STEVAL-IFW001V1

Real-time Ethernet slave node demonstration board based on the STR912FAW44

Data Brief

Features

- 32-bit STR912FAW44 microcontroller with ARM966E-S™ core running at 96 MHz
- Two fast E-STE101P Ethernet transceivers supporting full duplex communication; available boot configuration settings; up to 32 selectable MII addresses; RJ45 connectors with embedded LEDs
- Two 50-pin header connectors for connecting different on-hook extensions with real-time IP featuring: three MIIs (medium independent interface), EMI (external memory interface), UART, I2C, SPI, external interrupts, 1.8 V, 3.3 V and GND pins
- Connectors for interfacing with industrial I/O cards: CAN, AC MC (motor control), CLT/PCLT (input termination circuit), HSD or SPI HSD (high side driver)
- Power supply using the L5973AD DC-DC converter, and the LF18 for the core supply
- JTAG debug interface connector
- 6 V to 30 V DC power supply voltage range
- One reset and one general-purpose button; two general purpose LEDs

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For Xilinx® Spartan™ FPGA extensions, refer to user manual UM0499 for the STEVAL-IFW002V1 demonstration board. With additional on-board connectors it is possible to connect industrial I/O cards and motor control boards.

Description

This demonstration board based on STR912FAW44 was designed for real-time Ethernet slave communication node evaluation. This board can be daisy chained with others into factory automation field bus systems. The board enables and requires the hooking on of different extensions that fulfill the requirements for different real-time Ethernet protocols on the market (e.i. Powerlink, EtherCAT, and others). For each protocol a special extension, or a programmable extension, must be used. The communication between the board and the extension can be accomplished through MII, EMI, SPI™, I2C™ or UART.

