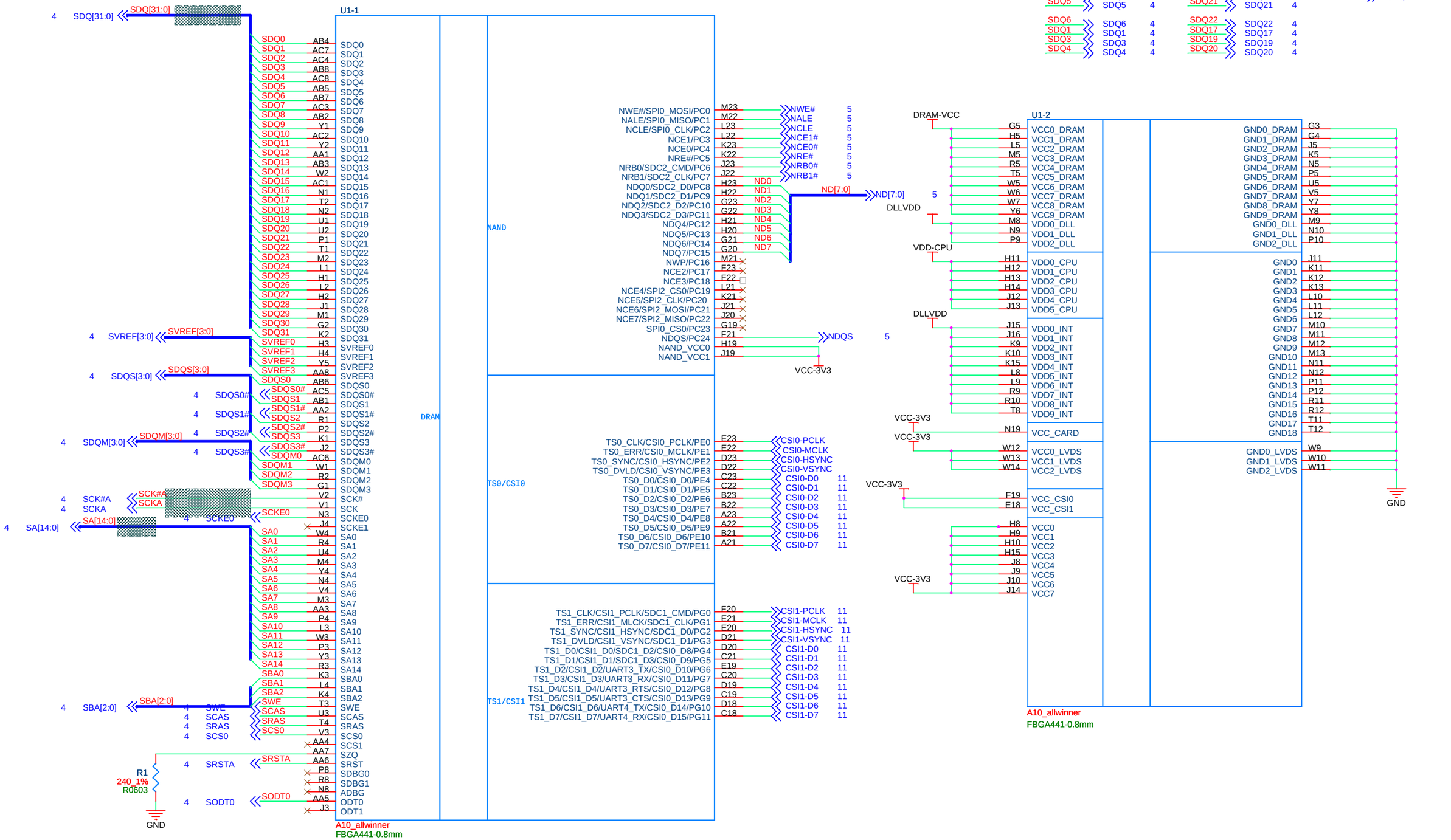

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Size: A3	Document Number: <Doc>
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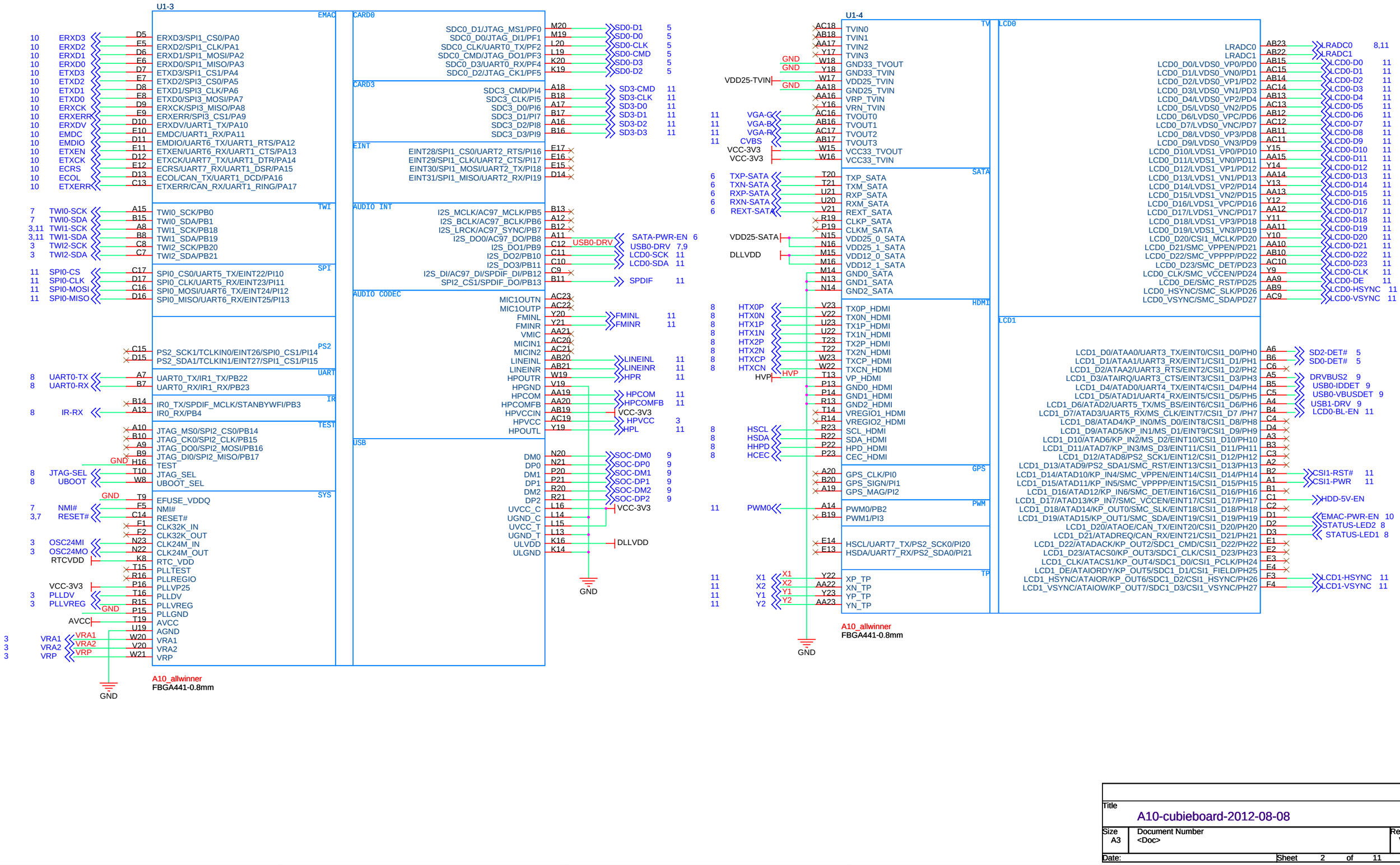
Date:	Sheet 1 of 11


