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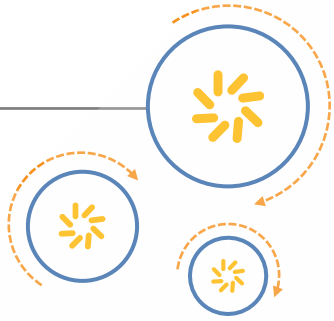
Qualcomm Atheros, Inc.



QCA8075 and QCA8072 Co-Layout Design

Application Note

80-Y9112-5 Rev. A

September 2, 2015

Questions or comments: https://createpoint.qti.qualcomm.com/

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Revision history

Revision	Date	Description
A	September 2015	Initial release

Contents

1 Introduction

Both QCA8075 and QCA8072 are 10/100/1000 Mbps tri-speed Ethernet PHY. The QCA8075 is a five-port device, while the QCA8072 is a dual-port device. They provide physical layer functions for half/full-duplex 10BASE-Te, 100BASE-TX, and full-duplex 1000BASE-T Ethernet to transmit and receive data over standard Category 5 (CAT-5) unshielded twisted pair cable.

Each device includes two SerDes. One can be configured to PSGMII or QSGMII for connection with MAC. The other can be configured to SGMII for connection with MAC or fiber port combined with copper port 4 (QCA8075) or port 1 (QCA8072) to form a combo port.

The two devices are pin compatible and suitable for co-layout.

There are some difference between the two devices in PHY ID, pin definition, supported configuration modes.

Software program can identify the two devices through the PHY ID.

2 Pinout

QCA8075 and QCA8072 are available in the 108-pin DR-QFN package that includes an exposed ground pad for electrical grounding, mechanical strength, and thermal continuity.

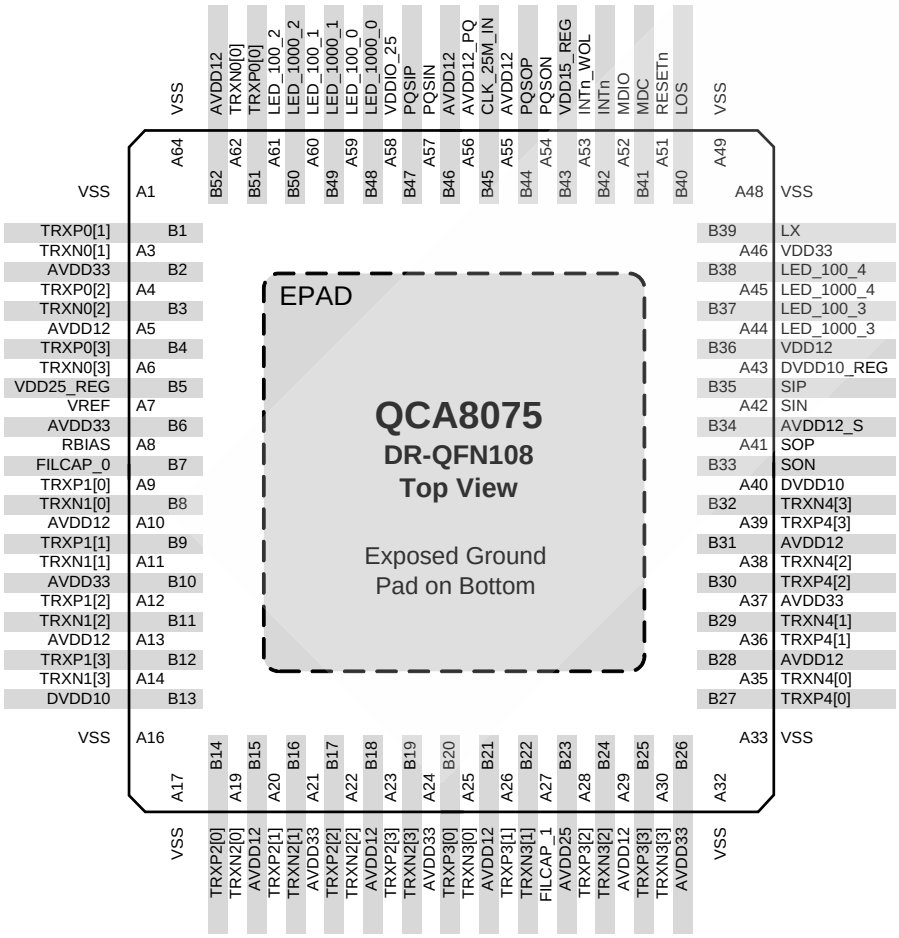

Figure 2-1 QCA8075 108-pin pinout (top view)

