# EVB-LAN9353
## LAN9353 (Config 9 and 10)



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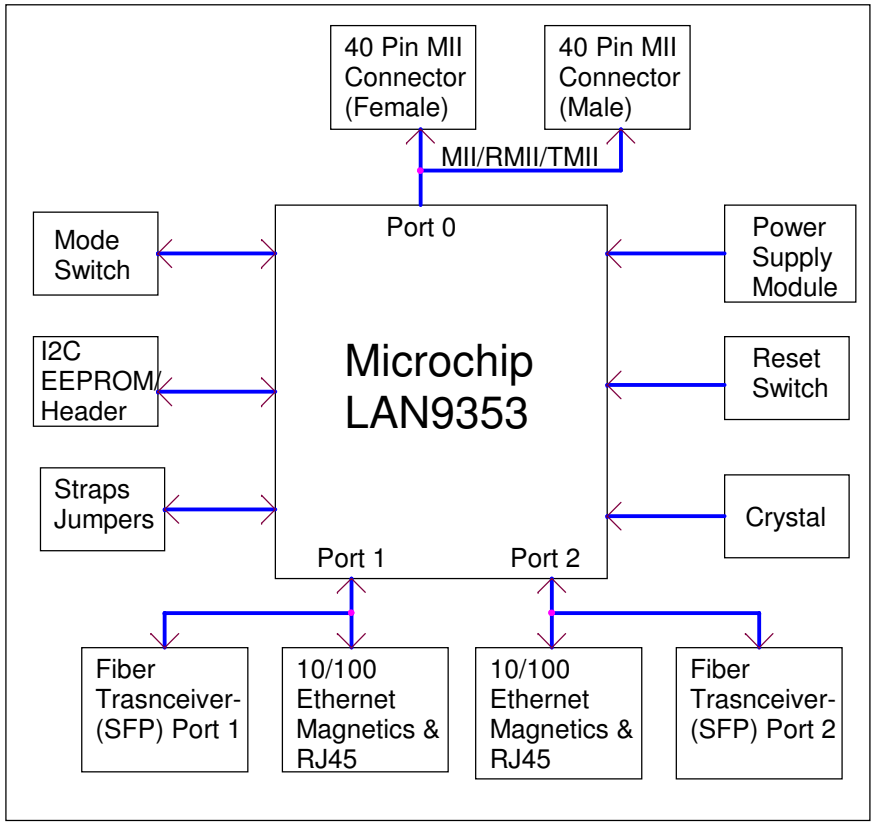
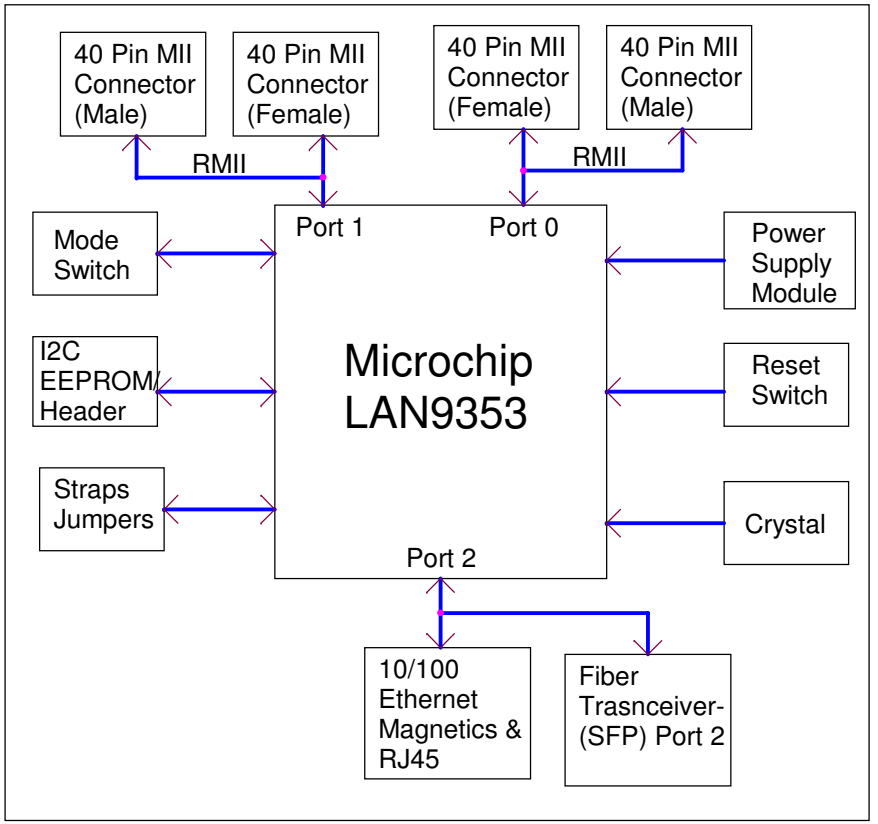
| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: TITLE | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Monday, June 22, 2015 | | Sheet 1 of 10 | |