U1-3
EMAC
ERXD3/SPI1_CS0/PA0
ERXD2/SPI1_CLK/PA1
ERXD1/SPI1_MOSI/PA2
ERXD0/SPI1_MISO/PA3
ETXD3/SPI1_CS1/PA4
ETXD2/SPI3_CS0/PA5
ETXD1/SPI3_CLK/PA6
ETXD0/SPI3_MOSI/PA7
ERXCK/SPI3_MISO/PA8
ERXERR/SPI3_CS1/PA9
ERXDV/UART1_TX/PA10
EMDC/UART1_RX/PA11
EMDIO/UART6_TX/UART1_RTS/PA12
ETXEN/UART6_RX/UART1_CTS/PA13
ETXCK/UART7_TX/UART1_DTR/PA14
ECRS/UART7_RX/UART1_DSR/PA15
ECOL/CAN_TX/UART1_DCD/PA16
ETXERR/CAN_RX/UART1_RING/PA17
TWI
TWI0_SCK/PB0
TWI0_SDA/PB1
TWI1_SCK/PB18
TWI1_SDA/PB19
TWI2_SCK/PB20
TWI2_SDA/PB21
SPI
SPI0_CS0/UART5_TX/EINT22/PI10
SPI0_CLK/UART5_RX/EINT23/PI11
SPI0_MOSI/UART6_TX/EINT24/PI12
SPI0_MISO/UART6_RX/EINT25/PI13
PS2
PS2_SCK1/TCLKIN0/EINT26/SPI0_CS1/PI14
PS2_SDA1/TCLKIN1/EINT27/SPI1_CS1/PI15
UART
UART0_TX/IR1_TX/PB22
UART0_RX/IR1_RX/PB23
IR
IR0_TX/SPDIF_MCLK/STANBYWFI/PB3
IR0_RX/PB4
TEST
JTAG_MS0/SPI2_CS0/PB14
JTAG_CK0/SPI2_CLK/PB15
JTAG_DO0/SPI2_MOSI/PB16
JTAG_DI0/SPI2_MISO/PB17
TEST
JTAG_SEL
UBOOT_SEL
SYS
EFUSE_VDDQ
NMI#
RESET#
CLK32K_IN
CLK32K_OUT
CLK24M_IN
CLK24M_OUT
RTC_VDD
PLLTEST
PLLREGIO
PLLVP25
PLLDV
PLLVREG
PLLGND
AVCC
AGND
VRA1
VRA2
VRP
CARD0
SDC0_D1/JTAG_MS1/PF0
SDC0_D0/JTAG_DI1/PF1
SDC0_CLK/UART0_TX/PF2
SDC0_CMD/JTAG_DO1/PF3
SDC0_D3/UART0_RX/PF4
SDC0_D2/JTAG_CK1/PF5
CARD3
SDC3_CMD/PI4
SDC3_CLK/PI5
SDC3_D0/PI6
SDC3_D1/PI7
SDC3_D2/PI8
SDC3_D3/PI9
EINT
EINT28/SPI1_CS0/UART2_RTS/PI16
EINT29/SPI1_CLK/UART2_CTS/PI17
EINT30/SPI1_MOSI/UART2_TX/PI18
EINT31/SPI1_MISO/UART2_RX/PI19
AUDIO INT
I2S_MCLK/AC97_MCLK/PB5
I2S_BCLK/AC97_BCLK/PB6
I2S_LRCK/AC97_SYNC/PB7
I2S_DO0/AC97_DO/PB8
I2S_DO1/PB9
I2S_DO2/PB10
I2S_DO3/PB11
I2S_DI/AC97_DI/SPDIF_DI/PB12
SPI2_CS1/SPDIF_DO/PB13
AUDIO CODEC
MIC1OUTN
MIC1OUTP
FMINL
FMINR
VMIC
MICIN1
MICIN2
LINEINL
LINEINR
HPOUTR
HPGND
HPCOM
HPCOMFB
HPVCCIN
HPVCC
HPOUTL
USB
DM0
DP0
DM1
DP1
DM2
DP2
UVCC_C
UGND_C
UVCC_T
UGND_T
ULVDD
ULGND
U1-4
TV
TVIN0
TVIN1
TVIN2
TVIN3
GND33_TVOUT
GND33_TVIN
VDD25_TVIN
GND25_TVIN
VRP_TVIN
VRN_TVIN
TVOUT0
TVOUT1
TVOUT2
TVOUT3
VCC33_TVOUT
VCC33_TVIN
SATA
TXP_SATA
TXM_SATA
RXP_SATA
RXM_SATA
REXT_SATA
CLKP_SATA
CLKM_SATA
VDD25_0_SATA
VDD25_1_SATA
VDD12_0_SATA
VDD12_1_SATA
GND0_SATA
GND1_SATA
GND2_SATA
HDMI
TX0P_HDMI
TX0N_HDMI
TX1P_HDMI
TX1N_HDMI
TX2P_HDMI
TX2N_HDMI
TXCP_HDMI
TXCN_HDMI
VP_HDMI
GND0_HDMI
GND1_HDMI
GND2_HDMI
VREGIO1_HDMI
VREGIO2_HDMI
SCL_HDMI
SDA_HDMI
HPD_HDMI
CEC_HDMI
GPS
GPS_CLK/PI0
GPS_SIGN/PI1
GPS_MAG/PI2
PWM
PWM0/PB2
PWM1/PI3
HSCL/UART7_TX/PS2_SCK0/PI20
HSDA/UART7_RX/PS2_SDA0/PI21
TP
XP_TP
XN_TP
YP_TP
YN_TP
LCD0
LRADC0
LRADC1
LCD0_D0/LVDS0_VP0/PD0
LCD0_D1/LVDS0_VN0/PD1
LCD0_D2/LVDS0_VP1/PD2
LCD0_D3/LVDS0_VN1/PD3
LCD0_D4/LVDS0_VP2/PD4
LCD0_D5/LVDS0_VN2/PD5
LCD0_D6/LVDS0_VPC/PD6
LCD0_D7/LVDS0_VNC/PD7
LCD0_D8/LVDS0_VP3/PD8
LCD0_D9/LVDS0_VN3/PD9
LCD0_D10/LVDS1_VP0/PD10
LCD0_D11/LVDS1_VN0/PD11
LCD0_D12/LVDS1_VP1/PD12
LCD0_D13/LVDS1_VN1/PD13
LCD0_D14/LVDS1_VP2/PD14
LCD0_D15/LVDS1_VN2/PD15
LCD0_D16/LVDS1_VPC/PD16
LCD0_D17/LVDS1_VNC/PD17
LCD0_D18/LVDS1_VP3/PD18
LCD0_D19/LVDS1_VN3/PD19
LCD0_D20/CSI1_MCLK/PD20
LCD0_D21/SMC_VPPEN/PD21
LCD0_D22/SMC_VPPPP/PD22
LCD0_D23/SMC_DET/PD23
LCD0_CLK/SMC_VCCEN/PD24
LCD0_DE/SMC_RST/PD25
LCD0_HSYNC/SMC_SLK/PD26
LCD0_VSYNC/SMC_SDA/PD27
LCD1
LCD1_D0/ATAA0/UART3_TX/EINT0/CSI1_D0/PH0
LCD1_D1/ATAA1/UART3_RX/EINT1/CSI1_D1/PH1
LCD1_D2/ATAA2/UART3_RTS/EINT2/CSI1_D2/PH2
LCD1_D3/ATAIRQ/UART3_CTS/EINT3/CSI1_D3/PH3
LCD1_D4/ATAD0/UART4_TX/EINT4/CSI1_D4/PH4
LCD1_D5/ATAD1/UART4_RX/EINT5/CSI1_D5/PH5
LCD1_D6/ATAD2/UART5_TX/MS_BS/EINT6/CSI1_D6/PH6
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LCD1_D21/ATADREQ/CAN_RX/EINT21/CSI1_D21/PH21
LCD1_D22/ATADACK/KP_OUT2/SDC1_CMD/CSI1_D22/PH22
LCD1_D23/ATACS0/KP_OUT3/SDC1_CLK/CSI1_D23/PH23
LCD1_CLK/ATACS1/KP_OUT4/SDC1_D0/CSI1_PCLK/PH24
LCD1_DE/ATAIORDY/KP_OUT5/SDC1_D1/CSI1_FIELD/PH25
LCD1_HSYNC/ATAIOR/KP_OUT6/SDC1_D2/CSI1_HSYNC/PH26
LCD1_VSYNC/ATAIOW/KP_OUT7/SDC1_D3/CSI1_VSYNC/PH27
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FBGA441-0.8mm
GND
VCC-3V3
Title
A10-cubieboard-2012-08-08
Size
A3
Document Number
<Doc>
Rev
V1.0
Date:
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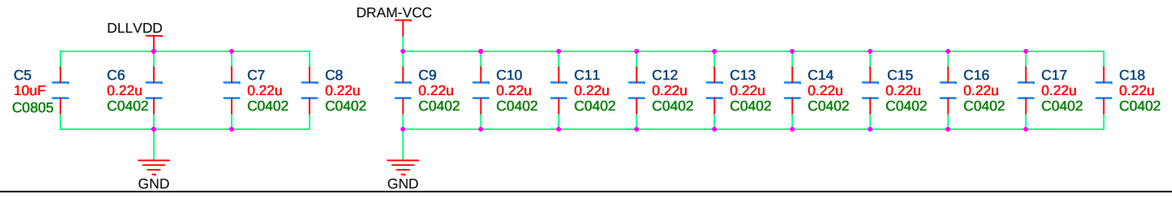
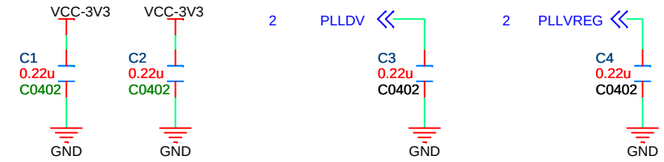
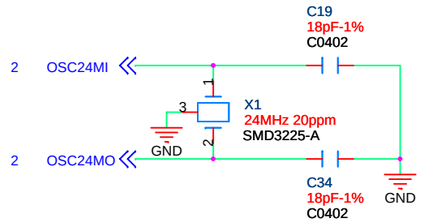
DRAM-DLL



