

Confidential

Enclustra GmbH

Mars ZX3 Rev. 3

- Sheet 1: Cover
- Sheet 2: FPGA Configuration / Boot Mode / Level Shifting
- Sheet 3: FPGA Bank 13 / 33 / 34 / 35 / User LEDs
- Sheet 4: FPGA PS DDR / MIO
- Sheet 5: FPGA Power / Decoupling
- Sheet 6: SO-DIMM Connector
- Sheet 7: Oscillator / Real Time Clock / SHA1 Eeprom
- Sheet 8: Gigabit Ethernet PHY
- Sheet 9: USB PHY
- Sheet 10: FLASH Memory
- Sheet 11: DDR3 SDRAM
- Sheet 12: Power Converters 1.5V / 1.8V
- Sheet 13: Power Converter 1.0V
- Sheet 14: Mechanics

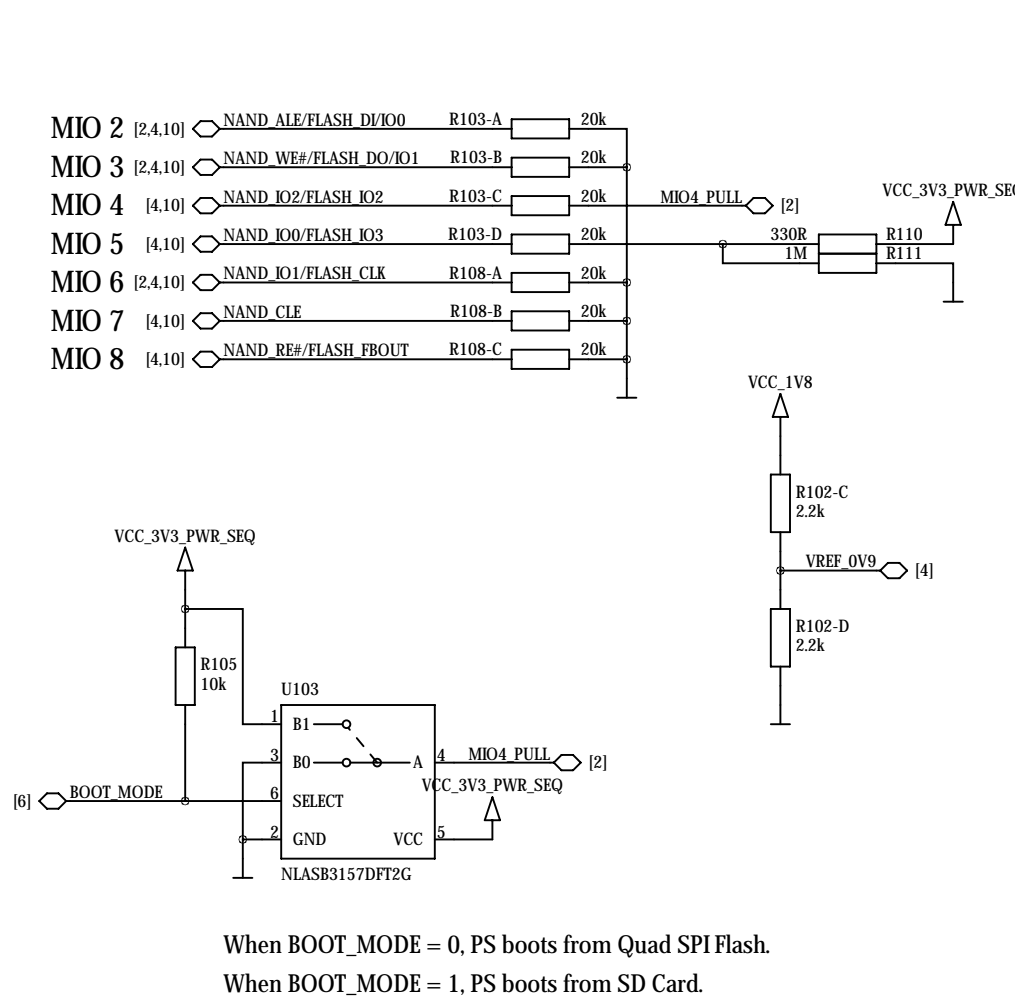
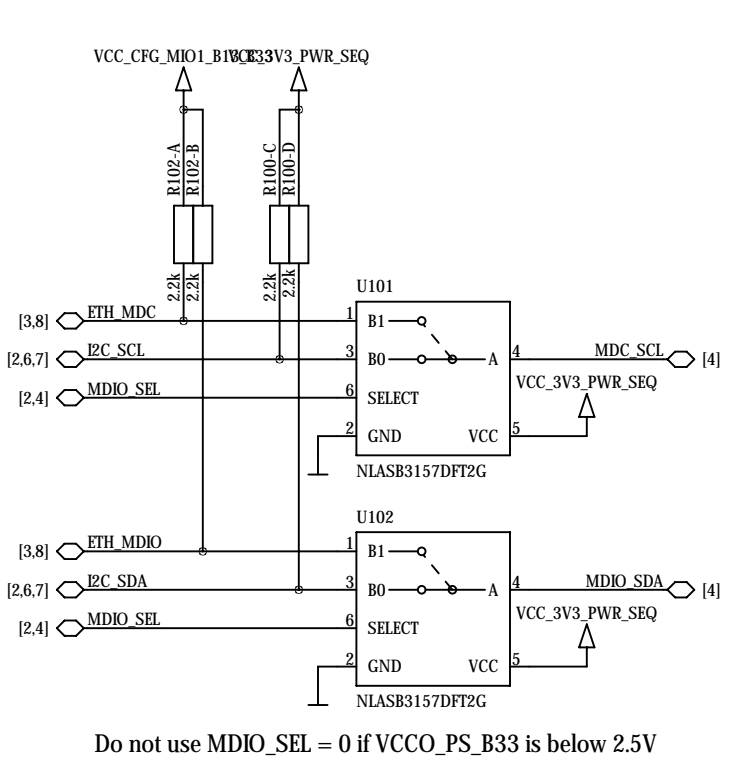
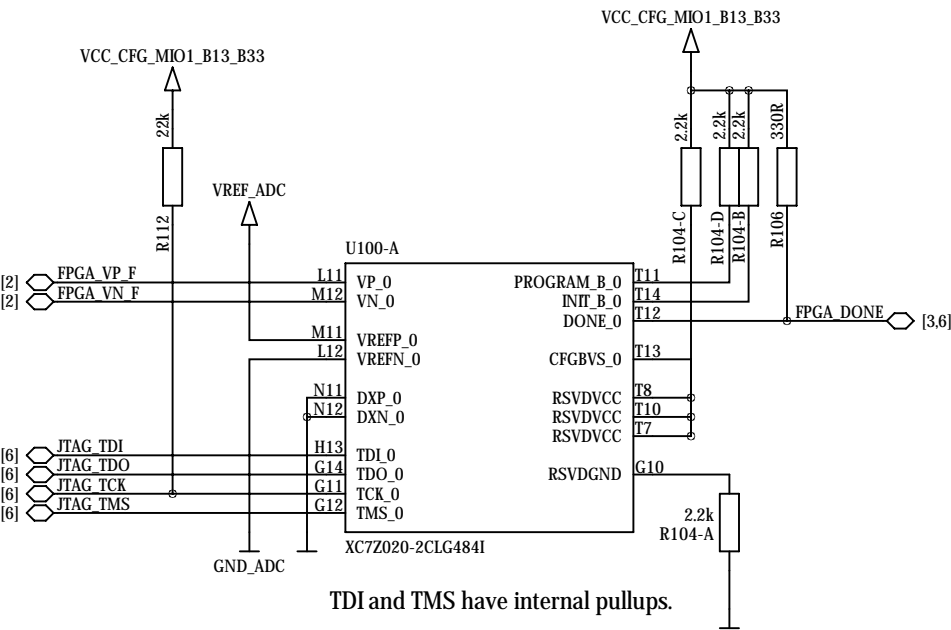
Parts marked with * are not equipped.

