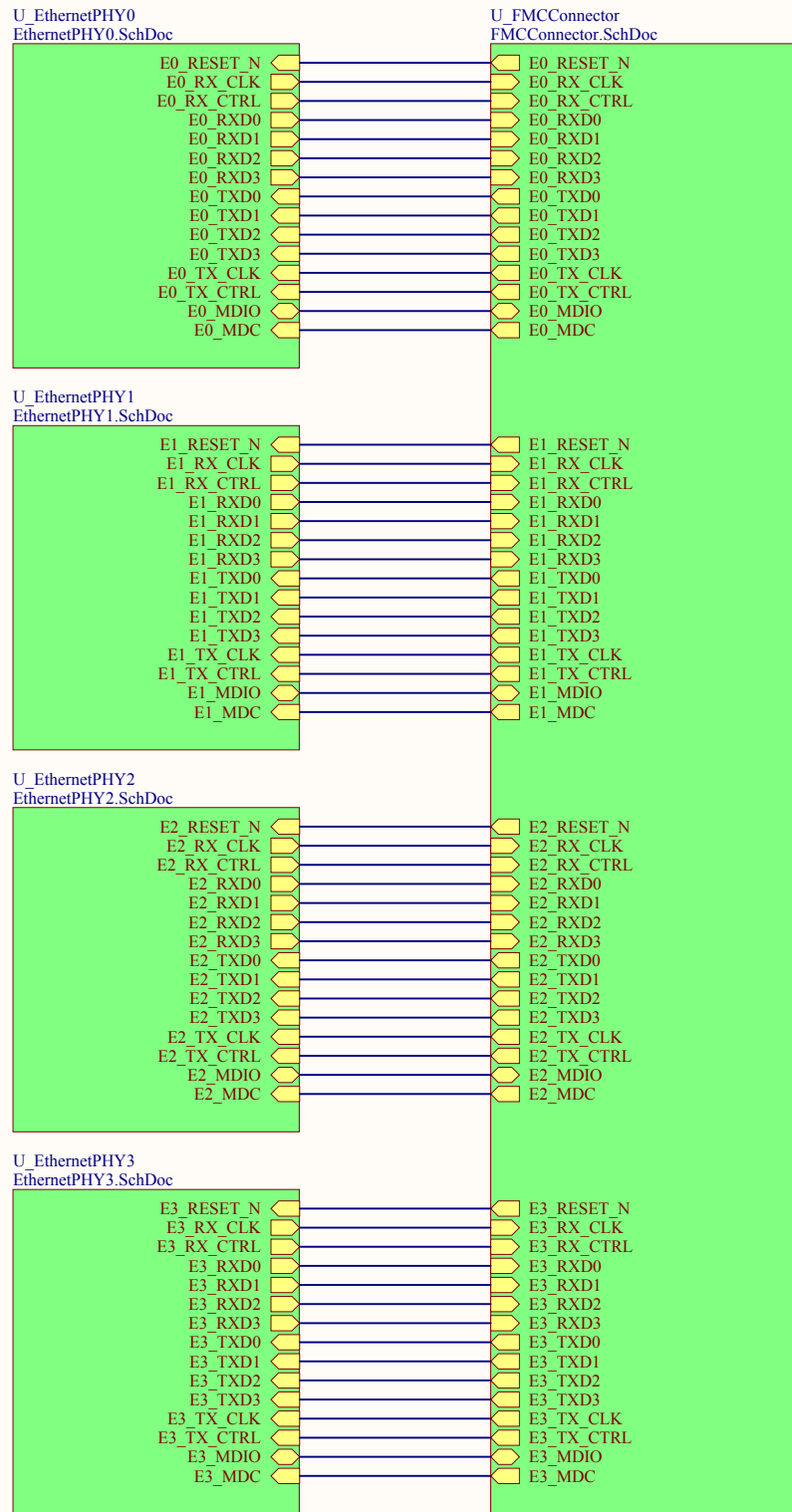
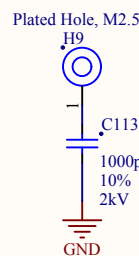
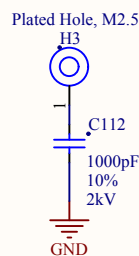
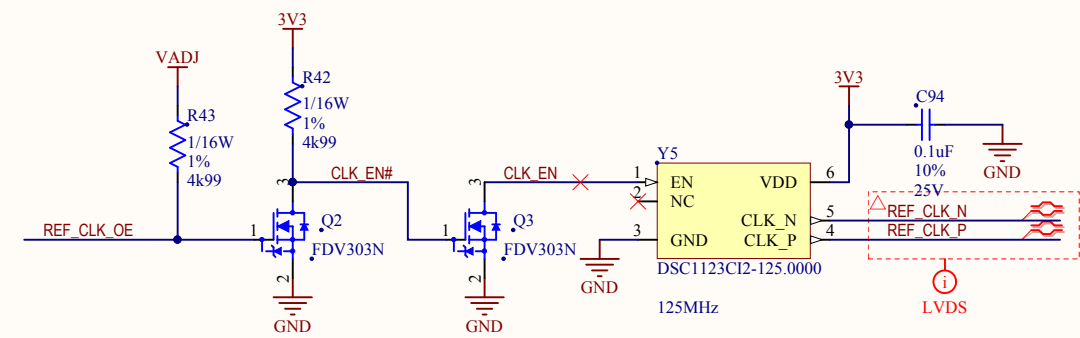
