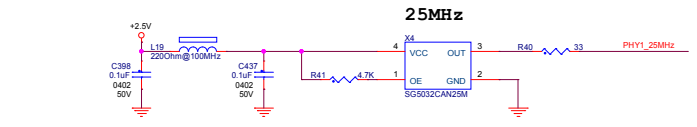
Functional signal	Reset configuration name	Value (Binary)	Meaning
Default (1)	cfg_serdes1	00	Protocol configuration
		01	The eTSEC1 controller operates using the 100 Mbps or 10 Gbps mode.
		10	The eTSEC1 controller operates using the 100 Mbps or 10 Gbps mode in reduced pin mode (only 178 pins or 188 pins).
		11	The eTSEC1 controller operates using the 100 Mbps or 10 Gbps mode in reduced pin mode (only 178 pins or 188 pins).

POR Configuration Options



88E1111
TFPGA-117

When the XTAL2 pin is not connected, it should be left floating
XTAL1 must be active for a minimum of 10 clock cycles before the rising edge of RESETn



25MHz

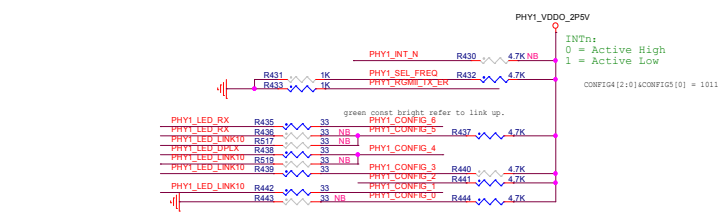


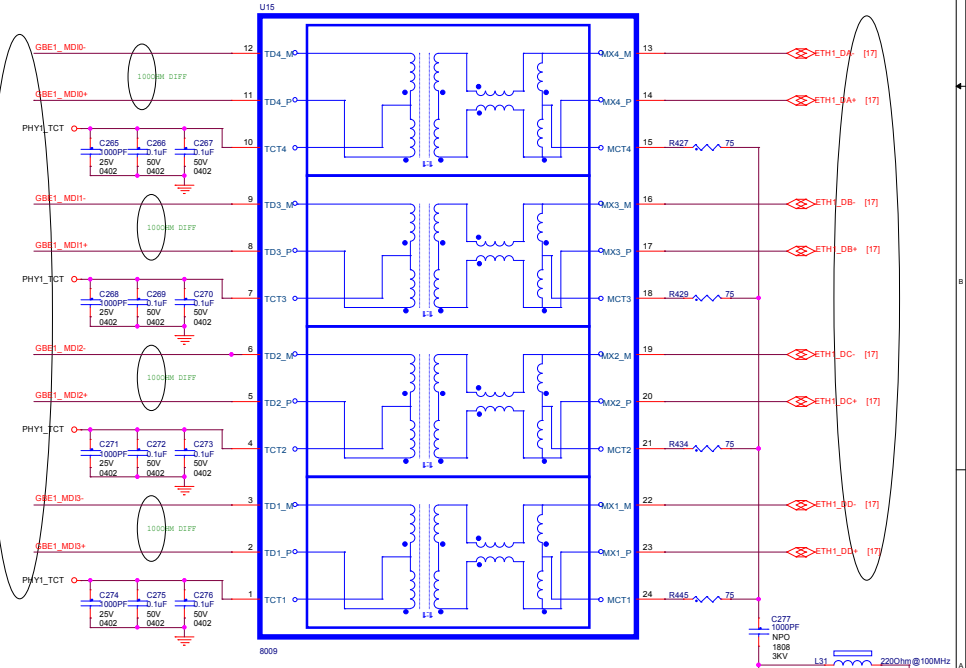
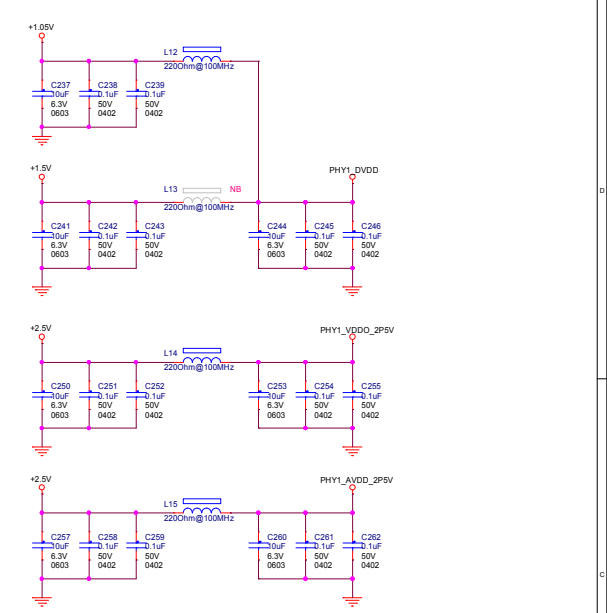
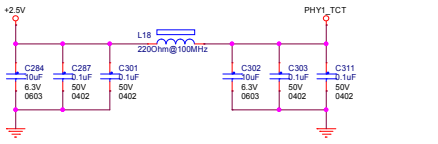
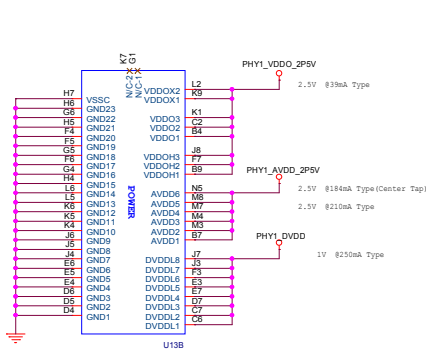
Table 30: 88E1111 Device Pin to Configuration Bit Mapping

