Table of Contents

CAD Note:

Default component footprint is SMD 0201, X5R, 1% resistors.

Property: BUILD-OPT
DNP = Do Not Place

S or DB = Replace after Debug

Schematics Change History

Rev.	Date	Comments
0p9	28 Oct 2014	1. Starting with G_EV1_1021-1630.DSN 2. Added SL schematic from page 72 ...\T\MB\DV_RELEASED\Schematic\CASTLE2_DV_2014_1021_1100.DSN 3. Added External USB3 schematic from ...\T\MB\DV_RELEASED\Schematic\CASTLE2_DV_2014_1021_1100.DSN 4. Added external DP ...\T\MB\DV_RELEASED\Schematic\CASTLE2_DV_2014_1021_1100.DSN 5. Added IR_CAMERA from Front Camera...put in page 49 6. Removed page 73 PCIe GPU 7. Added Blade from T 8. Removed P72 T2B Pwr Transistors
0p10	3 Nov 2014	1. Changing to NVDC 2. Replaced GTX with GT, kept bypass caps 3. Replaced Charger with BQ24770
0p11	3 Nov 2014	1. Replace SKL-U with SKL-Y
0p12	11 Nov 2014	1. Model DDR connection from Intel SDS
0p13	18 Nov 2014	1. Added FUB information to all components 2. Changed Decretes.. sizing caps
0p14	20 Nov 2014	1. Added +5VA_SHA 2. Added T Cost Down/XCN's 3. Added SL +5V load Switch & Caps 4. Added Blade +5V load Switch & Caps
0p15	26 Nov 2014	1. Removed Boost 2. Re-adjusted usb ports on CPU 3. Removed Audio DSP
0p16	03 Dec 2014	1. changed +1VSB regulator 2. changed IR Camera/added diode 3. added power numbers from 0.91 PDG, Oct14 4. changed BLADE connector 5. cpu decoupling caps changed 6. changed +5V/+3V inductors (place holder)
0p17	05 Dec 2014	1. swapped M_A_CAA with MA_CAB on U1601/U1602 2. added two SAR chips, P32 3. remove tp's from csi lines on (p23) 4. change from 10 ceramic to 3 tantalum-poly on usb3 typeA (p45) 5. remove the RSENSE from output of +VCCIO(p56)/+0p85VSB(p56)/+VCCEDRAM (p58)/+VCCEOPIO (p58)/+1VSB(p61)/+1P8VSB(p62) 6. change RSENSE input to 0402 from 0603 for +VCCIO(p56)/+0p85VSB(p56)/+VCCEDRAM (p58)/+VCCEOPIO (p58)/+1VSB(p61)/+1P8VSB(p62) input regulator 7. change inductor for +VCCIO(p56)/+0p85VSB(p56)/+VCCEDRAM (p58) to HMLE20161B-1R0MDR-01 8. change RSENSE input to 0402 from 0603 for +5V_TS,+5V_SDXC,+5V_AUDIO,+5V, +5V_FAN(p64) 9. change RSENSE input to 0402 from 0603 for +3P3V_PANEL,+3P3V,+3P3V_SENSOR,+1P8V_DMIC (p65) 10. Replacing the SL connector with X908351-001 11. Replace PL5901 and PL5902 with CMLE042T-2R2MS-01 12. Replace 0402 1uf 6.3V with 0201 1uF 6.3V X5R 13. Replace L7201 with TOKO #A919CY-100M 14. Added VSYS -> BLADE FANG supply (p73)
0p18	09 Dec 2014	1. Reduced sizes of parts for Cameras (Resistors/Caps/Regulators)
0p19	12 Dec 2014	1. All 47uF caps become 0805/1mmZ 2. All 10uF caps become 0402...4V/6.3V
0p20	15 Dec 2014	1. changed SAM flash to reduce size to 2x3 from 5x4 2. Shui Changes 3. more Shui Changes
0p21	16 Dec 2014	1. changed SAM flash to reduce size to 2x3 from 5x5 2. changes from EV_schematic_issue_check_1216_JDM1.xlsx 3. changed name of +6_12 to +V_ALWAYS_ON 4. Removed 2 Mikes & Front Mike & added FPC conn 5. Added 2nd BLADE connector
0p22	17 Dec 2014	1. Replaced SD connector with AY531465T 2. changes from EV_schematic_issue_check_viola_1217_JDM1.xlsx
0p23 - current		1. See apexUfixes_revXpXX.xlsx

