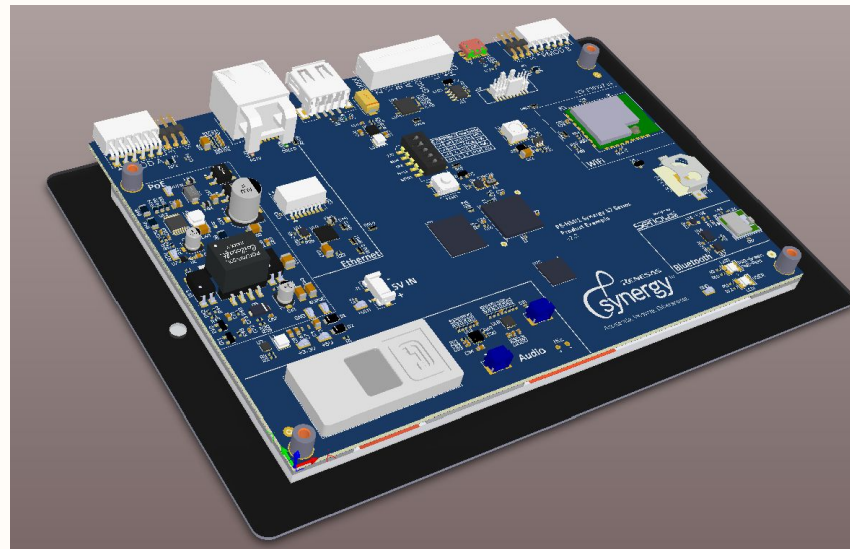
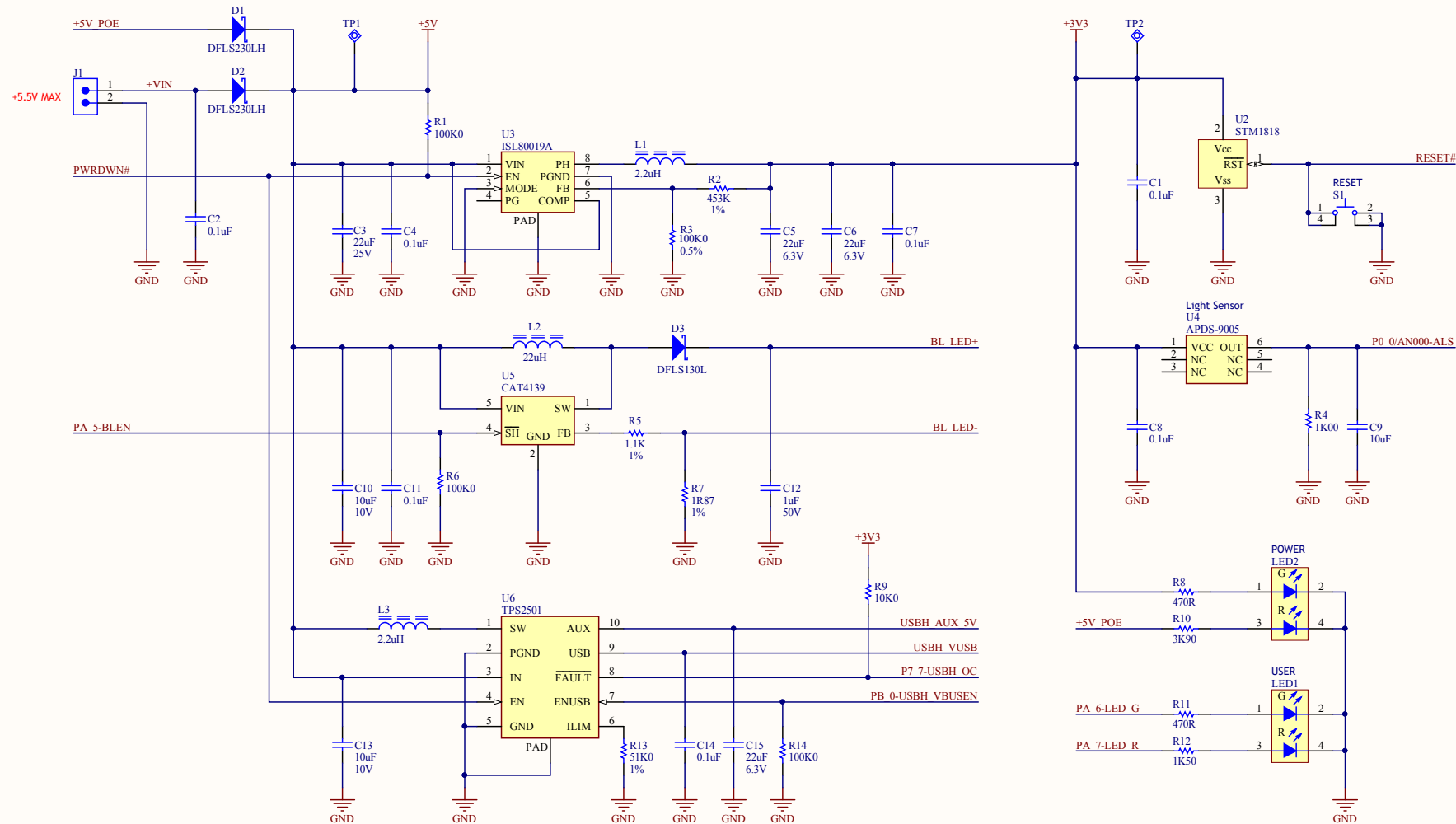