# EVB-LAN9353 Block Diagram (Config 10)




# EVB-LAN9353 Block Diagram (Config 9)

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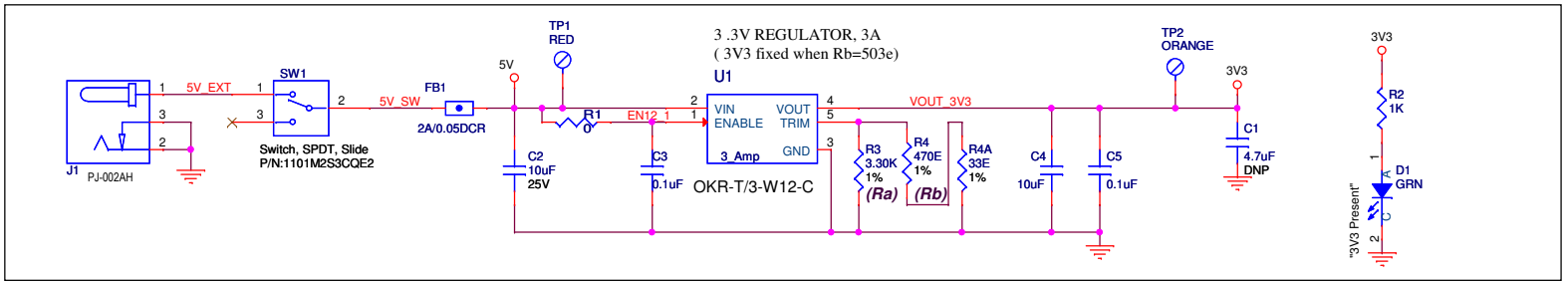
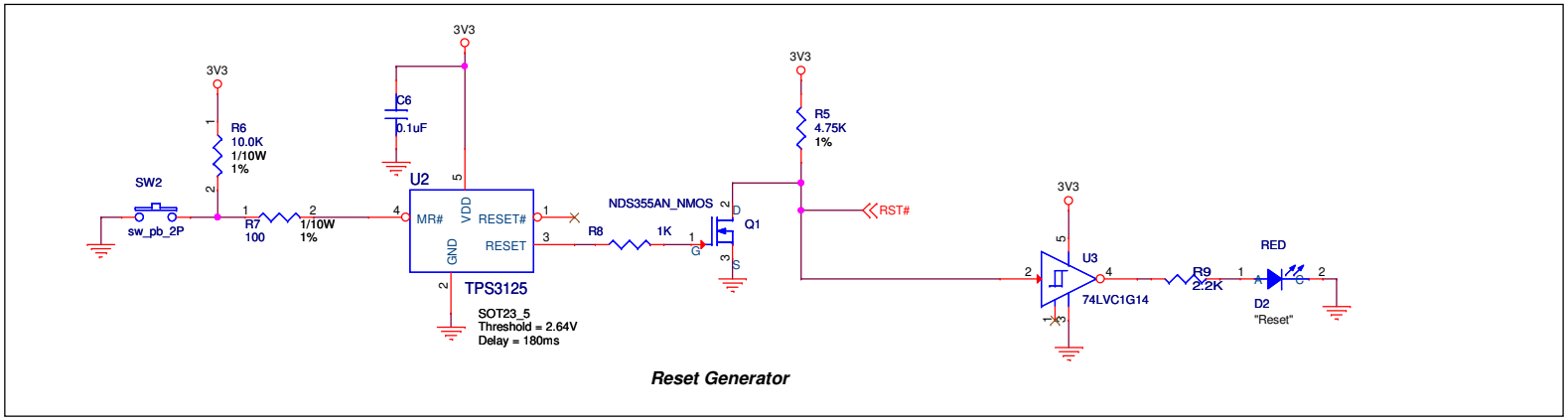
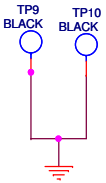
| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: Block Diagram | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Friday, June 19, 2015 | | Sheet 2 of 10 | |

# POWER SUPPLY




***Reset Generator***

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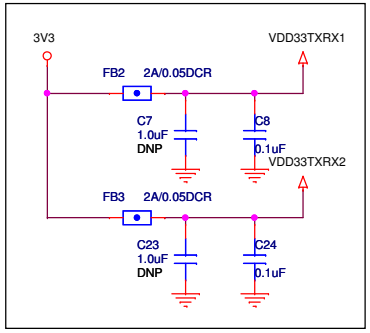
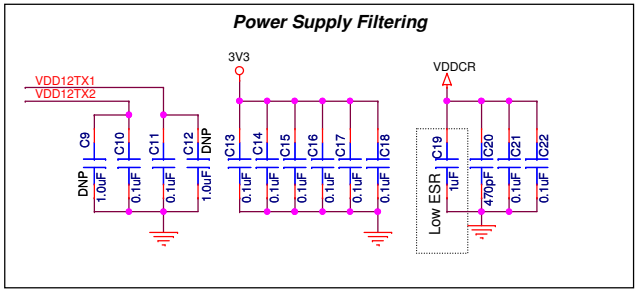
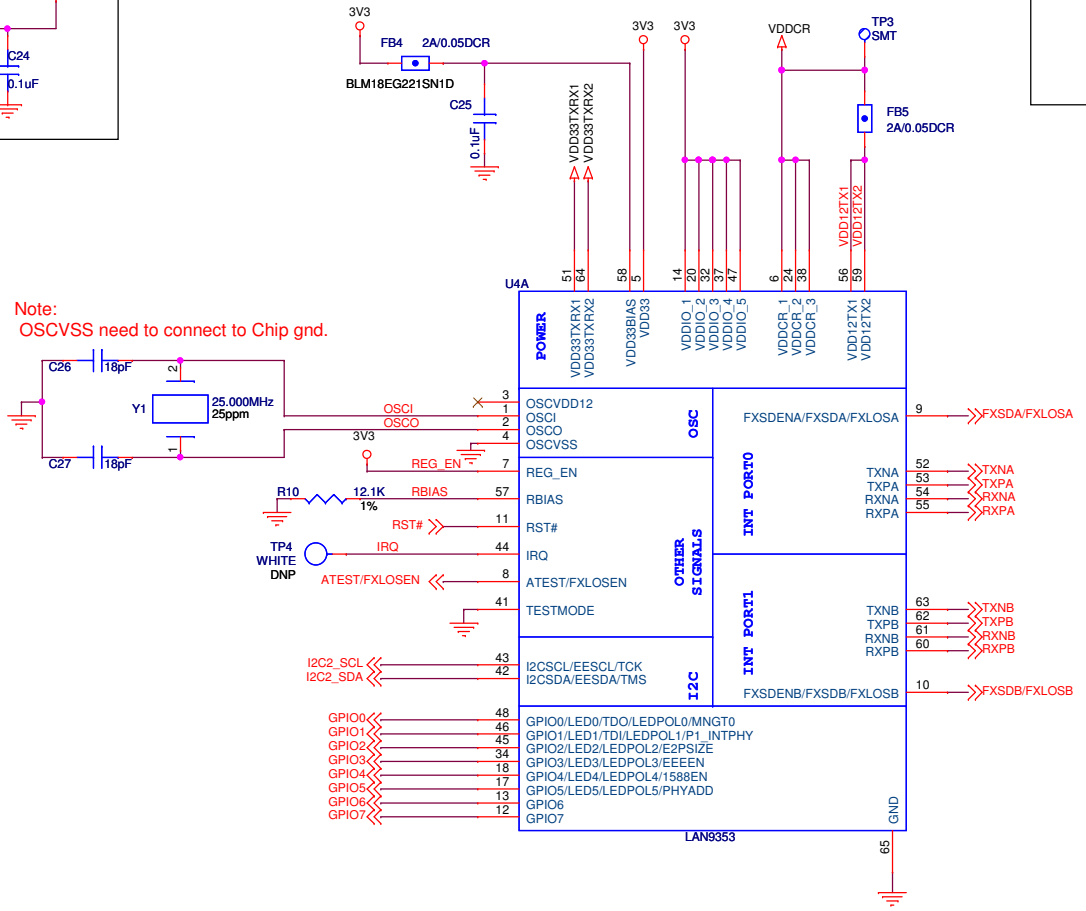
| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: Power Supply & RST | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Friday, June 19, 2015 | | Sheet 3 of 10 | |




| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: | LAN9353(Part1) |
| Size: B | Project Name: LAN9353 | Board Name: | EVB-LAN9353-REV-A |
| Rev A | | | |
| Date: Friday, June 19, 2015 | | Sheet 4 of 10 | |