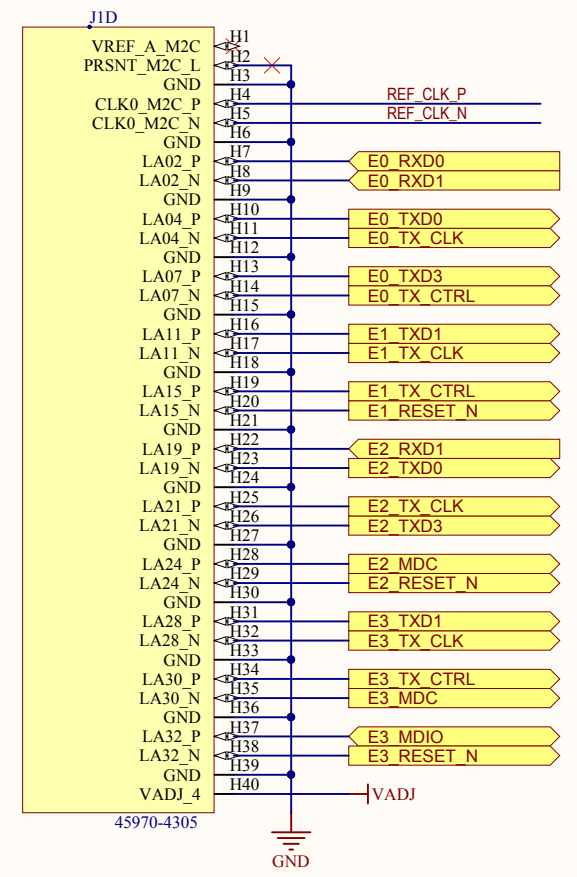
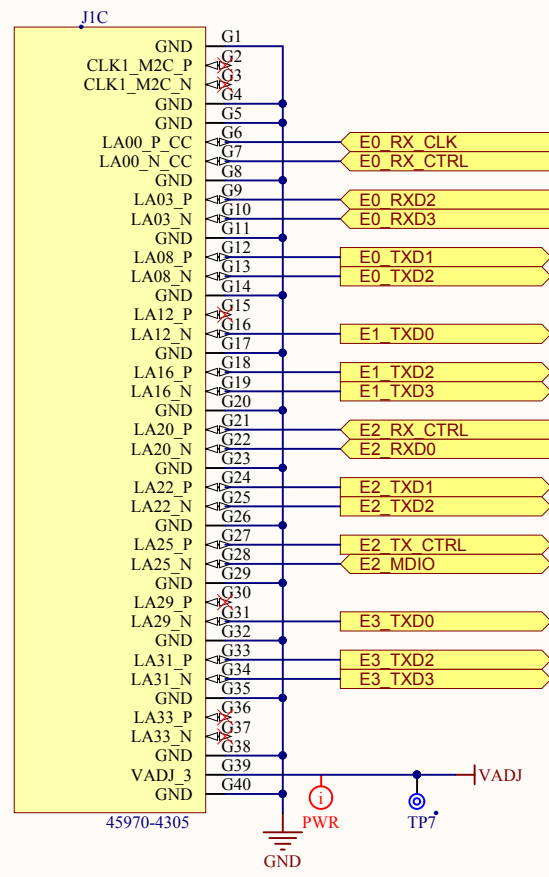
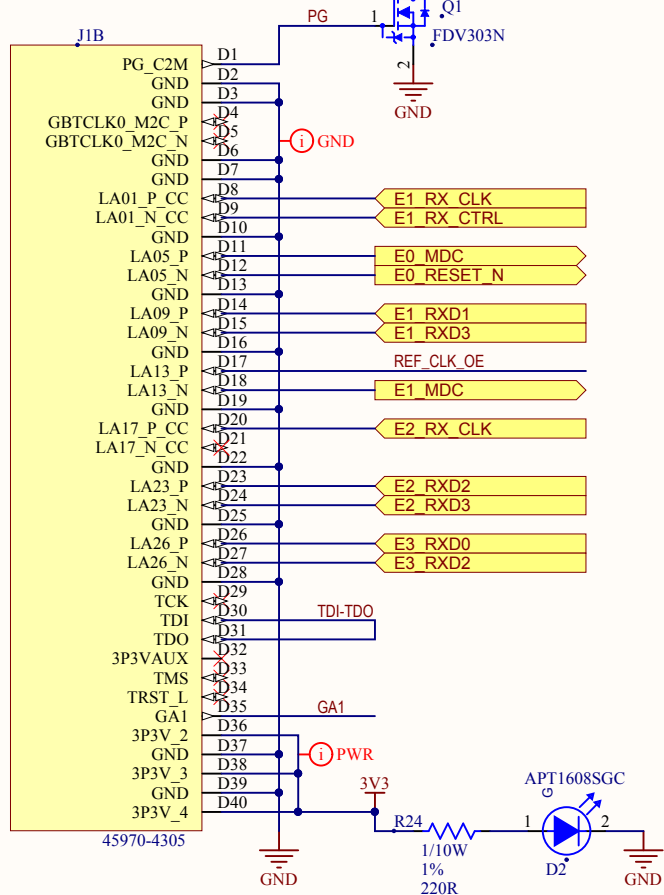
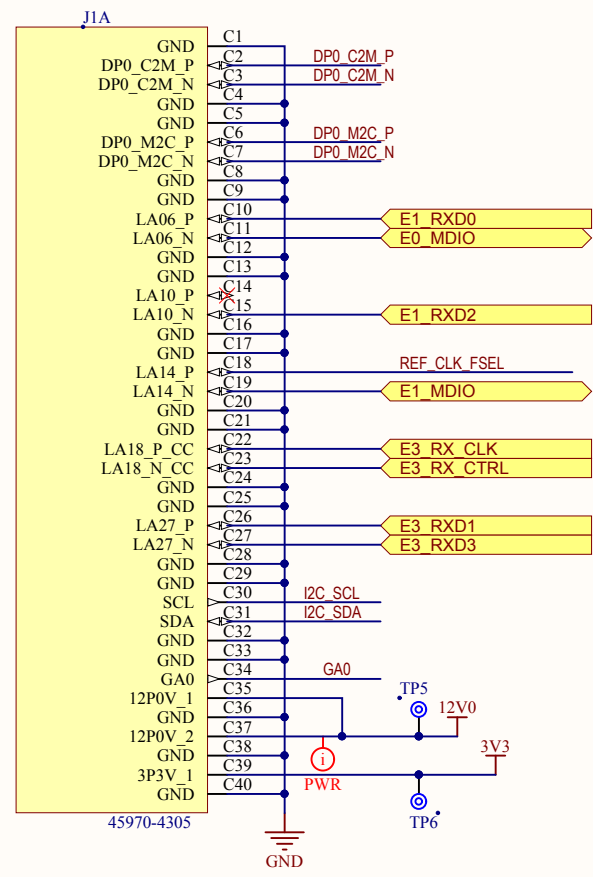