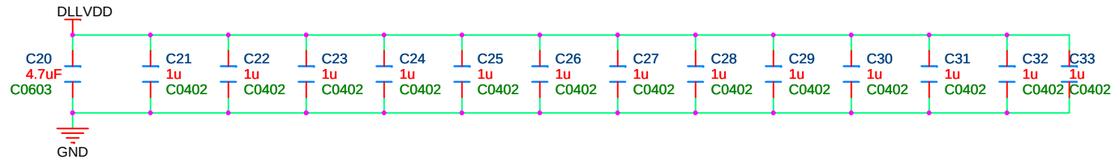
PLL-NAND



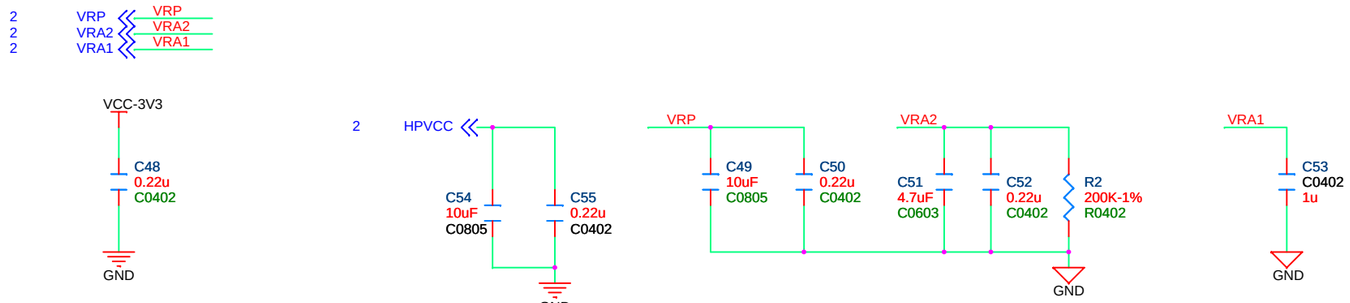
CRYSTAL



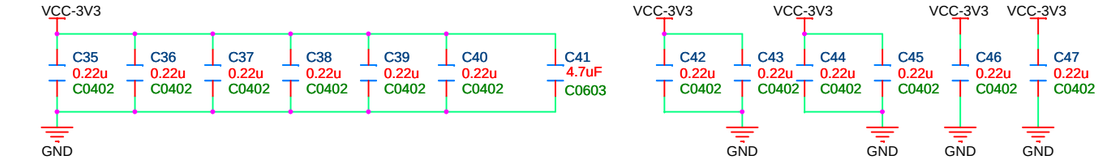
CORE



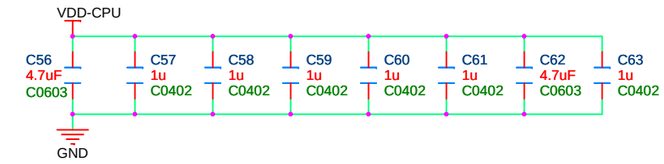
AUDIO-LRADC



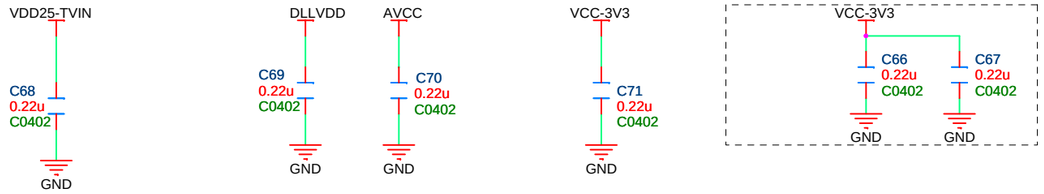
PIO-INTFACE



CPU

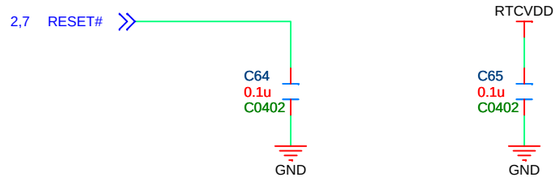


USB-TV-CSI

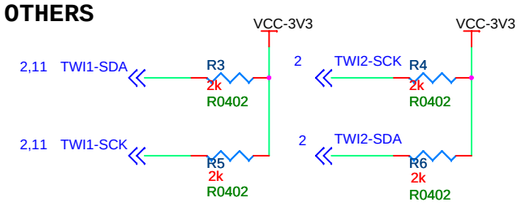


RESET-RTC

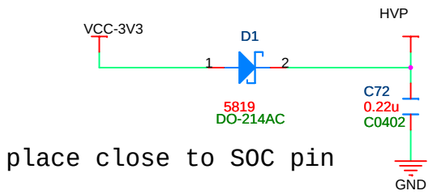
OPTIONAL



OTHERS



HDMI



place close to SOC pin

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DDR3

DRAM-VCC
R7 2K_1% R0402
SDQ[31:0]
SA[14:0]
SRSTA
R8 0R R0402
DSRSTA
SODT0 DSODT0

U2

SA0 SA1 SA2 SA3 SA4 SA5 SA6 SA7 SA8 SA9 SA10 SA11 SA12 SA13 SA14
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15
SBA0 SBA1 SBA2
BA0 BA1 BA2
SWE SRAS SCAS SCS0 SCKE0
WE RAS# CAS# CS# CKE
DRAM-REF DRAM-REF DSODT0
VREFCA VREFDQ ODT
DRAM-VCC
VDDQ#1 VDDQ#2 VDDQ#3 VDDQ#4 VDDQ#5 VDDQ#6 VDDQ#7 VDDQ#8 VDDQ#9
VDD#1 VDD#2 VDD#3 VDD#4 VDD#5 VDD#6 VDD#7 VDD#8 VDD#9
VSSQ#1 VSSQ#2 VSSQ#3 VSSQ#4 VSSQ#5 VSSQ#6 VSSQ#7 VSSQ#8 VSSQ#9
VSS#1 VSS#2 VSS#3 VSS#4 VSS#5 VSS#6 VSS#7 VSS#8 VSS#9 VSS#10 VSS#11 VSS#12
GT8UB256M8BN/GT8UB128M16BP
FBGA96

DQL0 DQL1 DQL2 DQL3 DQL4 DQL5 DQL6 DQL7 DQU0 DQU1 DQU2 DQU3 DQU4 DQU5 DQU6 DQU7
SDQ0 SDQ1 SDQ2 SDQ3 SDQ4 SDQ5 SDQ6 SDQ7 SDQ8 SDQ9 SDQ10 SDQ11 SDQ12 SDQ13 SDQ14 SDQ15
CK CK# DQSL DQSL# DQSU DQSU# DML DMU
DSCKA DSCK#A SDQS0 SDQS0# SDQS1 SDQS1# SDQM0 SDQM1
NC#1 NC#2 NC#3 NC#4
ZQ RESET
R9 240_1% R0603
DSRSTA
GND

SDQS[3:0] SDQM[3:0]
SVREF0 SVREF1 SVREF2 SVREF3
CPU-REF
SVREF[3:0]

R12 2K_1% R0402 C73 0.22u C0402
R15 2K_1% R0402 C75 0.22u C0402
DRAM-REF
R13 2K_1% R0402 C74 0.22u C0402
R16 2K_1% R0402 C76 0.22u C0402
SVREF0
GND