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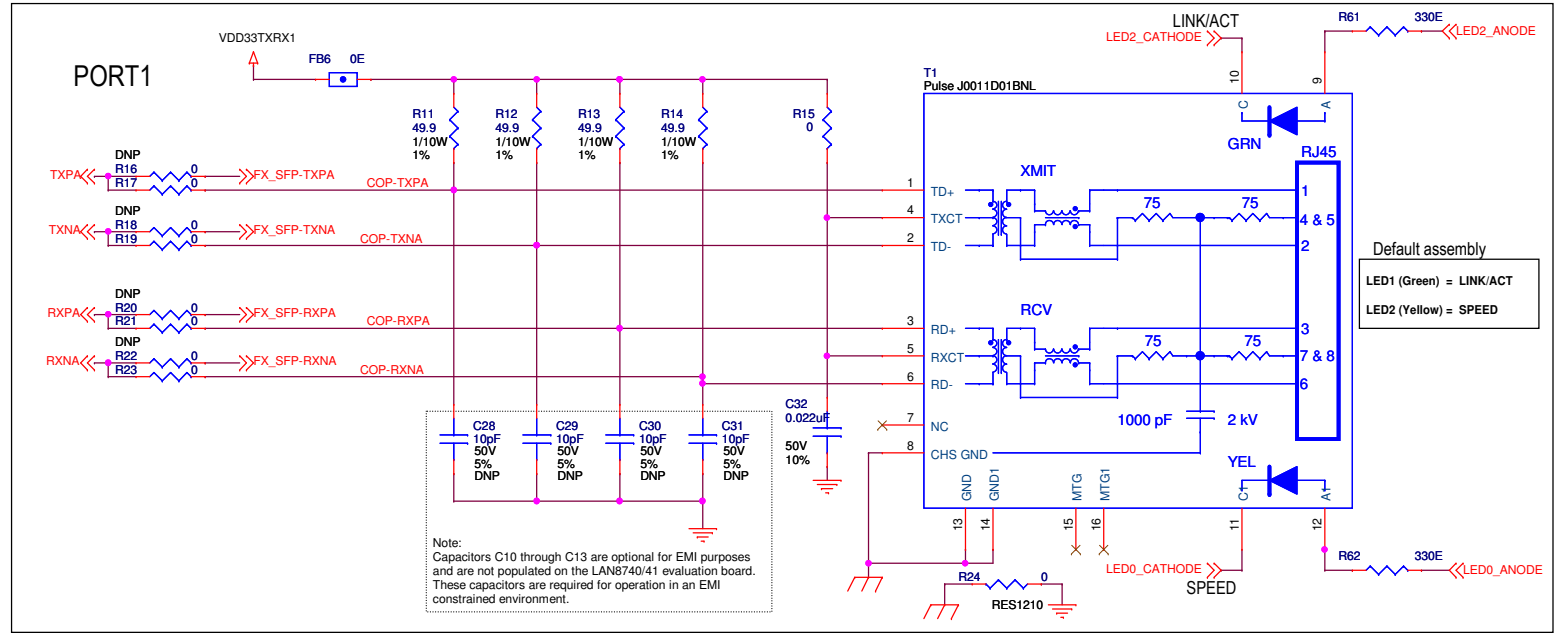