Company				Enclustra GmbH
Sheet name				1_COVER
Project				Mars ZX3 R3
Revision	033	Date	Designed	MH 29.08.2013
Scale	1:1	Format	A3	Sheet/sheets 1 / 14

FPGA Configuration

I2C / MDIO Multiplexer

PS Boot Mode

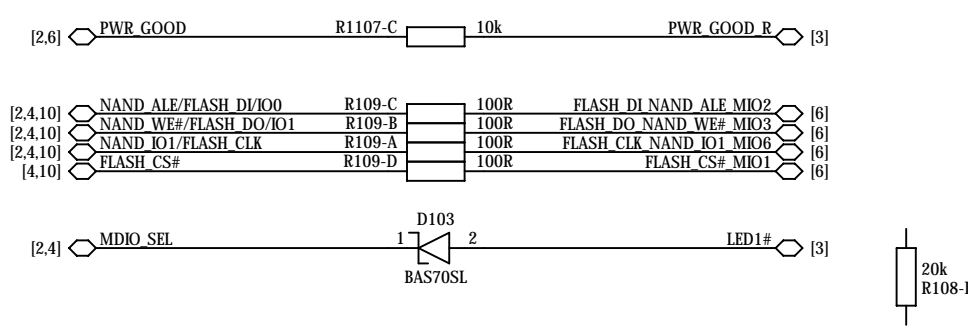
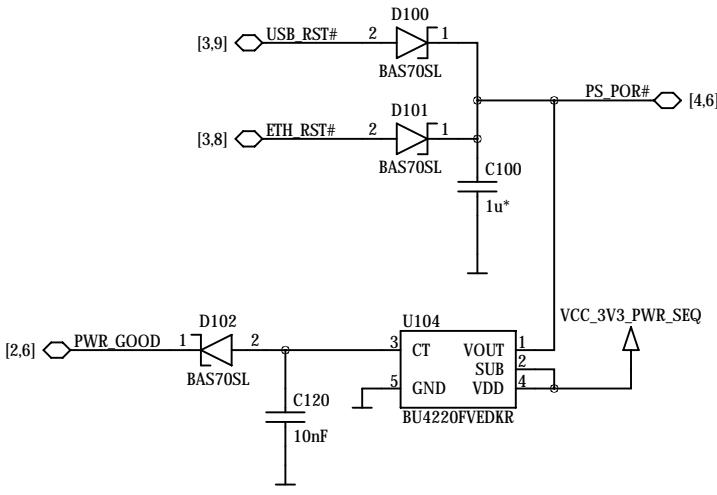
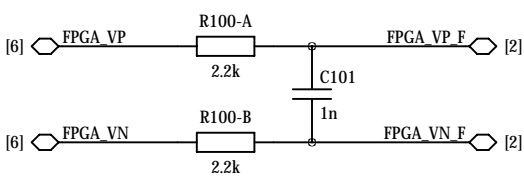
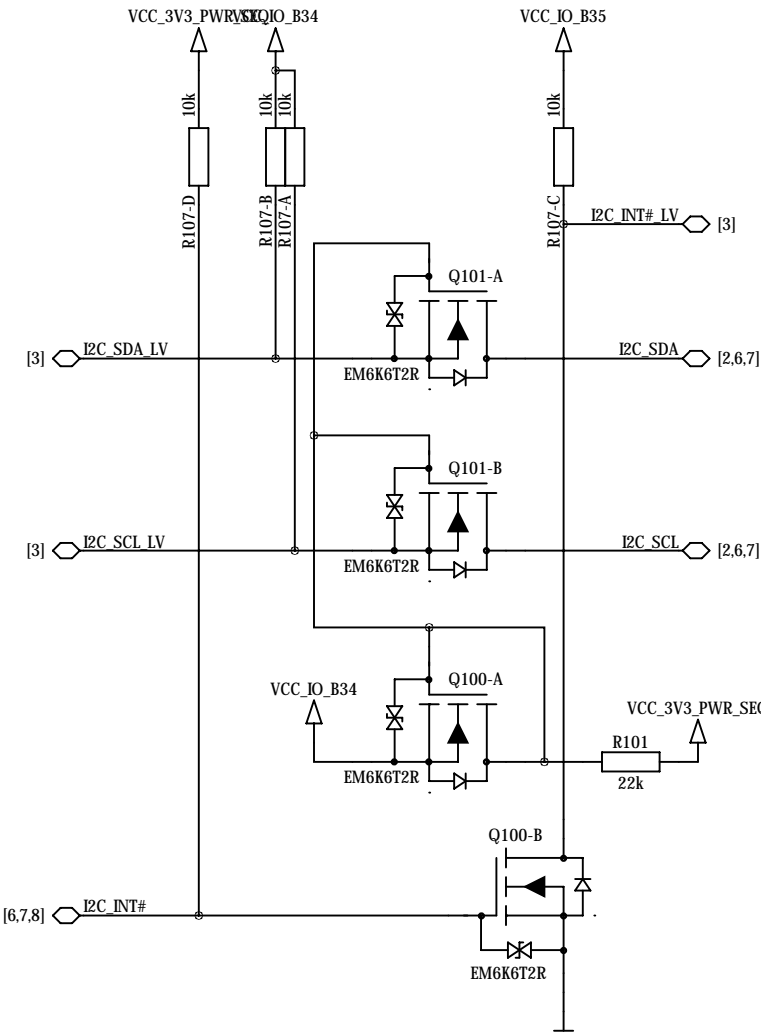


I2C Level Shifter

ADC Anti-Alias Filter

Reset Circuit

Series Resistors



Company				Enclustra GmbH			
Sheet name				2_FPGA_CONFIG/PS_BOOT/LEV_SHIFT			
Project				Mars ZX3 R3			
Revision	033	Date		Designed	MH	Date	29.08.2013
Scale	1:1	Format	A3			Sheet/sheets	2 / 14