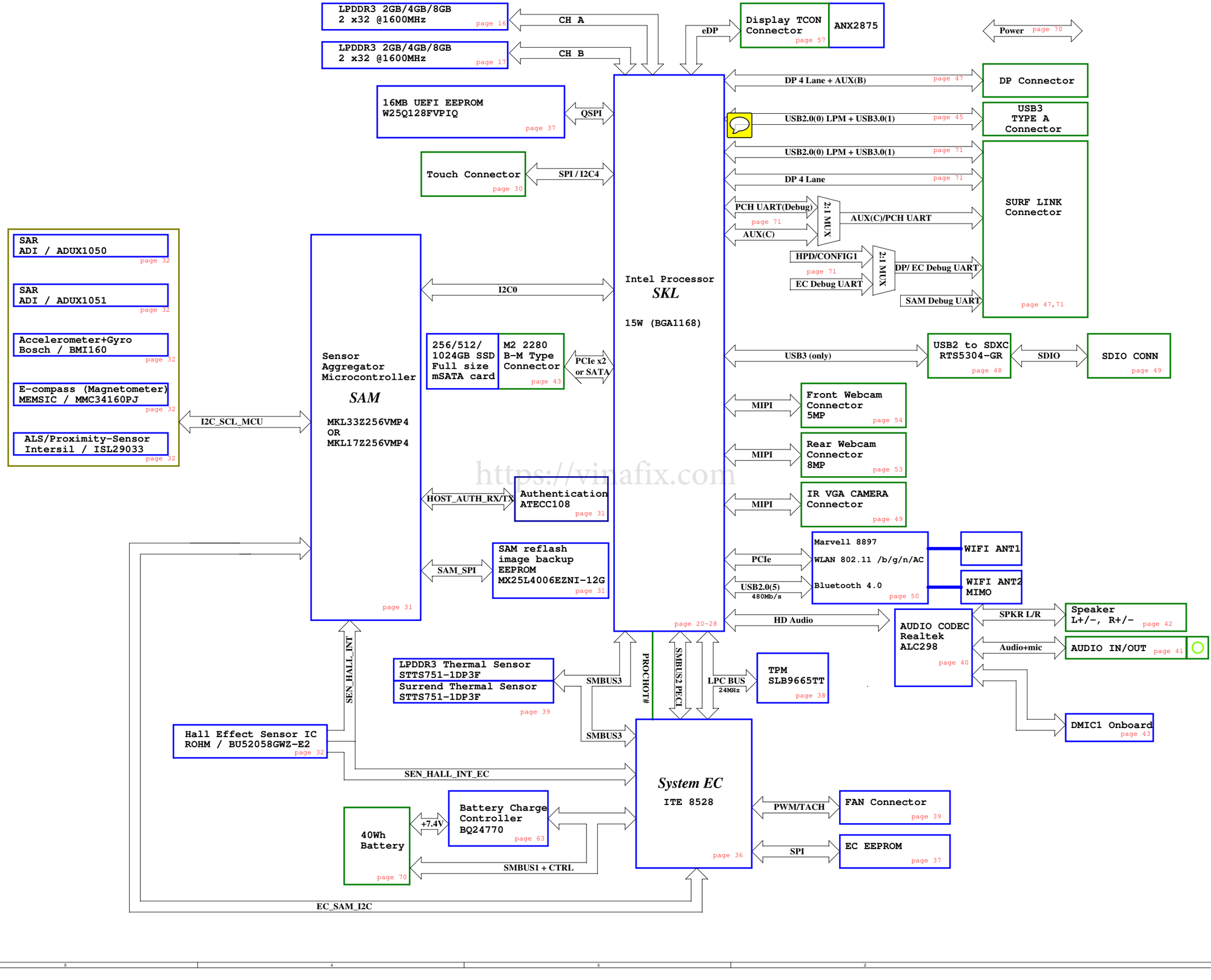
CAD Note:

Default component footprint is SMD 0201, X5R, 1% resistors

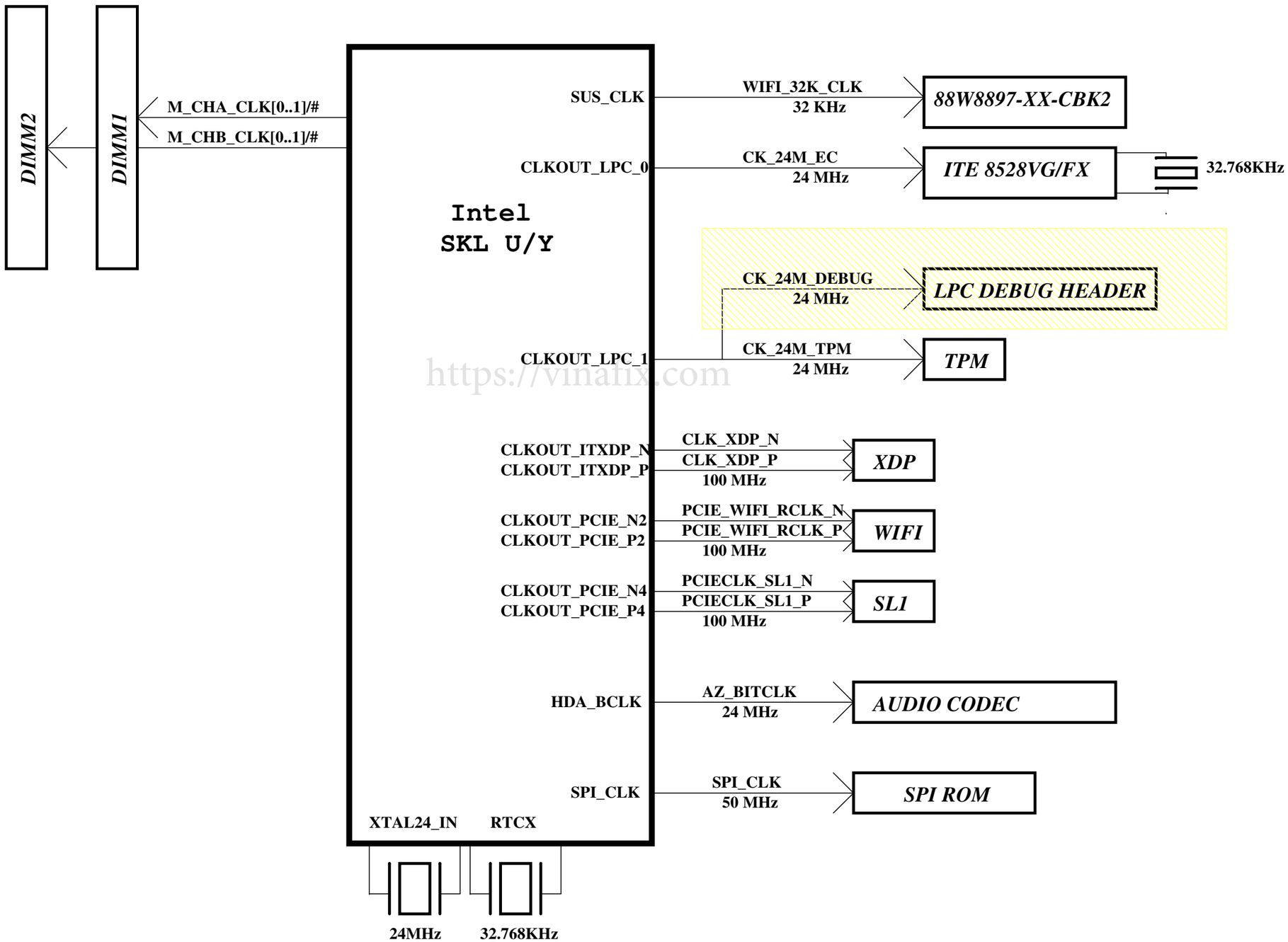
