REVISION HISTORY

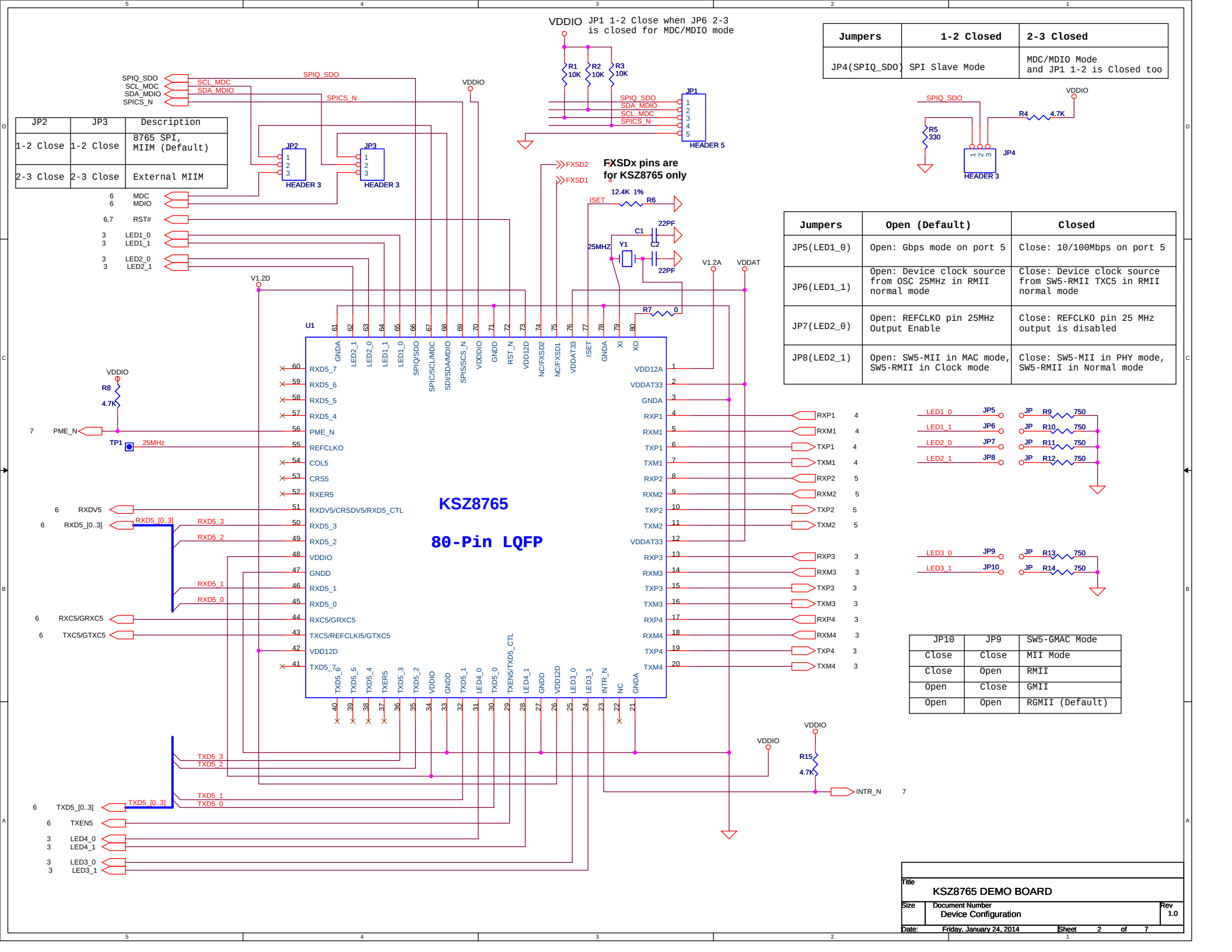
DATE:	DESCRIPTION	REVISION
Jaunary. 2014	Created	1.0

KSZ8765CLX Reference Desigjn Schematics

MICREL
KENDIN OPERATIONS

CONFIDENTIAL & PROPRIETARY

Title: KSZ8765 DEMO BOARD		
Size	Document Number: Revision History	Rev: 1.0
Date: Friday, January 24, 2014	Sheet 1 of 7	