REV.	DESCRIPTION	DATE	APPROVED
C.1	Changed 125MHz oscillator to Micrel part (LVDS version and package)	2016-02-13	J Johnson

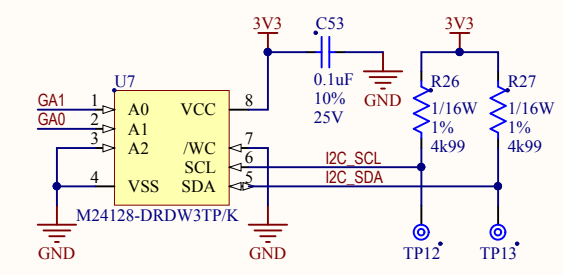


TITLE Robust Ethernet FMC			
SHEET Top level			
CONFIG. Standard			
PROJECT	Robust Ethernet FMC	DRAWN	J Johnson
		DATE	2014-09-11
SIZE	SCH PIN.	REV.	SHEET OF
B	OP041-01-SCH	C.1	1 OF 6

REV.	DESCRIPTION	DATE	APPROVED
C.1	Changed 125MHz oscillator to Micrel part (LVDS version and package)	2016-02-13	J Johnson



According to the VITA 57.1 standard:
GA0 goes to A1, GA1 goes to A0



opsero
ELECTRONIC DESIGN

TITLE Robust Ethernet FMC		
SHEET FMC Connector		
CONFIG. Standard		
PROJECT Robust Ethernet FMC	DRAWN J Johnson	DATE 2014-09-11
SIZE B	SCH PIN. OP041-01-SCH	REV. C.1 SHEET 2 OF 6

REV.	DESCRIPTION	DATE	APPROVED
C.1	Changed 125MHz oscillator to Micrel part (LVDS version and package)	2016-02-13	J Johnson

VDDO (VADJ) supplies MDC, MDIO, RESET_N, LED[2:0], CONFIG, CLK125 and RGMII pins, therefore no voltage conversion required to the FMC connector.