1 Demonstration board schematic

Figure 1. Connectors, buttons, LEDs and CAN

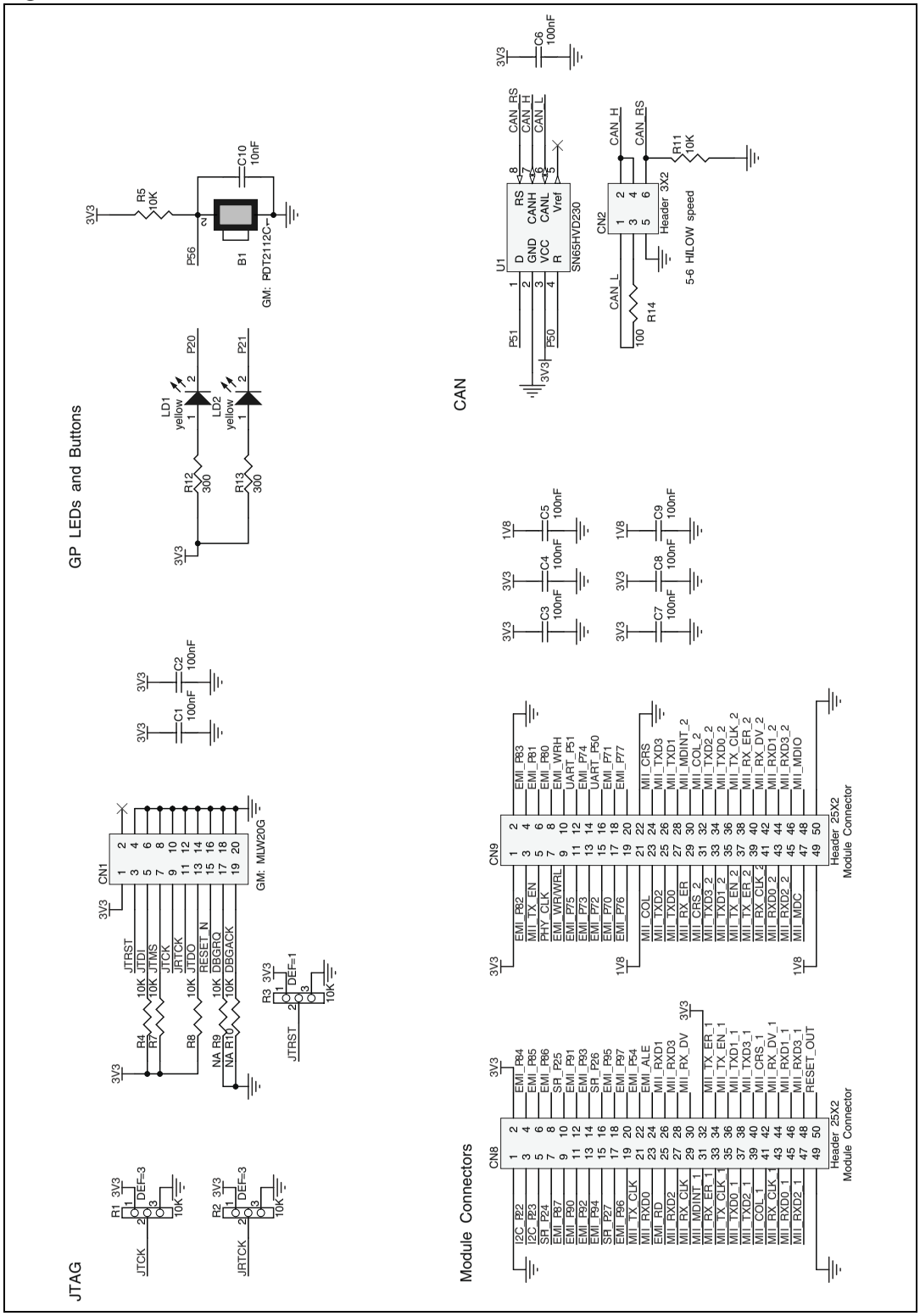


Figure 2. Control connectors