S = Short after design fixed

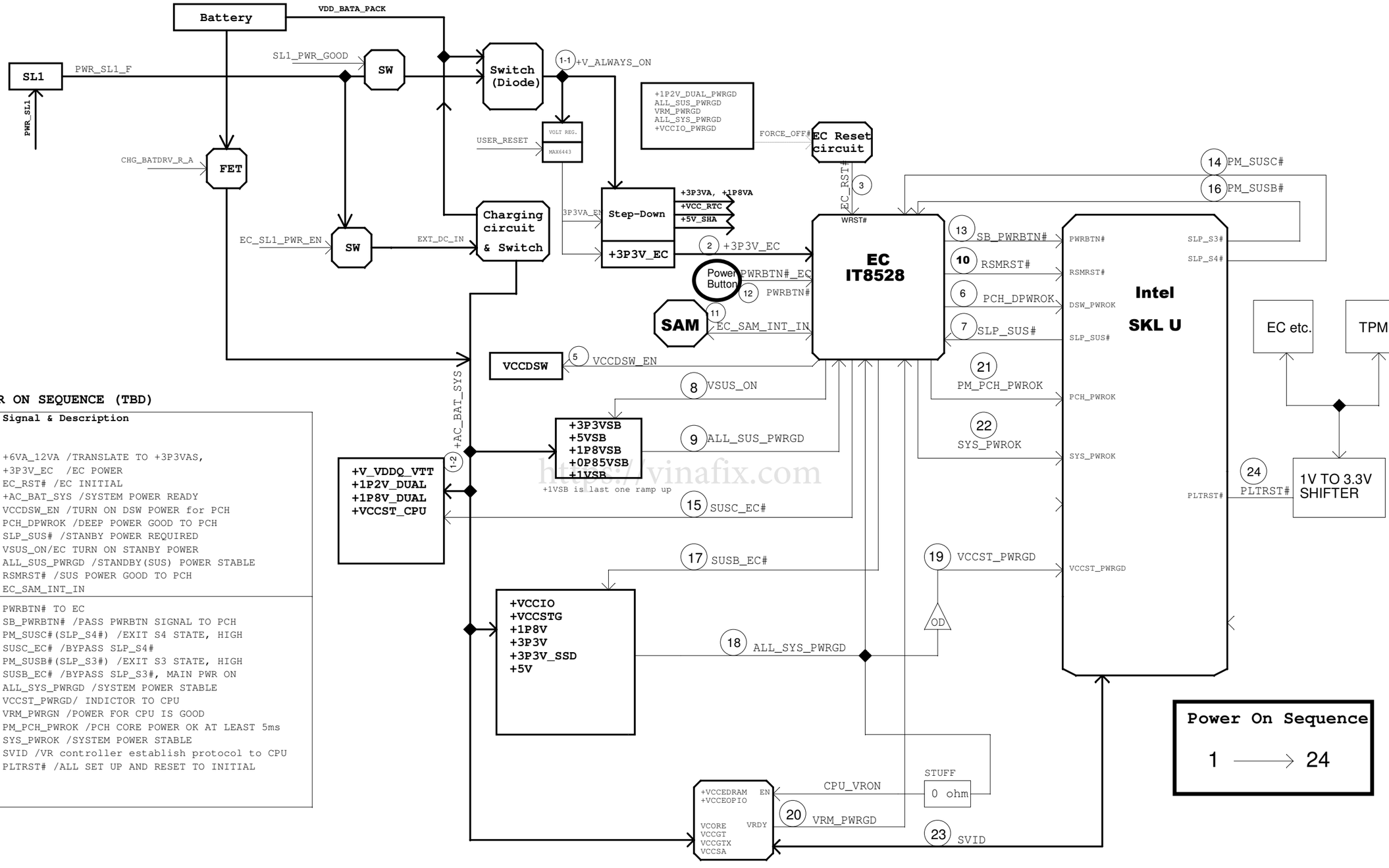
Property: BUILD-OPT

DNP = Not Installed Part.