D

C

B

A

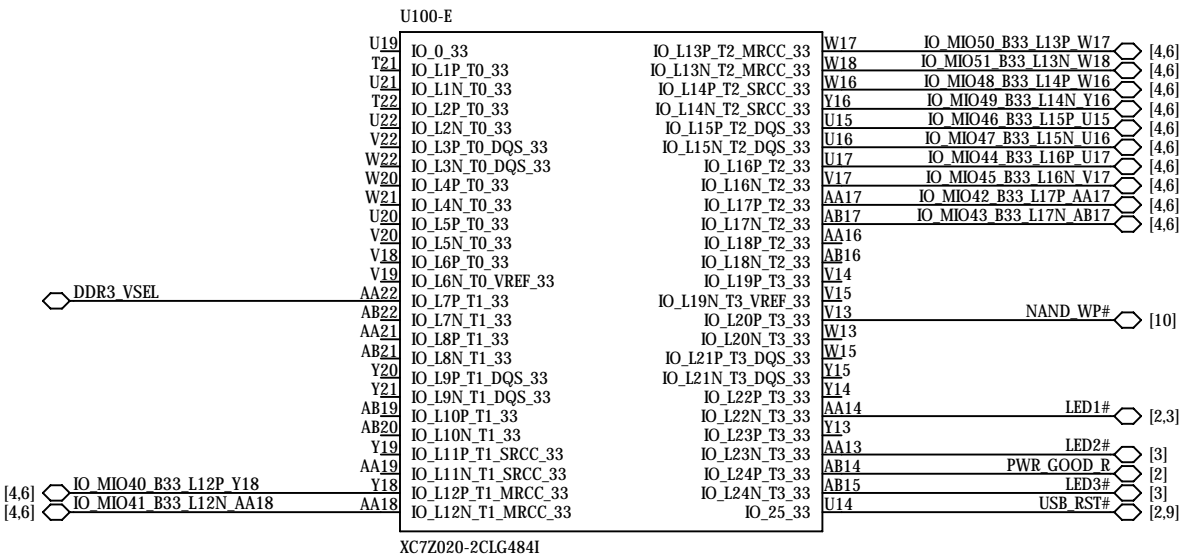
D

C

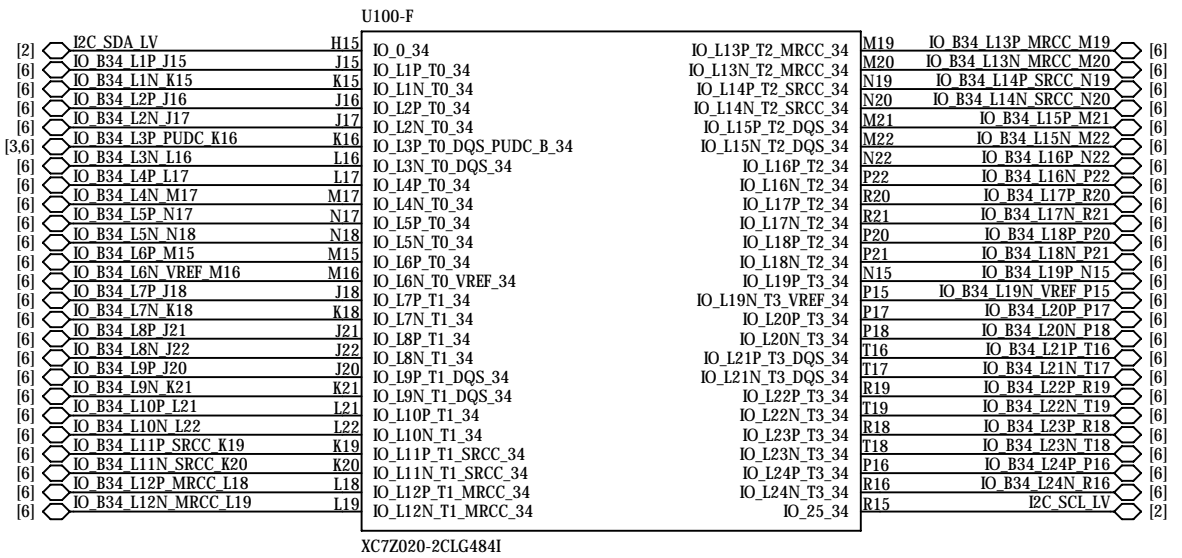
B

A

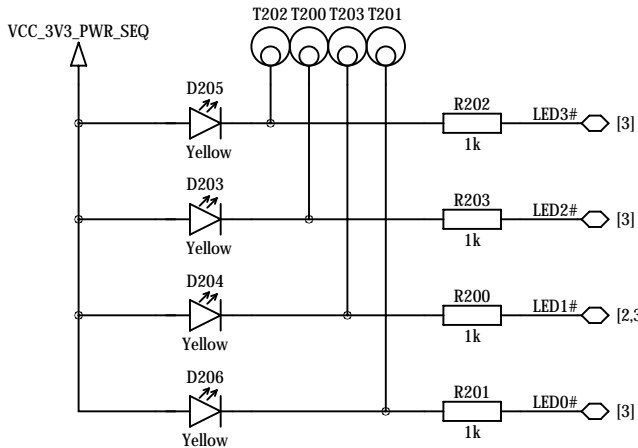
FPGA Bank 33



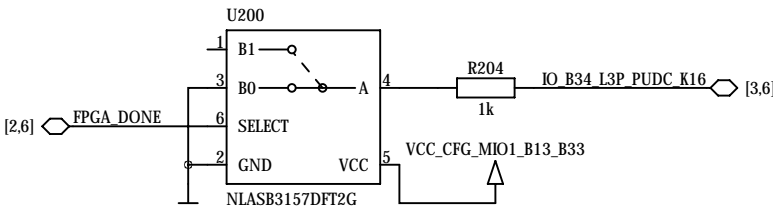
FPGA Bank 34



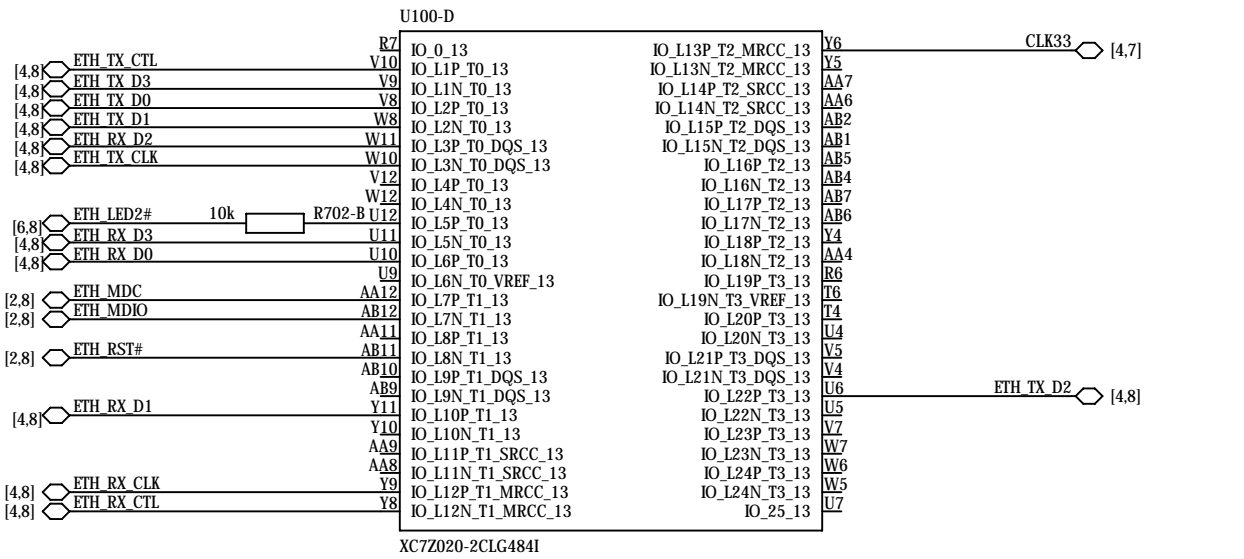
User LED's



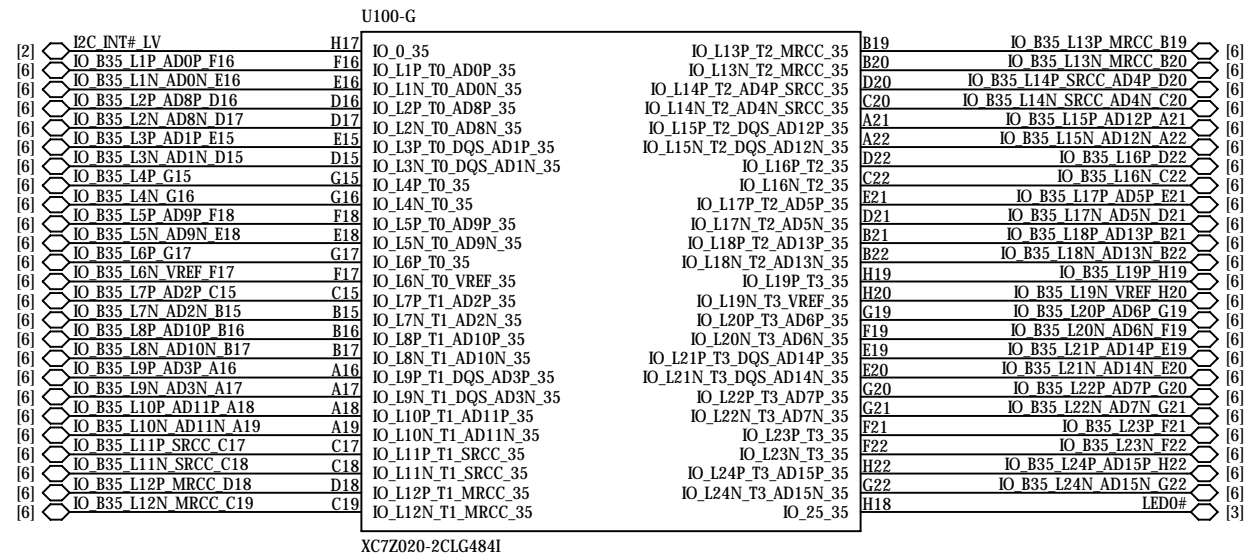
PUDC Pull-Down



FPGA Bank 13



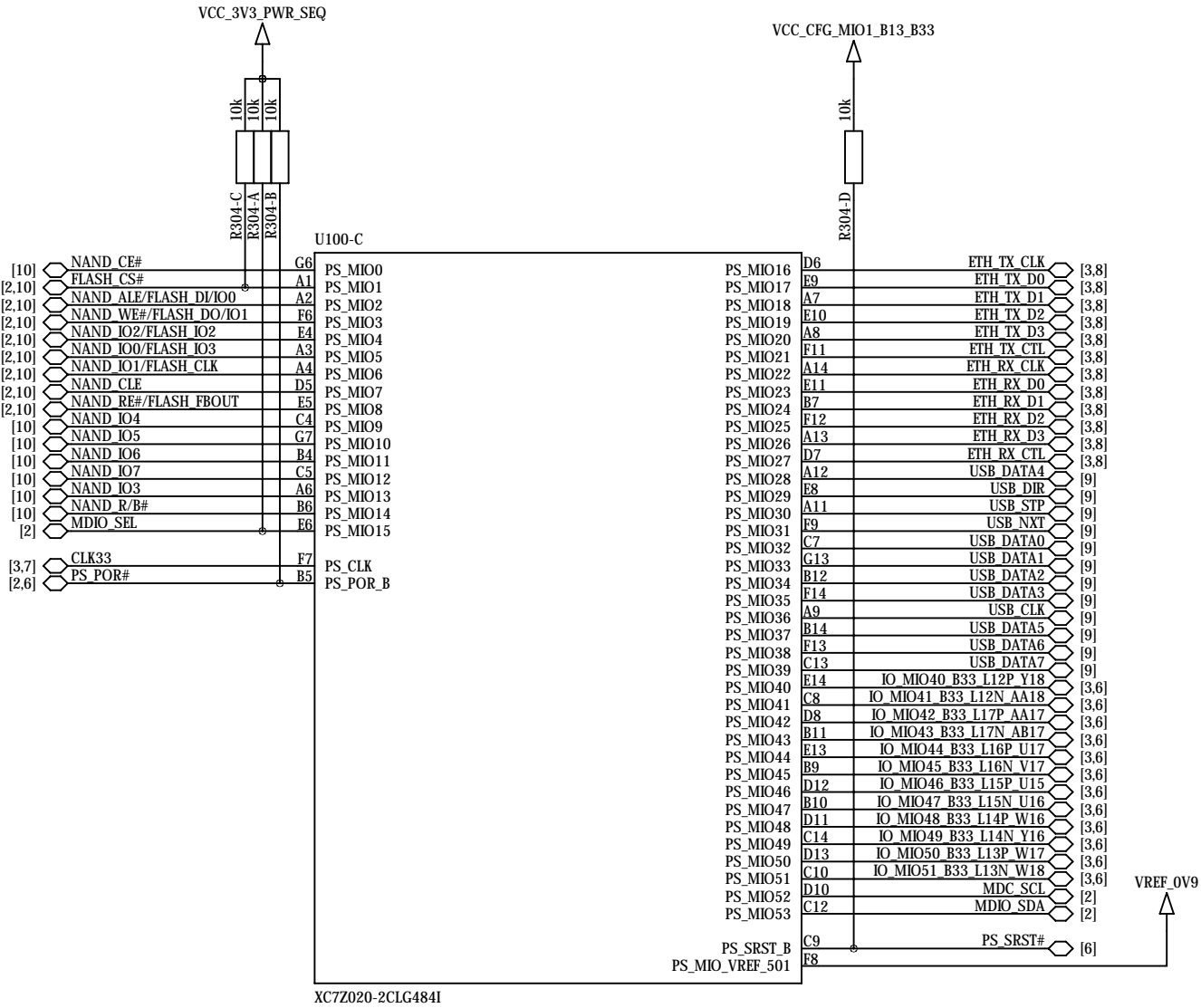
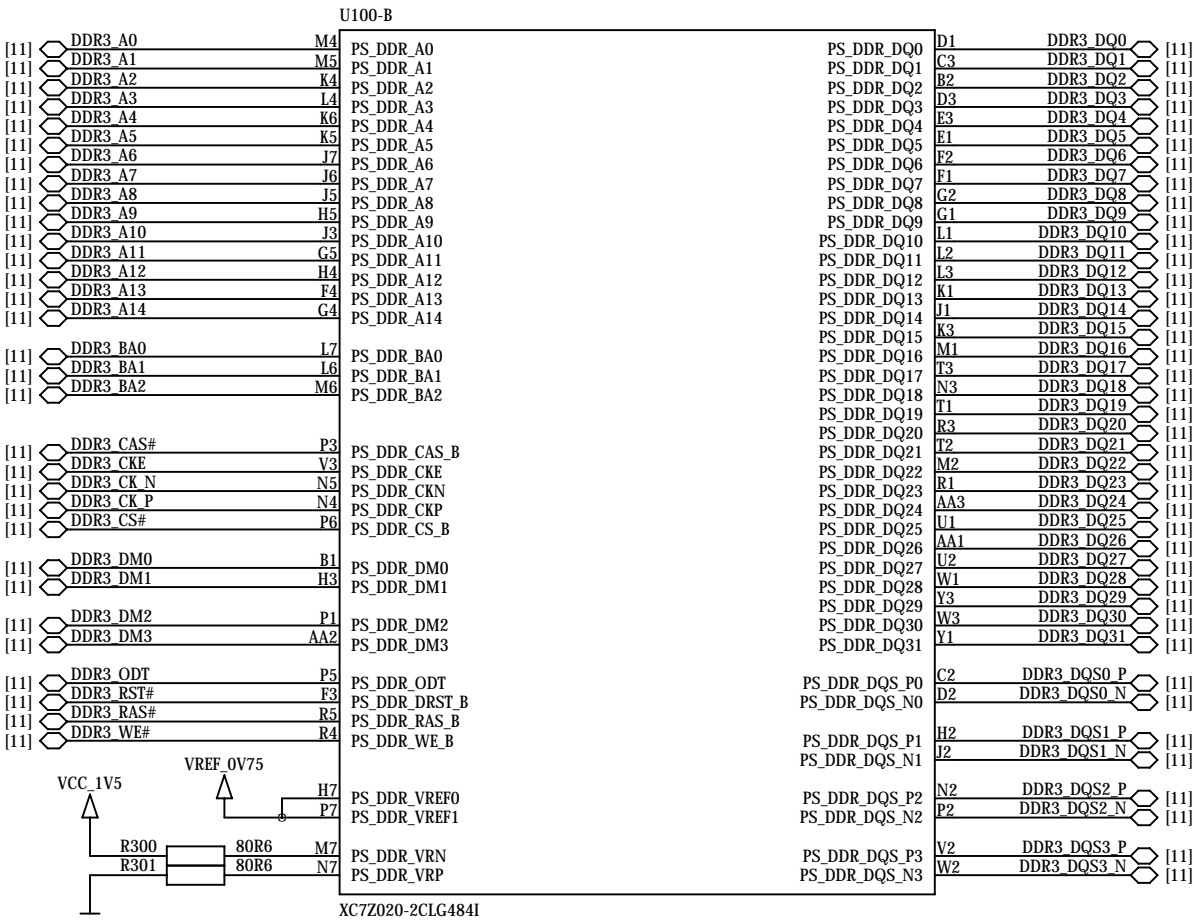
FPGA Bank 35



Company				Enclustra GmbH			