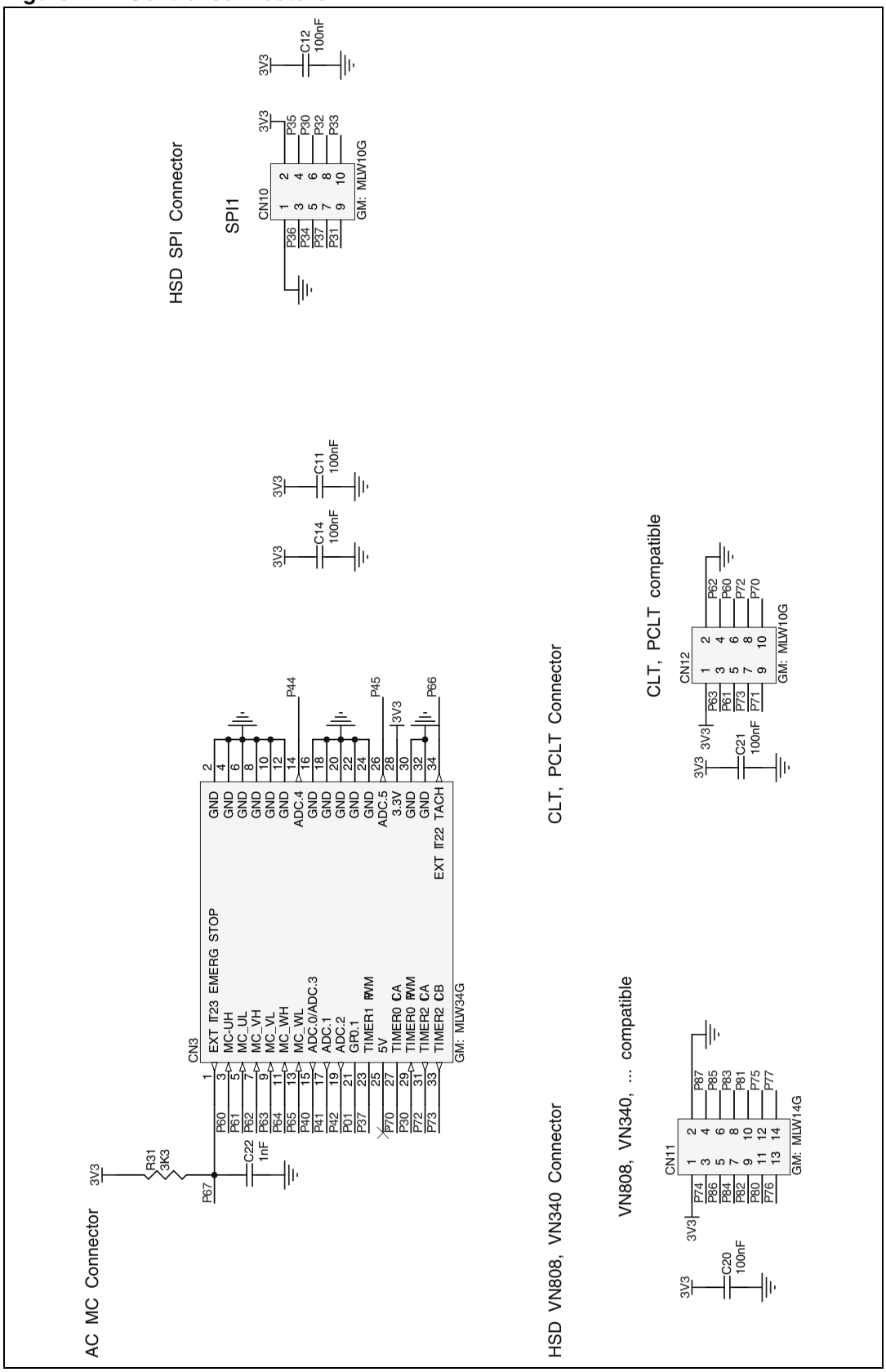


Figure 3. Ethernet 1