## Renesas Synergy(tm) PE-HMI1 Product Example

Page	Description
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2	Power Supply
3	MCU Main Signals
4	MCU Power Supply
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6	DRAM, eMMC memories
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8	Ethernet PoE IEEE802.3at
9	TFT LCD 800x480 24-bit RGB
10	WiFi and Bluetooth
11	Audio Mic Input and Speaker Out
12	PMOD, RS232/485,CAN, Serial Interfaces, GPIO, JTAG





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U1A  
S7G2-FBGA224

P0 0/AN000-ALS	R12	P0_0	P4_0	N13	P4 0/SCK7
P0 1/IRQ7-DS-WIFI IRQ#	P11	P0_1	P4_1	P15	P4 1/TXD7/CTX0
P0 2/IRQ8-DS-ETH IRQ#	N12	P0_2	P4_2	N14	P4 2/RXD7/CRX0
	U10	P0_3	P4_3	N15	P4 3/ET1 MDC
P0 4/IRQ9-DS	M11	P0_4	P4_4	K10	P4 4/ET1 MDIO
P0 5/AN101	R11	P0_5	P4_5	M13	P4 5/RMII1 TXD EN
	P10	P0_6	P4_6	J9	P4 6/RMII1 TXD1
	N10	P0_7	P4_7	A15	P4 7-USBF VBUS
P0 8/IRQ12-DS-TOUCH IRQ#	N11	P0_8	P4_8	B15	
P0 9/IRQ13-DS	R10	P0_9	P4_9	CT4	
	M10	P0_10	P4_10	CT5	P4 10/MISOA
	N10	P0_11	P4_11	D14	P4 11/MOSIA
P0 14/DA0	M9	P0_14	P4_12	D13	P4 12/RSPCKA
	N10	P0_15	P4_13	D12	P4 13/SSLA0
	N10		P4_14	E11	
	N10		P4_15	E14	
P1 0/DQ0	R1	P1_0	P5_0	R4	P5 0-MMC CLK
P1 1/DQ1	N1	P1_1	P5_1	N4	P5 1-MMC CMD
P1 2/DQ2	N1	P1_2	P5_2	N5	P5 2-MMC D0
P1 3/DQ3	N2	P1_3	P5_3	N5	P5 3-MMC D1
P1 4/DQ4	N3	P1_4	P5_4	R5	P5 4-MMC D2
P1 5/DQ5	M3	P1_5	P5_5	M5	P5 5-MMC D3
P1 6/DQ6	L4	P1_6	P5_6	M6	P5 6/SDICD
P1 7/DQ7	K4	P1_7	P5_7	N6	P5 7/SDIWP
P1 8/TMS/SWDIO	B2	P1_8	P5_8	M7	P5 8-RS ON
P1 9/TDO/TXD9/TRACESWO	B1	P1_9	P5_9	P6	P5 9/TXD5
P1 10/TDI/RXD9	C2	P1_10	P5_10	N7	P5 10/RXD5
P1 11/A5	C1	P1_11	P5_11	R15	P5 11/CRX1
P1 12/A4	C3	P1_12	P5_12	P13	P5 12/CTX1
P1 13/A3	D3	P1_13	P5_13	P14	P5 13-LCD D16
P1 14/A2	E3	P1_14	P5_14	CT4	
P1 15/A1	E3	P1_15	P5_15	CT4	
	A12	P2_2	P6_0	L3	P6 1/DQM0
	B13	P2_3	P6_1	L1	P6 2/SDCLK
	D13	P2_4	P6_2	C3	P6 3/DQ13
P2 5/SCL1	CT4	P2_5	P6_3	C2	P6 4/DQ12
P2 6/SDA1	G9	P2_6	P6_4	K1	P6 5/DQ11
	CT4	P2_7	P6_5	K6	P6 6-LCD D3
	CT4		P6_6	C5	P6 7-LCD D4
P3 0/TCK/SWCLK	F5	P3_0	P6_7	F4	P6 8/DQM1
P3 1/A6	B3	P3_1	P6_8	C4	P6 9/CKE
P3 2/A7	A3	P3_2	P6_9	E1	P6 10/WE#
P3 3/A8	A3	P3_3	P6_10	E2	P6 11/SDCS#
P3 4/A9	C3	P3_4	P6_11	E2	P6 12/DQ8
P3 5/A10	D3	P3_5	P6_12	E3	P6 13/DQ9
P3 6/A11	D5	P3_6	P6_13	E1	P6 14/DQ10
P3 7/A12	D6	P3_7	P6_14	G8	P6 15-LCD D10
P3 8/A13	D7	P3_8	P6_15		
P3 9/A14	C3	P3_9			
P3 10/A15	C6	P3_10			
P3 11/RAS#	C7	P3_11			
P3 12/CAS#	B6	P3_12			
P3 13-LCD DE	E10	P3_13			
P3 14-LCD VSYNC	F9	P3_14			
P3 15-LCD HSYNC	CT1	P3_15			