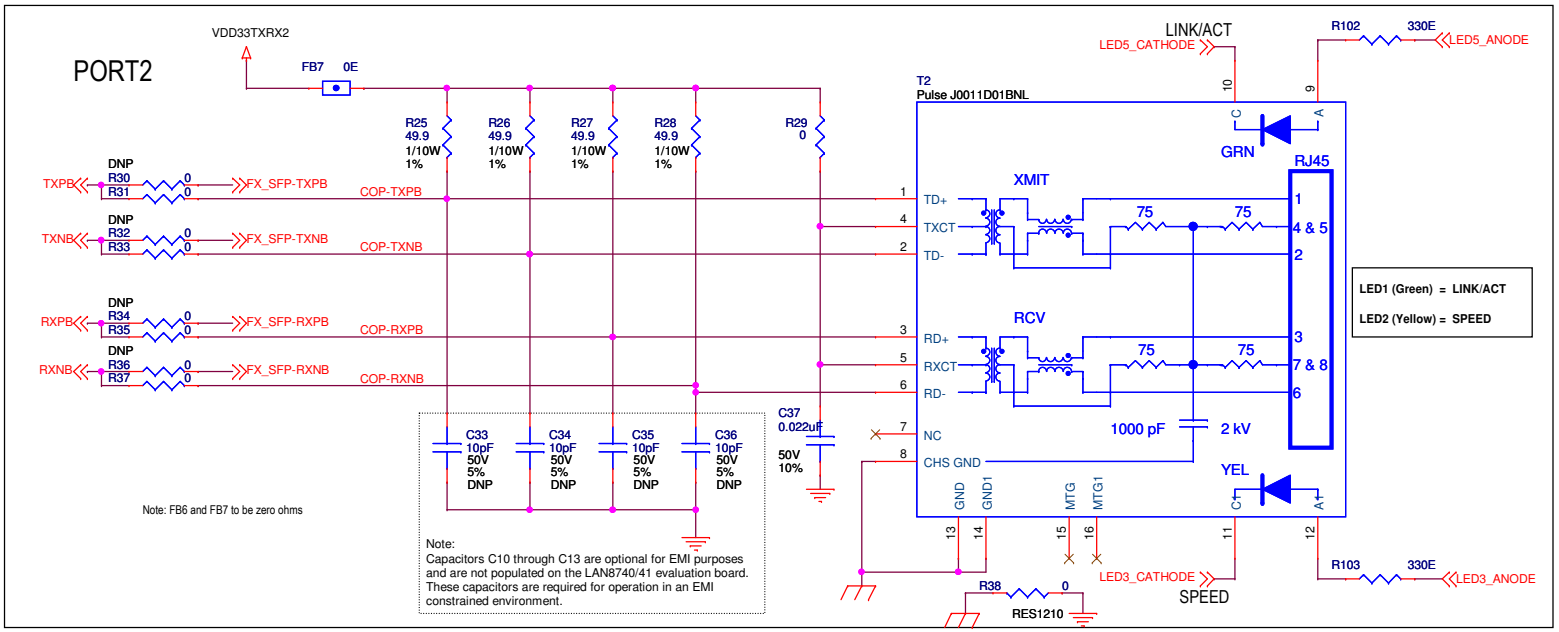


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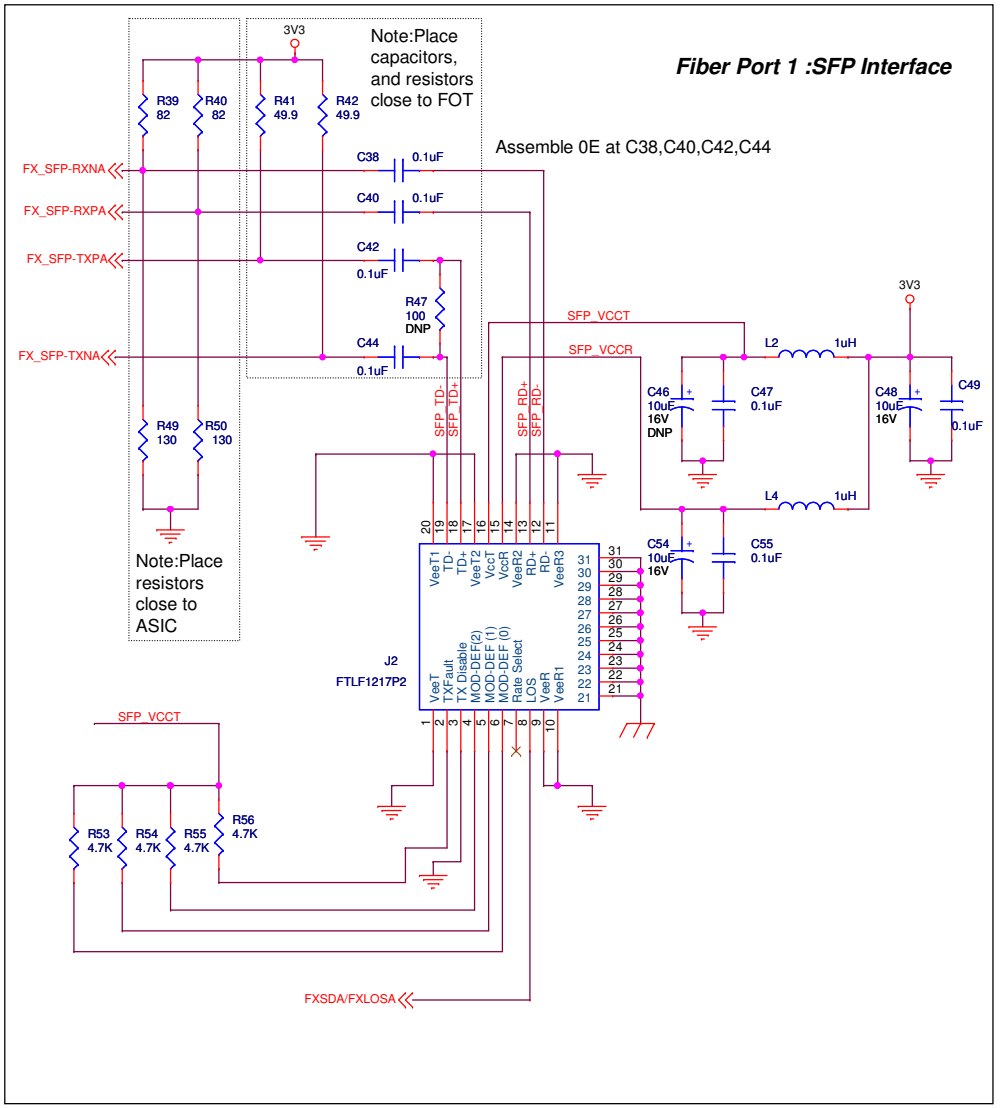
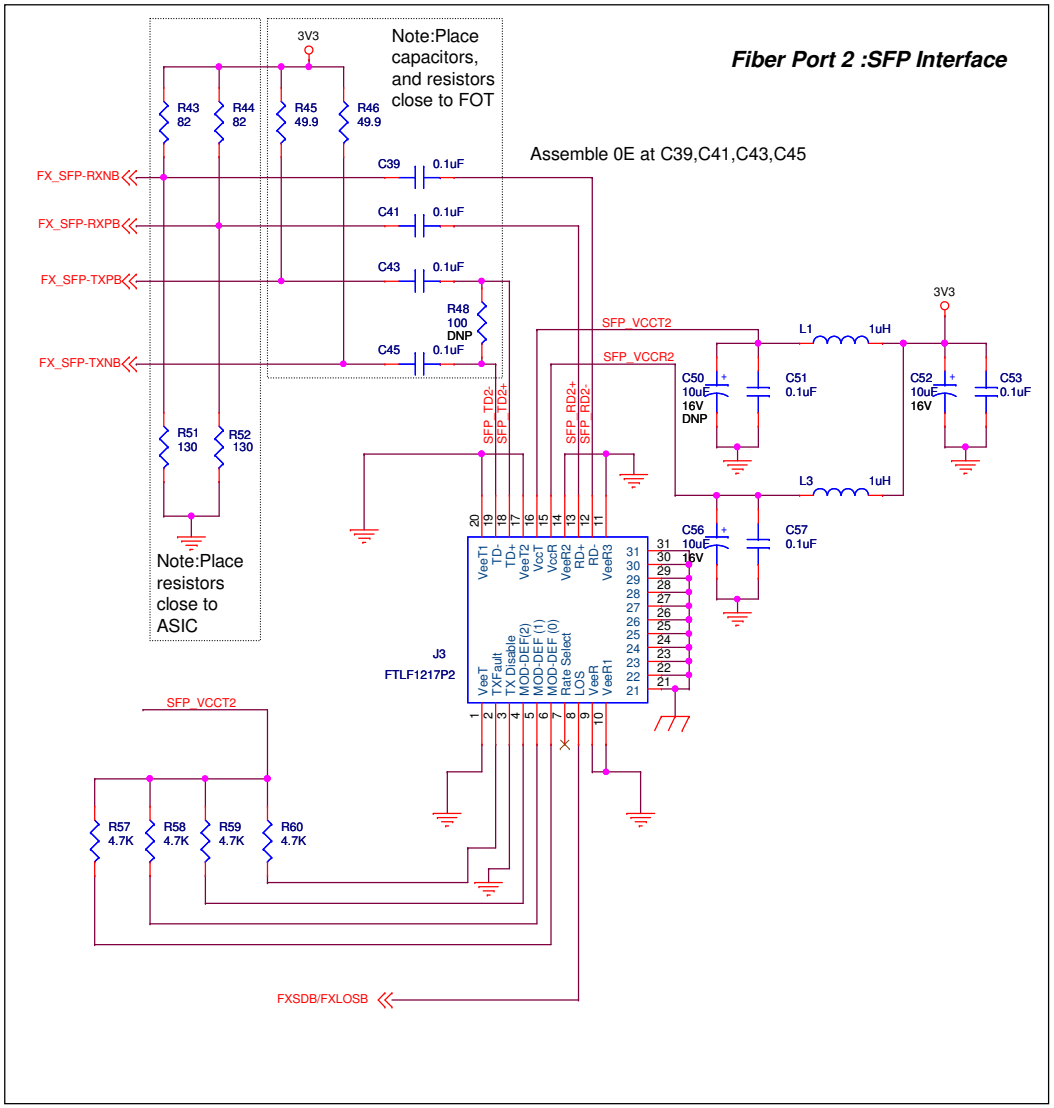
| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: Copper Mode Interface | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Friday, June 19, 2015 | | Sheet 5 of 10 | |