DSCKA DSCK#A
R11 R14 R0402 22R
SCKA SCK#A
SCK#A

U3

SA0 SA1 SA2 SA3 SA4 SA5 SA6 SA7 SA8 SA9 SA10 SA11 SA12 SA13 SA14
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15
SBA0 SBA1 SBA2
BA0 BA1 BA2
SWE SRAS SCAS SCS0 SCKE0
WE RAS# CAS# CS# CKE
DRAM-REF DRAM-REF DSODT0
VREFCA VREFDQ ODT
DRAM-VCC
VDDQ#1 VDDQ#2 VDDQ#3 VDDQ#4 VDDQ#5 VDDQ#6 VDDQ#7 VDDQ#8 VDDQ#9
VDD#1 VDD#2 VDD#3 VDD#4 VDD#5 VDD#6 VDD#7 VDD#8 VDD#9
VSSQ#1 VSSQ#2 VSSQ#3 VSSQ#4 VSSQ#5 VSSQ#6 VSSQ#7 VSSQ#8 VSSQ#9
VSS#1 VSS#2 VSS#3 VSS#4 VSS#5 VSS#6 VSS#7 VSS#8 VSS#9 VSS#10 VSS#11 VSS#12
GT8UB256M8BN/GT8UB128M16BP
FBGA96

DQL0 DQL1 DQL2 DQL3 DQL4 DQL5 DQL6 DQL7 DQU0 DQU1 DQU2 DQU3 DQU4 DQU5 DQU6 DQU7
SDQ16 SDQ17 SDQ18 SDQ19 SDQ20 SDQ21 SDQ22 SDQ23 SDQ24 SDQ25 SDQ26 SDQ27 SDQ28 SDQ29 SDQ30 SDQ31
CK CK# DQSL DQSL# DQSU DQSU# DML DMU
DSCKA DSCK#A SDQS2 SDQS2# SDQS3 SDQS3# SDQM2 SDQM3
NC#1 NC#2 NC#3 NC#4
ZQ RESET
N24465119A
R10 240_1% R0603
DSRSTA
GND

SDQS[3:0] SDQM[3:0]

Differential pairs
Z0= 100 ohm

Equilong BUS
Z0= 50 ohm

SDQ14 SDQ9 SDQ11 SDQ12 SDQ15 SDQ8 SDQ10 SDQ13 SDQ7 SDQ0 SDQ2 SDQ5 SDQ6 SDQ1 SDQ3 SDQ4
SDQ30 SDQ25 SDQ27 SDQ28 SDQ31 SDQ24 SDQ26 SDQ29 SDQ23 SDQ16 SDQ18 SDQ21 SDQ22 SDQ17 SDQ19 SDQ20
SDQS2 SDQS2# SDQS3 SDQS3# SDQM2 SDQM3 SDQS0 SDQS0# SDQS1 SDQS1# SDQM0 SDQM1

DRAM-VCC
C77 C78 C79 C80 C81 C82 C83 C84 C85 C86 C87 C88 C89 C90 C91 C92
0.22u
C0402
GND

DRAM-VCC
C93 C94 C95 C96 C97 C98
0.22u
C0402
GND

DRAM-VCC
C99 C100 C101 C102
0.22u
C0402
GND

DQ0-7、DQM0、DQS0 Length matching 100mil
DQ8-15、DQM1、DQS1 Length matching 100mil
DQ16-23、DQM2、DQS2 Length matching 100mil
DQ24-31、DQM3、DQS3 Length matching 100mil
DA、CONTROL、CK Length matching 300mil
DQSn、DQSn# Differential pairs Z0= 100 ohm, Length matching 10mil
CK、CK# Differential pairs Z0= 100 ohm, Length matching 10mil

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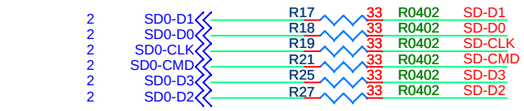
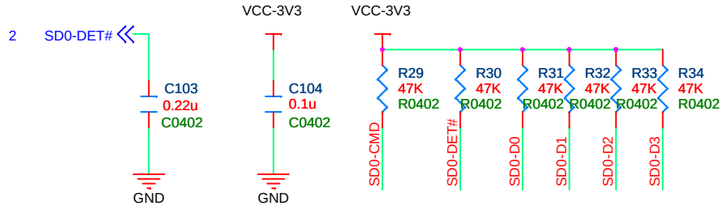
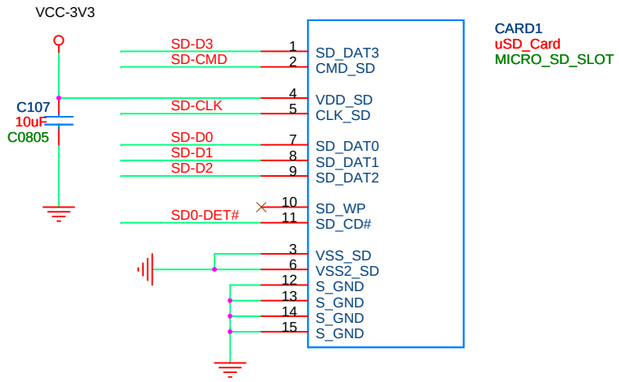
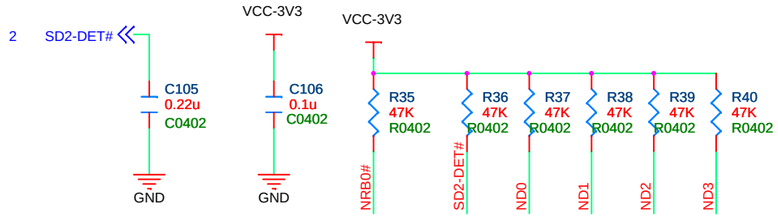
CARD0

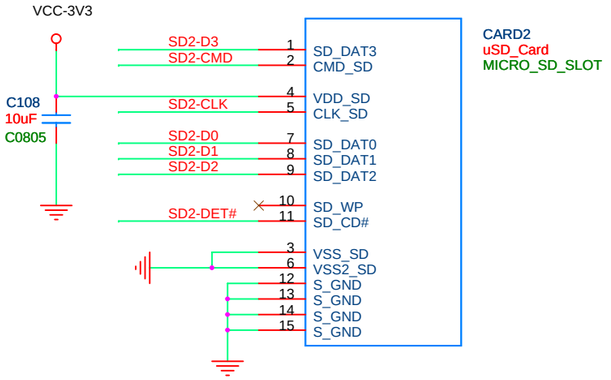




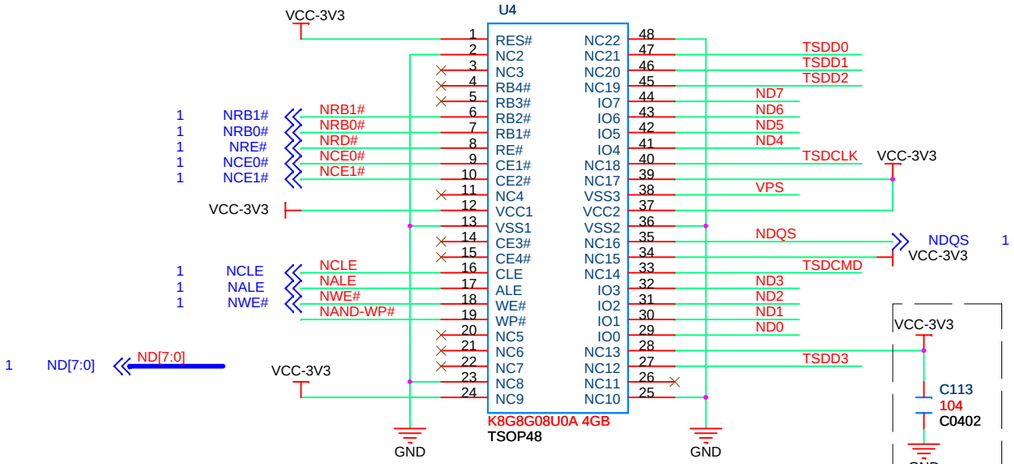


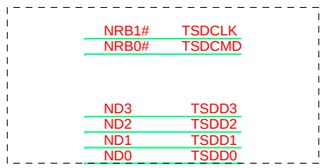
CARD2 (option with NAND flash)