Sheet name				3_FPGA_BANK13/33/34/35/USER_LEDS			
Project				Mars ZX3 R3			
Revision	033	Date		Designed	MH	Date	29.08.2013
Scale	1:1	Format	A3	Sheet/sheets	3 / 14		

PS DDR

PS MIO



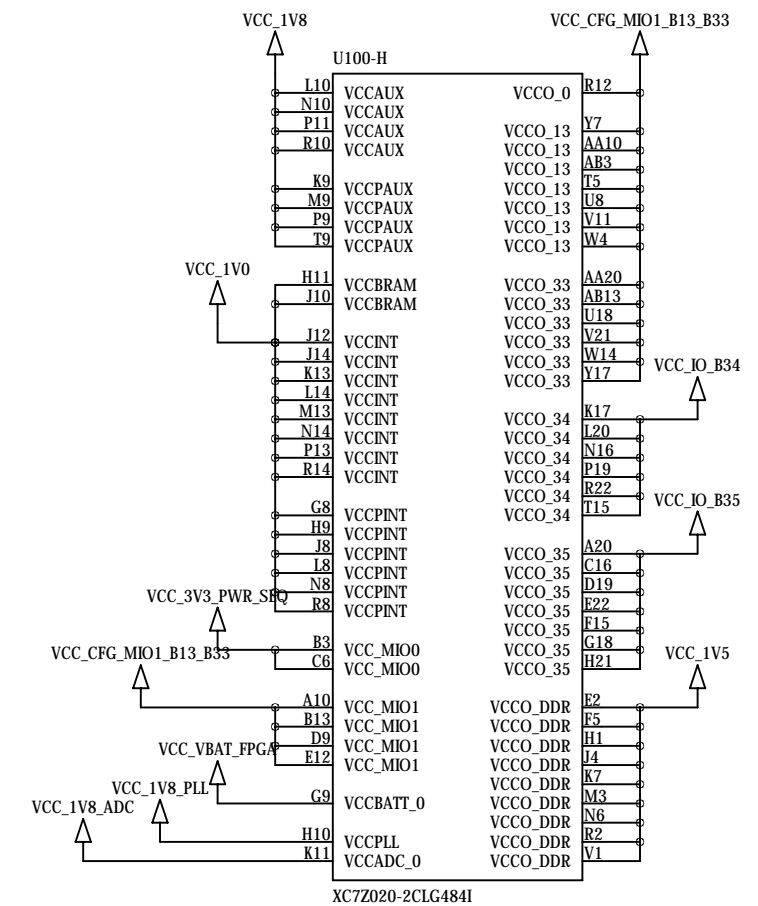
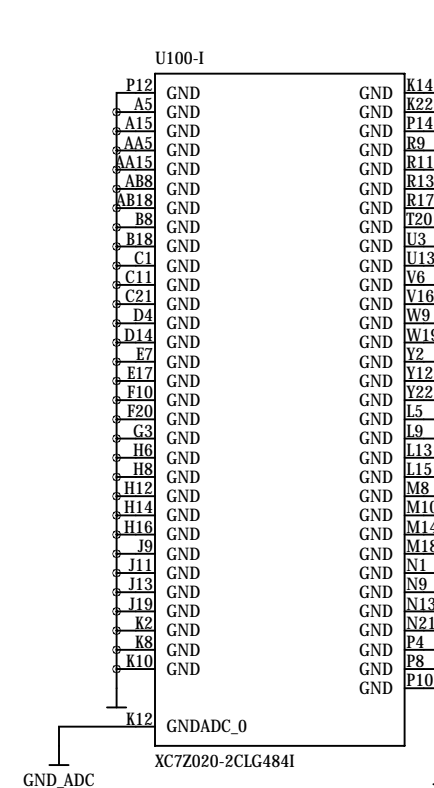
FPGA Decoupling

not included in the free version of the schematics

Company				Enclustra GmbH			
Sheet name				4_FPGA_PS_DDR/MIO			
Project				Mars ZX3 R3			
Revision	033	Date		Designed	MH	Date	29.08.2013
Scale	1:1	Format	A3			Sheet/sheets	4 / 14