JP2	JP3	Description
1-2 Close	1-2 Close	8765 SPI, MIIM (Default)
2-3 Close	2-3 Close	External MIIM

Jumpers	1-2 Closed	2-3 Closed
JP4(SPIQ_SDO)	SPI Slave Mode	MDC/MDIO Mode and JP1 1-2 is Closed too

Jumpers	Open (Default)	Closed
JP5(LED1_0)	Open: Gbps mode on port 5	Close: 10/100Mbps on port 5
JP6(LED1_1)	Open: Device clock source from OSC 25MHz in RMII normal mode	Close: Device clock source from SW5-RMII TXC5 in RMII normal mode
JP7(LED2_0)	Open: REFCLKO pin 25MHz Output Enable	Close: REFCLKO pin 25 MHz output is disabled
JP8(LED2_1)	Open: SW5-MII in MAC mode, SW5-RMII in Clock mode	Close: SW5-MII in PHY mode, SW5-RMII in Normal mode

JP10	JP9	SW5-GMAC Mode
Close	Close	MII Mode
Close	Open	RMII
Open	Close	GMII
Open	Open	RGMII (Default)

Title	KSZ8765 DEMO BOARD	
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Install for KSZ8765, Not install in copper mode for KSZ8795

STEWARD HI1206N101R-00

V3.3_FX

FB2 FBEAD

FB3 FBEAD

C15 0.1UF

C16 0.1UF

C17 4.7uF/6.3V

C18 0.1UF

VCCRX1

VCCTX1

PORT 1

TX

RX

N/C

1x9/SC/SIP

TOP VIEW

TX_GND
TD+
TD-
VCCTX
VCCRX
SD
RD-
RD+
RX_GND

U2 FIBER TRANSCEIVER
HFBR-5803Z (+3.3V)

Layout will support direct and 1x9 SIP Socket mounting for it

Compatible Fiber Transceivers

Agilent HFBR-5803 (+3.3V)

LUMINENT B-13/15-155-T3-SSC3 (+3.3V)

Place components in dotted box close to fiber transceiver

Refer to fiber transceiver's reference design for the actual values of these resistors

V3.3_FX

C19 0.1UF

R52 82

R53 82

R54 130

R55 130

TDP1
TDM1

SD1
RDM1
RDP1

R63 82

R64 82

R65 130

R66 130

C24 0.1UF

V3.3_FX

Install for KSZ8765, Not install in copper mode for KSZ8795

Install either capacitors or resistors

R57 0
C20 0.1UF
TXP1 2

R59 0
C21 0.1UF
TXM1 2

C22 0.1UF
R61 0
RXM1 2

C23 0.1UF
R67 0
RXP1 2

Install capacitos for KSZ8765 fiber. Install resistors for KSZ8795 copper.

