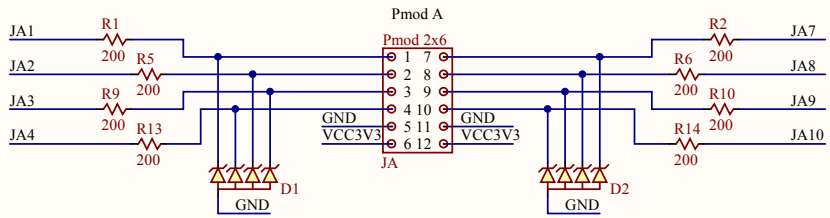

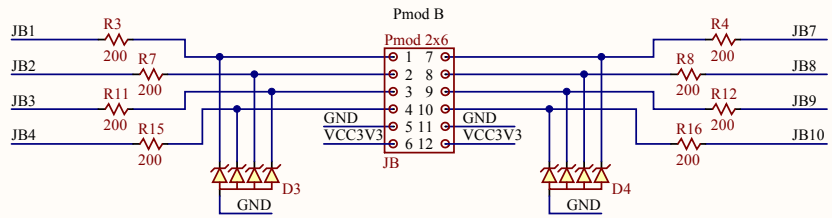

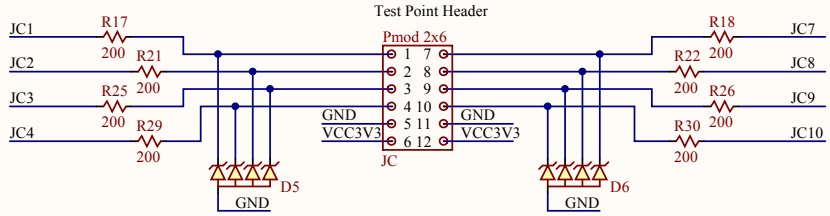

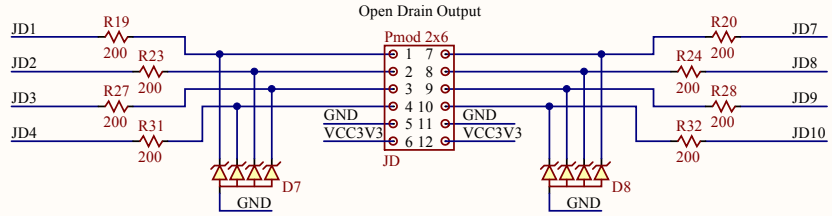

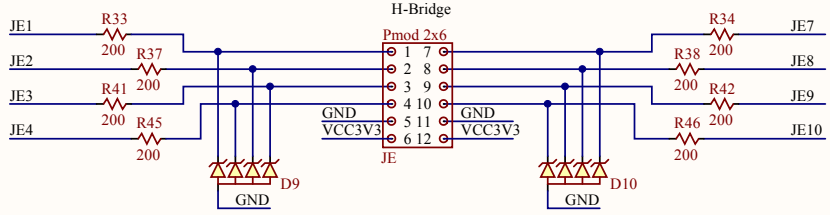

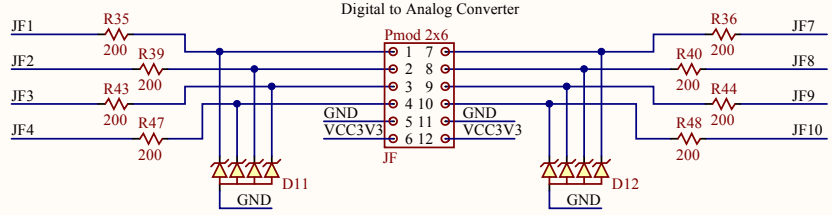

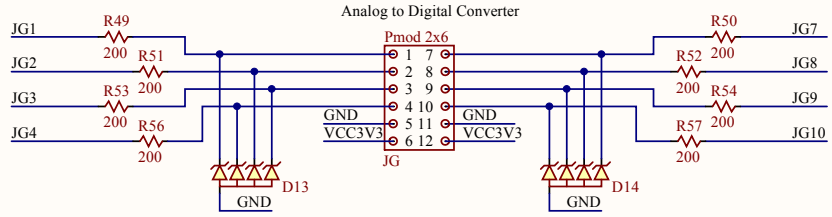

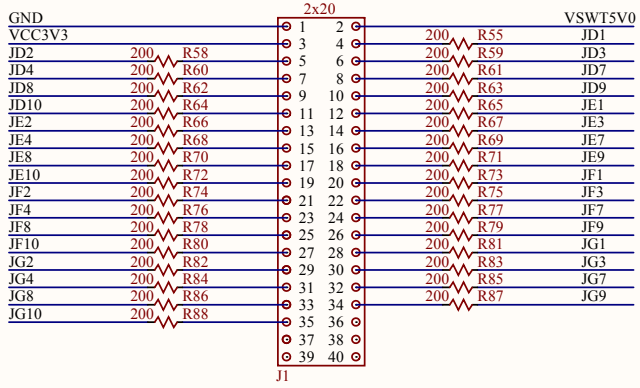

Foot F1
Foot F2
Foot F3
Foot F4
Foot F5
Foot F6

Title	Anvyl
Rev	B.0
Copyright	2012
Circuit	IO Connectors
Doc#	500-258
Engineer	EG
Author	GMA
Date	8/10/2012
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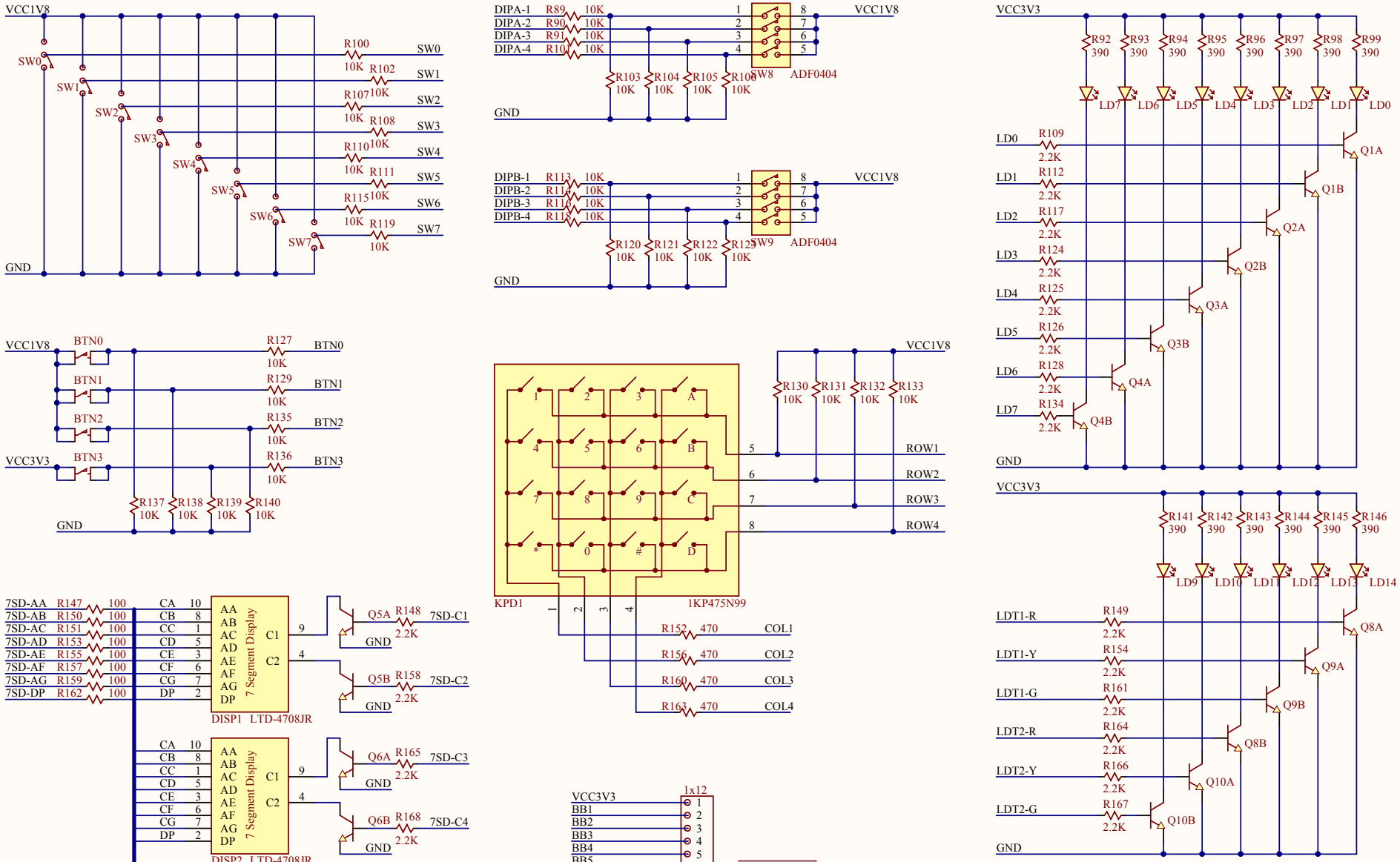
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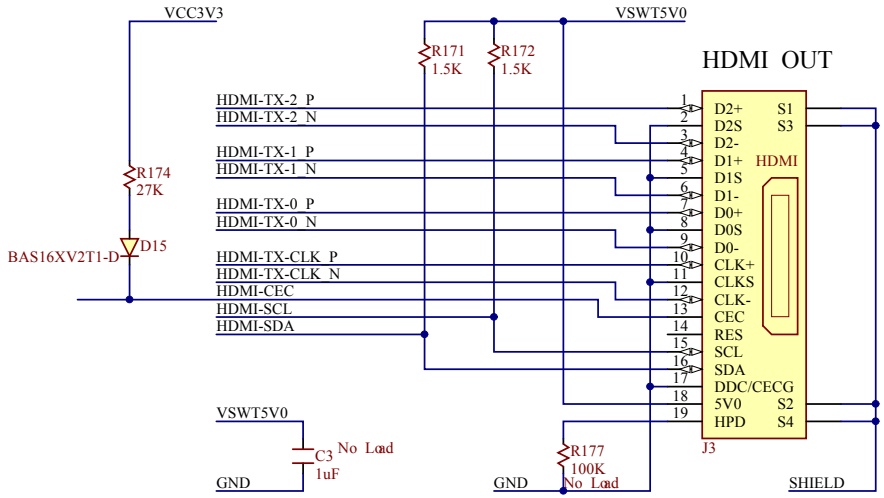
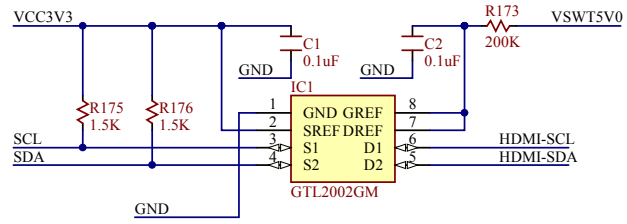
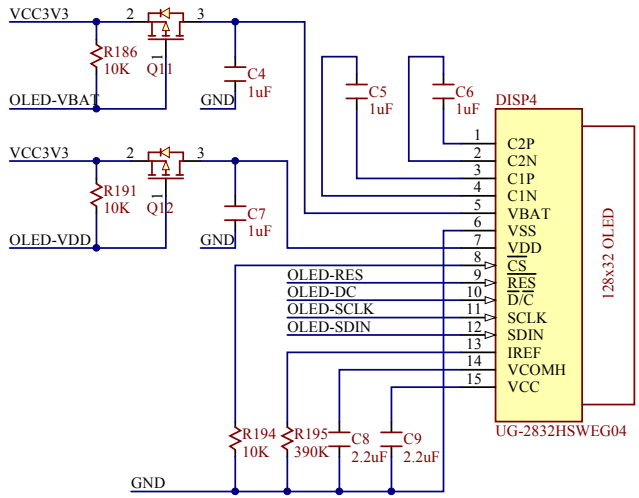
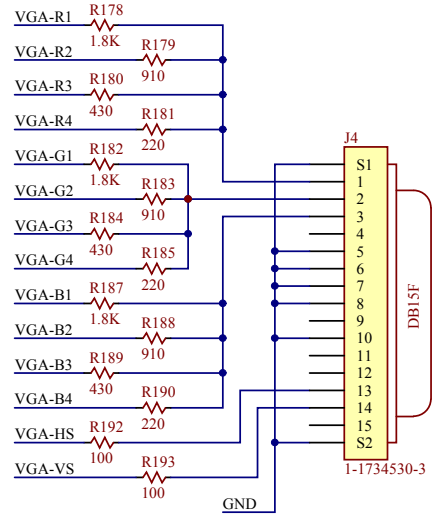
SW1
SW2
SW3
SW4
SW5
SW6
SW7
R100 10K
R102 10K
R107 10K
R108 10K
R110 10K
R111 10K
R115 10K
R119 10K
GND
DIPA-1 R89 10K
DIPA-2 R90 10K
DIPA-3 R91 10K
DIPA-4 R10 10K
R103 10K
R104 10K
R105 10K
R106 10K
SW8 ADF0404
DIPB-1 R113 10K
DIPB-2 R114 10K
DIPB-3 R116 10K
DIPB-4 R11 10K
R120 10K
R121 10K
R122 10K
R123 10K
SW9 ADF0404
VCC3V3
R92 390
R93 390
R94 390
R95 390
R96 390
R97 390
R98 390
R99 390
LD7 LD6 LD5 LD4 LD3 LD2 LD1 LD0
LD0 R109 2.2K Q1A
LD1 R112 2.2K Q1B
LD2 R117 2.2K Q2A