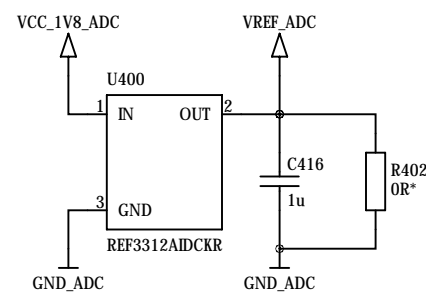
FPGA Decoupling

not included in the free version of the schematics



ADC Power Filter

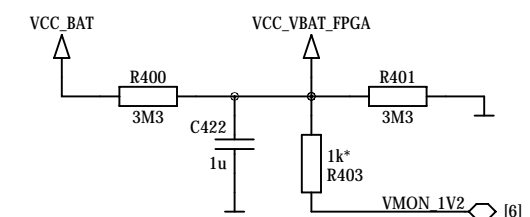
not included in the free version of the schematics



ADC Voltage Reference

PLL Power Filter

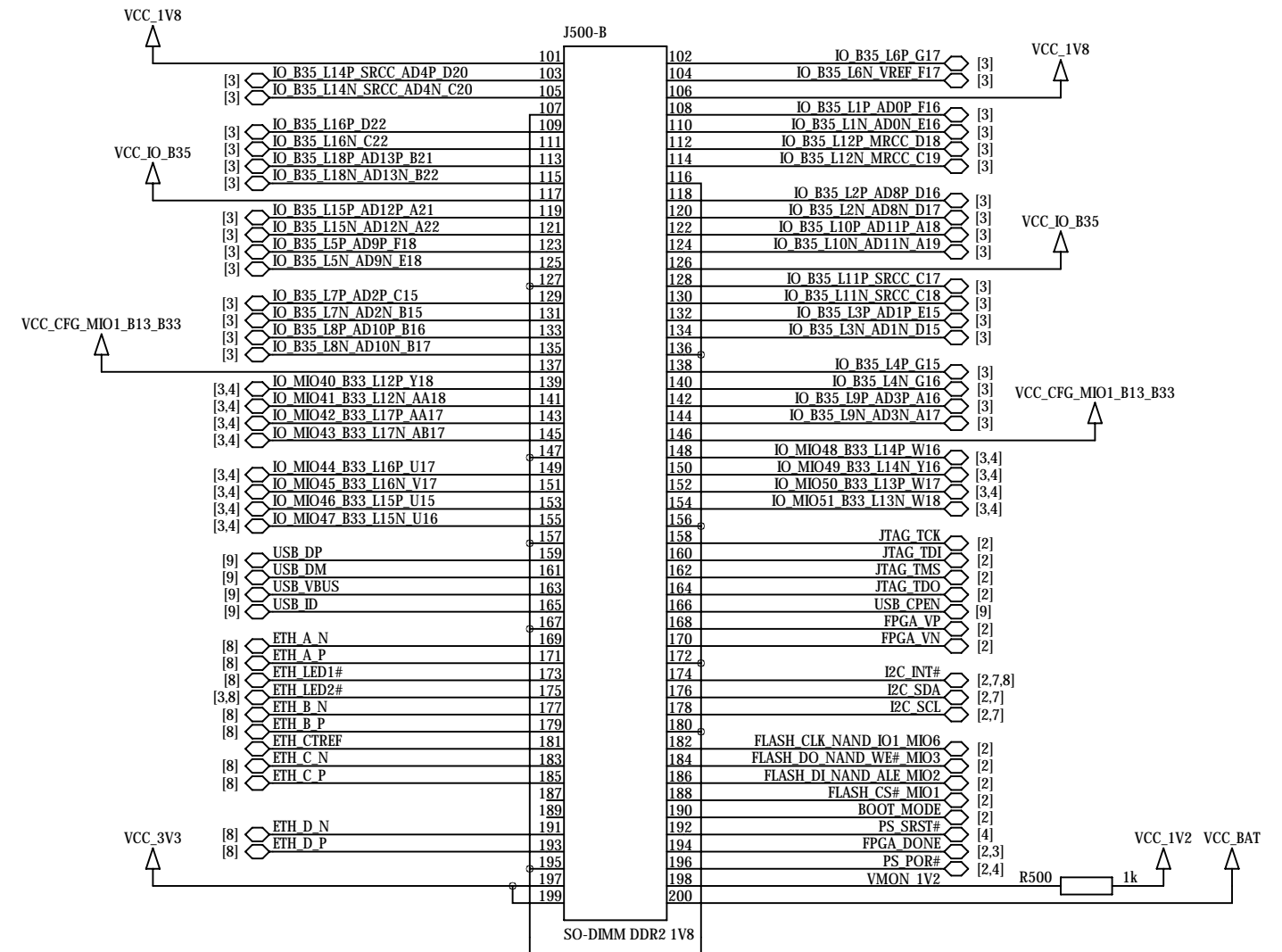
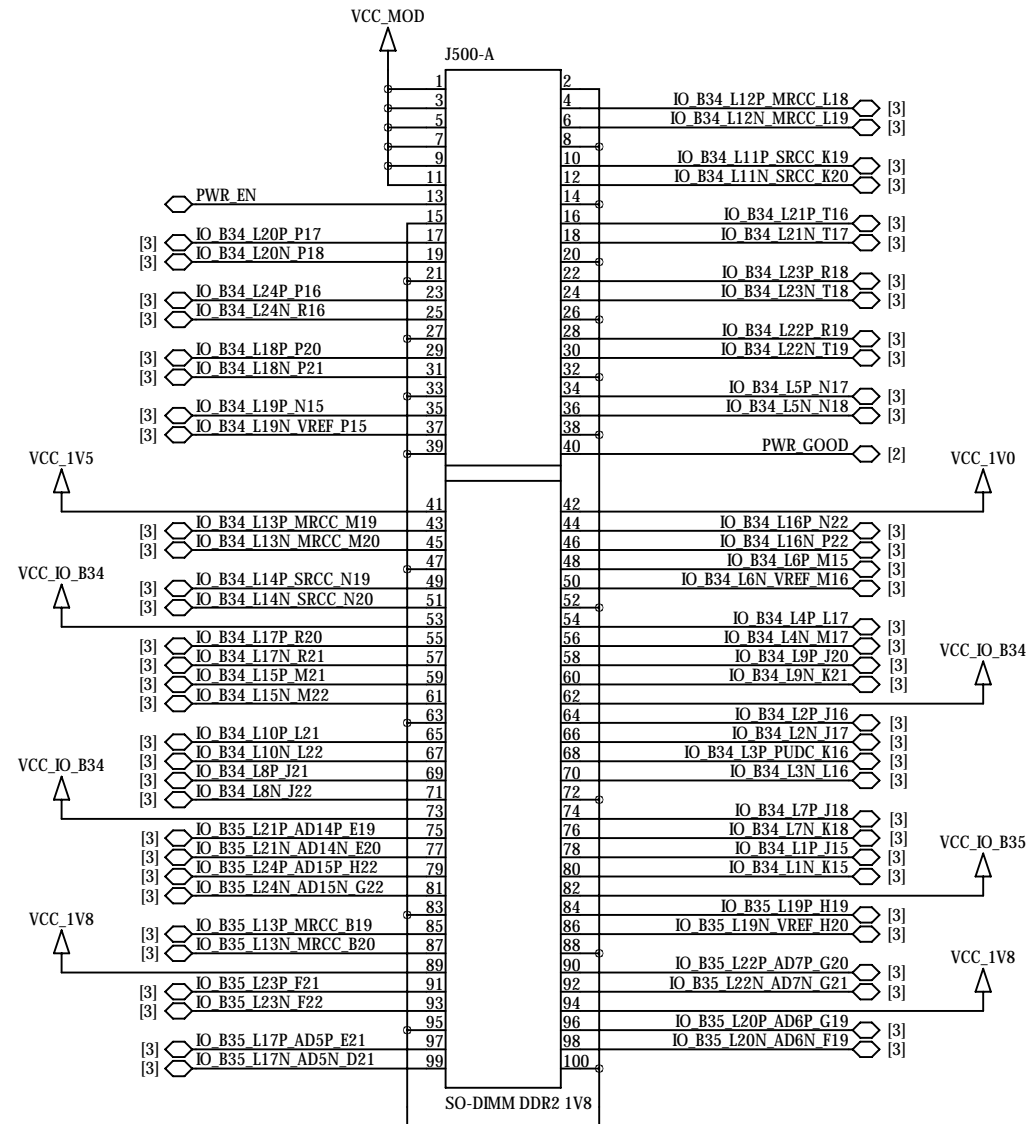
not included in the free version of the schematics