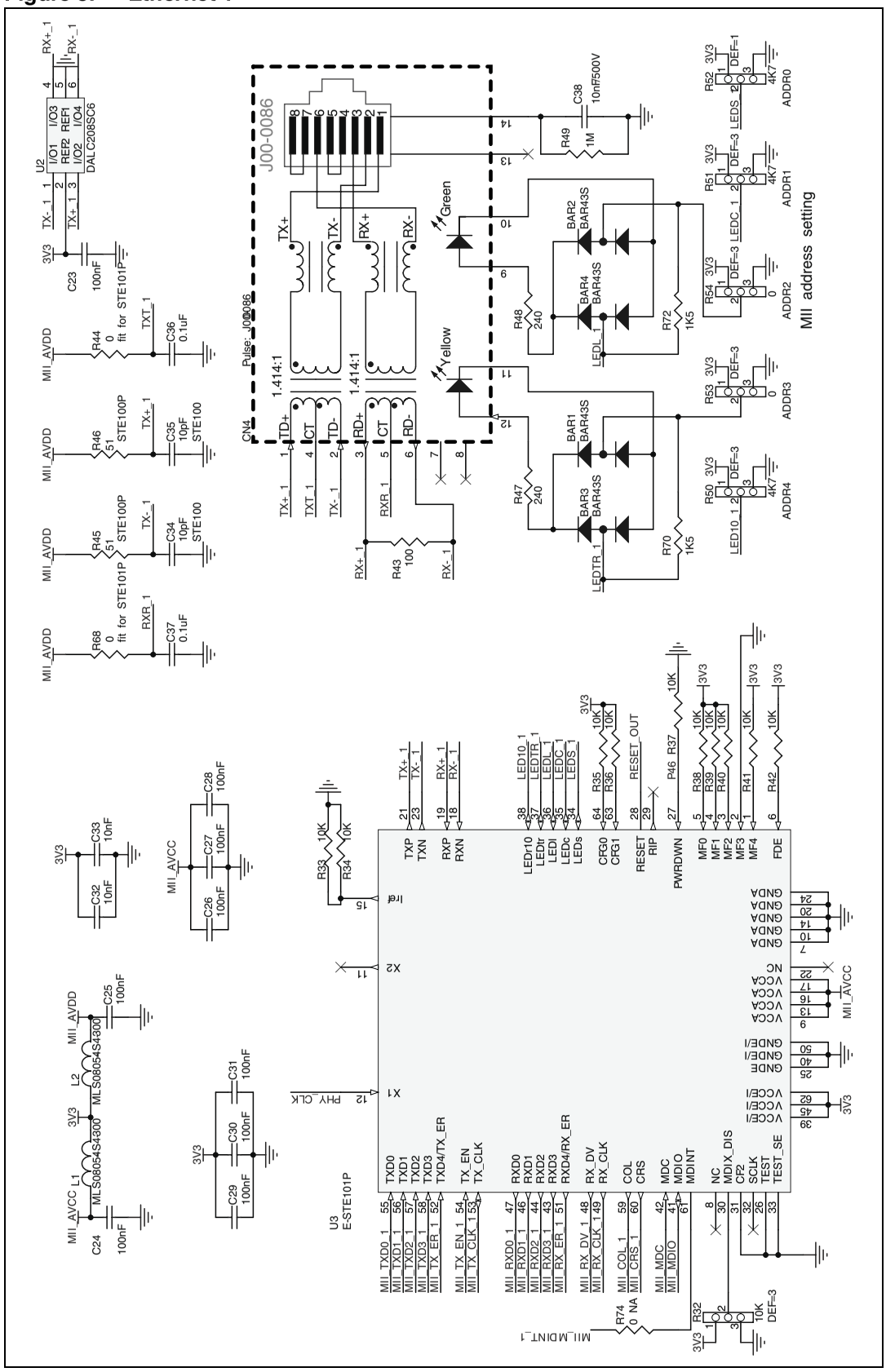


Figure 4. Ethernet 2