***Note: Fiber mode related components are Not Populated on EVB (Default)***

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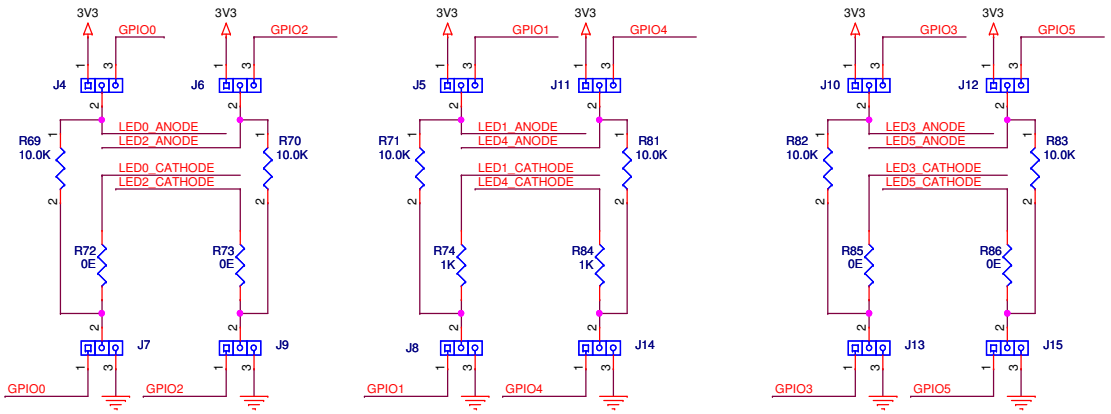
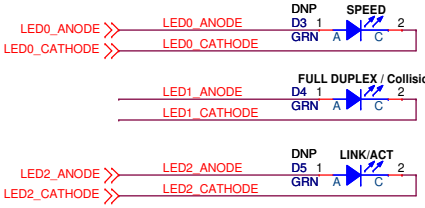
| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: Fiber-SFP Interface | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Friday, June 19, 2015 | | Sheet 6 of 10 | |

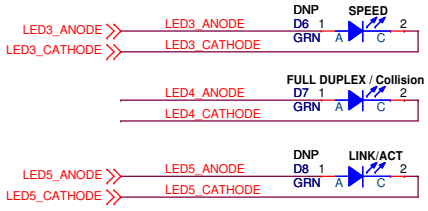
## GPIO [0:5] & LED_POL_Strap



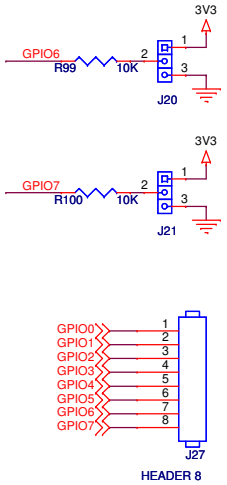

### Port 1 LEDs



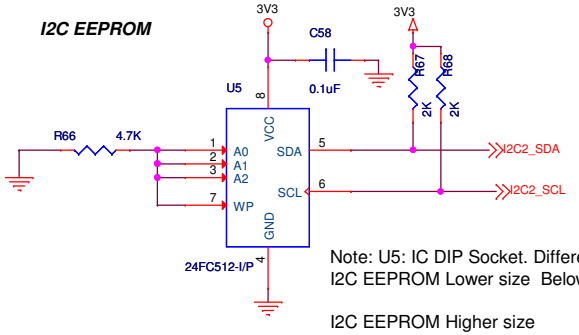

### Port 2 LEDs




| Strap Name | Logic | Connector | LED Polarity Strap |
|---|---|---|---|
| LED0/GPIO0/MNGT0 | 0 | J4,J7 (2&3) | The LED is set as active high. |
| | 1 | J4,J7 (1&2) (Default) | The LED is set as active low, |
| LED1/GPIO1 | 0 | J5,J8 (2&3) | The LED is set as active high. |
| | 1 | J5,J8 (1&2) (Default) | The LED is set as active low, |
| LED2/GPIO2/E2PSIZE | 0 | J6,J9 (2&3) | The LED is set as active high.<br>EEPROM Size=1K bits (128 x 8) through 16K bits (2K x 8) |
| | 1 | J6,J9 (1&2) (Default) | The LED is set as active low,<br>EEPROM Size=32K bits (4K x 8) through 512K bits (64K x 8) or 4Mbits (512K x 8) (LAN9252 only) |
| LED3/GPIO3/EEEEN | 0 | J10,J13 (2&3) | The LED is set as active high.<br>EEE Disable |
| | 1 | J10,J13 (1&2) (Default) | The LED is set as active low,<br>EEE Enable |
| LED4/GPIO4/1588EN | 0 | J11,J14 (2&3) | The LED is set as active high.<br>1588 Disable |
| | 1 | J11,J14 (1&2) (Default) | The LED is set as active low,<br>1588 Enable |
| LED5/GPIO5/PHYADD | 0 | J12,J15 (2&3) (Default) | The LED is set as active high.<br>PHYADD=0,1,2 |
| | 1 | J12,J15 (1&2) | The LED is set as active low,<br>PHYADD =1,2,3 |



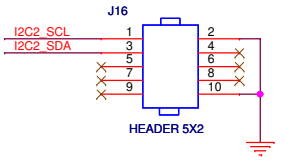

## I2C EEPROM




Note: U5: IC DIP Socket. Different sizes can be mounted
I2C EEPROM Lower size Below 16K(2K X 8)

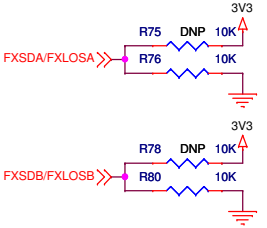
I2C EEPROM Higher size
Above 16K(2K X 8)
[Default-512KBIT]

## Aardvark - I2C Connector



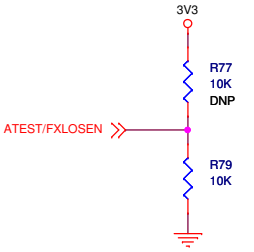

## FX_Mode_Strap_1 & 2

| PORT | MODE | Poupulate |
|---|---|---|
| PORT1 | Copper (Default) | R76 |
| | Fiber | R75 |
| PORT2 | Copper (Default) | R80 |
| | Fiber | R78 |