LD3 R124 2.2K Q2B
LD4 R125 2.2K Q3A
LD5 R126 2.2K Q3B
LD6 R128 2.2K Q4A
LD7 R134 2.2K Q4B
BTN0
BTN1
BTN2
BTN3
R127 10K
R129 10K
R135 10K
R136 10K
R137 10K
R138 10K
R139 10K
R140 10K
KPD1
1KP475N99
R130 10K
R131 10K
R132 10K
R133 10K
ROW1
ROW2
ROW3
ROW4
R152 470 COL1
R156 470 COL2
R160 470 COL3
R163 470 COL4
R141 390
R142 390
R143 390
R144 390
R145 390
R146 390
LD9 LD10 LD11 LD12 LD13 LD14
LDT1-R R149 2.2K Q8A
LDT1-Y R154 2.2K Q9A
LDT1-G R161 2.2K Q9B
LDT2-R R164 2.2K Q8B
LDT2-Y R166 2.2K Q10A
LDT2-G R167 2.2K Q10B
7SD-AA R147 100
7SD-AB R150 100
7SD-AC R151 100
7SD-AD R153 100
7SD-AE R155 100
7SD-AF R157 100
7SD-AG R159 100
7SD-DP R162 100
7 Segment Display
DISP1 LTD-4708JR
DISP2 LTD-4708JR
DISP3 LTD-4708JR
Q5A R148 2.2K 7SD-C1
Q5B R158 2.2K 7SD-C2
Q6A R165 2.2K 7SD-C3
Q6B R168 2.2K 7SD-C4
Q7A R169 2.2K 7SD-C5
Q7B R170 2.2K 7SD-C6
VCC3V3
BB1
BB2
BB3
BB4
BB5
BB6
BB7
BB8
BB9
BB10
GND
1x12
J2
BreadBoard
BB1
Title
Anvyl
Rev
B.0
Copyright 2012
Circuit
General IO and LEDs
Doc# 500-258
Engineer EG
Author GMA
Date 8/10/2012
Sheet# 2 out of 15
DIGILENT
BEYOND THEORY









Title	Anvyl
Rev	B.0
Copyright	2012
Circuit	Video and OLED
Doc#	500-258
Engineer	EG
Author	GMA
Date	8/10/2012
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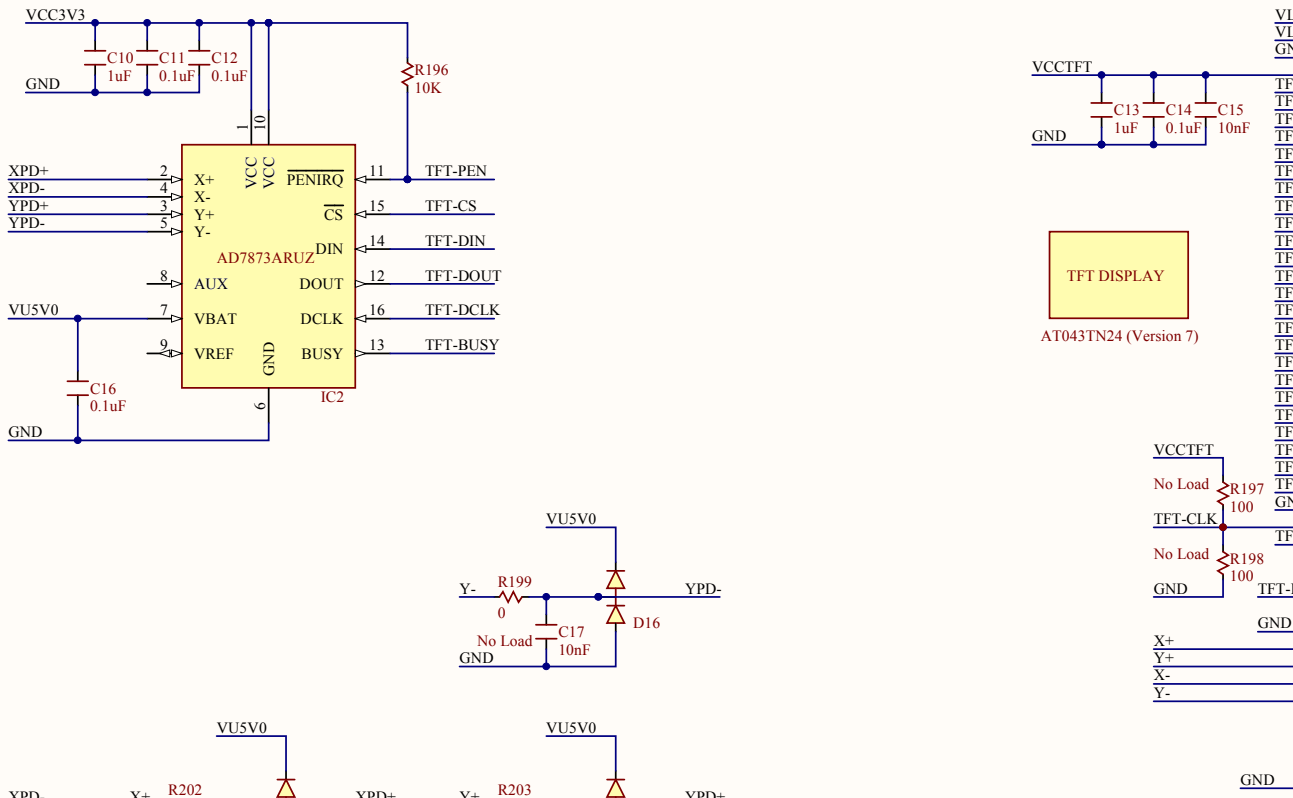