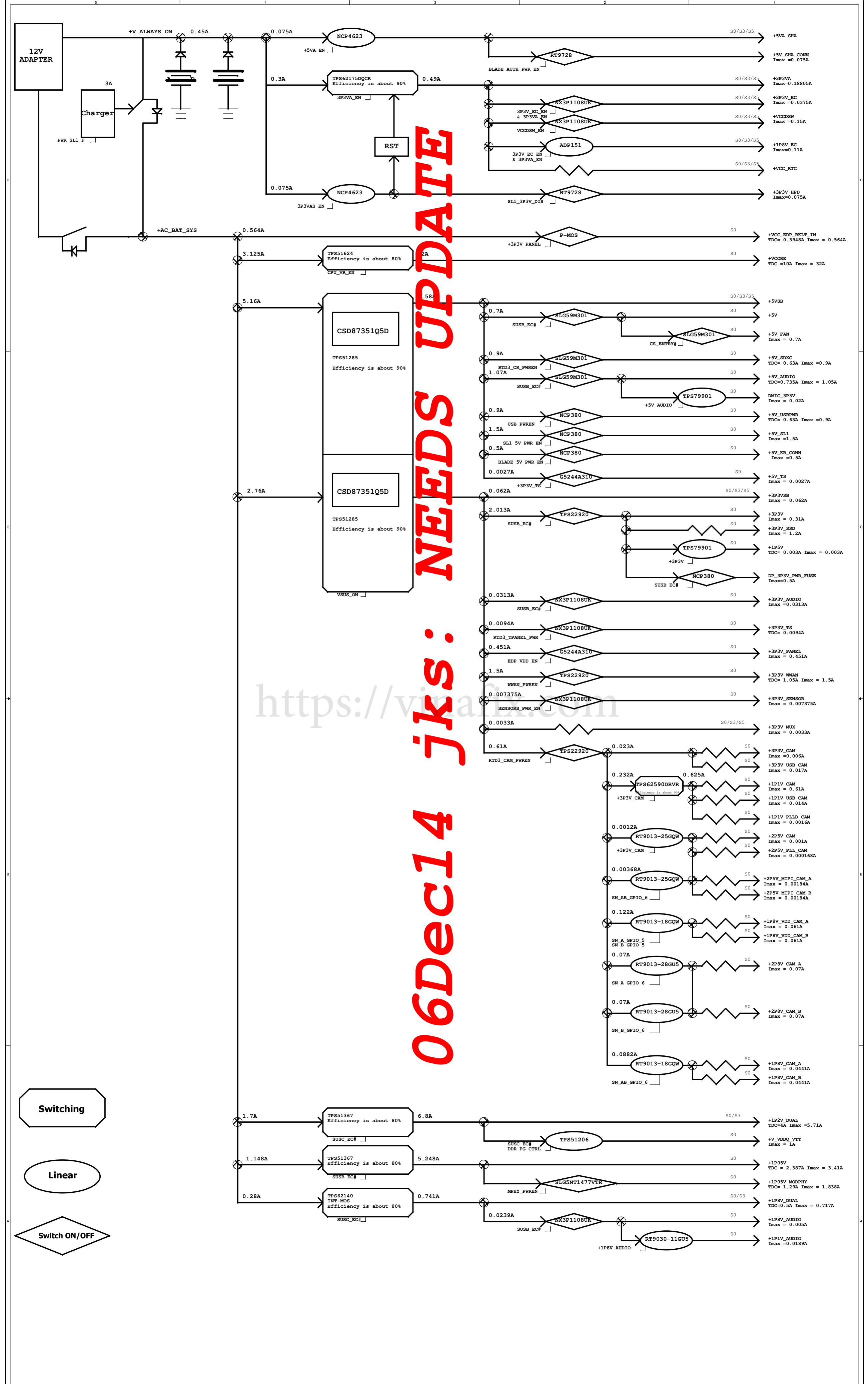
HSW Buffer Through Mode for Pre-Silicon





POWER ON SEQUENCE (TBD)

STEP	Signal & Description
1	+6VA_12VA /TRANSLATE TO +3P3VAS,
2	+3P3V_EC /EC POWER
3	EC_RST# /EC INITIAL
4.	+AC_BAT_SYS /SYSTEM POWER READY
5.	VCCDSW_EN /TURN ON DSW POWER for PCH
6.	PCH_DPWROK /DEEP POWER GOOD TO PCH
7.	SLP_SUS# /STANBY POWER REQUIRED
8.	VSUS_ON/EC TURN ON STANBY POWER
9.	ALL_SUS_PWRGD /STANDBY(SUS) POWER STABLE
10.	RSMRST# /SUS POWER GOOD TO PCH
11.	EC_SAM_INT_IN
12	PWRBTN# TO EC
13.	SB_PWRBTN# /PASS PWRBTN SIGNAL TO PCH
14.	PM_SUSC#(SLP_S4#) /EXIT S4 STATE, HIGH
15.	SUSC_EC# /BYPASS SLP_S4#
16.	PM_SUSB#(SLP_S3#) /EXIT S3 STATE, HIGH
17.	SUSB_EC# /BYPASS SLP_S3#, MAIN PWR ON
18.	ALL_SYS_PWRGD /SYSTEM POWER STABLE
19.	VCCST_PWRGD/ INDICTOR TO CPU
20.	VRM_PWRGN /POWER FOR CPU IS GOOD
21.	PM_PCH_PWROK /PCH CORE POWER OK AT LEAST 5ms
22.	SYS_PWROK /SYSTEM POWER STABLE
23.	SVID /VR controller establish protocol to CPU
24.	PLTRST# /ALL SET UP AND RESET TO INITIAL