R68 51
FXSD1 2

R69 130

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Title	KSZ8765 DEMO BOARD	
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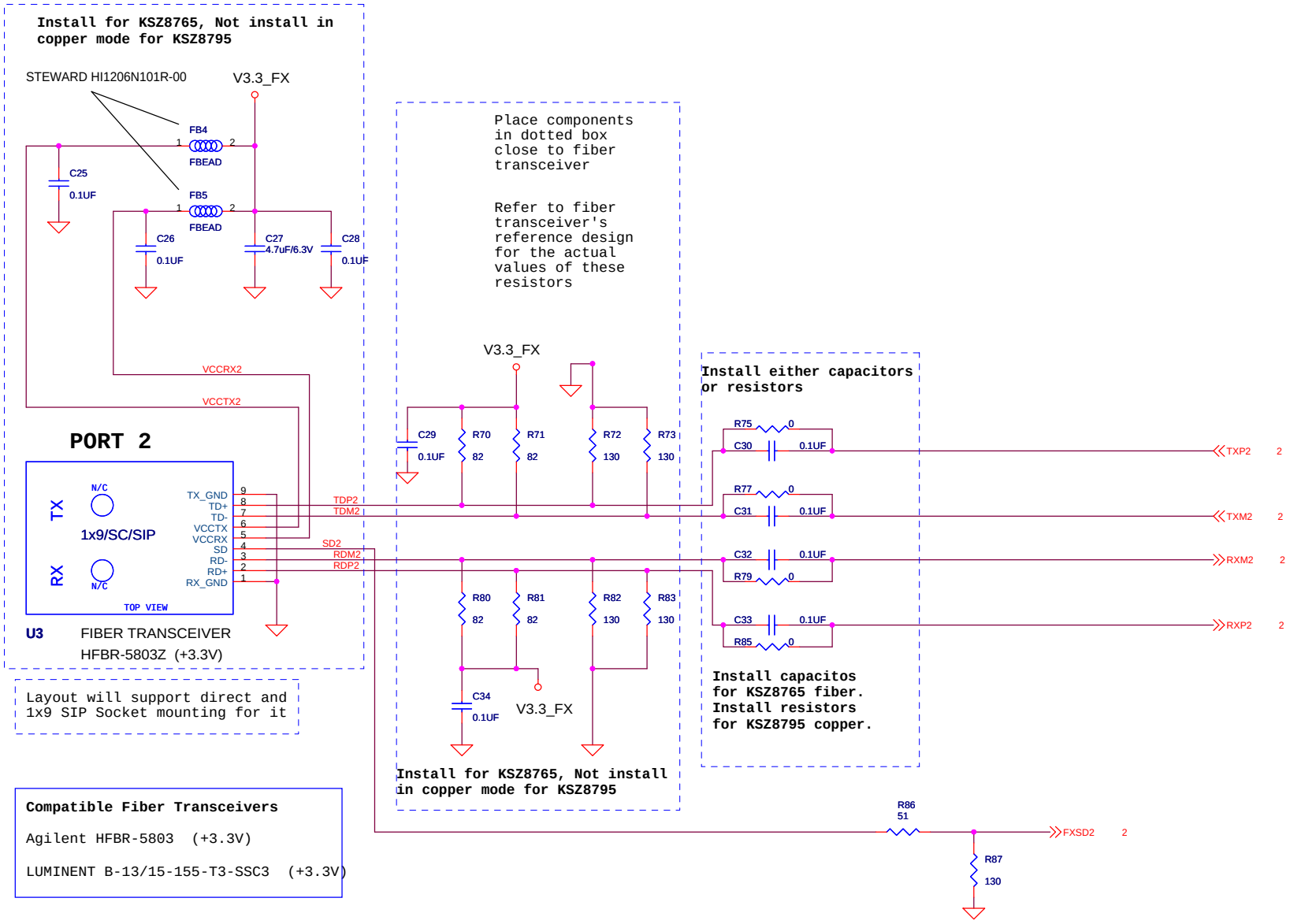