FPGA Battery Voltage

Company		Enclustra GmbH	
Sheet name		5_FPGA_POWER/DECOUPLING	
Project		Mars ZX3 R3	
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Scale	1:1	Designed	MH
Format	A3	Sheet/sheets	5 / 14

SO DIMM Connector

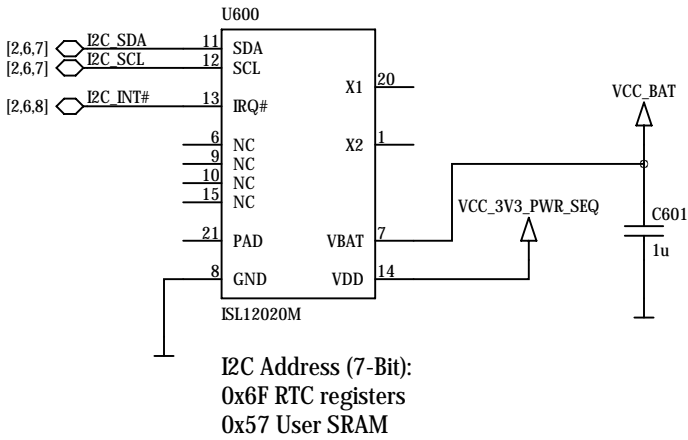


Voltage ranges:

Do not use reverse low-profile SO-DIMM socket on carrier board as some components are higher than in the SO-DIMM specification.	Net	Direction as seen from module	Range	Tolerance
	VCC_IN	input	3.15V - 5.5V	±5%
	VCC_3V3_IN	input	3.3V	±5%
	VCCO_B34 / VCCO_B35	input	1.8V - 3.3V	±5%
	VCCO_PS_B13_B33	input	2.5V - 3.3V	±5%
	VCC_1V8	output	1.8V	±5%
	VCC_1V5	output	1.5V	±5%
	VCC_1V0	output	1.0V	±5%
	VBAT	input	2.0V - 3.6V	±5%

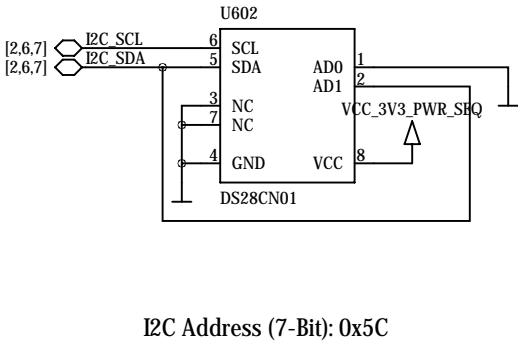
Company		Enclustra GmbH	
Sheet name		6_SO-DIMM-CONNECTOR	
Project		Mars ZX3 R3	
Revision	033	Date	29.08.2013
Scale	1:1	Designed	MH
Format	A3	Sheet/sheets	6 / 14

Real time clock

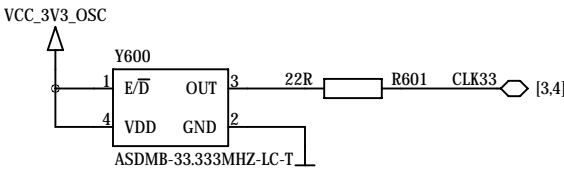


SHA1 Eeprom

For Enclustra use only



Oscillator



Power Decoupling

not included in the free version of the schematics

Oscillator Supply Filter

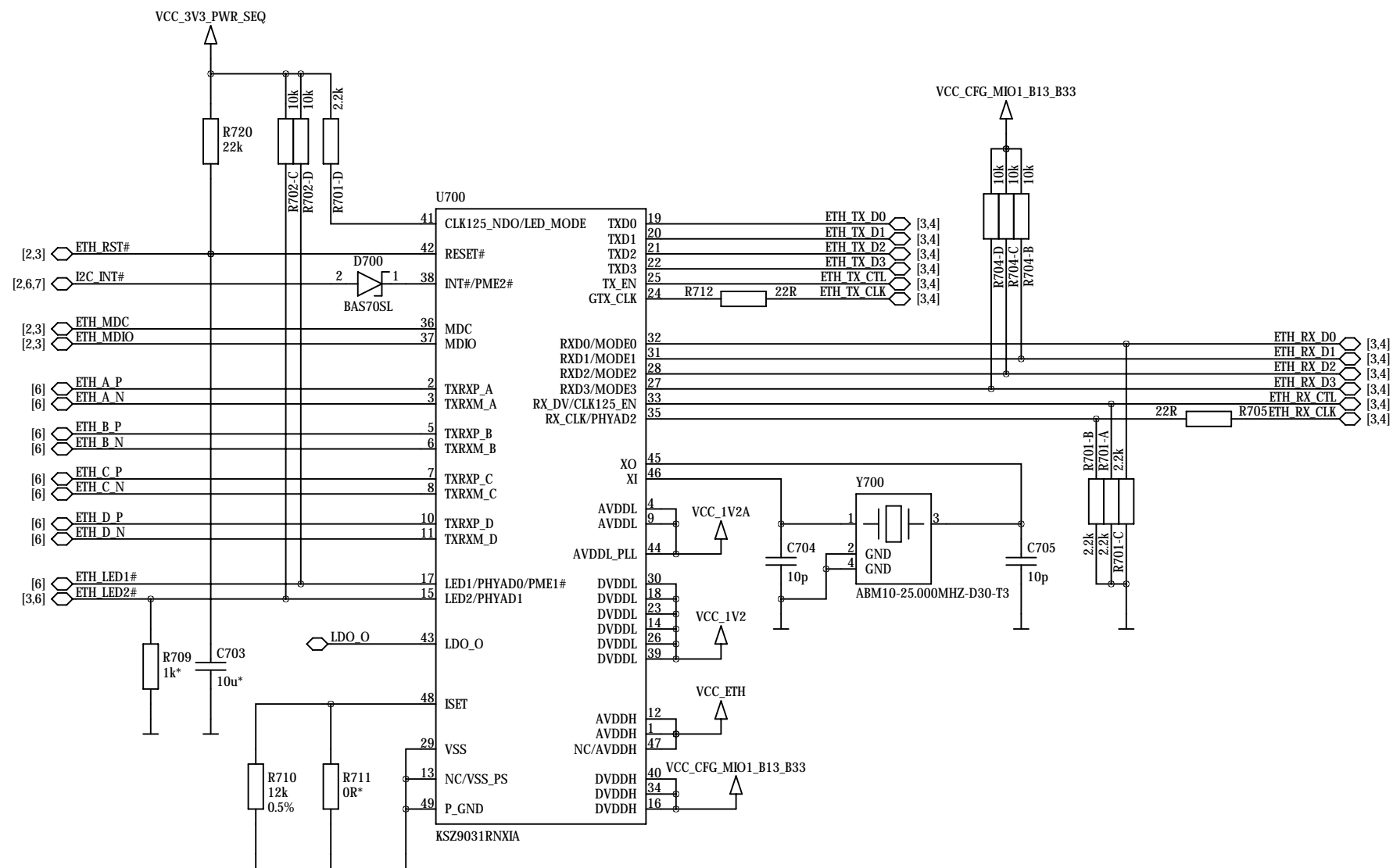
not included in the free version of the schematics

Company		Enclustra GmbH		
Sheet name		7_OSC/REAL_TIME/SHA1-EEPROM		
Project		Mars ZX3 R3		
Revision	033	Date	Designed MH	Date 29.08.2013
Scale	1:1	Format A3		Sheet/sheets 7 / 14