Title	Anvyl
Rev	B.0
Copyright	2012
Circuit	TFT Display
Doc#	500-258
Engineer	EG
Author	GMA
Date	8/10/2012
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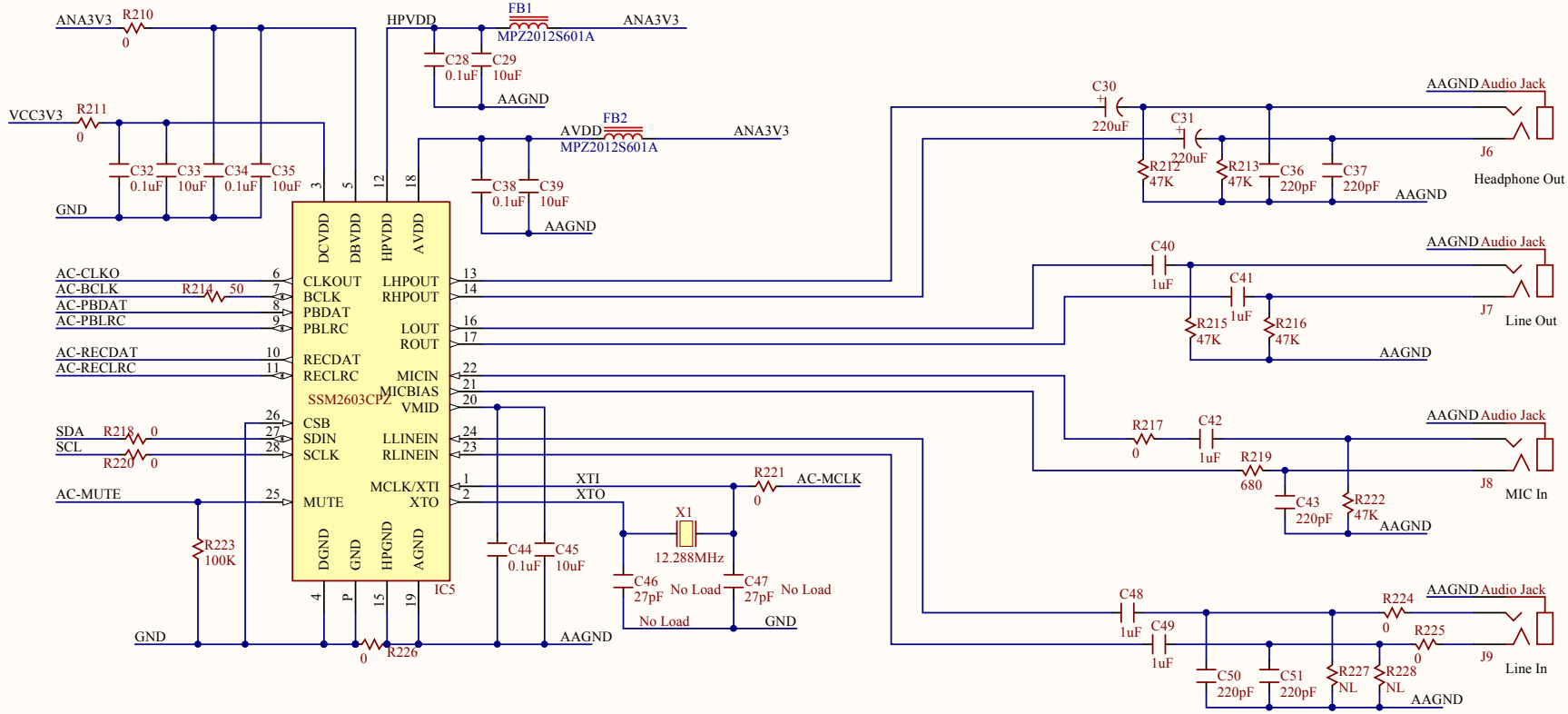
DIGILENT® BEYOND THEORY



Title	Anvyl
Rev	B.0
Copyright	2012
Circuit	Audio
Doc#	500-258
Engineer	EG
Author	GMA
Date	8/10/2012
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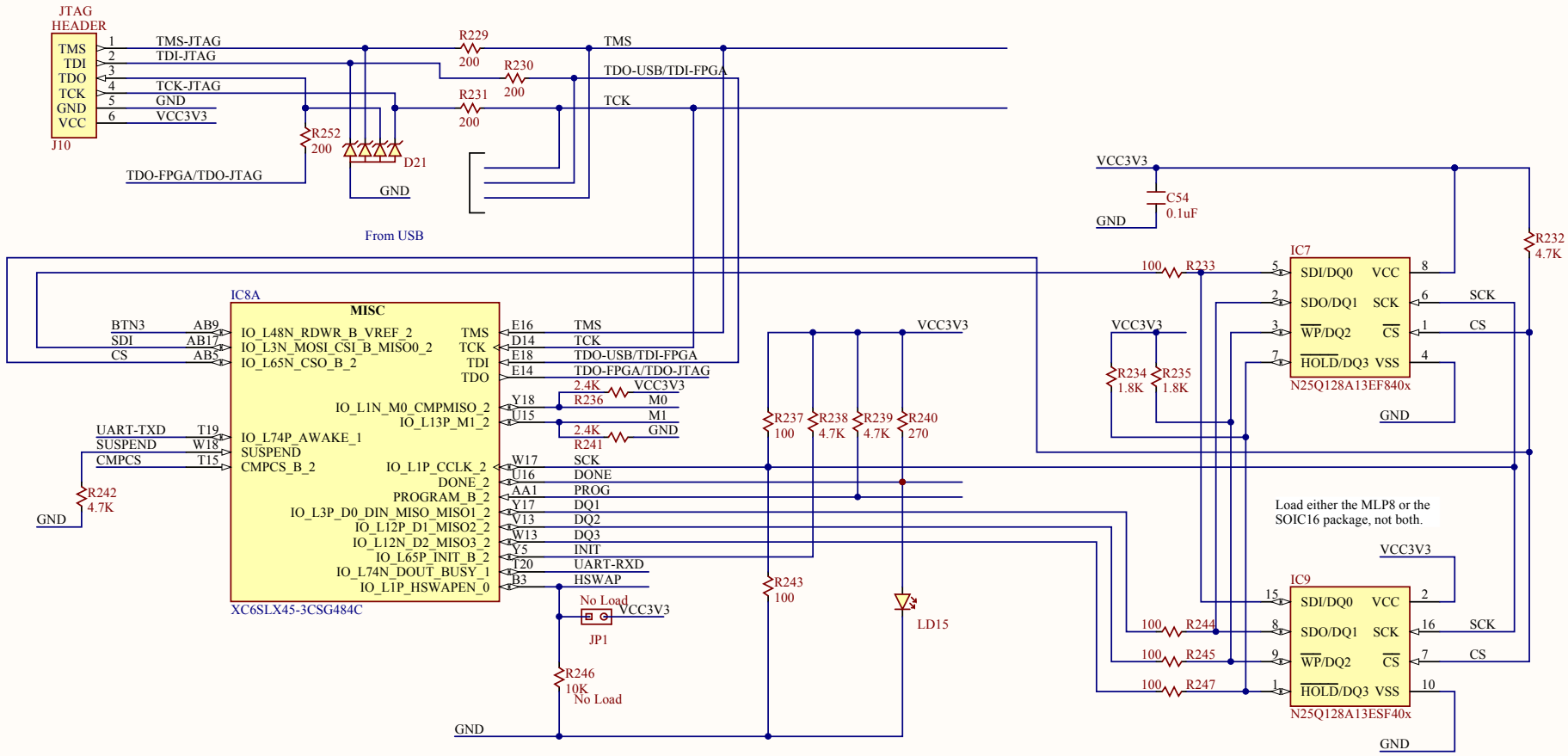
DIGILENT® BEYOND THEORY