The standard configuration is for a VADJ voltage of 2.5V. For a VADJ of 3.3V or 1.8V, hardware modifications are required.

For VDDO (VADJ) of 3.3V, the CONFIG pin should be tied to GND and the 0R resistor removed. The 88E1510 device will support a VDDO (VADJ) of 3.3V or 2.5V, however be aware that the Xilinx Series 7 devices only support 2.5V or 1.8V RGMII.

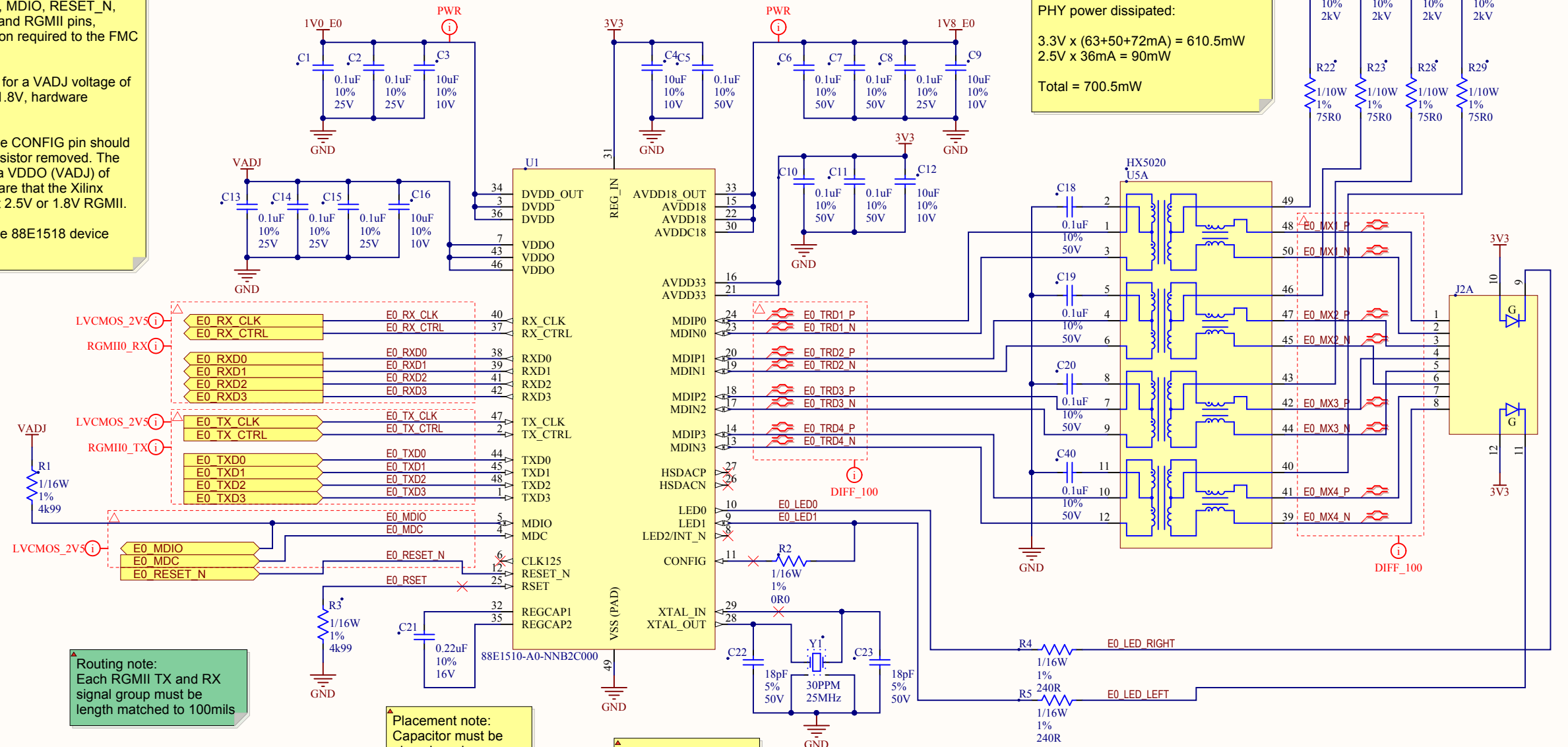
For VDDO (VADJ) of 1.8V, the 88E1518 device should be used.

