

26.5.5.14 SGMII Link Timer Upper (MDIO_SGMII_LINK_TMR_H)

The SGMII Link Timer Register Upper contains bits 20:16 of the link timer value.

Address: 0h base + 13h offset = 13h

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Read	Reserved											LINK_TMR_U				
Write	Reserved											LINK_TMR_U				
Reset	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1

MDIO_SGMII_LINK_TMR_H field descriptions

Field	Description
15–5 -	This field is reserved. Reserved
LINK_TMR_U	Link timer[20:16]

26.5.5.15 SGMII IF Mode (MDIO_SGMII_IF_MODE)

The SGMII IF Mode Register contains control bits to set the interface mode.

Address: 0h base + 14h offset = 14h

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Read	Reserved											SGMII_DUPLEX	SGMII_SPEED	USE_SGMII_AN	SGMII_EN	
Write	Reserved											SGMII_DUPLEX	SGMII_SPEED	USE_SGMII_AN	SGMII_EN	
Reset	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MDIO_SGMII_IF_MODE field descriptions

Field	Description
15–5 -	This field is reserved. Reserved
4 SGMII_DUPLEX	SGMII Halfduplex Mode: Bit ignored when SGMII_EN is set to 0 or USE_SGMII_AN is set to 1. 0 Full duplex enabled (default) 1 Half duplex enabled
3–2 SGMII_SPEED	SGMII Speed. When the PCS operates in SGMII mode (SGMII_EN set to 1) and is programmed not to be automatically configured (USE_SGMII_AN set to 0), sets the PCS speed of operation:

Table continues on the next page...

MDIO_SGMII_IF_MODE field descriptions (continued)

Field	Description
	Bits ignored when SGMII_EN is set to 0 or USE_SGMII_AN is set to 1. 00 10Mbps 01 100Mbps 10 Gigabit 11 Reserved
1 USE_SGMII_AN	Use the SGMII Auto-Negotiation Results to Program the PCS Speed. When set to 0 (Reset Value), the PCS operation should be programmed with the register bit SGMII_SPEED and SGMII_DUPLEX. When set to 1, the PCS operation is automatically programmed with the Partner abilities advertised during Auto-Negotiation. Ignored when SGMII_EN is set to 0.
0 SGMII_EN	SGMII Mode Enable. When set to '0' (Reset Value), the PCS operates in standard 1000Base-X Gigabit mode, when set to '1', the PCS operates in SGMII Mode

26.6 Initialization/Application Information

26.6.1 Initialization

All initialization necessary for the SerDes module to start operation is done automatically based on RCW , with the exception of the following protocols:

26.6.1.1 1G SGMII

After initializing the MAC, and prior to initiating any SGMII traffic, perform the following SGMII protocol initialization:

1. SGMII IF Mode register:
 - SGMII_EN=1
 - USE_SGMII_AN=1 if SGMII auto-negotiation is desired
 - SGMII_SPEED (if USE_SGMII_AN=0)
 - SGMII_DUPLEX (if USE_SGMII_AN=0)
2. SGMII Device Ability Register:
 - EEE_CLK_STP_EN=0
 - SGMII=1

To enable SGMII auto-negotiation, perform the following sequence:

1. SGMII Link Timer Register Upper:
 - LINK_TMR_U=0h03
2. SGMII Link Timer Register Lower:
 - LINK_TMR_L=0h06A0