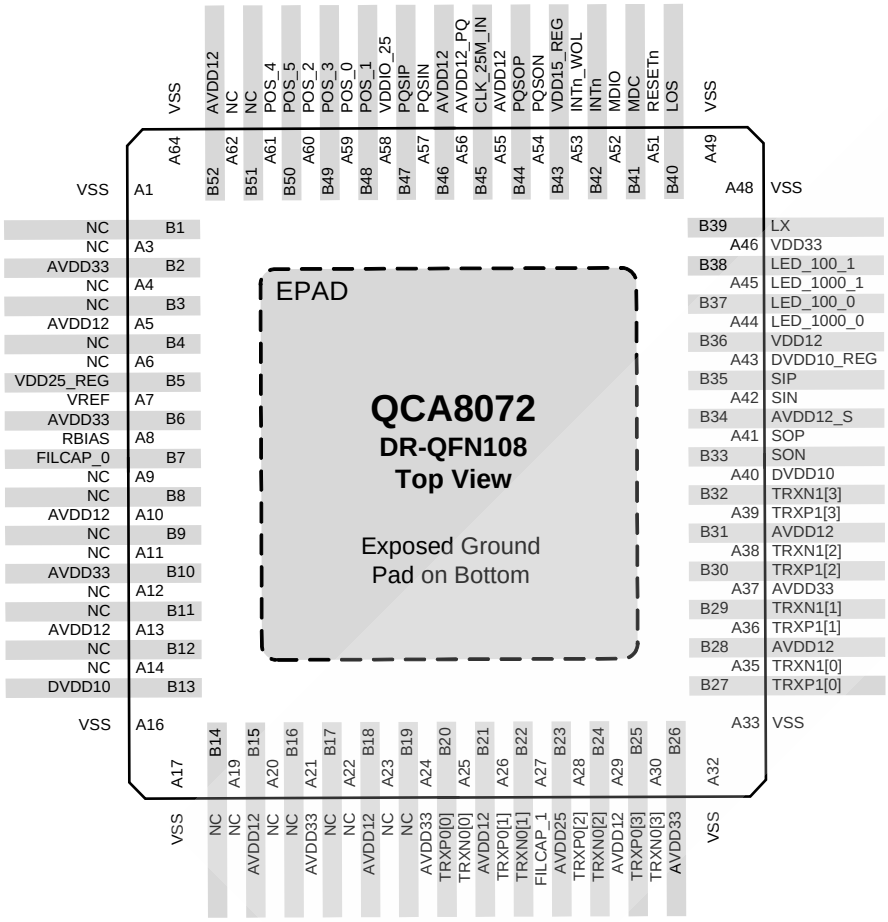

Figure 2-2 QCA8072 108-pin pinout (top view)

3 Differences summary

3.1 PHY ID

The following table lists the different PHY ID.

Table 3-1 PHY ID

	PHY ID	Comment
QCA8075	D0B1	Read any port's MII registers 0x3
QCA8072	D0B2	Read any port's MII registers 0x3

3.2 Pin definition

The follow table lists the different pin definition.

Table 3-2 Pin definition

Pin	Symbol for QCA8075	Symbol for QCA8072
A45	LED_1000_4	LED_1000_1
B38	LED_100_4	LED_100_1
A44	LED_1000_3	LED_1000_0
B37	LED_100_3	LED_100_0
B50	LED_1000_2	POS_5
A61	LED_100_2	POS_4
B49	LED_1000_1	POS_3
A60	LED_100_1	POS_2
B48	LED_1000_0	POS_1
A59	LED_100_0	POS_0
B51	TRXP0[0]	NC
A62	TRXN0[0]	NC
B1	TRXP0[1]	NC
A3	TRXN0[1]	NC
A4	TRXP0[2]	NC
B3	TRXN0[2]	NC
B4	TRXP0[3]	NC
A6	TRXN0[3]	NC
A9	TRXP1[0]	NC
B8	TRXN1[0]	NC
B9	TRXP1[1]	NC
A11	TRXN1[1]	NC
A12	TRXP1[2]	NC
B11	TRXN1[2]	NC
B12	TRXP1[3]	NC
A14	TRXN1[3]	NC
B14	TRXP2[0]	NC
A19	TRXN2[0]	NC
A20	TRXP2[1]	NC
B16	TRXN2[1]	NC
B17	TRXP2[2]	NC
A22	TRXN2[2]	NC
A23	TRXP2[3]	NC
B19	TRXN2[3]	NC
B20	TRXP3[0]	TRXP0[0]
A25	TRXN3[0]	TRXN0[0]
A26	TRXP3[1]	TRXP0[1]

Pin	Symbol for QCA8075	Symbol for QCA8072
B22	TRXN3[1]	TRXN0[1]
A28	TRXP3[2]	TRXP0[2]
B24	TRXN3[2]	TRXN0[2]
B25	TRXP3[3]	TRXP0[3]
A30	TRXN3[3]	TRXN0[3]
B27	TRXP4[0]	TRXP1[0]
A35	TRXN4[0]	TRXN1[0]
A36	TRXP4[1]	TRXP1[1]
B29	TRXN4[1]	TRXN1[1]
B30	TRXP4[2]	TRXP1[2]
A38	TRXN4[2]	TRXN1[2]
A39	TRXP4[3]	TRXP1[3]
B32	TRXN4[3]	TRXN1[3]

3.3 Supported configuration mode

The follow table lists the different configuration modes.

Table 3-3 Supported configuration mode

	QCA8075	QCA8072
PSGMII application	5 copper ports	2 copper ports
	4 copper ports + 1 combo port	1 copper port + 1 combo port
QSGMII + SGMII application	5 copper ports	2 copper ports

4 Co-Layout Design

CAUTION: Port 0 and 1 of QCA8072 correspond to port 3 and 4 of QCA8075.

NOTE: Port 1 of QCA8072 and port 4 of QCA8075 can be configured as a combo port.

Table 4-1 QCA8075 and QCA8072 co-layout design

Pin	QCA8075	QCA8072
B20, A25, A26, B22, A28, B24, B25, A30	Port 3 MDI	Port 0 MDI
B27, A35, A36, B29, B30, A38, A39, B32	Port 4 MDI	Port 1 MDI
B51, A62, B1, A3, A4, B3, B4, A6	Port 0 MDI	NC
A9, B8, B9, A11, A12, B11, B12, A14	Port 1 MDI	NC
B14, A19, A20, B16, B17, A22, A23, B19	Port 2 MDI	NC