CPU Haswell ULT

+VCORE	-> 32A
+1P05V	-> 0.6A
+DDR_V (+1P2V_DUAL)	-> 2.5A
+1P05V	-> 2.81A
+1P05V_MODPHY	-> 1.838A
+1P5V	-> 0.003A
+3P3V	-> 0.200A
+3P3VSB	-> 0.062A
+3P3VA	-> 0.099A

LPDDR3

+1P8V_DUAL	-> 0.717A
+1P2V_DUAL	-> 3.210A
+VTT_DDQ_VTT(0.6V)	-> 1A

mSATA(SSD)

+3P3V	-> 1.2A

EC

+3P3V_EC	-> 0.012A

EC ROM

+3P3V_EC	-> 0.005A
+3P3VA	-> 0.00025A

Temp sensor(STTS751)

+3P3V_EC	-> 0.00025A

Camera

+1P1V_CAM	-> 0.609A
+1P1V_PLLD_CAM	-> 0.0016A
+1P1V_USB_CAM	-> 0.0137A
+1P8V_CAM	-> 0.0882A
+1P8V_VDD_CAM	-> 0.122A
+2P5V_CAM	-> 0.001A
+2P5V_PLL_CAM	-> 0.000168A
+2P5V_MIPI_CAM	-> 0.00368A
+2P8V_CAM	-> 0.14A
+3P3V_CAM	-> 0.006A
+3P3V_USB_CAM	-> 0.0169A

TPM(Infineon SLB9665 ESS2)

+3P3V_TPM (+3P3V)	-> 0.1A

SDXC

+5V_SDXC	-> 0.9A

WiFi&BT

+3P3V_WWAN	-> 1.5A

DMIC

DMIC_+3P3V/+3P3V_AUDIO	-> 0.02A

FAN

+5V_FAN	-> 0.7A

UEFI_SPI_BIOS_ROM

+3P3V	-> 0.04A

Panel

VCC_EDP_BKLT_IN	-> 0.564A
+3P3V_PANEL	-> 0.2A

Authentication IC (ECC108)

+3P3VA	-> 0.005A

Touch Interface

+3P3V_TS	-> 0.0094A
+5V_TS	-> 0.0027A

ALC3264 CODEC

+3P3V_AUDIO	-> 0.005A
+5V_AUDIO	-> 1.05A
+1P8V_AUDIO	-> 0.005A

DSP (ES320)

+3P3V_AUDIO	-> 0.0063A
+1P1V_AUDIO	-> 0.0189A

Sensor uC(ATUC256L3U-Z3UR)

+3P3VA	-> 0.061A

SL1

+3P3V_HPD	->0.075A
+5V_SL1	-> 1.5A

BLADE

+5V_KB_CONN	-> 0.5A

Hall effect sensor(BU52058GWZ-E2)

+3P3VA	->0.0028A

Compass(MMC3416XMA)

+3P3V_SENSOR	->0.0012A

Acceleromte&Gyro(LSM330TR)