Gigabit Ethernet PHY

Gigabit Ethernet Power

not included in the free version of the schematics



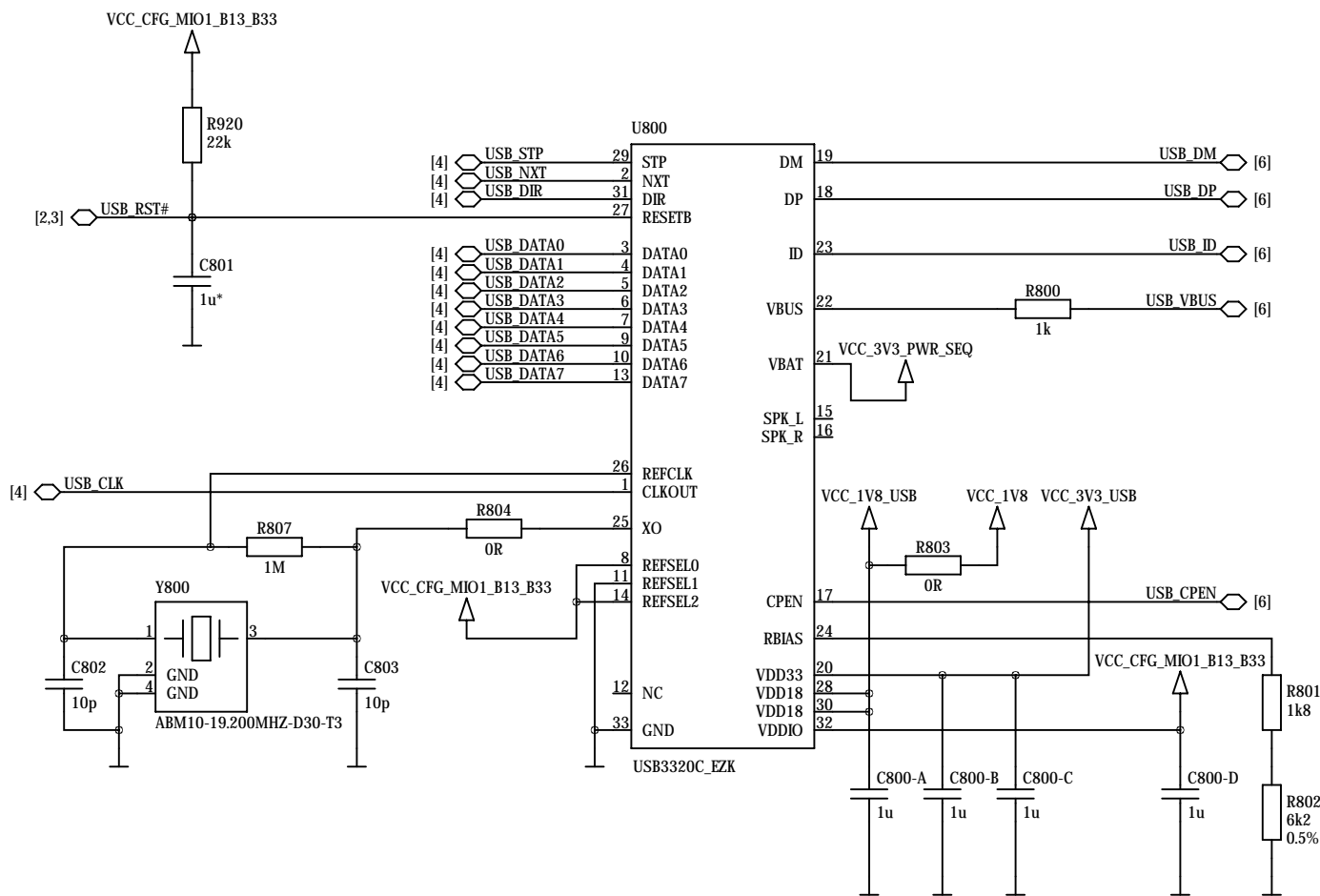
MODE<3:0> = 1110 -> RGMII, all capabilities
LED_Mode Pull up = Single LED
PhyAddress <2:0> = 011 -> 3
LED1 and LED2 are active low

Assembly Variants

U700	L701	L702
KSZ9031RNXCA	NO	YES
KSZ9031RNXIA	YES	NO

Company		Enclustra GmbH	
Sheet name		8_GIGABIT_ETHERNET_PHY	
Project		Mars ZX3 R3	
Revision	033	Date	29.08.2013
Scale	1:1	Designed	MH
Format	A3	Sheet/sheets	8 / 14

USB



Company				Enclustra GmbH			
Sheet name				9_USB			
Project				Mars ZX3 R3			
Revision	033	Date		Designed	MH	Date	29.08.2013
Scale	1:1	Format	A3			Sheet/sheets	9 / 14