Routing note:
P/N traces must be matched to 30mils

PHY current consumption:
1.8V supply: 63mA
3.3V supply: 50mA
1.0V supply: 72mA
2.5V supply: 36mA

PHY power dissipated:
 $3.3V \times (63+50+72mA) = 610.5mW$
 $2.5V \times 36mA = 90mW$

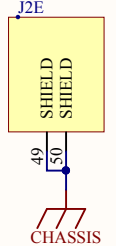
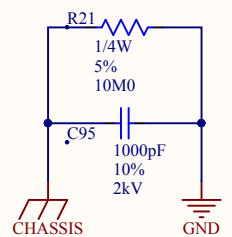
Total = 700.5mW



Routing note:
Each RGMII TX and RX signal group must be length matched to 100mils

Placement note:
Capacitor must be placed as close as possible to device.

CONFIG pin wired for PHYAD[0] = 0 and VDDO_LEVEL = 2.5V



TITLE Robust Ethernet FMC			
SHEET Ethernet PHY 0			
CONFIG. Standard			
PROJECT	Robust Ethernet FMC	DRAWN	J Johnson
DATE	2014-09-11		
SIZE	SCH PIN.	REV.	SHEET 3 OF 6
B	OP041-01-SCH	C.1	

REV.	DESCRIPTION	DATE	APPROVED
C.1	Changed 125MHz oscillator to Micrel part (LVDS version and package)	2016-02-13	J Johnson

VDDO (VADJ) supplies MDC, MDIO, RESET_N, LED[2:0], CONFIG, CLK125 and RGMII pins, therefore no voltage conversion required to the FMC connector.

The standard configuration is for a VADJ voltage of 2.5V. For a VADJ of 3.3V or 1.8V, hardware modifications are required.

For VDDO (VADJ) of 3.3V, the CONFIG pin should be tied to GND and the 0R resistor removed. The 88E1510 device will support a VDDO (VADJ) of 3.3V or 2.5V, however be aware that the Xilinx Series 7 devices only support 2.5V or 1.8V RGMII.

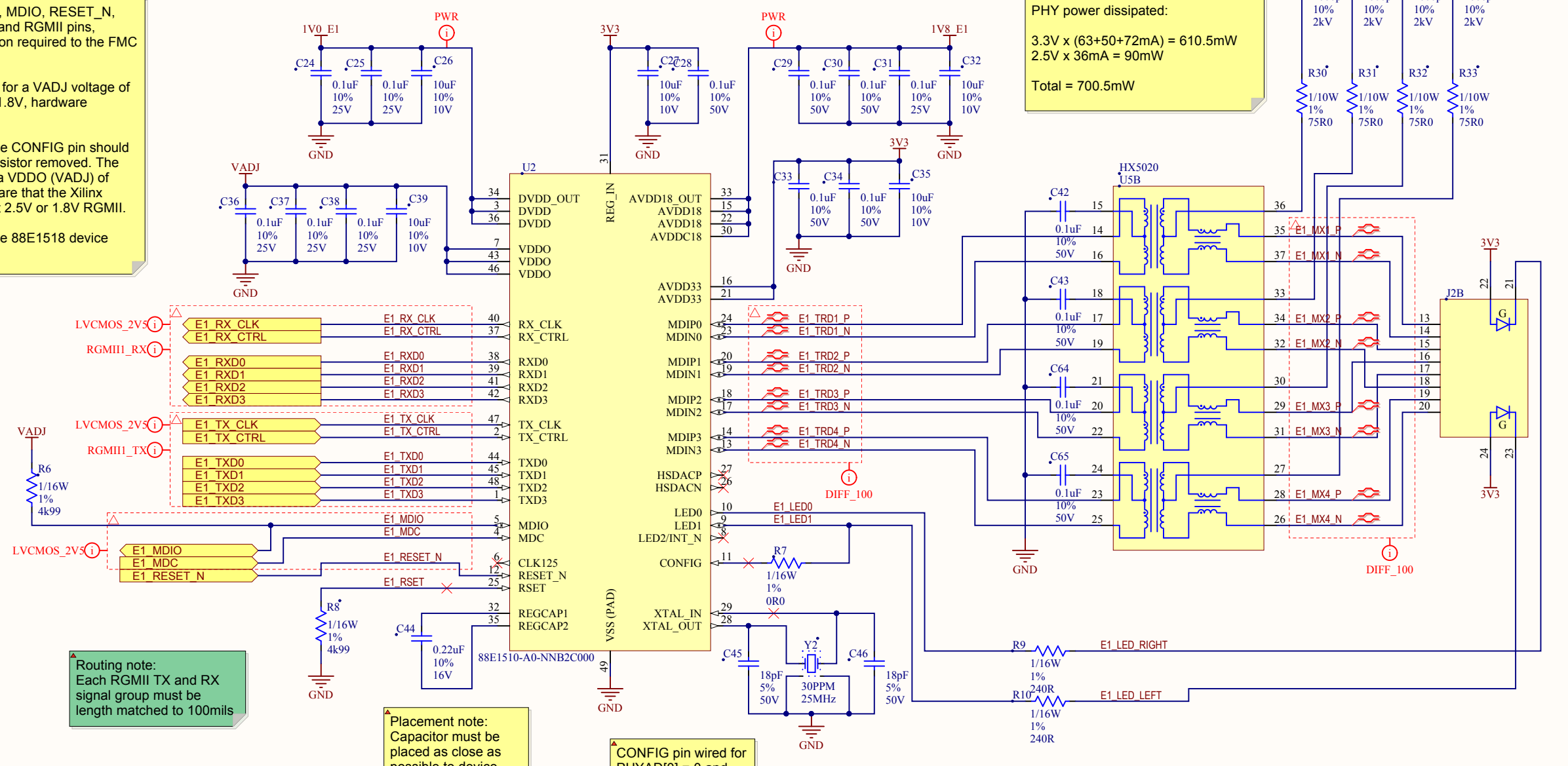
For VDDO (VADJ) of 1.8V, the 88E1518 device should be used.