+3P3V_SENSOR	-> 0.0061A

ALS(ISL29033IROZ-T7) FPC CON

+3P3V_SENSOR	-> 0.000075A

MUX

+3P3V_MUX	-> 0.033A

mini DP

+3P3V	-> 0.5A

USB 3.0 connector

+5VUSBPWR	-> 0.9A

Transceiver SN74AVCT245

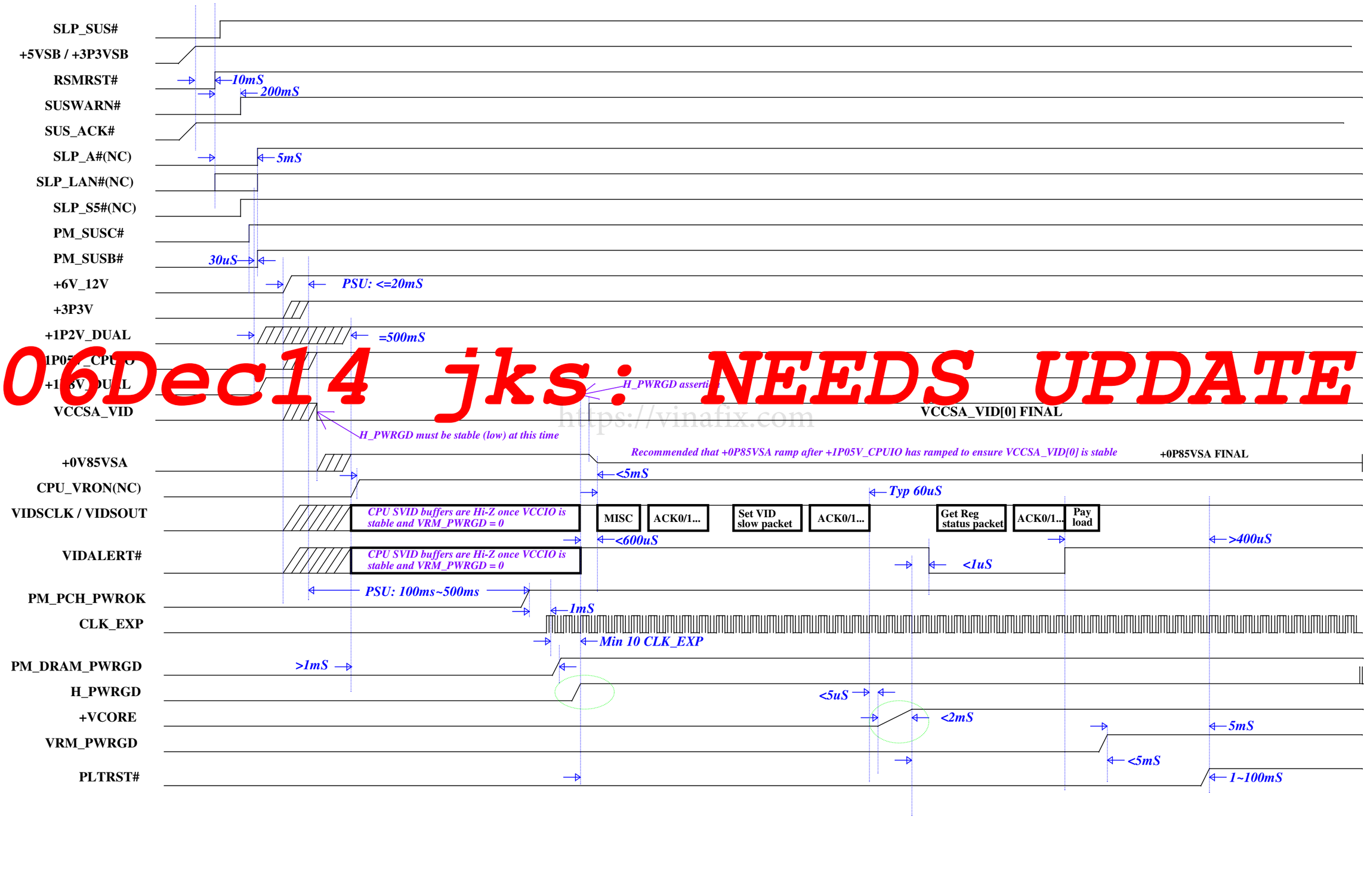
+1P8V_EC	-> 0.11A

Battery Charger BQ24735

+V_ALWAYS_ON	-> 0.003A

06Dec14 jks: NEEDS UPDATE

S5 to S0 Power Sequence



I2C & SMBUS Map

SML1_PCH_DATA
SML1_PCH_CLK

Q3501
Q3504

PCH
U1001

S
M
M 0x4D

PCH_I2C1_SDA_3V3
PCH_I2C1_SCL_3V3

R3001
R3003

TS_A_I2C_SDA_CON
TS_A_I2C_SCL_CON

Touch Connector
CON3001 0x60

Surrend
TEMP Sensor
U3901 0x4B

Skin
TEMP Sensor
U3902 0x3B

Skin
TEMP Sensor
U3903 0x3A