KENDIN OPERATIONS

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Title	KSZ8765 DEMO BOARD	
Size	Document Number: Port 2 Interface	Rev: 1.0
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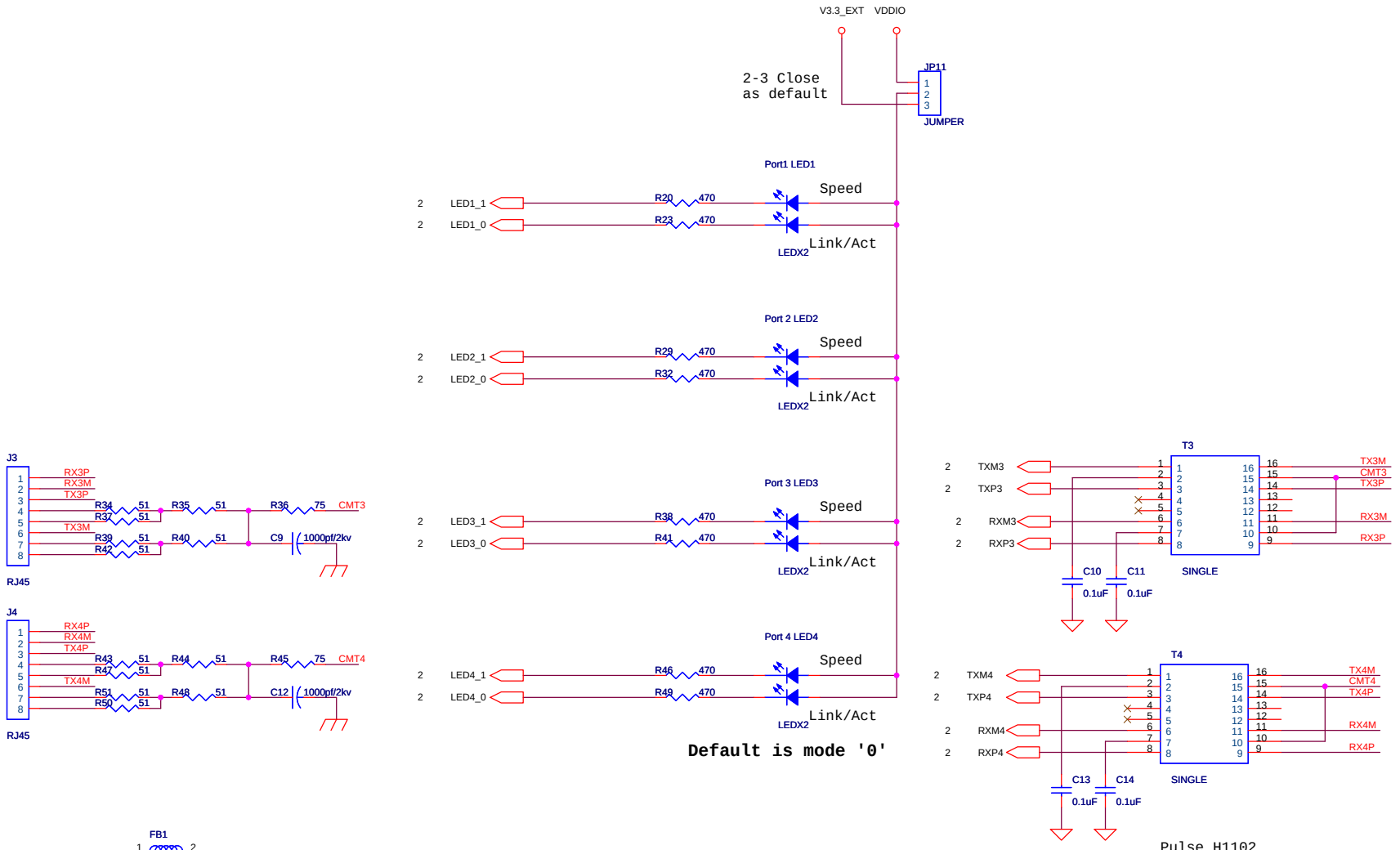

Title	KSZ8795/8765 EVAL DEMO BOARD	
Size	Document Number: Port 3/4 RJ45, Megnitics and LEDs	Rev: 1.1
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Strapping Pins for MODE Selection

MODE[3:0]	Description
0000	RGMII Mode
0001	Reserved
0010-0011	Reserved
0100	NAND Tree mode
0101-0110	Reserved
0111	Chip Power Down

MODE[3:0]	Description
1000	RGMII Mode & PMEN on LED1 pin
1001	Reserved
1010	RGMII Mode & INT_N on LED1 pin
1011	Reserved
1100	RGMII 1000/Full
1101	RGMII 1000/Full/Half
1110	RGMII 10/100/1000/Full
1111	RGMII 10/100/1000/Full/Half

Close these jumpers below for KSZ9031 power (default).
Open these jumpers below for the measurement of the KSZ8795/65 power current

Place GND hole on solder side, Center and connect to Paddle Ground of device.