Title	Anvyl
Rev	B.0
Copyright	2012
Circuit Configuration	
Doc#	500-258
Engineer	EG
Author	GMA
Date	8/10/2012
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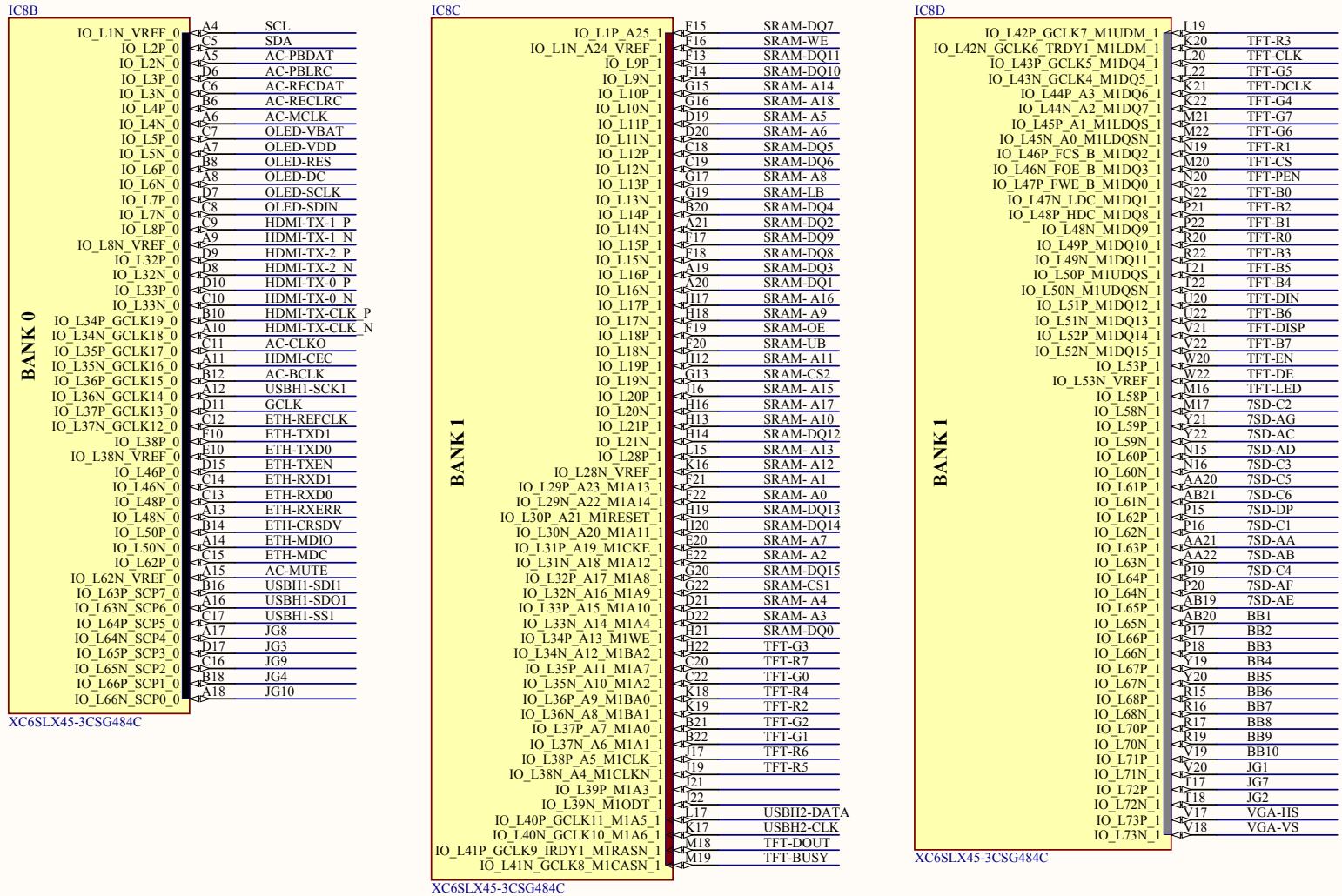
DIGILENT BEYOND THEORY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IO_L2P_0 C5 SDA
IO_L2N_0 A5 AC-PBDAT
IO_L3P_0 D6 AC-PBLRC
IO_L3N_0 C6 AC-RECDAT
IO_L4P_0 B6 AC-RECLRC
IO_L4N_0 A6 AC-MCLK
IO_L5P_0 C7 OLED-VBAT
IO_L5N_0 A7 OLED-VDD
IO_L6P_0 B8 OLED-RES
IO_L6N_0 A8 OLED-DC
IO_L7P_0 D7 OLED-SCLK
IO_L7N_0 C8 OLED-SDIN
IO_L8P_0 C9 HDMI-TX-1_P
IO_L8N_VREF_0 A9 HDMI-TX-1_N
IO_L32P_0 D9 HDMI-TX-2_P
IO_L32N_0 D8 HDMI-TX-2_N
IO_L33P_0 D10 HDMI-TX-0_P
IO_L33N_0 C10 HDMI-TX-0_N
IO_L34P_GCLK19_0 B10 HDMI-TX-CLK_P
IO_L34N_GCLK18_0 A10 HDMI-TX-CLK_N
IO_L35P_GCLK17_0 C11 AC-CLKO
IO_L35N_GCLK16_0 A11 HDMI-CEC
IO_L36P_GCLK15_0 B12 AC-BCLK
IO_L36N_GCLK14_0 A12 USBH1-SCK1
IO_L37P_GCLK13_0 D11 GCLK
IO_L37N_GCLK12_0 C12 ETH-REFCLK
IO_L38P_0 F10 ETH-TXD1
IO_L38N_VREF_0 E10 ETH-TXD0
IO_L46P_0 D15 ETH-TXEN
IO_L46N_0 C14 ETH-RXD1
IO_L48P_0 C13 ETH-RXD0
IO_L48N_0 A13 ETH-RXERR
IO_L50P_0 B14 ETH-CRSDV
IO_L50N_0 A14 ETH-MDIO
IO_L62P_0 C15 ETH-MDC
IO_L62N_VREF_0 A15 AC-MUTE
IO_L63P_SCP7_0 B16 USBH1-SDI1
IO_L63N_SCP6_0 A16 USBH1-SDO1
IO_L64P_SCP5_0 C17 USBH1-SS1
IO_L64N_SCP4_0 A17 JG8
IO_L65P_SCP3_0 D17 JG3
IO_L65N_SCP2_0 C16 JG9
IO_L66P_SCP1_0 B18 JG4
IO_L66N_SCP0_0 A18 JG10
XC6SLX45-3CSG484C
IC8C
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IO_L1P_A25_1 F15 SRAM-DQ7
IO_L1N_A24_VREF_1 E16 SRAM-WE
IO_L9P_1 F13 SRAM-DQ11
IO_L9N_1 F14 SRAM-DQ10
IO_L10P_1 G15 SRAM- A14
IO_L10N_1 G16 SRAM- A18
IO_L11P_1 D19 SRAM- A5
IO_L11N_1 D20 SRAM- A6
IO_L12P_1 C18 SRAM-DQ5
IO_L12N_1 C19 SRAM-DQ6
IO_L13P_1 G17 SRAM- A8
IO_L13N_1 G19 SRAM-LB
IO_L14P_1 B20 SRAM-DQ4
IO_L14N_1 A21 SRAM-DQ2
IO_L15P_1 F17 SRAM-DQ9
IO_L15N_1 F18 SRAM-DQ8
IO_L16P_1 A19 SRAM-DQ3
IO_L16N_1 A20 SRAM-DQ1
IO_L17P_1 H17 SRAM- A16
IO_L17N_1 H18 SRAM- A9
IO_L18P_1 F19 SRAM-OE
IO_L18N_1 E20 SRAM-UB
IO_L19P_1 H12 SRAM- A11
IO_L19N_1 G13 SRAM-CS2
IO_L20P_1 J16 SRAM- A15
IO_L20N_1 H16 SRAM- A17
IO_L21P_1 H13 SRAM- A10
IO_L21N_1 H14 SRAM-DQ12
IO_L28P_1 L15 SRAM- A13
IO_L28N_VREF_1 K16 SRAM- A12
IO_L29P_A23_M1A13_1 C21 SRAM- A1
IO_L29N_A22_M1A14_1 F22 SRAM- A0
IO_L30P_A21_M1RESET_1 H19 SRAM-DQ13
IO_L30N_A20_M1A11_1 H20 SRAM-DQ14
IO_L31P_A19_M1CKE_1 E20 SRAM- A7
IO_L31N_A18_M1A12_1 E22 SRAM- A2
IO_L32P_A17_M1A8_1 G20 SRAM-DQ15
IO_L32N_A16_M1A9_1 G22 SRAM-CS1
IO_L33P_A15_M1A10_1 D21 SRAM- A4
IO_L33N_A14_M1A4_1 D22 SRAM- A3
IO_L34P_A13_M1WE_1 H21 SRAM-DQ0
IO_L34N_A12_M1BA2_1 J22 TFT-G3
IO_L35P_A11_M1A7_1 C20 TFT-R7
IO_L35N_A10_M1A2_1 C22 TFT-G0
IO_L36P_A9_M1BA0_1 K18 TFT-R4
IO_L36N_A8_M1BA1_1 K19 TFT-R2
IO_L37P_A7_M1A0_1 B21 TFT-G2
IO_L37N_A6_M1A1_1 B22 TFT-G1
IO_L38P_A5_M1CLK_1 J17 TFT-R6
IO_L38N_A4_M1CLKN_1 J19 TFT-R5
IO_L39P_M1A3_1 E21
IO_L39N_M1ODT_1 E22
IO_L40P_GCLK11_M1A5_1 L17 USBH2-DATA
IO_L40N_GCLK10_M1A6_1 K17 USBH2-CLK
IO_L41P_GCLK9_IRDY1_M1RASN_1 M18 TFT-DOUT
IO_L41N_GCLK8_M1CASN_1 M19 TFT-BUSY
XC6SLX45-3CSG484C
IC8D
BANK 1
IO_L42P_GCLK7_M1UDM_1 L19
IO_L42N_GCLK6_TRDY1_M1LDM_1 K20 TFT-R3
IO_L43P_GCLK5_M1DQ4_1 J20 TFT-CLK
IO_L43N_GCLK4_M1DQ5_1 L22 TFT-G5
IO_L44P_A3_M1DQ6_1 K21 TFT-DCLK
IO_L44N_A2_M1DQ7_1 K22 TFT-G4
IO_L45P_A1_M1LDQS_1 M21 TFT-G7
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IO_L46P_FCS_B_M1DQ2_1 N19 TFT-R1
IO_L46N_FOE_B_M1DQ3_1 M20 TFT-CS
IO_L47P_FWE_B_M1DQ0_1 N20 TFT-PEN
IO_L47N_LDC_M1DQ1_1 N22 TFT-B0
IO_L48P_HDC_M1DQ8_1 P21 TFT-B2
IO_L48N_M1DQ9_1 P22 TFT-B1
IO_L49P_M1DQ10_1 R20 TFT-R0
IO_L49N_M1DQ11_1 R22 TFT-B3
IO_L50P_M1UDQS_1 T21 TFT-B5
IO_L50N_M1UDQSN_1 T22 TFT-B4
IO_L51P_M1DQ12_1 U20 TFT-DIN
IO_L51N_M1DQ13_1 U22 TFT-B6
IO_L52P_M1DQ14_1 V21 TFT-DISP
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IO_L53P_1 W20 TFT-EN
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IO_L59P_1 Y21 7SD-AG
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IO_L60P_1 N15 7SD-AD
IO_L60N_1 N16 7SD-C3
IO_L61P_1 AA20 7SD-C5
IO_L61N_1 AB21 7SD-C6
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IO_L62N_1 P16 7SD-C1