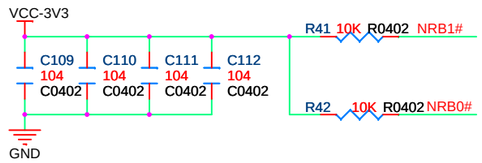


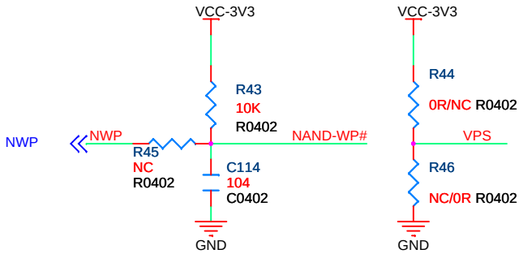


NAND flash









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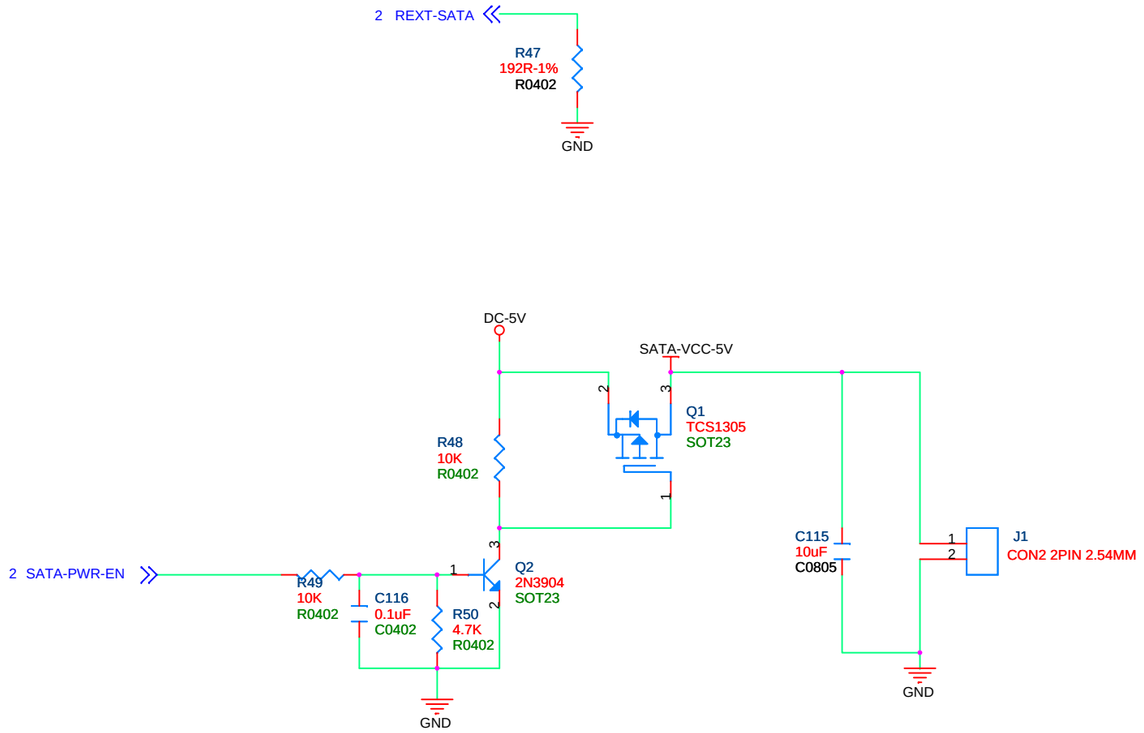

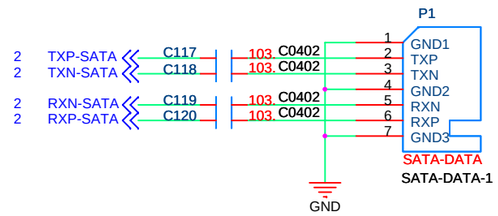

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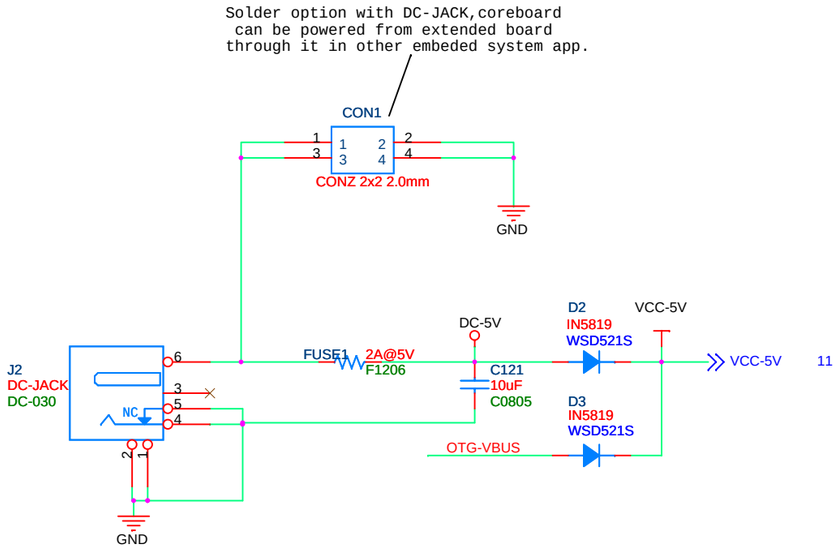
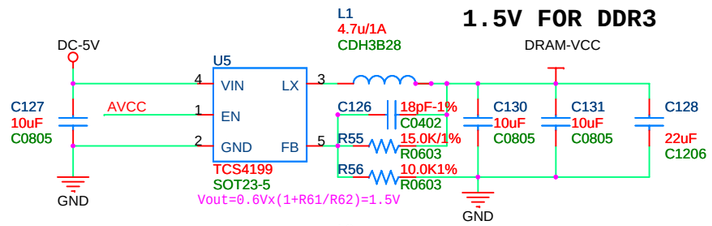
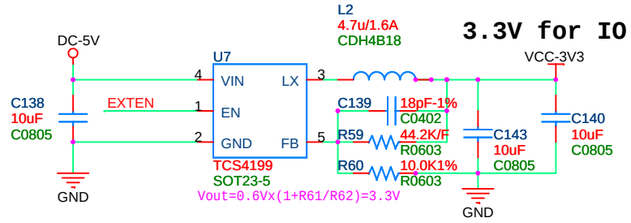
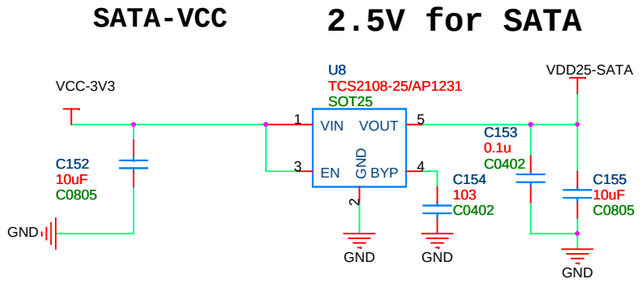
DC-IN & DC-DC









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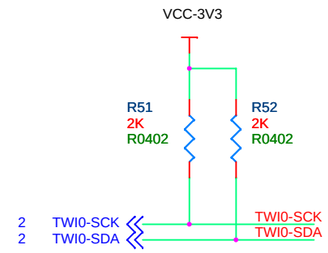