KSZ9031RNX
48-Pin QFN
(7x7mm)
P-GND

Place close to 9031 chip

Traces of TX group and RX group should be Equal length individually between KSZ9031 to KSZ8795/8765 device

Place these 22ohm resistors close to pins of the KSZ8795/8765 chip

Port 5 Giga Port

RJ45 Belfuse
SS-6488S-A-FLS-50

Dialight 598-8610-207F / 1210 SMD

Tri-color Dual LED Mode

Pins [LED2, LED1]	Description	Dual LED Color
[0, 1] [toggling, 1]	Solid Color : 1G Link Blinking : Activity (RX, TX)	Green
[1, 0] [1, toggling]	Solid Color : 100M Link Blinking : Activity (RX, TX)	Red
[0, 0] [toggling, toggling]	Solid Color : 10M Link Blinking : Activity (RX, TX)	Orange
[1, 1]	Link off	None

PHY address bits [4:3] are always set to "00"

Strapping PHY Address PHYAD[2-0] = 7 (111) for Port 5

Title	KSZ8765 DEMO BOARD
Size	C
Document Number	Port 5 to GPHY KSZ9031
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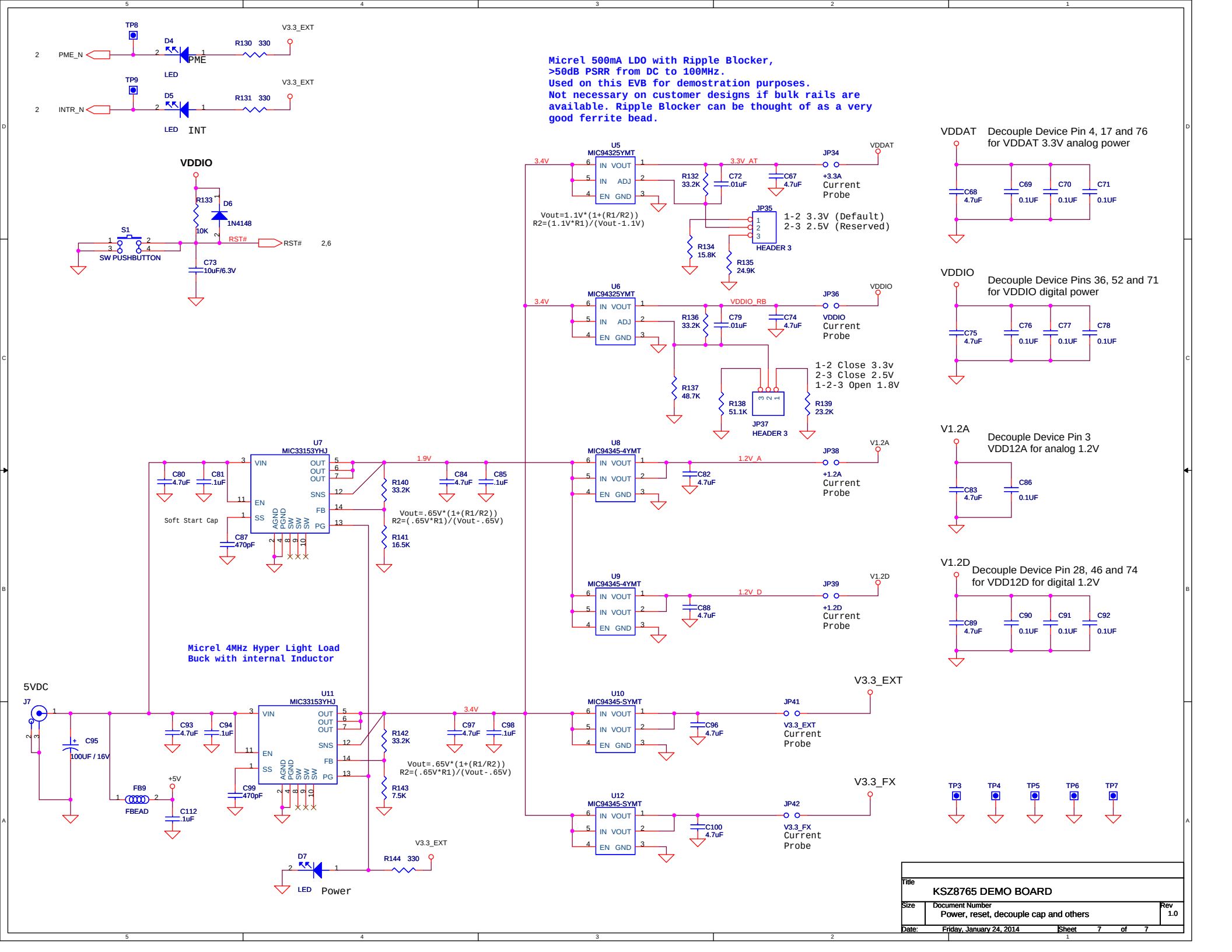
TP8
V3.3_EXT
D4
R130 330
PME_N
PME
LED
TP9
V3.3_EXT
D5
R131 330
INTR_N
LED
INT
VDDIO
R133
D6
1N4148
10K
S1
RST#
RST#
2,6
SW PUSHBUTTON
C73
10uF/6.3V
Micrel 500mA LDO with Ripple Blocker,
>50dB PSRR from DC to 100MHz.
Used on this EVB for demostration purposes.
Not necessary on customer designs if bulk rails are
available. Ripple Blocker can be thought of as a very
good ferrite bead.
U5
MIC94325YMT
3.4V
IN VOUT
IN ADJ
EN GND
3.3V_AT
R132
33.2K
C72
.01uF
C67
4.7uF
JP34
VDDAT
+3.3A
Current
Probe
Vout=1.1V*(1+(R1/R2))
R2=(1.1V*R1)/(Vout-1.1V)
JP35
1-2 3.3V (Default)
2-3 2.5V (Reserved)