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IO_L64P_1 P19 7SD-C4
IO_L64N_1 P20 7SD-AF
IO_L65P_1 AB19 7SD-AE
IO_L65N_1 AB20 BB1
IO_L66P_1 P17 BB2
IO_L66N_1 P18 BB3
IO_L67P_1 Y19 BB4
IO_L67N_1 Y20 BB5
IO_L68P_1 R15 BB6
IO_L68N_1 R16 BB7
IO_L70P_1 R17 BB8
IO_L70N_1 R19 BB9
IO_L71P_1 V19 BB10
IO_L71N_1 V20 JG1
IO_L72P_1 T17 JG7
IO_L72N_1 T18 JG2
IO_L73P_1 V17 VGA-HS
IO_L73N_1 V18 VGA-VS
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VCC3V3
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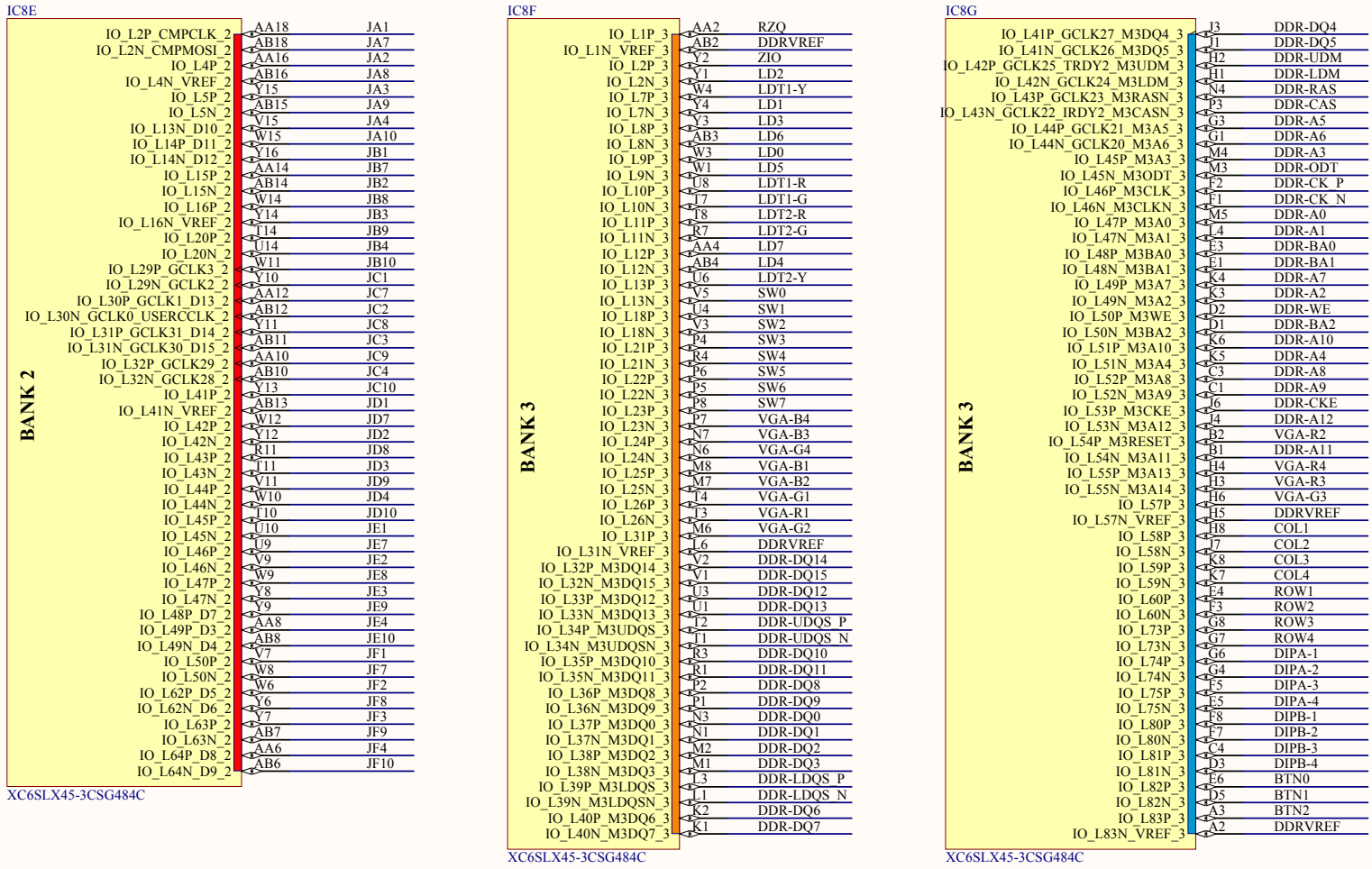
VDD OE
GND OUT
C55
0.1uF
GND
100MHz
IC10
GCLK
Title
Anvyl
Rev
B.0
Copyright 2012
Circuit
Spartan 6
Doc#
500-258
Engineer EG
Author GMA
Date 8/10/2012
Sheet# 7 out of 15
DIGILENT
BEYOND THEORY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IO_L2N_CMPMOSI_2 AB18 JA7
IO_L4P_2 AA16 JA2
IO_L4N_VREF_2 AB16 JA8
IO_L5P_2 Y15 JA3
IO_L5N_2 AB15 JA9
IO_L13N_D10_2 V15 JA4
IO_L14P_D11_2 W15 JA10
IO_L14N_D12_2 Y16 JB1
IO_L15P_2 AA14 JB7
IO_L15N_2 AB14 JB2
IO_L16P_2 W14 JB8
IO_L16N_VREF_2 Y14 JB3
IO_L20P_2 T14 JB9
IO_L20N_2 U14 JB4
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IO_L29N_GCLK2_2 Y10 JC1
IO_L30P_GCLK1_D13_2 AA12 JC7
IO_L30N_GCLK0_USERCCLK_2 AB12 JC2
IO_L31P_GCLK31_D14_2 Y11 JC8
IO_L31N_GCLK30_D15_2 AB11 JC3
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IO_L43N_2 T11 JD3
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IO_L44N_2 W10 JD4
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IO_L46N_2 V9 JE2
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IO_L50N_2 W8 JF7
IO_L62P_D5_2 W6 JF2
IO_L62N_D6_2 Y6 JF8
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IO_L9N_3 V1 LD5
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IO_L10N_3 T7 LDT1-G
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IO_L12N_3 AB4 LD4
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IO_L23P_3 P8 SW7
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IO_L24P_3 N7 VGA-B3
IO_L24N_3 N6 VGA-G4
IO_L25P_3 M8 VGA-B1
IO_L25N_3 M7 VGA-B2
IO_L26P_3 T4 VGA-G1
IO_L26N_3 T3 VGA-R1
IO_L31P_3 M6 VGA-G2
IO_L31N_VREF_3 L6 DDRVREF
IO_L32P_M3DQ14_3 V2 DDR-DQ14
IO_L32N_M3DQ15_3 V1 DDR-DQ15
IO_L33P_M3DQ12_3 U3 DDR-DQ12
IO_L33N_M3DQ13_3 U1 DDR-DQ13
IO_L34P_M3UDQS_3 T2 DDR-UDQS_P
IO_L34N_M3UDQSN_3 T1 DDR-UDQS_N
IO_L35P_M3DQ10_3 R3 DDR-DQ10
IO_L35N_M3DQ11_3 R1 DDR-DQ11
IO_L36P_M3DQ8_3 P2 DDR-DQ8
IO_L36N_M3DQ9_3 P1 DDR-DQ9
IO_L37P_M3DQ0_3 N3 DDR-DQ0
IO_L37N_M3DQ1_3 N1 DDR-DQ1
IO_L38P_M3DQ2_3 M2 DDR-DQ2
IO_L38N_M3DQ3_3 M1 DDR-DQ3
IO_L39P_M3LDQS_3 L3 DDR-LDQS_P
IO_L39N_M3LDQSN_3 L1 DDR-LDQS_N
IO_L40P_M3DQ6_3 K2 DDR-DQ6
IO_L40N_M3DQ7_3 K1 DDR-DQ7
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BANK 3
IO_L41P_GCLK27_M3DQ4_3 J3 DDR-DQ4
IO_L41N_GCLK26_M3DQ5_3 J1 DDR-DQ5
IO_L42P_GCLK25_TRDY2_M3UDM_3 H2 DDR-UDM
IO_L42N_GCLK24_M3LDM_3 H1 DDR-LDM
IO_L43P_GCLK23_M3RASN_3 N4 DDR-RAS
IO_L43N_GCLK22_IRDY2_M3CASN_3 P3 DDR-CAS
IO_L44P_GCLK21_M3A5_3 G3 DDR-A5
IO_L44N_GCLK20_M3A6_3 G1 DDR-A6
IO_L45P_M3A3_3 M4 DDR-A3
IO_L45N_M3ODT_3 M3 DDR-ODT
IO_L46P_M3CLK_3 F2 DDR-CK_P
IO_L46N_M3CLKN_3 F1 DDR-CK_N
IO_L47P_M3A0_3 M5 DDR-A0
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IO_L49N_M3A2_3 K3 DDR-A2
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IO_L50N_M3BA2_3 D1 DDR-BA2
IO_L51P_M3A10_3 K6 DDR-A10
IO_L51N_M3A4_3 K5 DDR-A4
IO_L52P_M3A8_3 C3 DDR-A8
IO_L52N_M3A9_3 C1 DDR-A9
IO_L53P_M3CKE_3 J6 DDR-CKE
IO_L53N_M3A12_3 J4 DDR-A12
IO_L54P_M3RESET_3 B2 VGA-R2
IO_L54N_M3A11_3 B1 DDR-A11
IO_L55P_M3A13_3 H4 VGA-R4
IO_L55N_M3A14_3 H3 VGA-R3
IO_L57P_3 H6 VGA-G3
IO_L57N_VREF_3 H5 DDRVREF
IO_L58P_3 H8 COL1
IO_L58N_3 J7 COL2
IO_L59P_3 K8 COL3
IO_L59N_3 K7 COL4
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IO_L74P_3 G6 DIPA-1
IO_L74N_3 G4 DIPA-2
IO_L75P_3 F5 DIPA-3
IO_L75N_3 E5 DIPA-4
IO_L80P_3 F8 DIPB-1
IO_L80N_3 F7 DIPB-2
IO_L81P_3 C4 DIPB-3
IO_L81N_3 D3 DIPB-4
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C57 0.1uF
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ZIO
R249
No Load
GND
RZQ
R250
100 1%
GND
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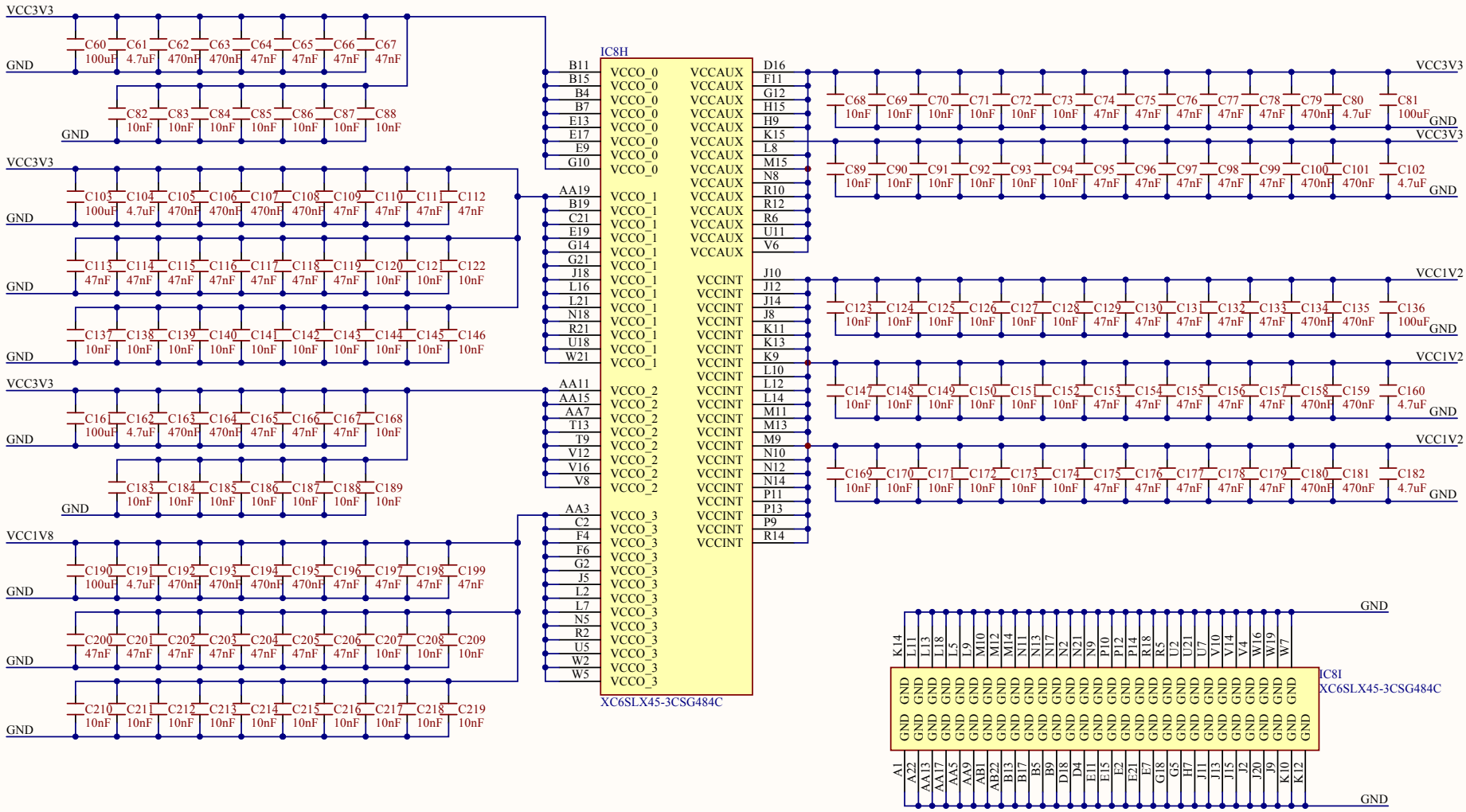

