TESTMETRIX

UHS-II Transaction/Link Layer Interface

Ver 1.0b

Note: This document defines the interface between the UHS-II Transaction layer implemented in Microblaze (MBLZ) and the Link layer implemented in hardware.

Register Map

1. CONFIGURATION Register – [config_reg]

ADDRESS   0xC0000000
SIZE   32
Default Value   0x400083C0
Attributes   Read / Write

Bits	Bit Field	Description
1:0	CNFG_LOCK_ MARGIN	Configuration of permissible error range for PLL lock detector: - 00: +/- 1CLK - 01: +/- 4CLK - 10: +/- 8CLK - 11: +/- 15CLK
3:2	CNFG_LOCK_PERIOD	Configuration of sampling duration for PLL lock detector of PHY: - 00: 103us@26MHz / 51.5us@52MHz - 01: 256us@26MHz / 128us@52MHz - 10: 502us@26MHz / 251us@52MHz - 11: 1004us@26MHz / 502us@52MHz
4	CNFG_ALIGN_EN	TBD
15:5	CNFG_PLL	TBD
18:16	CNFG_BGR	TBD
23:19	CNFG_DRV	TBD
25:24	CNFG_DET	TBD
27:26	CNFG_REG	TBD
29:28	RSVD	Reserved

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30	HOST_MODE	TBD
31	PORT_SEL	TBD

OBS:

TBA: Other configuration signals for LINK and PHY

CONTRL_ADDR   0xC0000100

2. CONTROL Register – [contrl_reg]

ADDRESS   **0xC0000100**
SIZE   **32**
Default Value   **0x00070000**
Attributes   **Read / Write**

Bits	Bit Field	Description
0	RESET_N	SW Reset - This bit will reset entire logic.
1	TEST_NRST	TEST Reset - This bit will reset entire logic.
7:2	RSVD	Reserved
8	P_INIT_START	Start Physical Layer Initialization
9	D_CONFIG_DONE	End device configuration
10	GO_DORMANT	Go into DORMANT State
15:11	RSVD	Reserved
16	DET_EN	TBD
17	RCLKOE	TBD
18	RCLKTRMEN	TBD
31:19	RSVD	Reserved

OBS:

TBA: Other control signals for PHY Layer

CONFIG_ADDR   0xC0000000

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3. STATUS Register – [status_reg]

ADDRESS   0xC0000200
SIZE   32
Default Value   0x00000000
Attributes   Read / Write

Bits	Bit Field	Description
0	LINK_TX_FIFO_FULL	LINK Transmitter Full Flag
4:1	RSVD	Reserved
15:5	LINK_DLSM	LINK DLSM State: - 0x001: DORMANT - 0x002: DORMAND_PENDING - 0x004: WAKEUP_PRE_ACTIVE - 0x008: WAKEUP_ACTIVE - 0x010: WAKEUP_SYNC - 0x020: CONFIG - 0x040: ACTIVE_CONTROL - 0x080: ACTIVE_WAIT_RDY - 0x100: ACTIVE_TRANS_FD - 0x200: ACTIVE_WAIT_STAT - 0x400: ACTIVE_STREAM
23:16	CT	PHY PLSM State for Lane RX_0
31:24	ST	PHY PLSM State for Lane RX_1

OBS:

      TBA: Other status signals from LINK and PHY
STATUS_ADDR   0xC0000200

4. TX Register – [transm_reg]

ADDRESS   0xC0000300
SIZE   32
Default Value   0x00000000
Attributes   Read / Write

Bits	Bit Field	Description
7:0	DATA_TX_0	Data for receiving according to transaction layer **6.2.2 Packet Format Details** chapter.
8	TYPE_OF_DATA	Type of current data: - 0: Data (D) - 1: Symbol (K)
10:9	PLACE_OF_DATA	Place of current data in packet: - 01: First byte in packet (commonly COM symbol) - 10: Last byte in packet (commonly EOP symbol) - 11: Byte in packet (can be symbol or data) - 00: Other
15:11	RSVD	Reserved
22:16	DATA_TX_1	Data for receiving according to transaction layer **6.2.2 Packet Format Details** chapter. Reserved for future use.
23	TYPE_OF_DATA	Type of current data: - 0: Data (D) - 1: Symbol (K) Reserved for future use.
25:24	PLACE_OF_DATA	Place of current data in packet: - 01: First byte in packet (commonly COM symbol) - 10: Last byte in packet (commonly EOP symbol) - 11: Byte in packet (can be symbol or data) - 00: Other Reserved for future use.
31:26	RSVD	Reserved

TRANSM_ADDR   0xC0000300

5. RX Register – [receiv_reg]

ADDRESS 0xC0000400
SIZE 32
Default Value 0x00000000
Attributes Read / Write

Bits	Bit Field	Description
7:0	DATA_RX_0	Data for receiving according to transaction layer **6.2.2 Packet Format Details** chapter.
8	TYPE_OF_DATA	Type of current data: - 0: Data (D) - 1: Symbol (K)
10:9	PLACE_OF_DATA	Place of current data in packet: - 01: First byte in packet (commonly COM symbol) - 10: Last byte in packet (commonly EOP symbol) - 11: Byte in packet (can be symbol or data) - 00: Other
15:11	RSVD	Reserved
22:16	DATA_TX_1	Data for receiving according to transaction layer **6.2.2 Packet Format Details** chapter. Reserved for future use.
23	TYPE_OF_DATA	Type of current data: - 0: Data (D) - 1: Symbol (K) Reserved for future use.
25:24	PLACE_OF_DATA	Place of current data in packet: - 01: First byte in packet (commonly COM symbol) - 10: Last byte in packet (commonly EOP symbol) - 11: Byte in packet (can be symbol or data) - 00: Other Reserved for future use.
31:26	RSVD	Reserved

RECEIV_ADDR 0xC0000400

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6. DEBUG 01

ADDRESS   **0xF0000000**
SIZE   **32**
Default Value   **0x00000000**
Attributes   **Read / Write**

Bits	Bit Field	Description
31:0	RSVD	Reserved

DEB_01_ADDR   0xF0000000

7. DEBUG 02

ADDRESS   **0xF0000100**
SIZE   **32**
Default Value   **0x00000000**
Attributes   **Read / Write**

Bits	Bit Field	Description
31:0	RSVD	Reserved

DEB_02_ADDR   0xF0000100

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8. <u>DEBUG 03</u>

ADDRESS   0xF0000200
SIZE   32
Default Value   0x00000000
Attributes   Read / Write

Bits	Bit Field	Description
31:0	RSVD	Reserved

DEB_03_ADDR   0xF0000200

9. <u>DEBUG 04</u>

ADDRESS   0xF0000300
SIZE   32
Default Value   0x00000000
Attributes   Read / Write

Bits	Bit Field	Description
31:0	RSVD	Reserved

DEB_04_ADDR   0xF0000300

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Communication Protocol