Routing note:
P/N traces must be matched to 30mils

PHY current consumption:
1.8V supply: 63mA
3.3V supply: 50mA
1.0V supply: 72mA
2.5V supply: 36mA

PHY power dissipated:
 $3.3V \times (63+50+72mA) = 610.5mW$
 $2.5V \times 36mA = 90mW$

Total = 700.5mW



Routing note:
Each RGMII TX and RX signal group must be length matched to 100mils

Placement note:
Capacitor must be placed as close as possible to device.

CONFIG pin wired for PHYAD[0] = 0 and VDDO_LEVEL = 2.5V

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ELECTRONIC DESIGN

TITLE: Robust Ethernet FMC
SHEET: Ethernet PHY 1
CONFIG: Standard

PROJECT: Robust Ethernet FMC	DRAWN: J Johnson	DATE: 2014-09-11
SIZE: B	SCH PIN: OP041-01-SCH	REV. C.1 SHEET 4 OF 6

REV.	DESCRIPTION	DATE	APPROVED
C.1	Changed 125MHz oscillator to Micrel part (LVDS version and package)	2016-02-13	J Johnson

VDDO (VADJ) supplies MDC, MDIO, RESET_N, LED[2:0], CONFIG, CLK125 and RGMII pins, therefore no voltage conversion required to the FMC connector.

The standard configuration is for a VADJ voltage of 2.5V. For a VADJ of 3.3V or 1.8V, hardware modifications are required.

For VDDO (VADJ) of 3.3V, the CONFIG pin should be tied to GND and the 0R resistor removed. The 88E1510 device will support a VDDO (VADJ) of 3.3V or 2.5V, however be aware that the Xilinx Series 7 devices only support 2.5V or 1.8V RGMII.