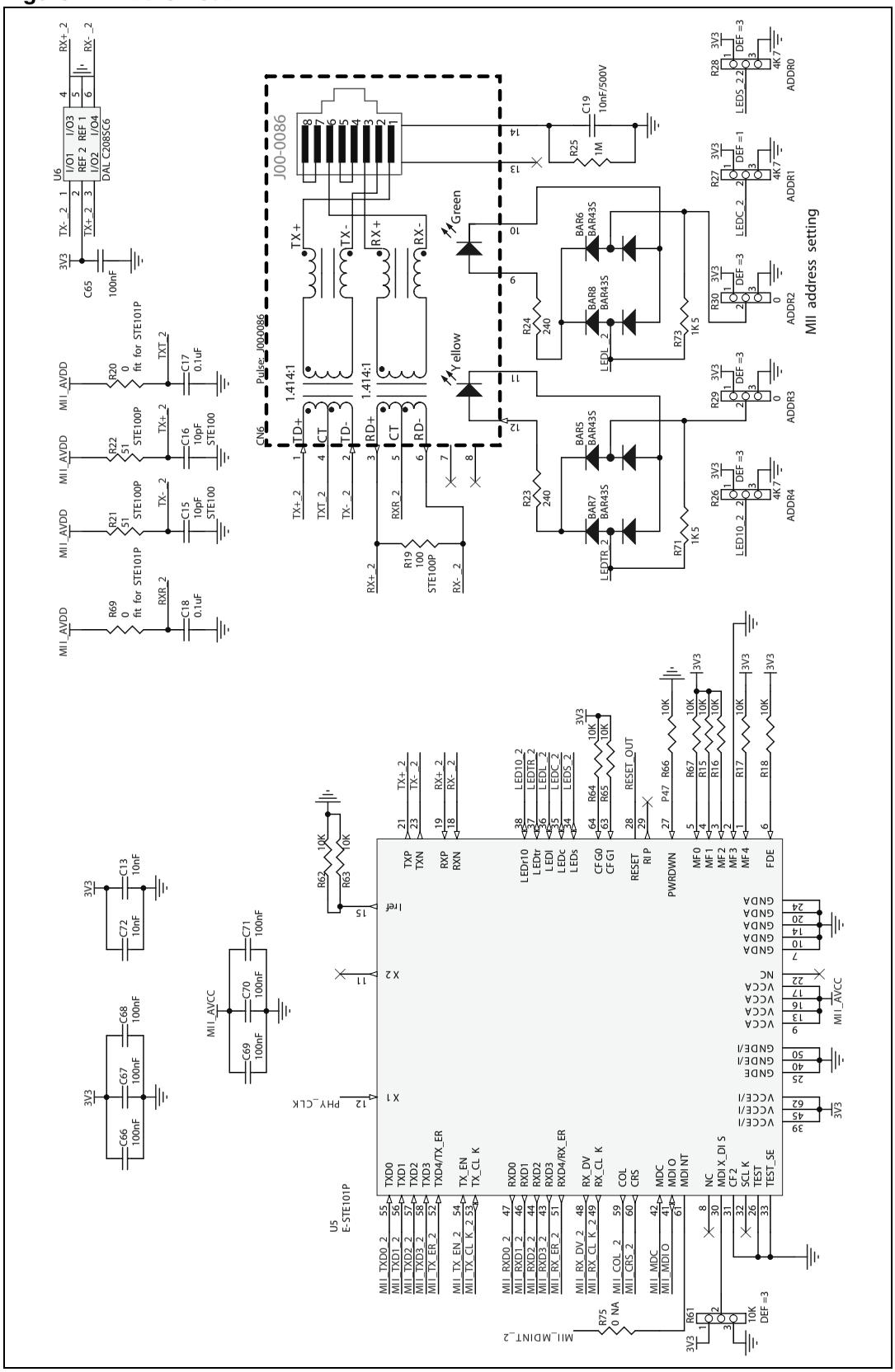
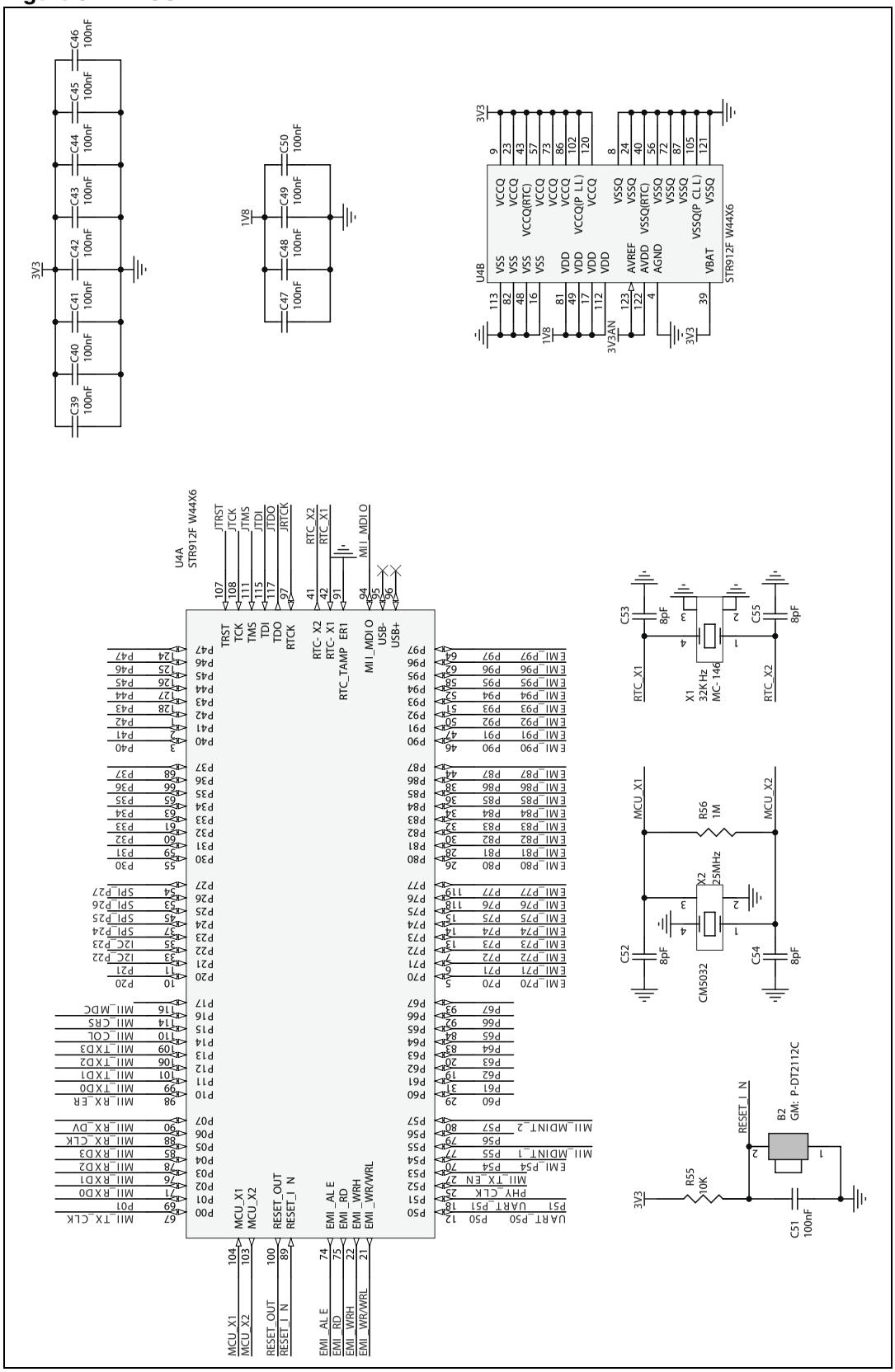