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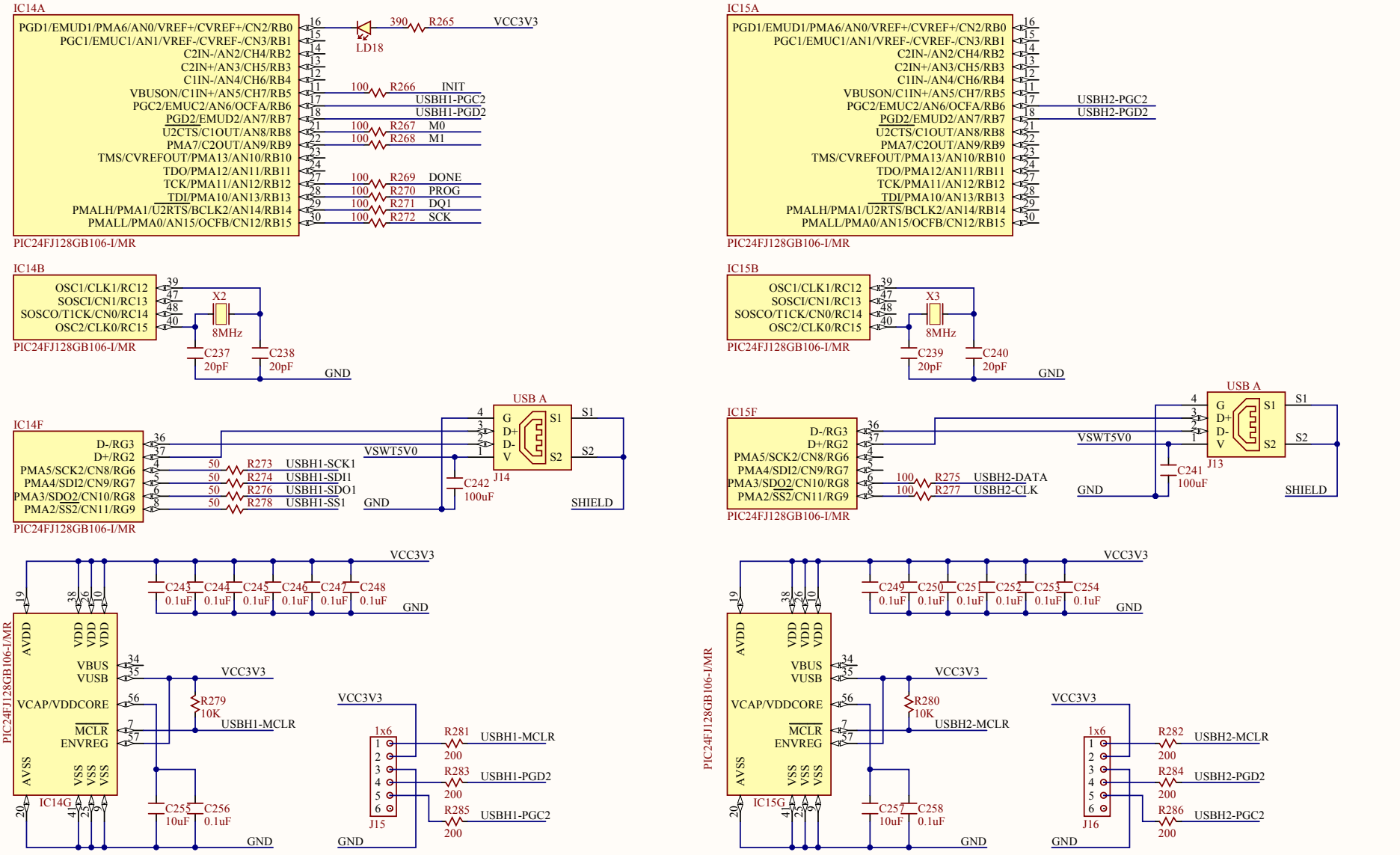