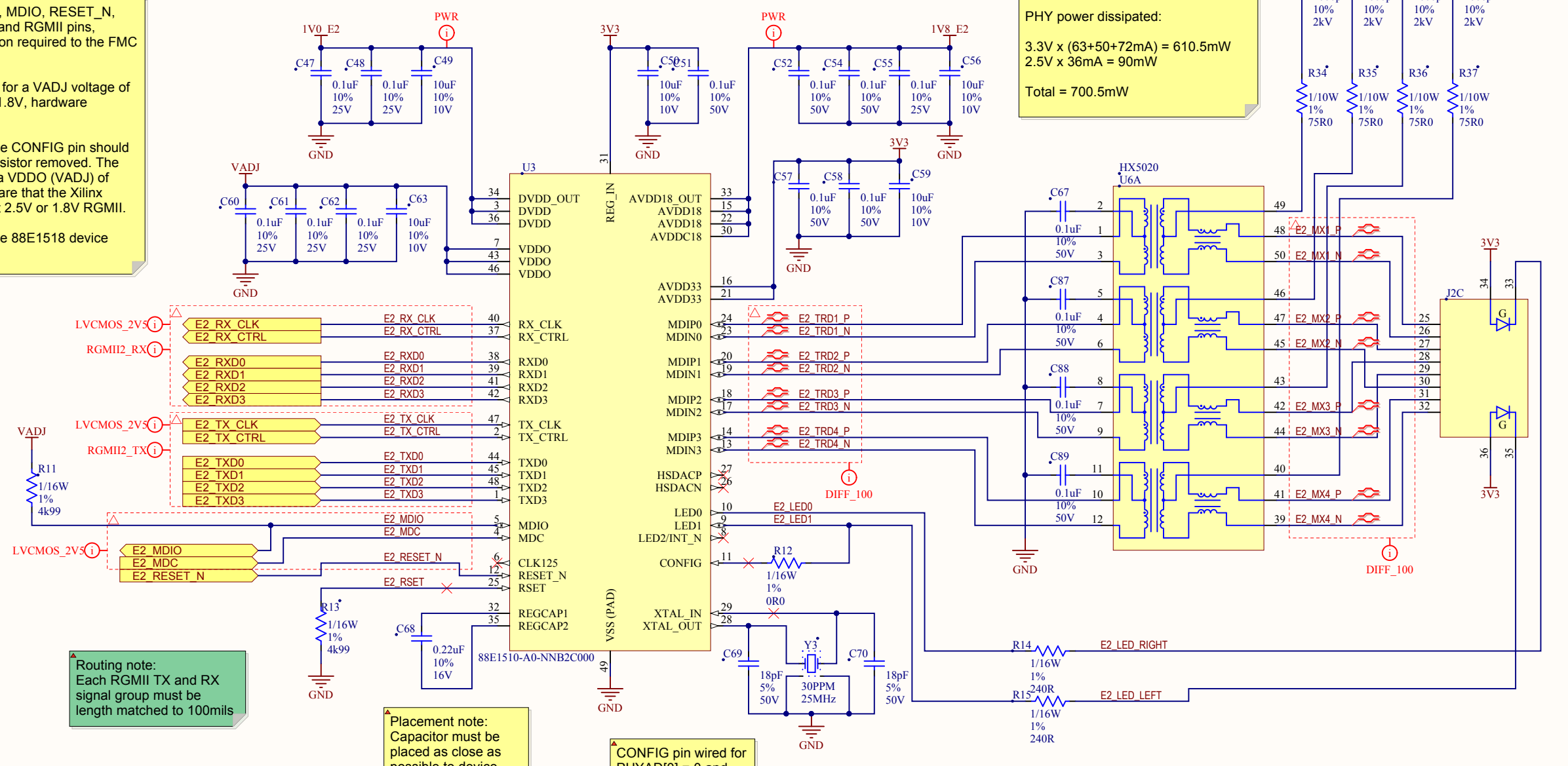
For VDDO (VADJ) of 1.8V, the 88E1518 device should be used.

Routing note:
P/N traces must be matched to 30mils

PHY current consumption:
1.8V supply: 63mA
3.3V supply: 50mA
1.0V supply: 72mA
2.5V supply: 36mA

PHY power dissipated:
3.3V x (63+50+72mA) = 610.5mW
2.5V x 36mA = 90mW

Total = 700.5mW



Routing note:
Each RGMII TX and RX signal group must be length matched to 100mils

Placement note:
Capacitor must be placed as close as possible to device.

CONFIG pin wired for PHYAD[0] = 0 and VDDO_LEVEL = 2.5V



TITLE Robust Ethernet FMC			
SHEET Ethernet PHY 2			
CONFIG. Standard			
PROJECT Robust Ethernet FMC	DRAWN J Johnson	DATE 2014-09-11	
SIZE B	SCH PIN.	OP041-01-SCH	REV. C.1 SHEET 5 OF 6

REV.	DESCRIPTION	DATE	APPROVED
C.1	Changed 125MHz oscillator to Micrel part (LVDS version and package)	2016-02-13	J Johnson

Routing note:
P/N traces must be matched to 30mils

PHY current consumption:
1.8V supply: 63mA
3.3V supply: 50mA
1.0V supply: 72mA
2.5V supply: 36mA

PHY power dissipated:
 $3.3V \times (63+50) = 610.5mW$
 $2.5V \times 36mA = 90mW$