HEADER 3
R134
15.8K
R135
24.9K
U6
MIC94325YMT
3.4V
VDDIO_RB
R136
33.2K
C79
.01uF
C74
4.7uF
JP36
VDDIO
VDDIO
Current
Probe
1-2 Close 3.3v
2-3 Close 2.5V
1-2-3 Open 1.8V
R137
48.7K
R138
51.1K
JP37
HEADER 3
R139
23.2K
U7
MIC33153YHJ
VIN
OUT
SNS
FB
EN
SS
PG
AGND
PGND
SW
C80
4.7uF
C81
.1uF
Soft Start Cap
C87
470pF
1.9V
R140
33.2K
R141
16.5K
Vout=.65V*(1+(R1/R2))
R2=(.65V*R1)/(Vout-.65V)
C84
4.7uF
C85
.1uF
U8
MIC94345-4YMT
IN VOUT
EN GND
1.2V_A
C82
4.7uF
JP38
V1.2A
+1.2A
Current
Probe
U9
MIC94345-4YMT
1.2V_D
C88
4.7uF
JP39
V1.2D
+1.2D
Current
Probe
Micrel 4MHz Hyper Light Load
Buck with internal Inductor
5VDC
J7
C95
100UF / 16V
FB9
FBEAD
+5V
C112
.1uF
U11
MIC33153YHJ
C93
4.7uF
C94
.1uF
C99
470pF
R142
33.2K
R143
7.5K
Vout=.65V*(1+(R1/R2))
R2=(.65V*R1)/(Vout-.65V)
3.4V
C97
4.7uF
C98
.1uF
U10
MIC94345-SYMT
C96
4.7uF
JP41
V3.3_EXT
V3.3_EXT
Current
Probe
U12
MIC94345-SYMT
C100
4.7uF
JP42
V3.3_FX
V3.3_FX
Current
Probe
V3.3_EXT
D7
R144 330
LED
Power
VDDAT
Decouple Device Pin 4, 17 and 76
for VDDAT 3.3V analog power
C68
4.7uF
C69
0.1UF
C70
0.1UF
C71
0.1UF
VDDIO
Decouple Device Pins 36, 52 and 71
for VDDIO digital power
C75
4.7uF
C76
0.1UF
C77
0.1UF
C78
0.1UF
V1.2A
Decouple Device Pin 3
VDD12A for analog 1.2V
C83
4.7uF
C86
0.1UF
V1.2D
Decouple Device Pin 28, 46 and 74
for VDD12D for digital 1.2V
C89
4.7uF
C90
0.1UF
C91
0.1UF
C92
0.1UF
TP3
TP4
TP5
TP6
TP7
Title
KSZ8765 DEMO BOARD
Size
Document Number
Power, reset, decouple cap and others
Rev
1.0
Date:
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