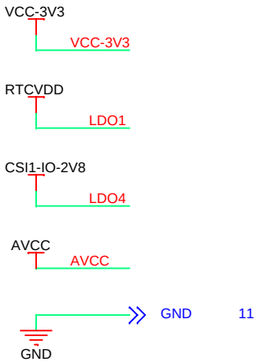

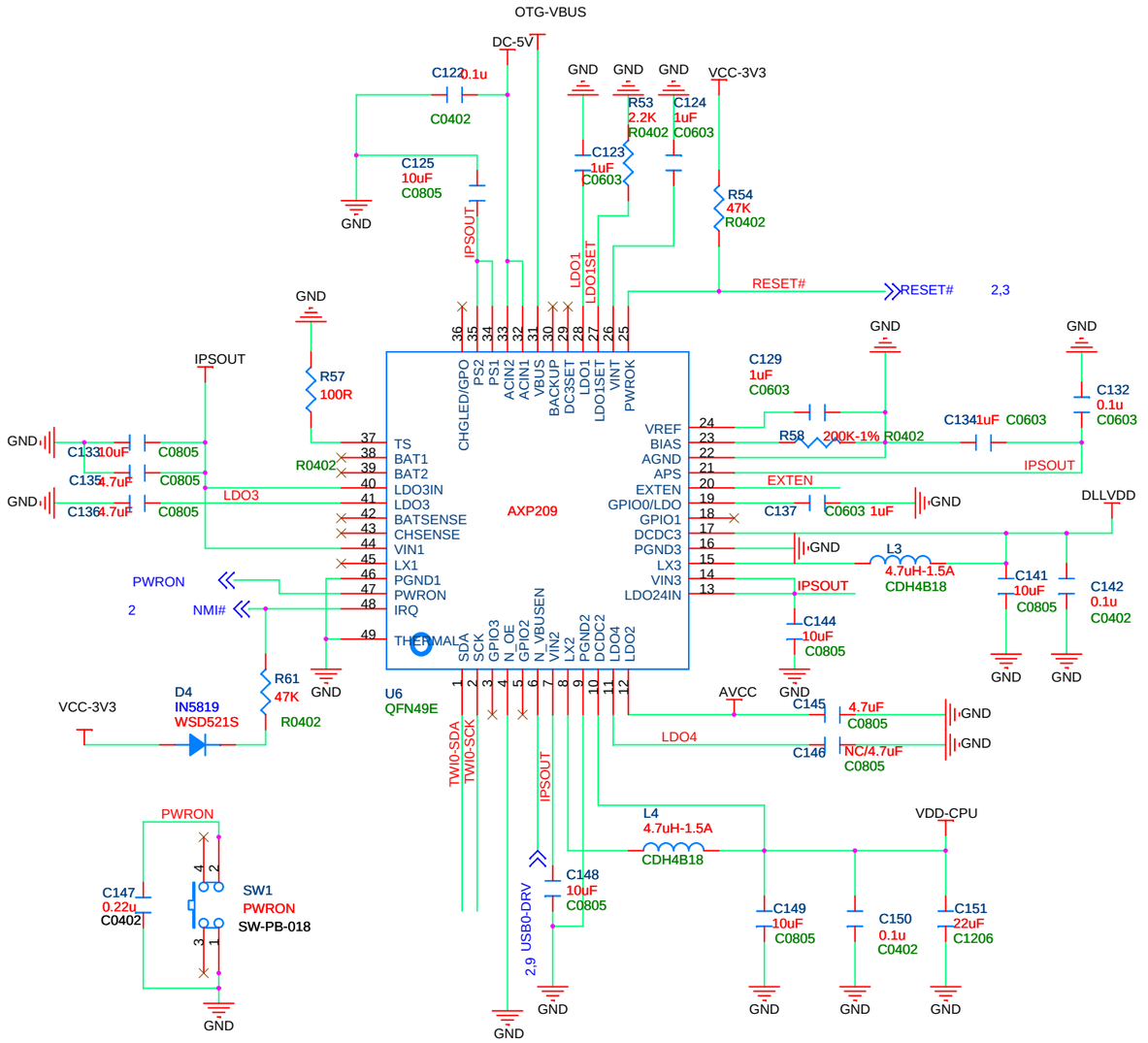

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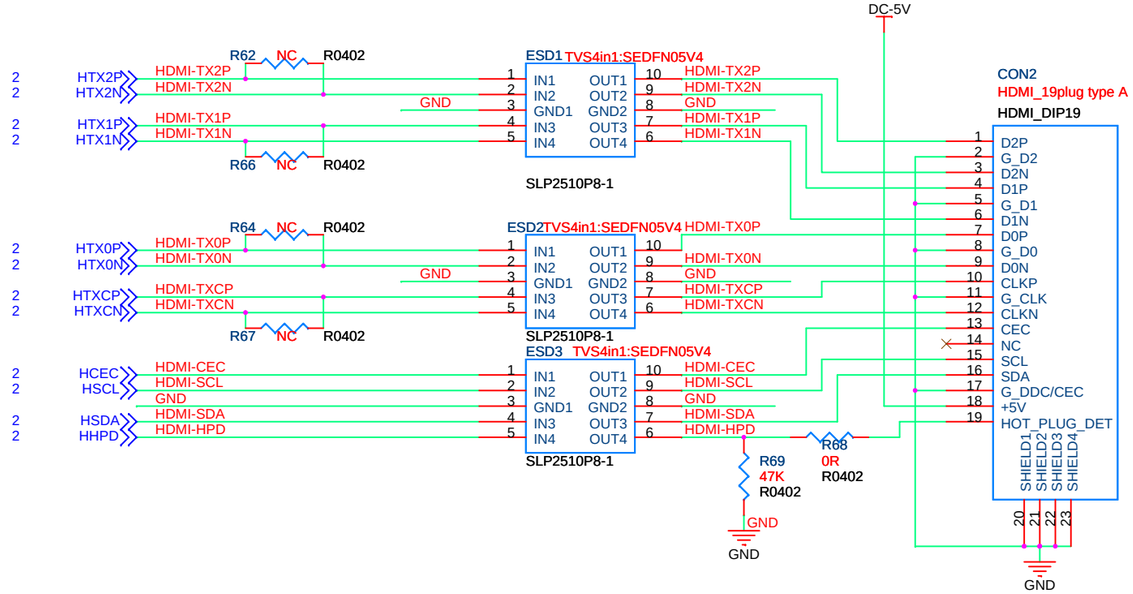
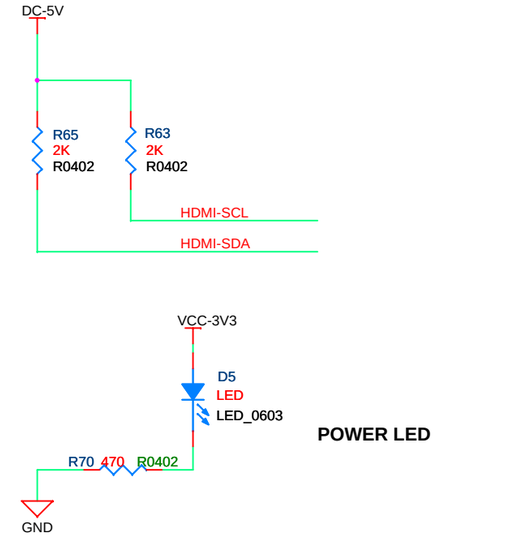
HDMI



LEDs



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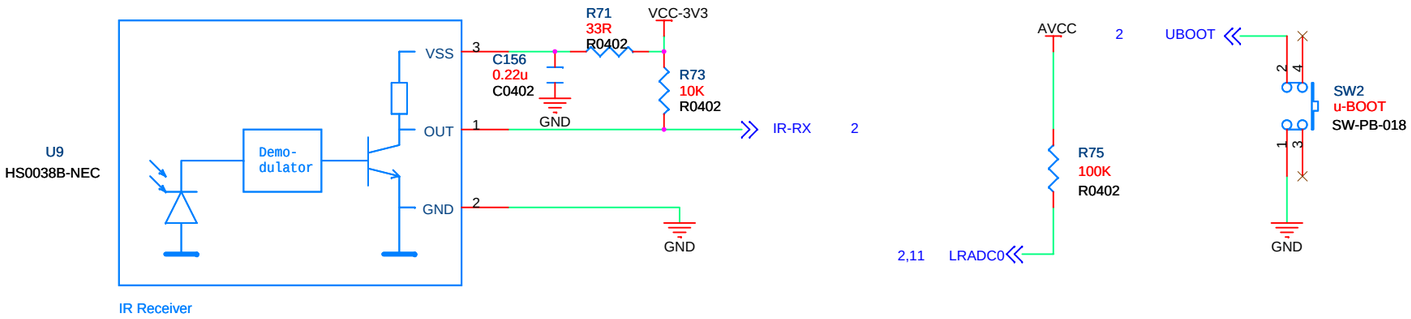

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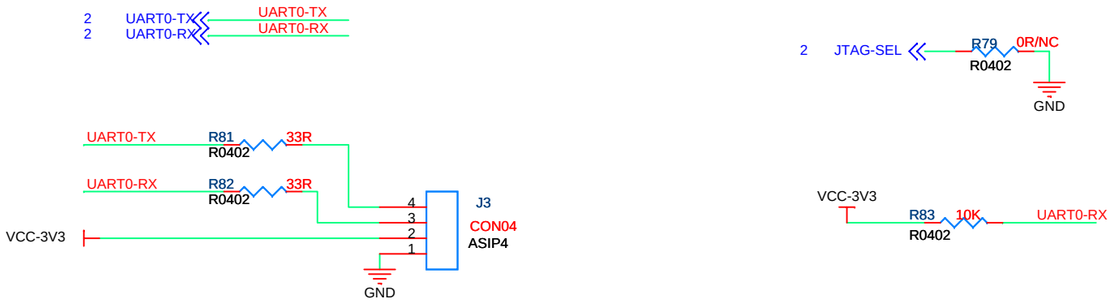