U1B  
S7G2-FBGA224

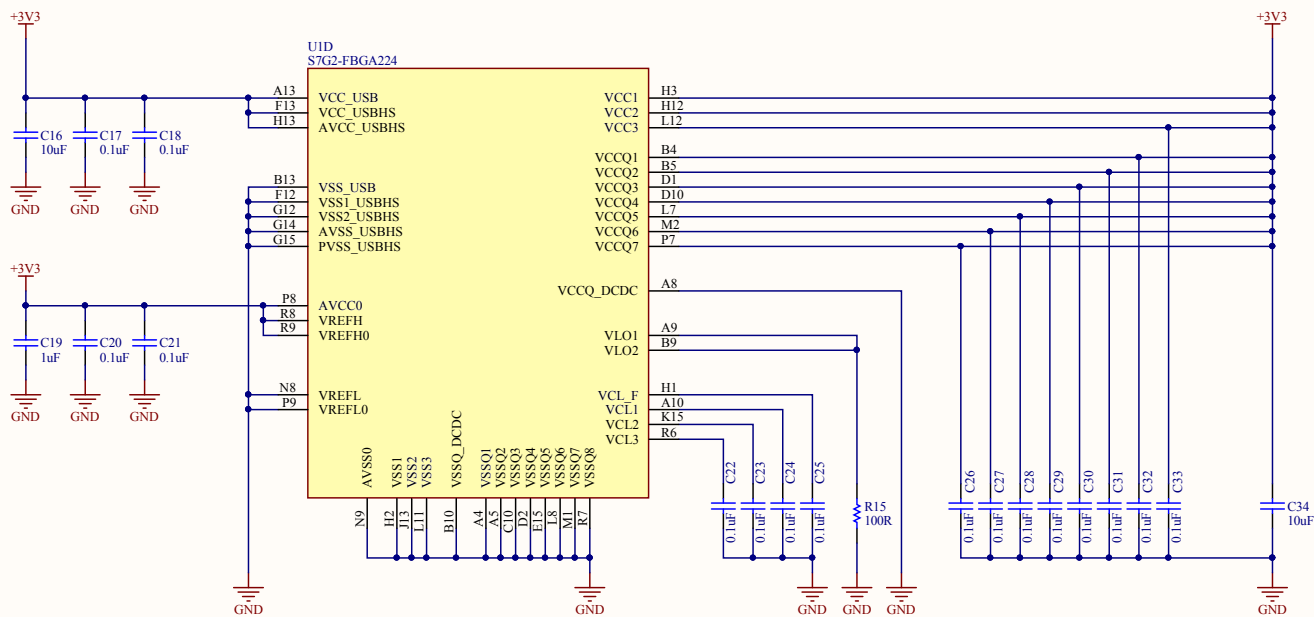
P7 0/RMII1 TXD0	M14	P7_0	PA_0	J7	PA 0-LCD D5
P7 1/REF50CK1	M15	P7_1	PA_1	J6	PA 1-LCD D6
P7 2/RMII1 RXD0	K11	P7_2	PA_2	J5	PA 2-TOUCH RST#
P7 3/RMII1 RXD1	J8	P7_3	PA_3	J4	PA 3-LCD ON
P7 4/RMII1 RX ER	J10	P7_4	PA_4	J3	PA 4-AUDIO EN
P7 5/RMII1 CRS DV	L14	P7_5	PA_5	J2	PA 5-BLEN
P7 6-ETH RESET#	L14	P7_6	PA_6	J1	PA 6-LED G
P7 7-USBH OC	L14	P7_7	PA_7	G7	PA 7-LED R
P7 8/RXD1	D15	P7_8	PA_8	G7	PA 8-LCD D9
P7 9/TXD1	E13	P7_9	PA_9	H4	PA 9-LCD D8
	F10	P7_10	PA_10	H5	PA 10-LCD D7
P7 11/CTS1	E11	P7_11	PA_11	G6	PA 11-LCD D18
P7 12-RTS1	F11	P7_12	PA_12	G5	PA 12-TCLK
	G10	P7_13	PA_13	H7	PA 13-TDATA0
	G10		PA_14	G3	PA 14-TDATA1
	G10		PA_15	G2	PA 15-TDATA2
P8 0/DQ14	P2	P8_0		H9	PB 0-USBH VBUSEN
P8 1/DQ15	R2	P8_1	PB_0	K13	PB 1-BT SHUDN#
P8 2-LCD D2	R3	P8_2	PB_1	J11	PB 2-CTS8
P8 3-LCD D1	P4	P8_3	PB_2	K12	PB 3-SCK8 RTS8
P8 4-LCD D0	M14	P8_4	PB_3	H10	PB 4-TXD8
P8 5-LCD D17	M15	P8_5	PB_4	J12	PB 5-RXD8
	P12	P8_6	PB_5	H11	PB 6-RS DEN
	K4	P8_7	PB_6	G11	
	K4	P8_8	PB_7		
	P1	P8_9			
	P1	P8_10			
	L3	P8_11			
	L3	P8_12			
P8 13/TDATA3	G1	P8_13			
P9 0-LCD CLK	E9	P9_0			
P9 1-LCD D15	B11	P9_1			
P9 2-LCD D23	A11	P9_2			
P9 3-MMC RST#	D6	P9_3			
P9 4-WIFI PWD#	C6	P9_4			
P9 5-LCD D11	A6	P9_5			
P9 6-LCD D12	F6	P9_6			
P9 7-LCD D13	F7	P9_7			
P9 8-LCD D14	E7	P9_8			
P9 9-LCD D21	E8	P9_9			
P9 10-LCD D22	D8	P9_10			
P9 11	A7	P9_11			
P9 12	B7	P9_12			
P9 13	H6	P9_13			
P9 14-LCD D19	E8	P9_14			
P9 15-LCD D20	E9	P9_15			