## FX_Los_Strap_1 & 2

| R77 | R79 | Ref.Voltage | Function |
|---|---|---|---|
| Poupulate | DNP | 3V3 | Above 2 V selects FX-LOS for ports 1 and 2 |
| Poupulate | Poupulate | 1V5 | Level of 1.5 V selects FX-LOS for port 1 and FX-SD/copper twisted pair for port 2 further determined by FXSDB |
| DNP (Default) | Poupulate (Default) | 0 (Default) | Level of 0V Selects FX-SD / copper twisted pair for ports A and B further determined by FXSDA and FXSDB. |

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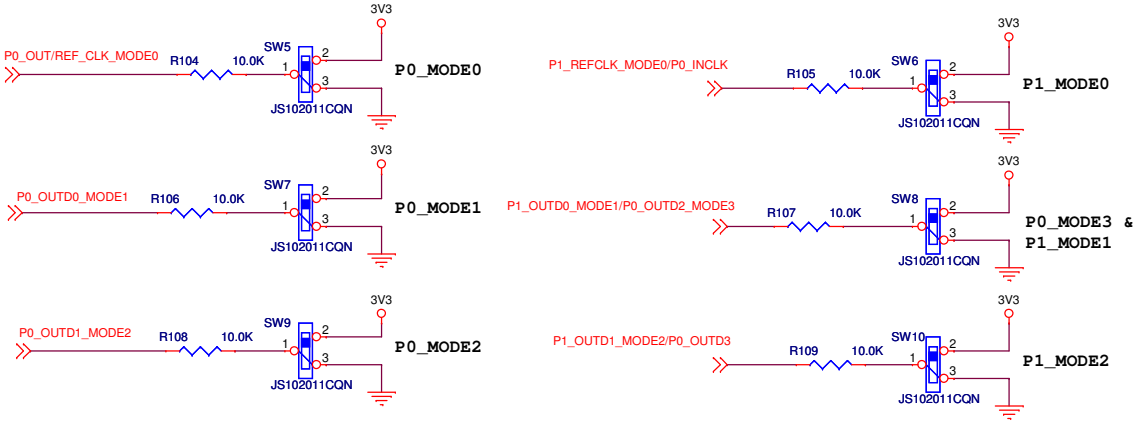
| | | | |
|---|---|---|---|
| Part Number: EVB-LAN9353 | | Page: | STRAP,GPIO,I2C & FXLOS |
| Size: B | Project Name: LAN9353 | Board Name: | EVB-LAN9353-REV-A |
| Date: Monday, June 22, 2015 | | Sheet 7 of 10 | Rev A |




**Note: For Switches to short 1-3, Knob Position should be at 1-2 and vice versa .**

**Note: CONFIG9 or CONFIG 10 must be configured before P0/P1 mode configurations**

## Config 9 :
## Port 0 and Port 1 : External (RMII) and Port 2 : Internal

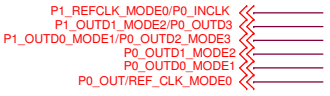
**Port1 (RMII) MODE STRAP Mapping**

| P1_INTPHY : | P1_MODE2 | P1_MODE1 | P1_MODE0 | Port 1 Mode |
|---|---|---|---|---|
| J5 and J8 | SW10 | SW8 | SW6 | |
| 0 | 0 | 0 | x | RMII MAC clock in (RMII pin remap mode) |
| Short 2-3 | Short 1-3 | Short 1-3 | open | |
| 0 | 0 | 1 | 0 | RMII MAC clock out 12ma |
| Short 2-3 | Short 1-3 | Short 1-2 | Short 1-3 | |
| 0 | 0 | 1 | 1 | RMII MAC clock out 16ma |
| Short 2-3 | Short 1-3 | Short 1-2 | Short 1-2 | |
| 0 | 1 | 0 | x | RMII PHY clock in |
| Short 2-3 | Short 1-2 | Short 1-3 | open | |
| 0 | 1 | 1 | 0 | RMII PHY clock out 12ma |
| Short 2-3 | Short 1-2 | Short 1-2 | Short 1-3 | |
| 0 | 1 | 1 | 1 | RMII PHY clock out 16ma |
| Short 2-3 | Short 1-2 | Short 1-2 | Short 1-2 | |
| 1 | x | x | x | Internal PHY |
| Short 1-2 | open | open | open | |

## Config 10
## Port 0 : External (MII/RMII/TMII)
## Port 1 and Port 2 : Internal

**Port 0 MODE STRAP Mapping**

| P1_INTPHY: | P0_MODE3 | P0_MODE2 | P0_MODE1 | P0_MODE0 | MODE |
|---|---|---|---|---|---|
| J5 and J8 | SW8 | SW9 | SW7 | SW5 | |
| 1 | 0 | 0 | x | x | MII MAC |
| Short 1-2 | Short 1-3 | Short 1-3 | NA | NA | |
| 1 | 0 | 1 | 0 | x | MII PHY |
| Short 1-2 | Short 1-3 | Short 1-2 | Short 1-3 | NA | |
| 1 | 0 | 1 | 1 | 0 | Turbo MII PHY 12 ma |
| Short 1-2 | Short 1-3 | Short 1-2 | Short 1-2 | Short 1-3 | |
| 1 | 0 | 1 | 1 | 1 | Turbo MII PHY 16 ma |
| Short 1-2 | Short 1-3 | Short 1-2 | Short 1-2 | Short 1-2 | |
| 0 | x | 0 | 0 | x | RMII MAC clock in |
| 1 | 1 | | | | |
| Short 2-3 | Short 1-2 | Short 1-3 | Short 1-3 | NA | |
| 0 | x | 0 | 1 | 0 | RMII MAC clock out 12ma |
| 1 | 1 | | | | |
| Short 2-3 | Short 1-2 | Short 1-3 | Short 1-2 | Short 1-3 | |
| 0 | x | 0 | 1 | 1 | RMII MAC clock out 16ma |
| 1 | 1 | | | | |
| Short 2-3 | Short 1-2 | Short 1-3 | Short 1-2 | Short 1-2 | |
| 0 | x | 1 | 0 | x | RMII PHY clock in |
| 1 | 1 | | | | |
| Short 2-3 | Short 1-2 | Short 1-2 | Short 1-3 | NA | |
| 0 | x | 1 | 1 | 0 | RMII PHY clock out 12ma |
| 1 | 1 | | | | |
| Short 2-3 | Short 1-2 | Short 1-2 | Short 1-2 | Short 1-3 | |
| 0 | x | 1 | 1 | o | RMII PHY clock out 16ma |
| 1 | 1 | | | | |