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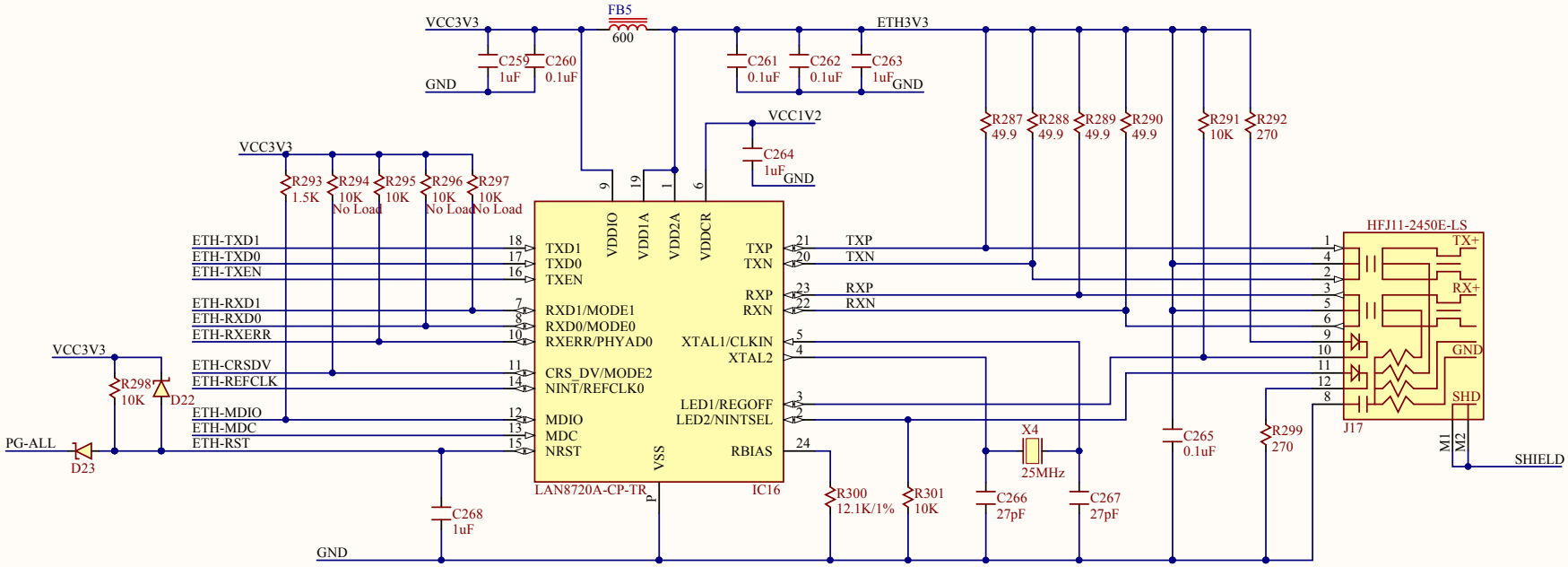