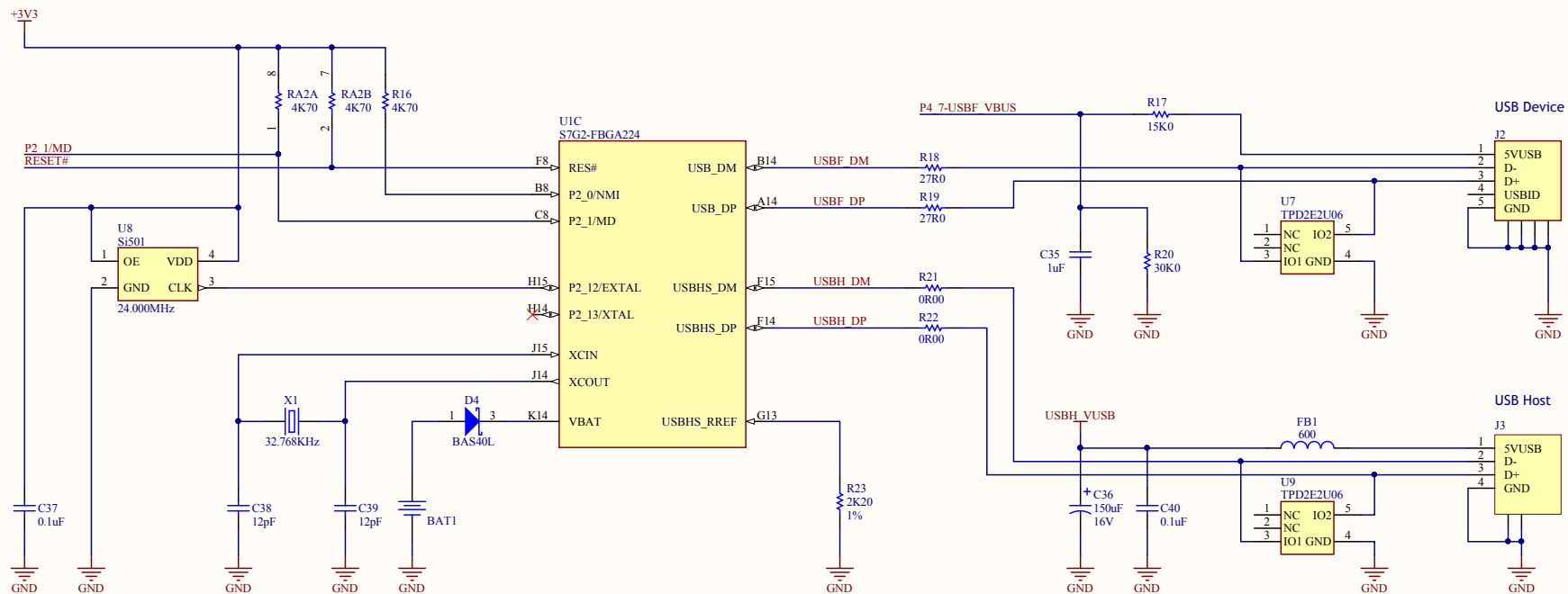
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