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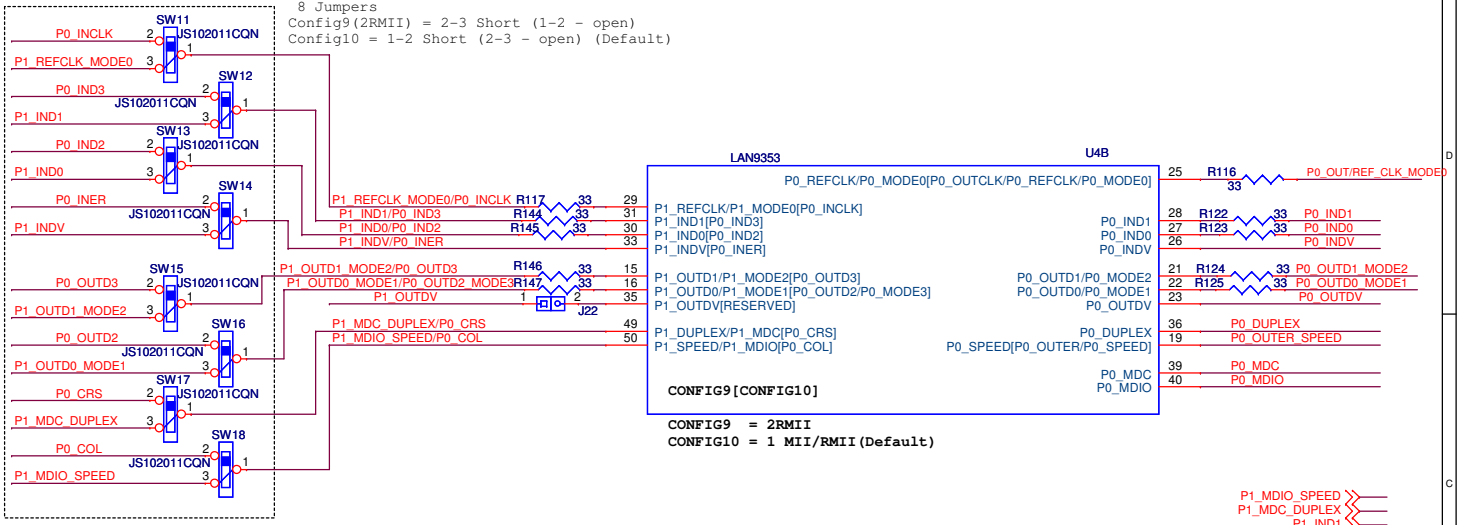
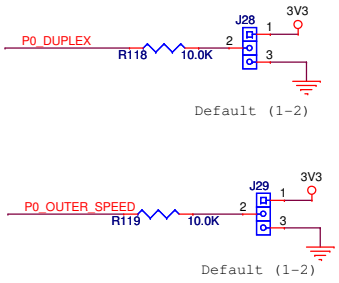
| | | | |
|---|---|---|---|
| Part Number: EVB-LAN9353 | | Page: Strap2 | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Monday, June 22, 2015 | | Sheet 8 of 10 | |

## Jumper settings for CONFIG 9 or CONFIG 10

| SW11 | SW12 | SW13 | SW14 | SW15 | SW16 | SW17 | SW18 | Mode | Configuration |
|---|---|---|---|---|---|---|---|---|---|
| 1-3 | 1-3 | 1-3 | 1-3 | 1-3 | 1-3 | 1-3 | 1-3 | 2 RMII | CONFIG 9 |
| 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 | 1 MII/RMII/TMII (Default) | CONFIG 10 |

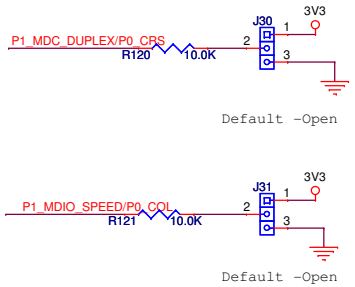
**Note: For Switches to short 1-3, Knob Position should be at 1-2 and vice versa .**



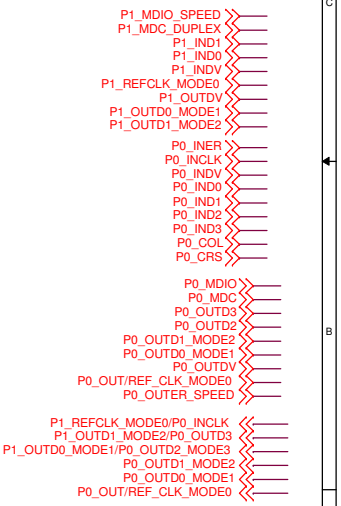

### Emulated Link Partner Default Advertised Ability for Port 0

| J28 (P0_DUPLEX) | J29 (P0_SPEED) | Duplex Strap_0 | Speed Strap_0 | ADVERTISED LINK PARTNER ABILITY (Bits 8,7,6,5) |
|---|---|---|---|---|
| 1-2 | 2-3 | 1 | 0 | 10BASE-T full-duplex (0010) |
| 1-2 | 1-2 | 1 | 1 | 100BASE-X full-duplex (1000) (Default) |
| 2-3 | 2-3 | 0 | 0 | 10BASE-T half-duplex (0001) |
| 2-3 | 1-2 | 0 | 1 | 100BASE-X half-duplex (0100) |




### Emulated Link Partner Default Advertised Ability for Port 1

| J30 (P1_DUPLEX) | J31 (P1_SPEED) | Duplex Strap_1 | Speed Strap_1 | ADVERTISED LINK PARTNER ABILITY (Bits 8,7,6,5) |
|---|---|---|---|---|
| 1-2 | 2-3 | 1 | 0 | 10BASE-T full-duplex (0010) |
| 1-2 | 1-2 | 1 | 1 | 100BASE-X full-duplex (1000) |
| 2-3 | 2-3 | 0 | 0 | 10BASE-T half-duplex (0001) |
| 2-3 | 1-2 | 0 | 1 | 100BASE-X half-duplex (0100) |