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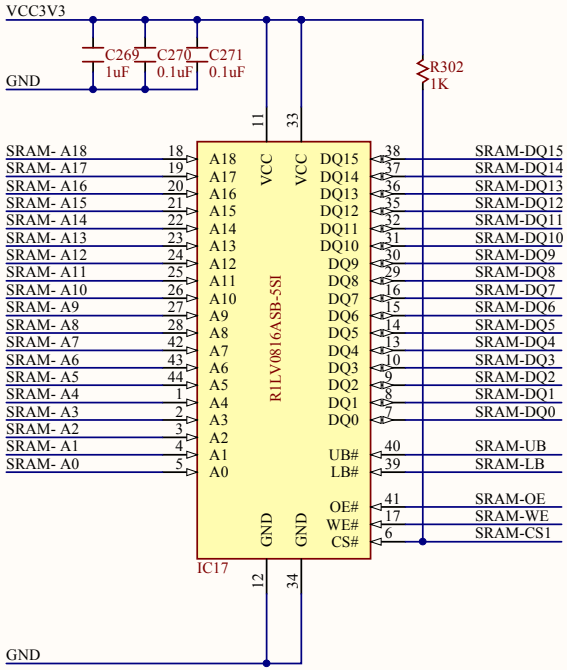

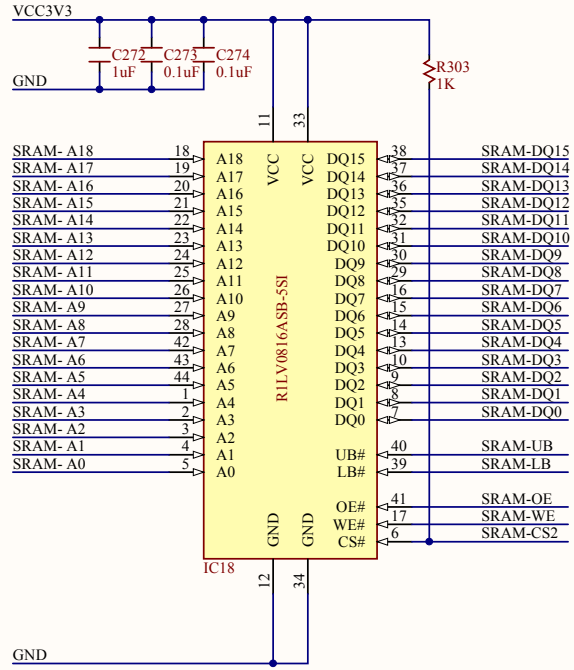

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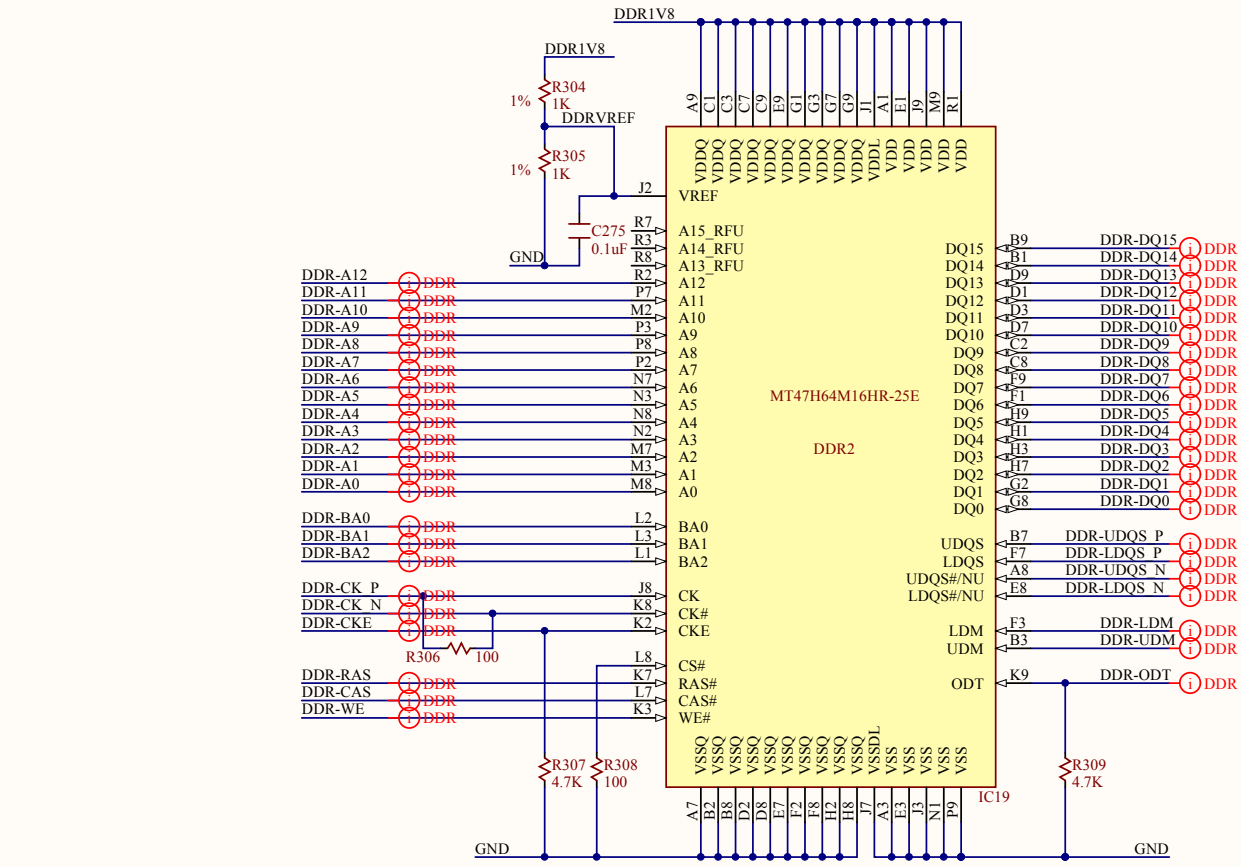

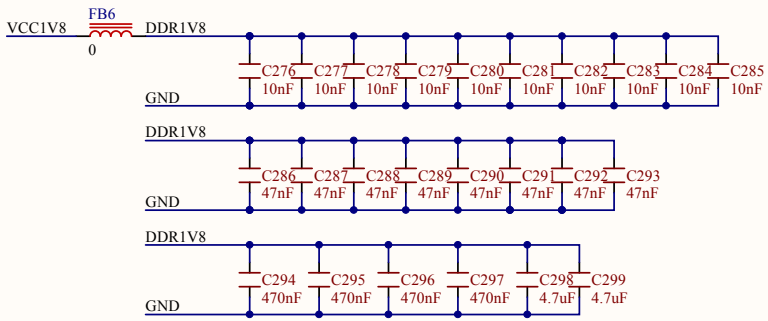

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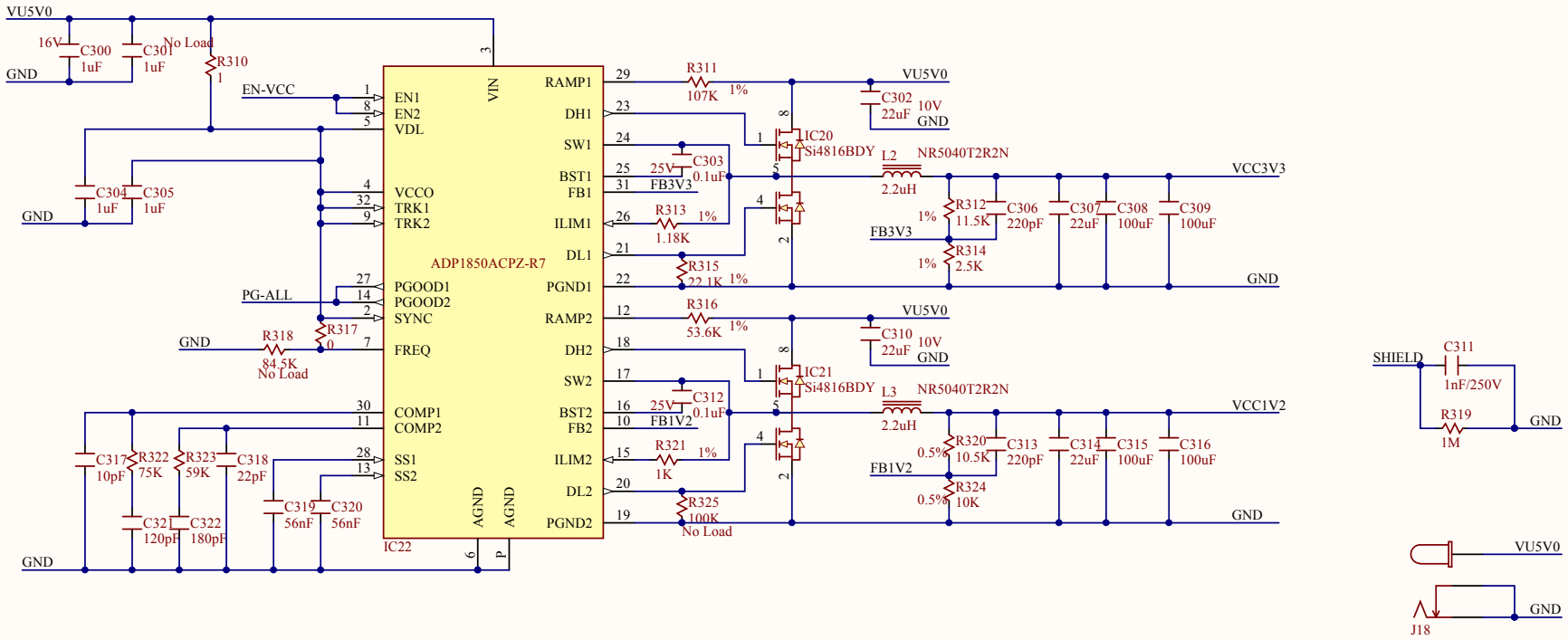

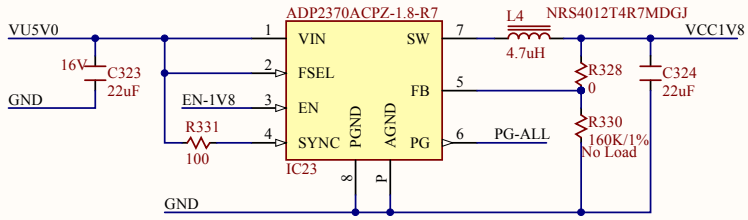

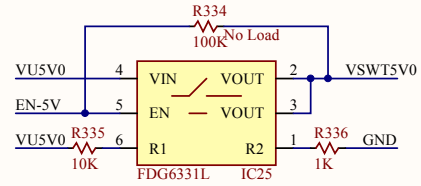

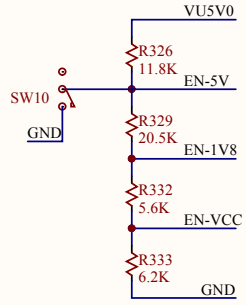

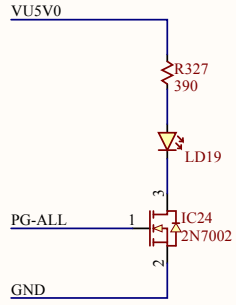

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