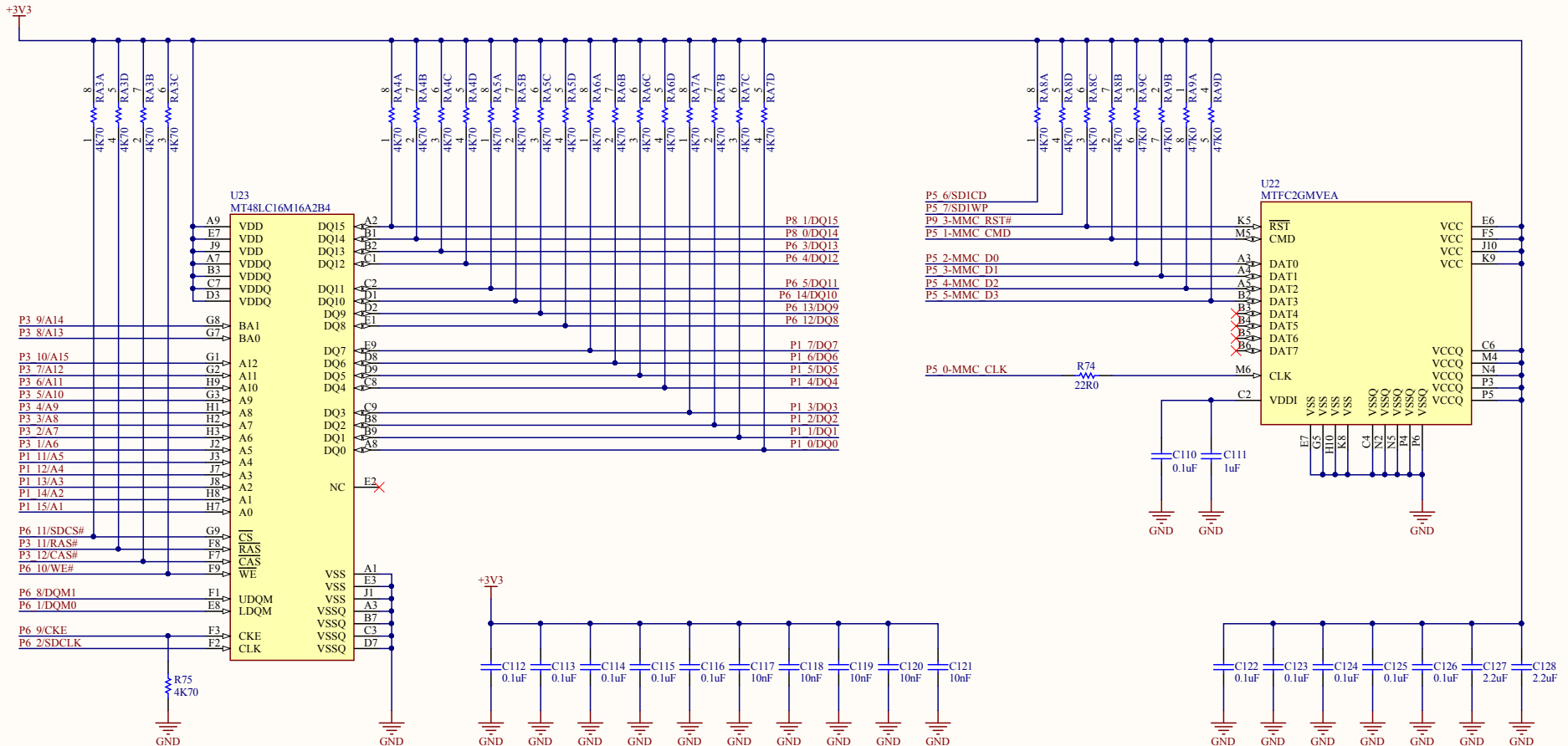
**Renesas Synergy(™) PE-HMI1 Product Example**  
 DRAM, eMMC memories