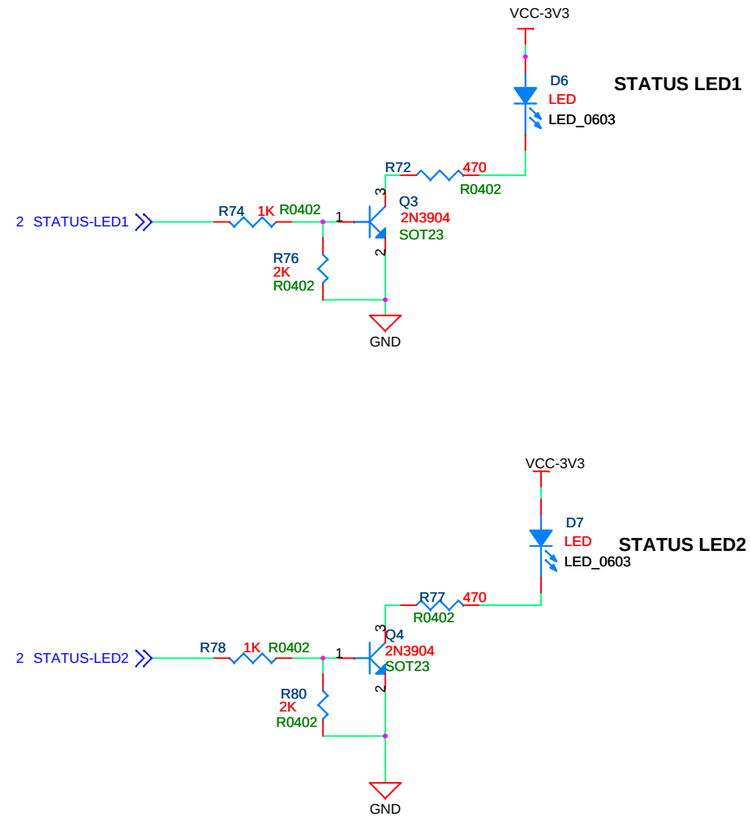

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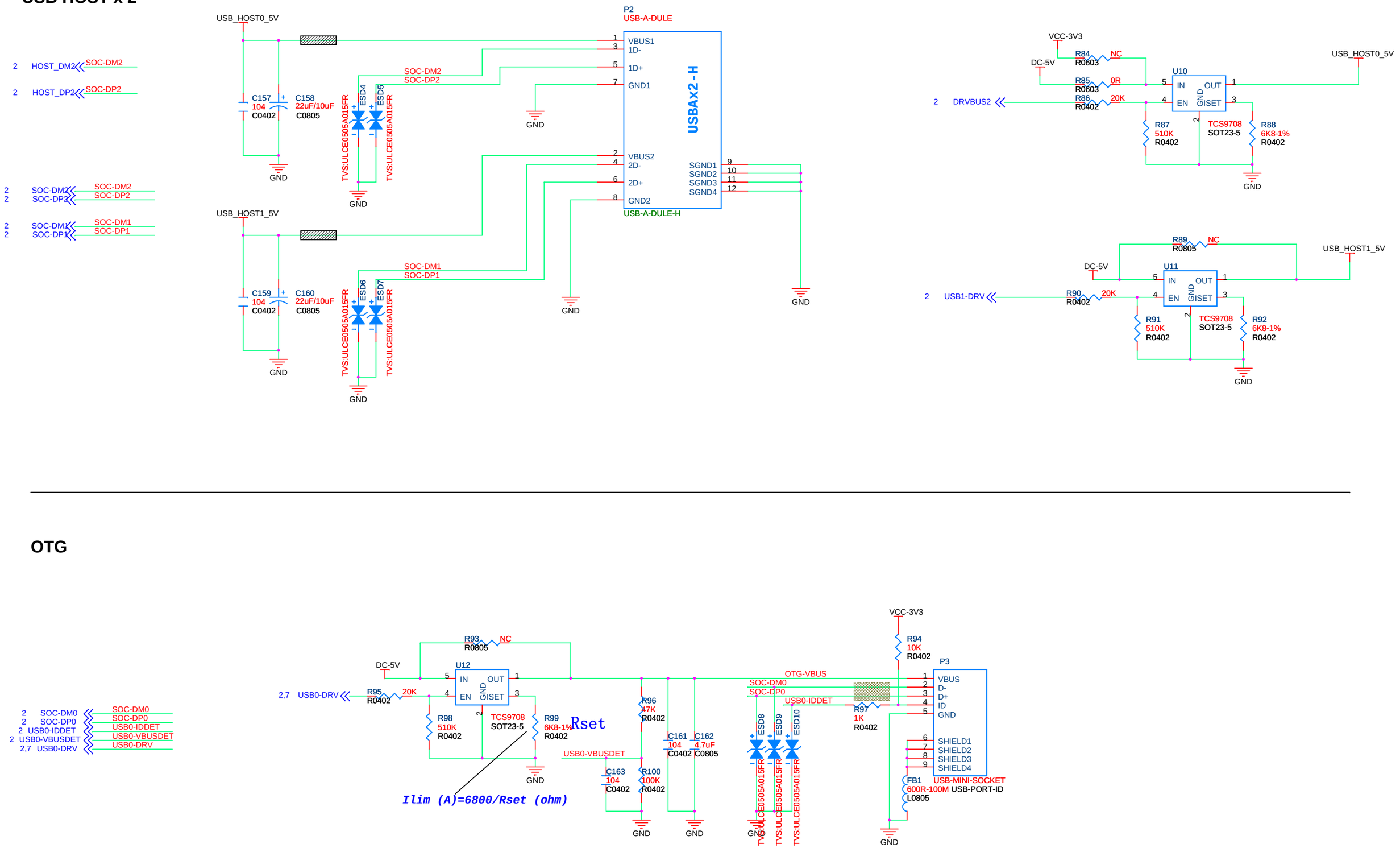
USB HOST x 2



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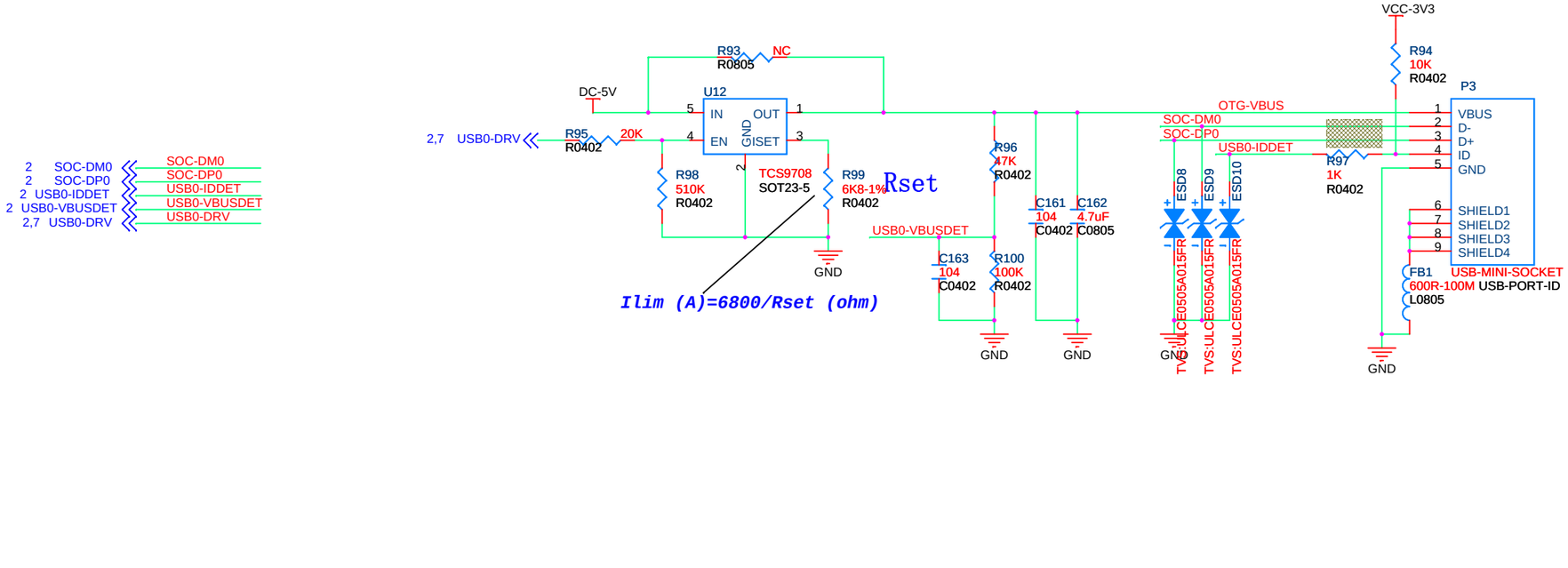

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EMAC

2 ERXD3 ERXD3
2 ERXD2 ERXD2
2 ERXD1 ERXD1
2 ERXD0 ERXD0
2 ETXD3 ETXD3
2 ETXD2 ETXD2
2 ETXD1 ETXD1
2 ETXD0 ETXD0
2 ERXCK ERXCK
2 ERXERR ERXERR
2 ERXDV ERXDV
2 EMDC EMDC
2 EMDIO EMDIO
2 ETXEN ETXEN
2 ETXCK ETXCK
2 ECRS ECRS
2 ECOL ECOL