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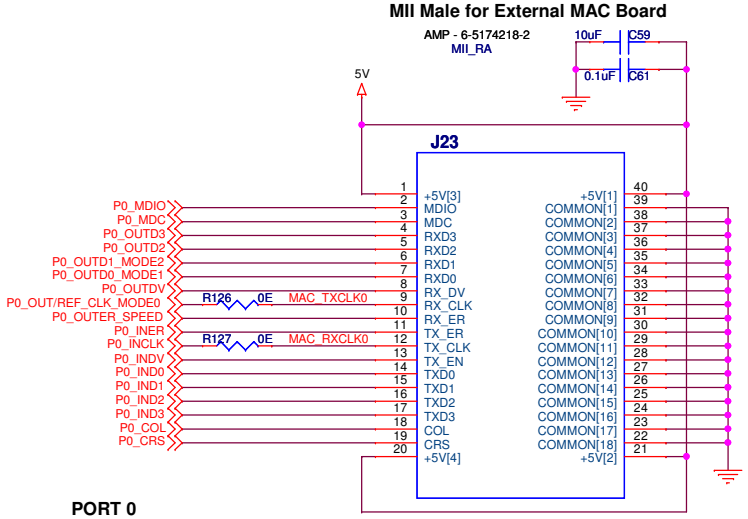
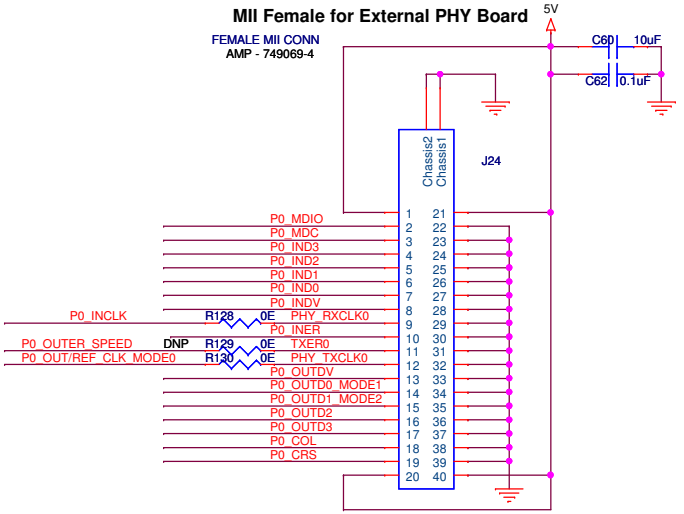
| | | | |
|---|---|---|---|
| Part Number: *EVB-LAN9353* | | Page: LAN9353(Part2) | |
| Size: B | Project Name: LAN9353 | Board Name: EVB-LAN9353-REV-A | Rev A |
| Date: Monday, June 22, 2015 | | Sheet 9 of 10 | |

## MII Male for External MAC Board

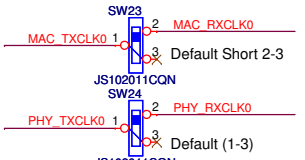



PORT 0

## MII Female for External PHY Board




## Port 0 - RMII RX Clock Configurations

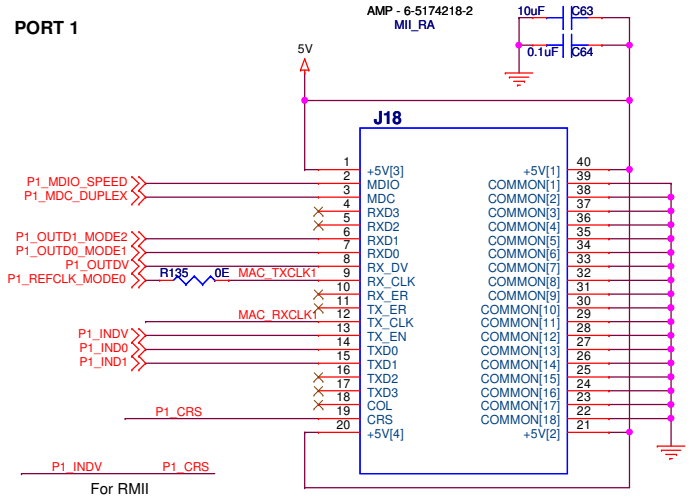



| Switch Settings | Description | Mode |
|---|---|---|
| SW23 (1-3) Default | TX Clock used as a Reference Clock | RMII MAC |
| SW23 (1-2) | RX Clock used as a Reference Clock | RMII MAC |
| SW24 (1-3) Default | Reference clock used as a TX clock | RMII PHY |
| SW24 (1-2) | Reference clock used as a RX clock | RMII PHY |

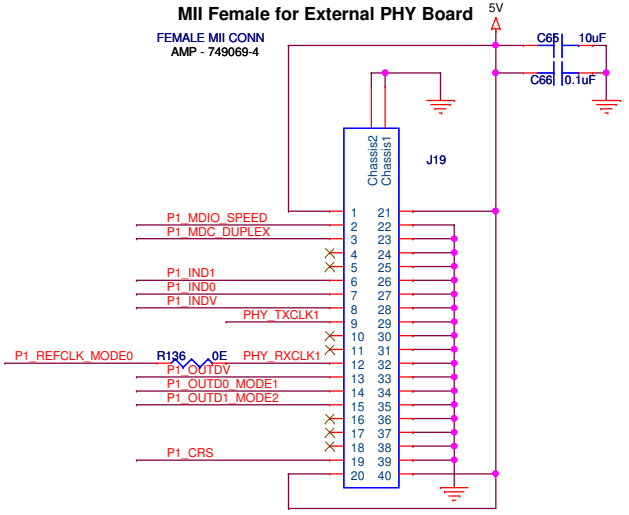
**Note: 1. For Switches to short 1-3, Knob Position should be at 1-2 and vice versa .**
**2. External PHY considered LAN8742**

## MII Male for External MAC Board

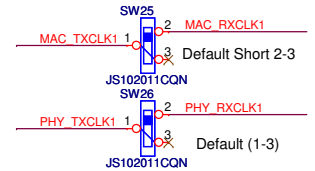
PORT 1




## MII Female for External PHY Board




## Port 1 - RMII RX Clock Configurations



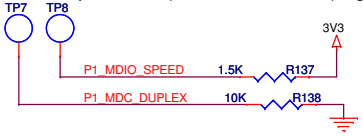

| Switch Settings | Description | Mode |
|---|---|---|
| SW25 (1-3) Default | TX Clock used as a Reference Clock | RMII MAC |
| SW25 (1-2) | RX Clock used as a Reference Clock | RMII MAC |
| SW26 (1-3) Default | Reference clock used as a TX clock | RMII PHY |
| SW26 (1-2) | Reference clock used as a RX clock | RMII PHY |

**Note: 1. For Switches to short 1-3, Knob Position should be at 1-2 and vice versa .**
**2. External PHY considered LAN8742**

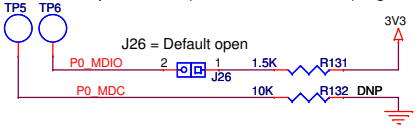
J28 = Default open
Short for RMII mode

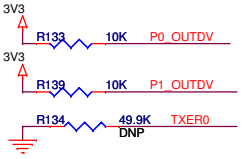

**Short option for RXDV & CRS for RMII mode**

Pullup for MDIO(common for all PHY) signal




Pullup for MDIO(common for all PHY) signal

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