Version: v2.0  
 Release Date: 7/7/2015  
 File: PE-HMI1\_V2.0-SDRAM\_SCH002

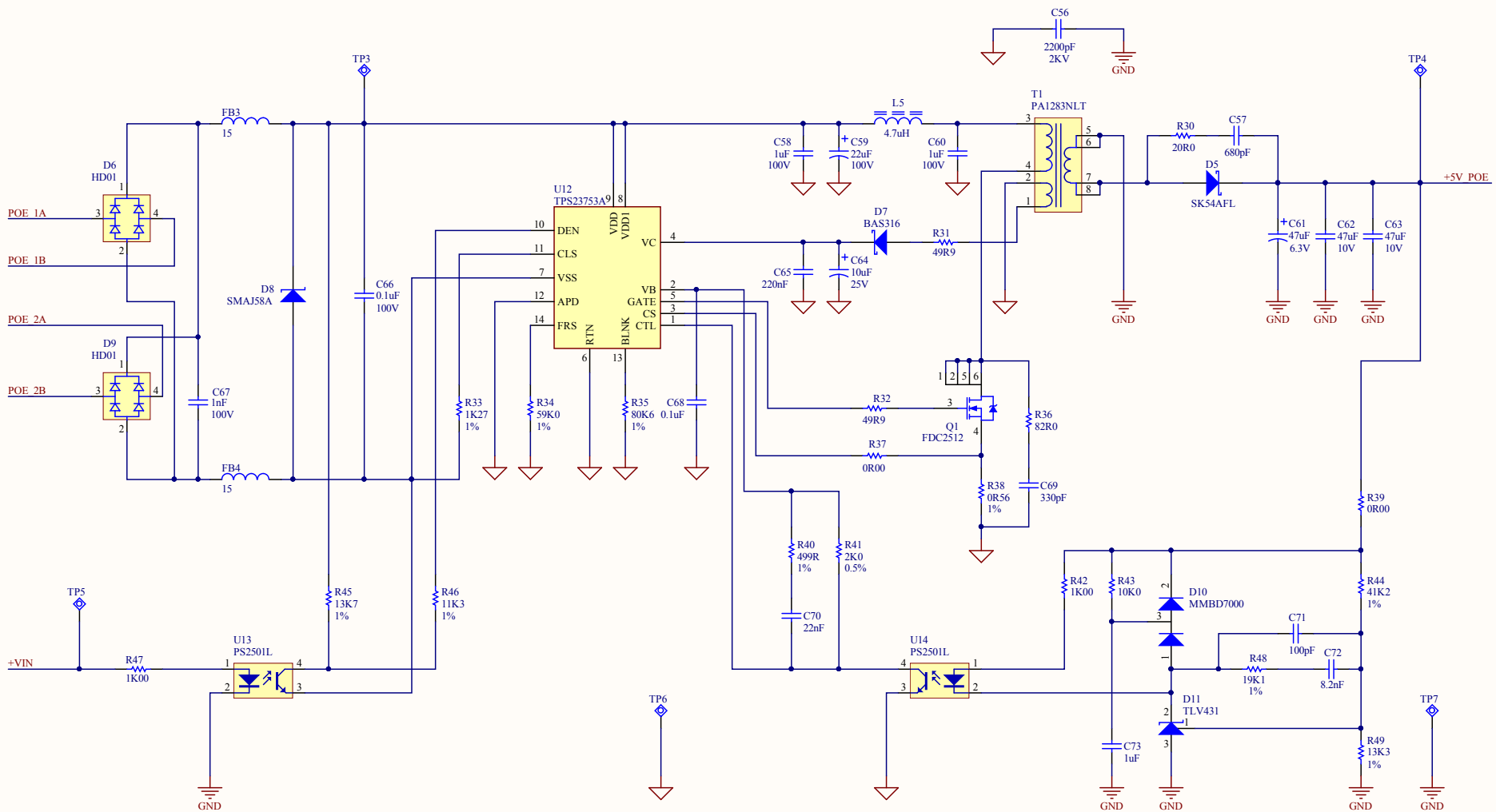
PCB Revision: PCB 03  
 Sheet 6 of 12

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<https://synergygallery.renesas.com>

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**SERIOUS™**





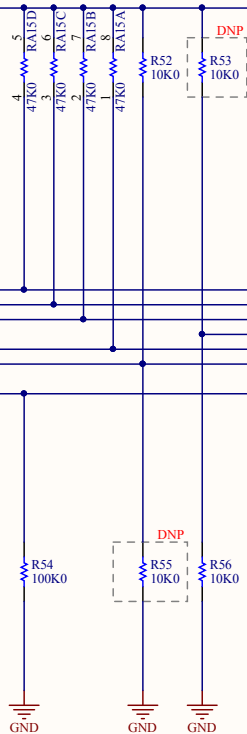




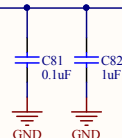
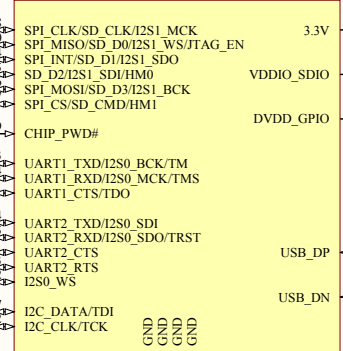


+3V3

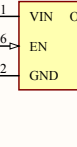
P4 12/RSPCKA  
P4 10/MISOA  
P0 1/IRQ7-DS-WIFI IRQ#  
P4 11/MOSIA  
P4 13/SSLA0  
P9 4-WIFI PWD#



RF1  
GT202



U15  
TLV70018



PB 1-BT SHUDN#  
P7 8/RXD1  
P7 9/TXD1  
P7 11/CTS1  
P7 12-RTS1

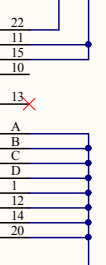
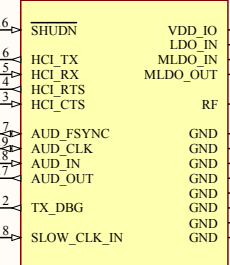
U16  
NVT2006

VRB VRA  
EN B1 A1  
B2 A2  
B3 A3  
B4 A4  
B5 A5  
B6 A6  
GND  
PAD

U17  
Si501  
32.768KHz

OE VDD  
GND CLK

RF2  
PANI326



Design by  
SERIOUS™

Renesas Synergy(™) PE-HM11 Product Example  
WiFi and Bluetooth

Version: v2.0  
Release Date: 7/7/2015  
File: PE-HM11\_V2.0-WIFI\_BT\_SchDoc

PCB Revision: PCB 03  
Sheet 10 of 12

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