2 ETXERR EPHY-RST#

EMAC-VCC
R101 2K2 R0402

U13 RTL8201CP

25	MDC	PWFBOUT	32 PWFBOUT
26	MDIO	AVDD33	36 AVDD3V3
6	TXD0		
5	TXD1	AGND1	29
4	TXD2	AGND2	35
3	TXD3		
2	TXEN	NC	27
7	TXC		
22	RXDV	TPRX-	30 RD-
21	RXD0	TPRX+	31 RD+
20	RXD1		
19	RXD2	TPTX-	33 TD-
18	RXD3	TPTX+	34 TD+
16	RXC		
1	COL		
23	CRS		
24	RXER/FXEN	RTSET	28 RTSET
46	X1	ISOLATE	43 ISOLATE
47	X2	RPTR	40 RPTR
		SPEED	39 SPEED
9	LED0/PHYAD0	DUPLEX	38 DUPLEX
10	LED1/PHYAD1	ANE	37 ANE
12	LED2/PHYAD2	LDPS	41 LDPS
13	LED3/PHYAD3	MII/SNIB/RTT3	44 MII
15	LED4/PHYAD4	RESETB	42
8	PWFBIN		
14	DVDD33_1		
48	DVDD33_2		
11	DGND1		
17	DGND2		
45	DGND3		

RTL8201CP
LQFP-48A

CRYSTALA
X2 25MHz 20ppm
C166 18pF-1% C0402
C167 18pF-1% C0402
C171 104 C0402
C172 104 C0402
EMAC-VCC GND GND PWFBIN EMAC-VCC EMAC-VCC GND

EMAC-VCC R113 5K1 R0402
R114 NC R0402 EPHY-RST#
C173 104 C0402
GND

PWFBOUT R102 0R R0402
PWFBOUT R106 0R R0402
C164 104 C0402
C165 104 C0402
P4 HY911105H
HY911105H

RD-	6	RD-	CHS GND 8 GND
	5	RDCT	NC 7
RD+	3	RD+	GREEN LED+ 9 EMAC-VCC
TD-	2	TD-	GREEN LED- 10 R103 510R R0402 LED0/PHYAD0
	4	TDCT	YELLOW LED- 11 R104 510R R0402 GND
TD+	1	TD+	YELLOW LED+ 12 LED3/PHYAD3

GND GND GND EMAC-VCC

FB2 600R-100M BEAD0805
PWFBOUT PWFBIN
C168 22uF C0805
C169 104 C0402
C170 104 C0402
GND

EMAC-VCC FB3 600R-100M BEAD0805
AVDD3V3
C174 104 C0402
GND

EMAC-VCC
R105 R0402 5K1
ECOL

ERXERR
R107 5K1 R0402
GND

ECRS
R108 5K1 R0402
GND

RD- R109 51R R0402
RD+ R110 51R R0402
TD- R111 51R R0402
TD+ R112 51R R0402
C175 104 C0402
C176 104 C0402
GND GND

VCC-3V3
EMAC-VCC
R118 NC R0402
R116 10K R0402
Q5 TCS1305 SOT23
2 EMAC-PWR-EN
R129 10K R0402
C177 0.1u C0402
R131 4.7K R0402
Q6 2N3904 SOT23
GND

EMAC-VCC
EMAC-VCC
R119 R120 R121 R122 R123
R0402 R0402 R0402 R0402 R0402
5K1 5K1 5K1 5K1 5K1
SPEED DUPLEX ANE LDPS MII

RTSET R124 2K-1% R0402
ISOLATE R125 5K1 R0402
RPTR R126 5K1 R0402
GND GND GND

EMAC-VCC
LED0/PHYAD0 R115 5K1 R0402
LED1/PHYAD1 R117 5K1 R0402
LED2/PHYAD2 R127 5K1 R0402
LED3/PHYAD3 R128 5K1 R0402
LED4/PHYAD4 R130 5K1 R0402
GND

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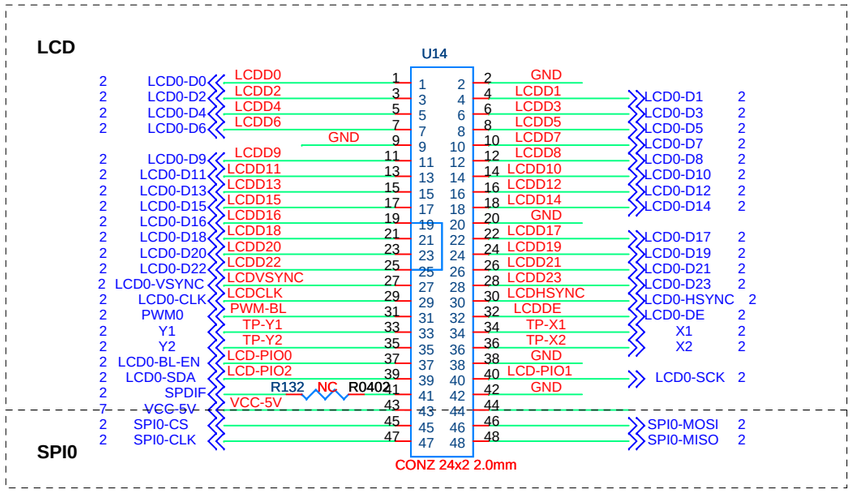
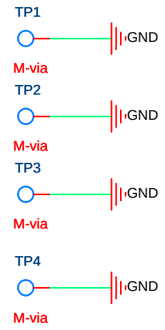
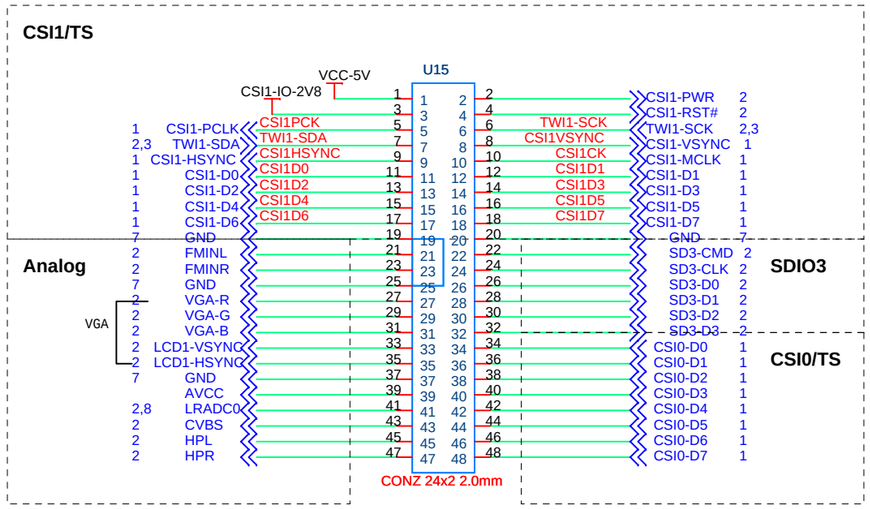
Extention interface







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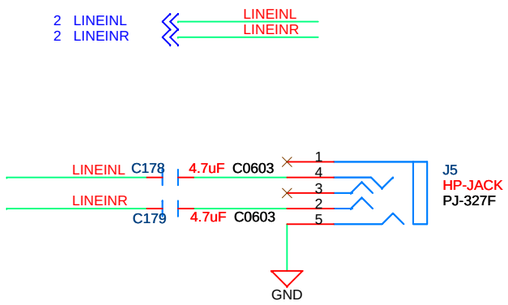
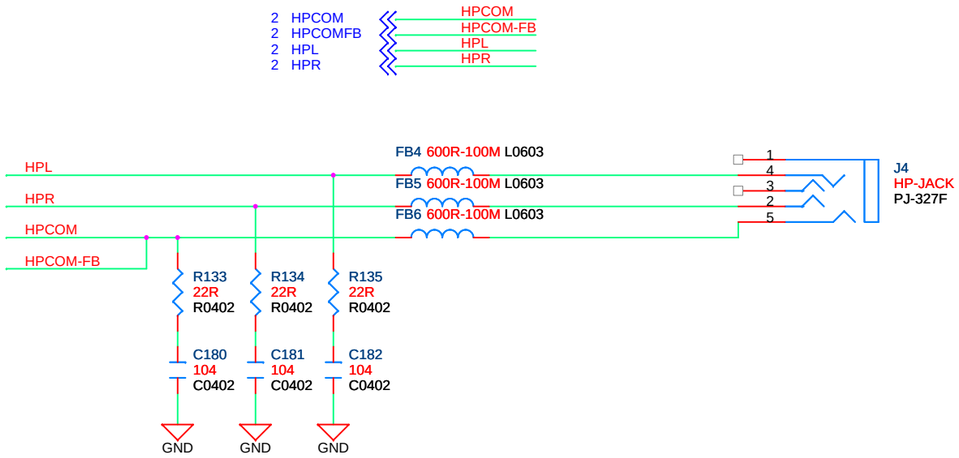


Head Phone & Speaker



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