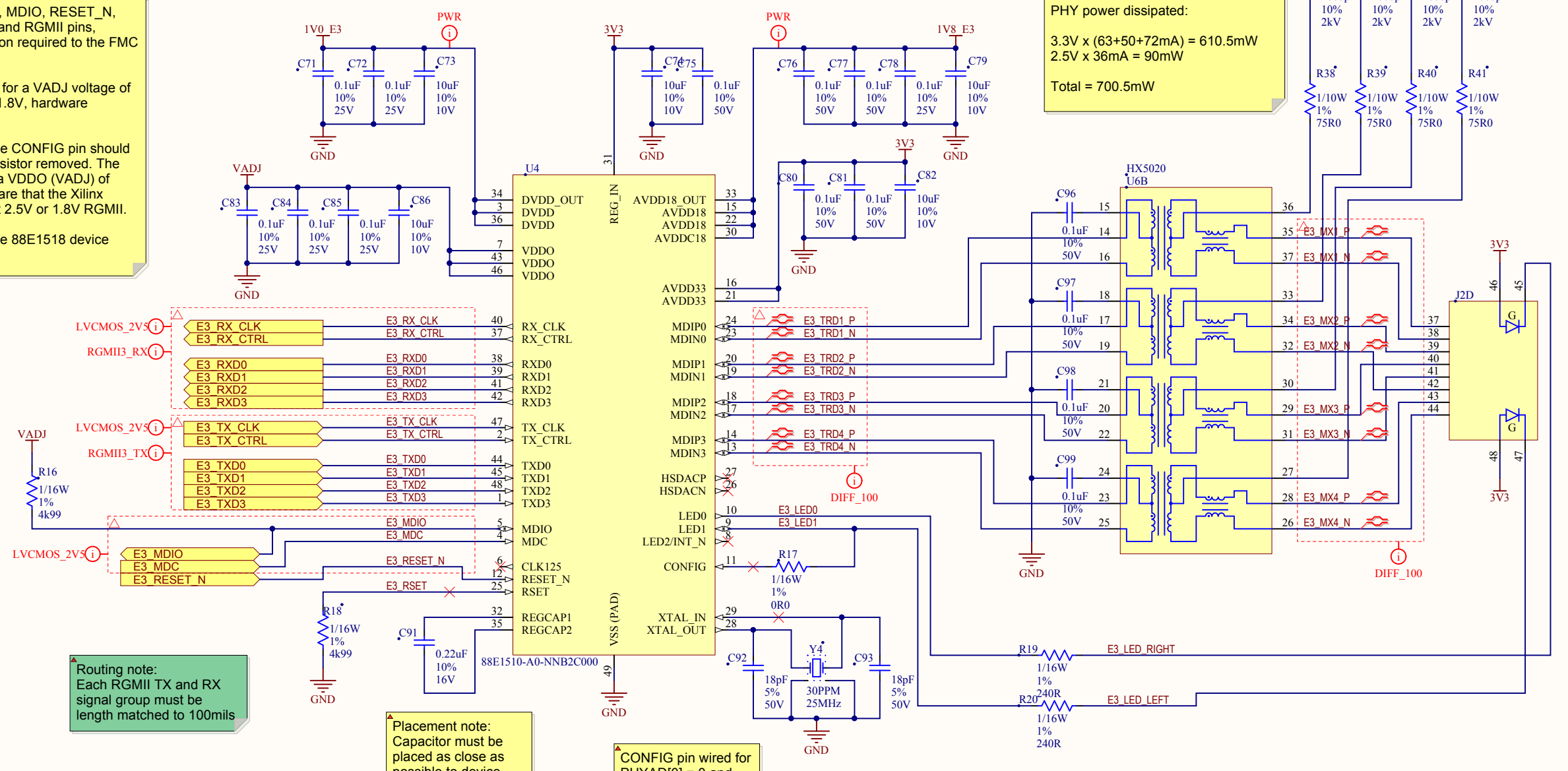
Total = 700.5mW

VDDO (VADJ) supplies MDC, MDIO, RESET_N, LED[2:0], CONFIG, CLK125 and RGMII pins, therefore no voltage conversion required to the FMC connector.

The standard configuration is for a VADJ voltage of 2.5V. For a VADJ of 3.3V or 1.8V, hardware modifications are required.

For VDDO (VADJ) of 3.3V, the CONFIG pin should be tied to GND and the 0R resistor removed. The 88E1510 device will support a VDDO (VADJ) of 3.3V or 2.5V, however be aware that the Xilinx Series 7 devices only support 2.5V or 1.8V RGMII.

For VDDO (VADJ) of 1.8V, the 88E1518 device should be used.



Routing note:
Each RGMII TX and RX signal group must be length matched to 100mils

Placement note:
Capacitor must be placed as close as possible to device.

CONFIG pin wired for PHYAD[0] = 0 and VDDO_LEVEL = 2.5V

TITLE Robust Ethernet FMC			
SHEET Ethernet PHY 3			
CONFIG. Standard			
PROJECT	Robust Ethernet FMC	DRAWN	J Johnson
		DATE	2014-09-11
SIZE	SCH PIN.	REV.	SHEET 6
B	OP041-01-SCH	C.1	OF 6