Pin	Bit[2]	Bit[1]	Bit[0]
CONFIG0	PHYADR[2]	PHYADR[1]	PHYADR[0]
CONFIG1	ENA_PAUSE	PHYADR[4]	PHYADR[3]
CONFIG2	ANEG[3]	ANEG[2]	ANEG[1]
CONFIG3	ANEG[0]	ENA_XC	DIS_125
CONFIG4	HWCFG_MODE[2]	HWCFG_MODE[1]	HWCFG_MODE[0]
CONFIG5	DIS_FC	DIS_SLEEP	HWCFG_MODE[3]
CONFIG6	SEL_TWSI	INT_POL	75/50 OHM

Table 28: Pin to Constant Mapping

Pin	Bit[2:0]
VDDO	111
LED_LINK10	110
LED_LINK100	101
LED_LINK1000	100
LED_DUPLEX	011
LED_RX	010
LED_TX	001
VSS	000

PIN	bit[2]	bit[1]	bit[0]	Copper	SGMI	Fiber	NOTE
config0	PHYADR[2]	PHYADR[1]	PHYADR[0]	000	000	000	MDIO ADDR is 1010000
config1	ENA_PAUSE	PHYADR[4]	PHYADR[3]	110	110	110	Auto-geg, advertise all
config2	ANEG[3]	ANEG[2]	ANEG[1]	111	111	111	capabilities, prefer slave enable crossover, disable 125M clock
config3	ANEG[0]	ENA_XC	DIS_125	110	110	110	
config4	HWCFG_MODE[2]	HWCFG_MODE[1]	HWCFG_MODE[0]	011	110	011	RMII to Copper/SGMI/Fiber
config5	DIS_FC	DIS_SLEEP	HWCFG_MODE[3]	111	110	110	
config6	SEL_TWSI	INT_POL	75/50 OHM	010	010	010	MDIO_INT_LQW_500M



10/100/1000 Ethernet PHY

1. For the TWSS device address, the lower 5 bits (PHYADR[4:0]), are latched during hardware reset, and the device address bits (R[5]) are fixed at '0'.