Figure 5. MCU


3V3
C39 100nF
C40 100nF
C41 100nF
C42 100nF
C43 100nF
C44 100nF
C45 100nF
C46 100nF
1V8
C47 100nF
C48 100nF
C49 100nF
C50 100nF
U4B
STR912F W44X6
VCCQ
VSS
VCCQ(RTC)
VCCQ(P LL)
VDD
VSSQ
AVREF
AVDD
AGND
VSSQ(RTC)
VSSQ(P CL L)
VBAT
3V3AN
U4A
STR912F W44X6
JTRST
JTCK
JTMS
JTDI
JTDO
JRTCK
RTC_X2
RTC_X1
MII_MDIO
USB-
USB+
RTC_TAMP
ER1
TRST
TCK
TMS
TDI
TDO
RTCK
RTC- X2
RTC- X1
MII_MDIO
C53 8pF
C55 8pF
X1
32K Hz
MC-146
RTC_X1
RTC_X2
MCU_X1
MCU_X2
R56
1M
X2
25MHz
CM5032
C52 8pF
C54 8pF
R55
10K
RESET_I_N
B2
GM: P-DT2112C
C51
100nF
MII_TX_CLK
MII_RXD0
MII_RXD1
MII_RXD2
MII_RXD3
MII_RX_CLK
MII_RX_DV
MII_RX_ER
MII_TXD0
MII_TXD1
MII_TXD2
MII_TXD3
MII_COL
MII_CRS
MII_MDC
SPI_P27
SPI_P26
SPI_P25
SPI_P24
I2C_P23
I2C_P22
P21
P20
P47
P46
P45
P44
P43
P42
P41
P40
P37
P36
P35
P34
P33
P32
P31
P30
EMI_P97
EMI_P96
EMI_P95
EMI_P94
EMI_P93
EMI_P92
EMI_P91
EMI_P90
EMI_P87
EMI_P86
EMI_P85
EMI_P84
EMI_P83
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EMI_P81
EMI_P80
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EMI_P75
EMI_P74
EMI_P73
EMI_P72
EMI_P71
EMI_P70
P67
P66
P65
P64
P63
P62
P61
P60
MII_MDINT_2
MII_MDINT_1
EMI_P54
MII_TX_EN
PHY_CLK
UART_P50
UART_P51
P00
P01
P02
P03
P04
P05
P06
P07
P10
P11
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P14
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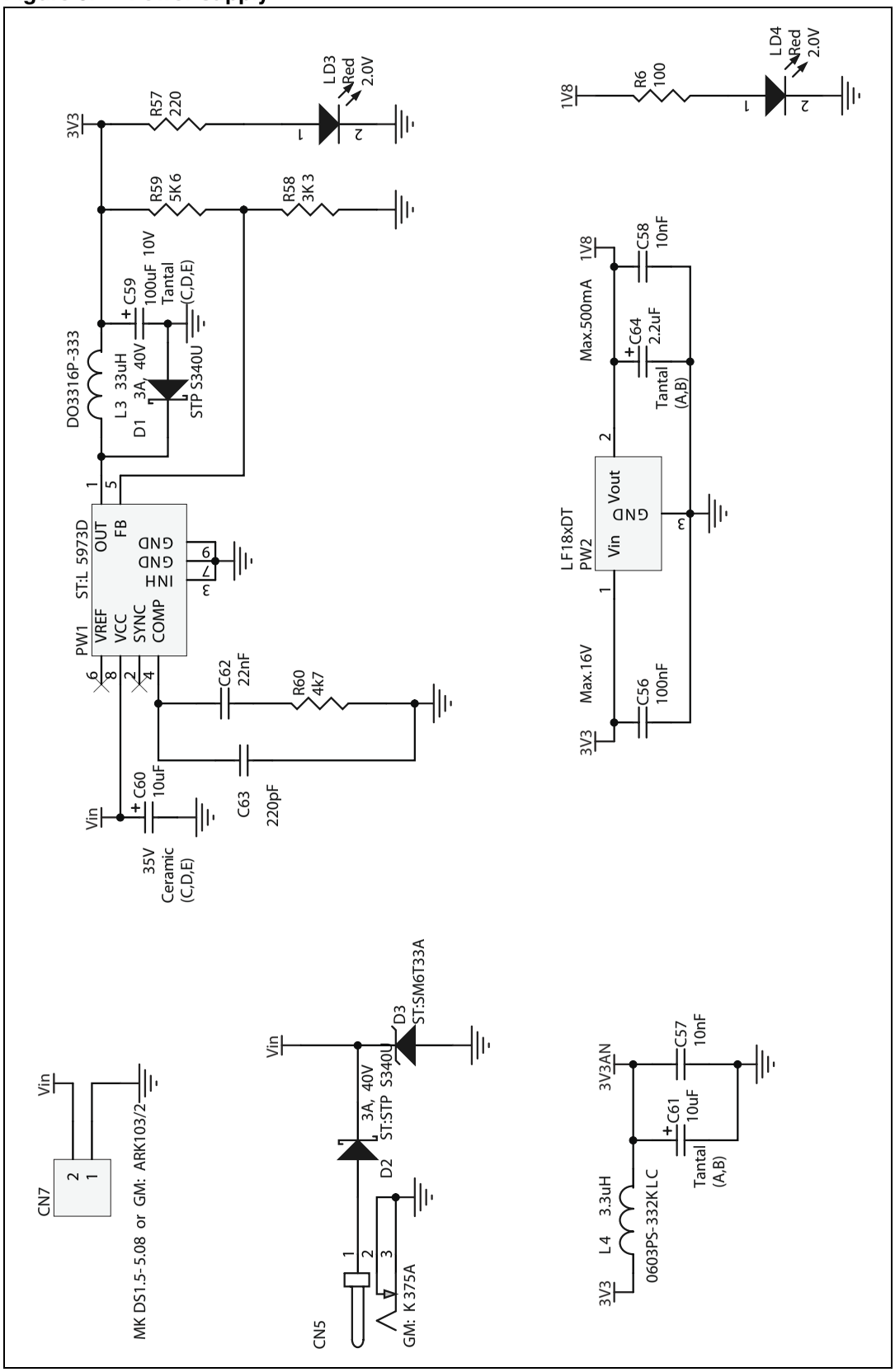
P80
P81
P82
P83
P84
P85
P86
P87
P90
P91
P92
P93
P94
P95
P96
P97
MCU_X1
MCU_X2
RESET_OUT
RESET_I_N
EMI_ALE
EMI_RD
EMI_WRH
EMI_WR/WRL

Figure 6. Power supply



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
01-Sep-2008	1	Initial release.

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