1

D

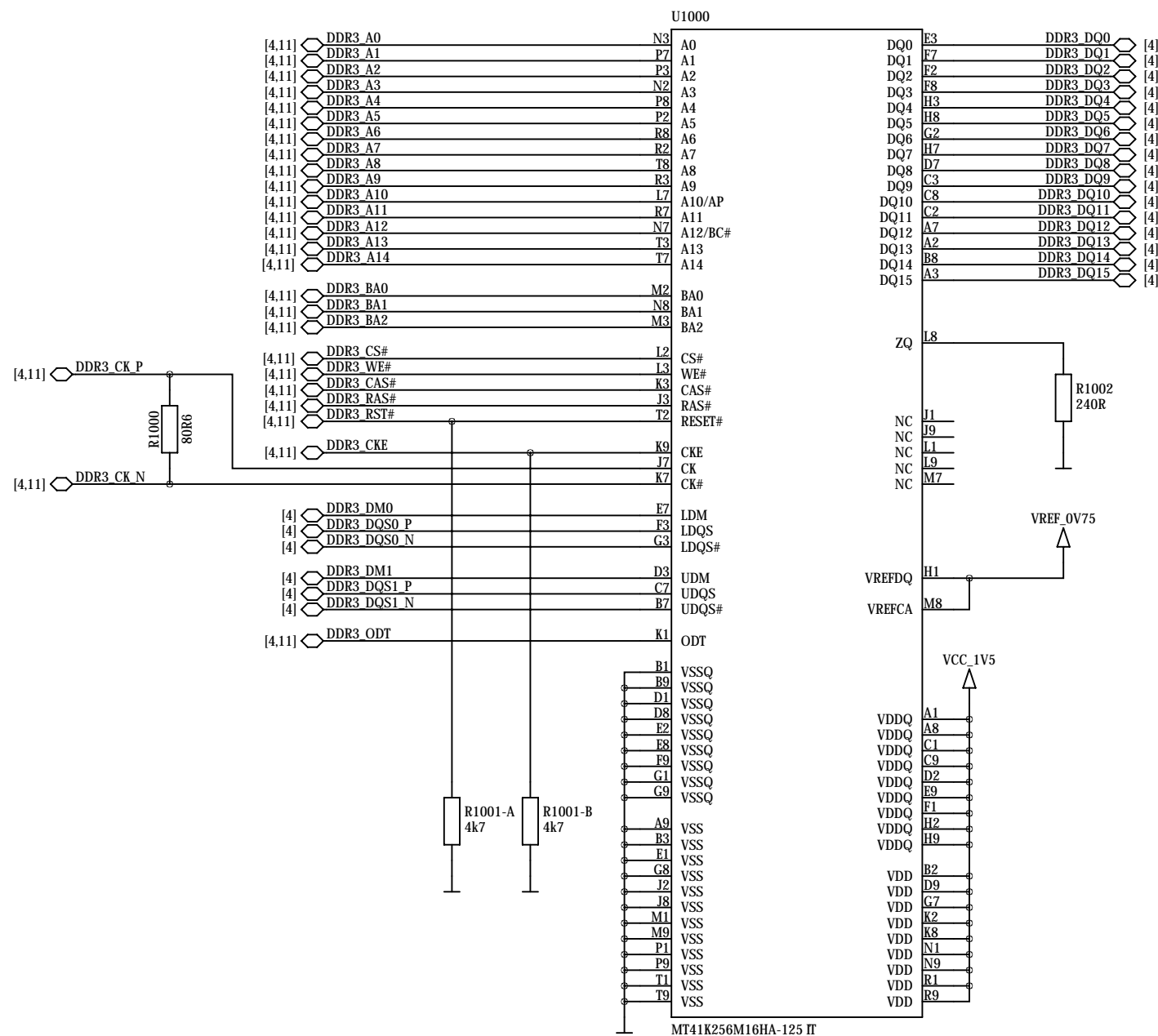


B

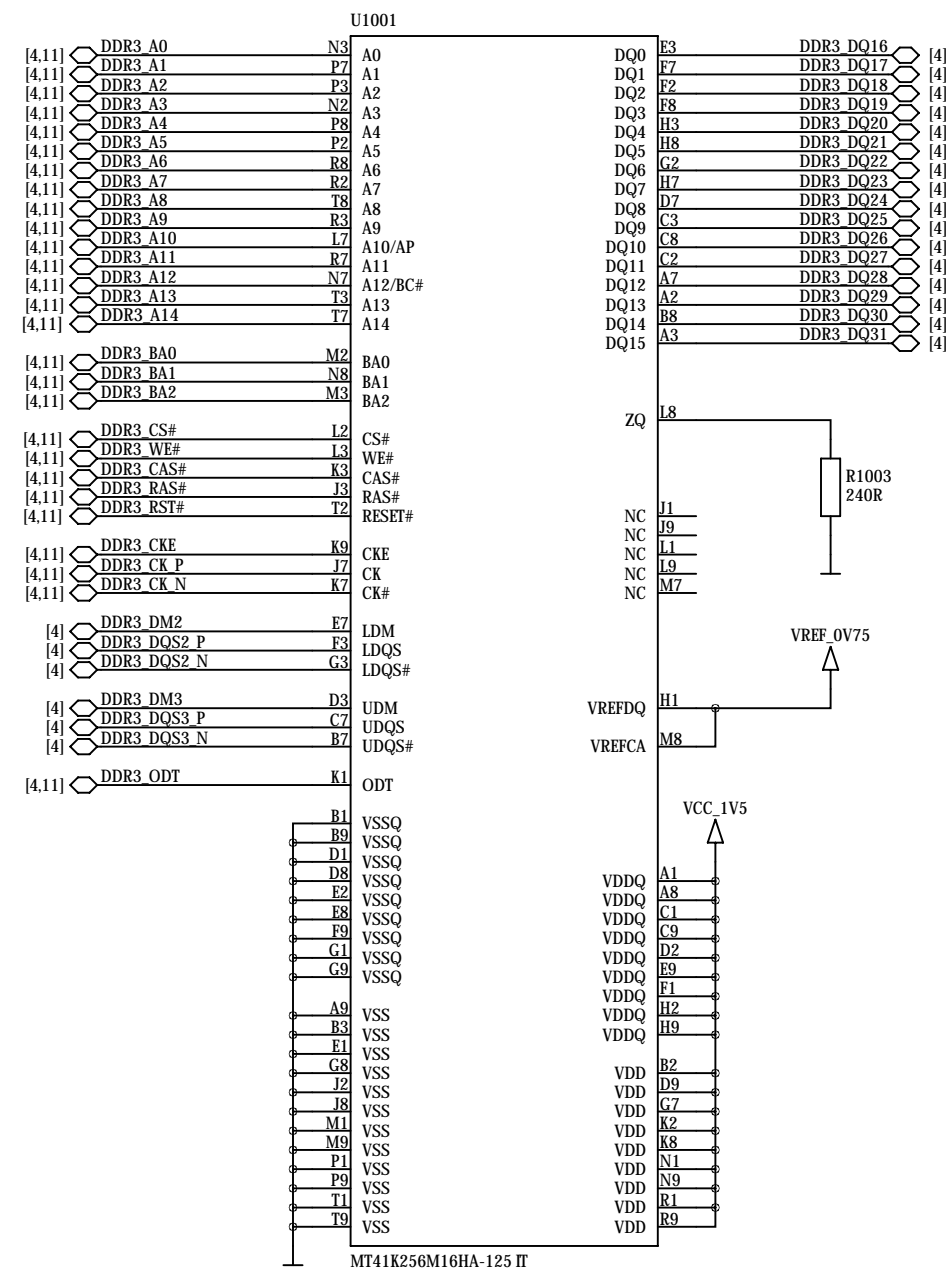


Company		Enclustra GmbH	
Sheet name		10_FLASH_MEMORY	
Project		Mars ZX3 R3	
Revision	033	Date	29.08.2013
Scale	1:1	Designed	MH
Format	A3	Sheet/sheets	10/ 14

DDR3 SDRAM



DDR3 SDRAM

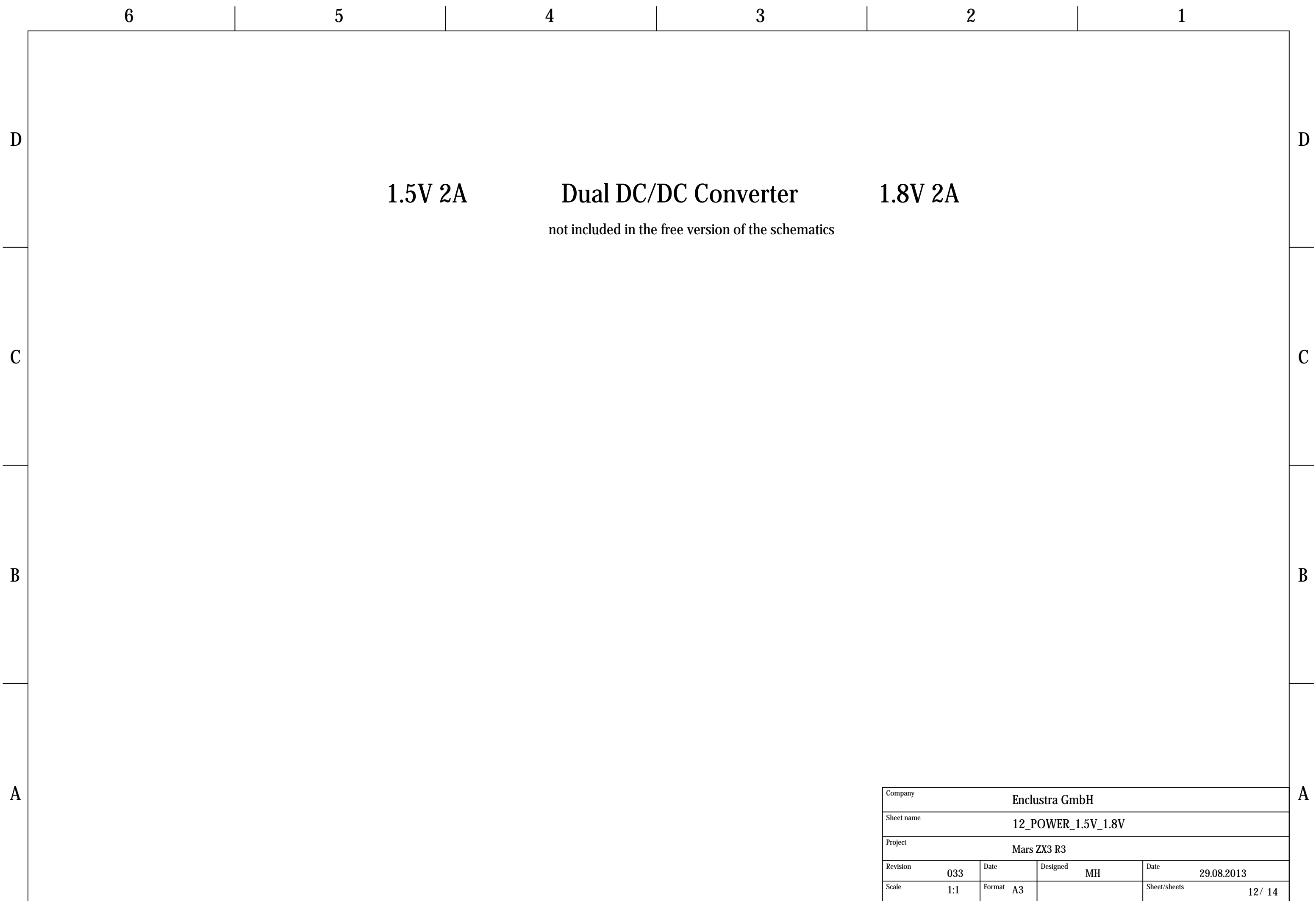


Power Decoupling

VREF Generation

not included in the free version of the schematics

Company		Enclustra GmbH	
Sheet name		11_DDR3_SDRAM	
Project		Mars ZX3 R3	
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Scale	1:1	Designed	MH
Format	A3	Sheet/sheets	11 / 14



6

5

4

3

2

1

D

DC/DC Converter 1.0V, 4A

not included in the free version of the schematics

C

B

Power Sequencing

not included in the free version of the schematics

A

Company		Enclustra GmbH		
Sheet name		13_POWER_1.0V		
Project		Mars ZX3 R3		
Revision	033	Date	Designed MH	Date 29.08.2013
Scale	1:1	Format A3		Sheet/sheets 13/ 14

D

C

B

A