Skin
TEMP Sensor
U3904 0x4A

SML3_EC_DATA
SML3_EC_CLK

SH_I2C_SDA
SH_I2C_SCL

Debug Connector
CON3302

U3501

SML0_EC_DATA
SML0_EC_CLK

M
S
EC
U3601
M 0x4E

S
M
SAM
U3105
0x28

I2C_SDA_MCU_R
I2C_SCL_MCU_R

R3122
R3124

I2C_SDA_MCU
I2C_SCL_MCU

TEMP Sensor
U3211 0x3A

R3229
R3230

R3266
R3267

R3210
R3211

SML1_EC_DATA
SML1_EC_CLK

ADUX1050
U3206 0x2D

ADUX6

R3285
R3287

R3212
R3213

MAG2_X_SDA
MAG2_X_SCL

Accel & Gyro
U3202 0x68

MAG2_SCL_3V3
MAG2_SDA_3V3

Magnetometer
U3203 0x30

CHG_SDA_A
CHG_SCL_A

PR6309
PR6310
0 ohm

Charger
U6301
0x12

R7032/L7005
R7033/L7006

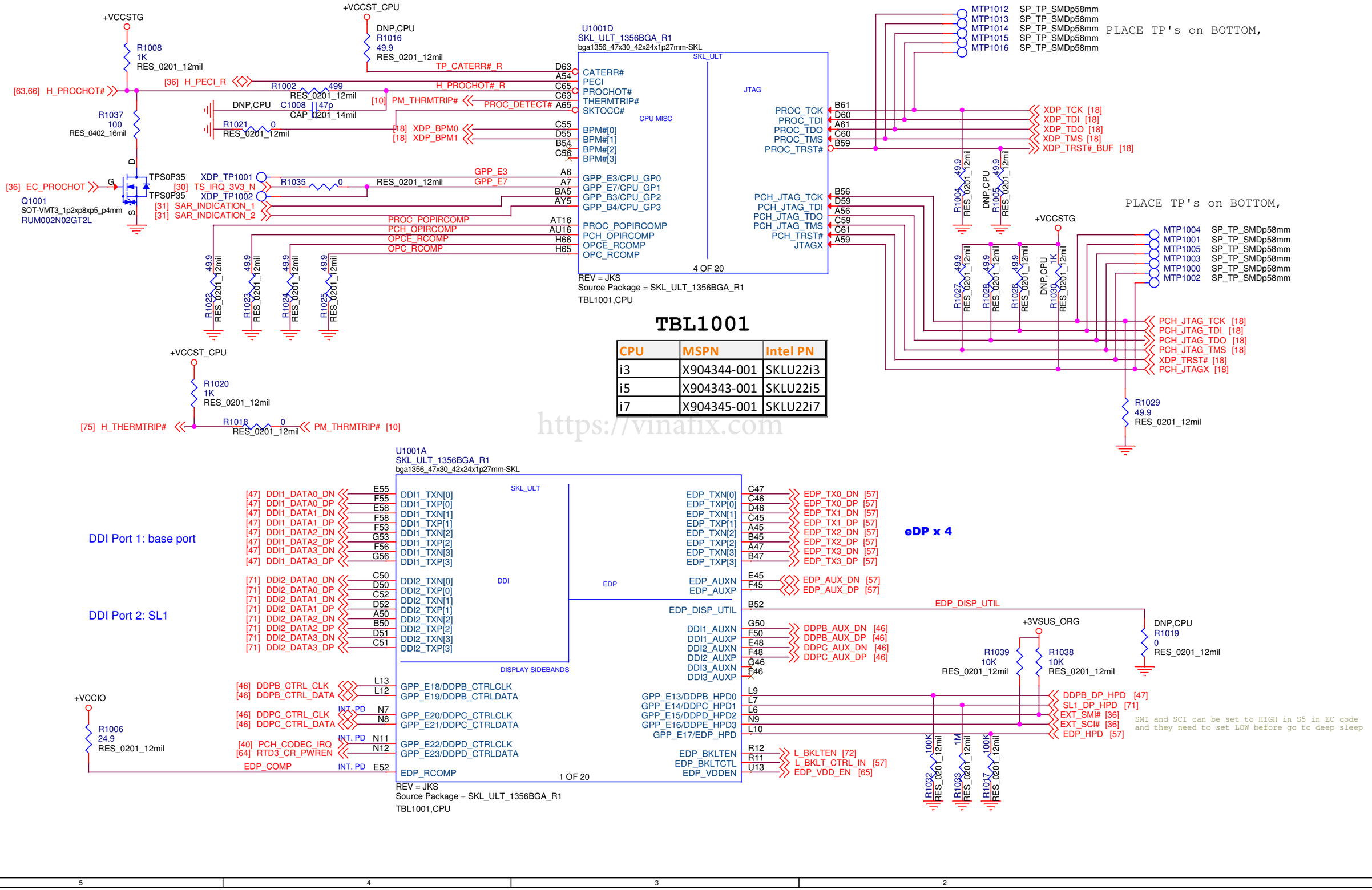
EC_SMCLK_BAT
EC_SMDATA_BAT

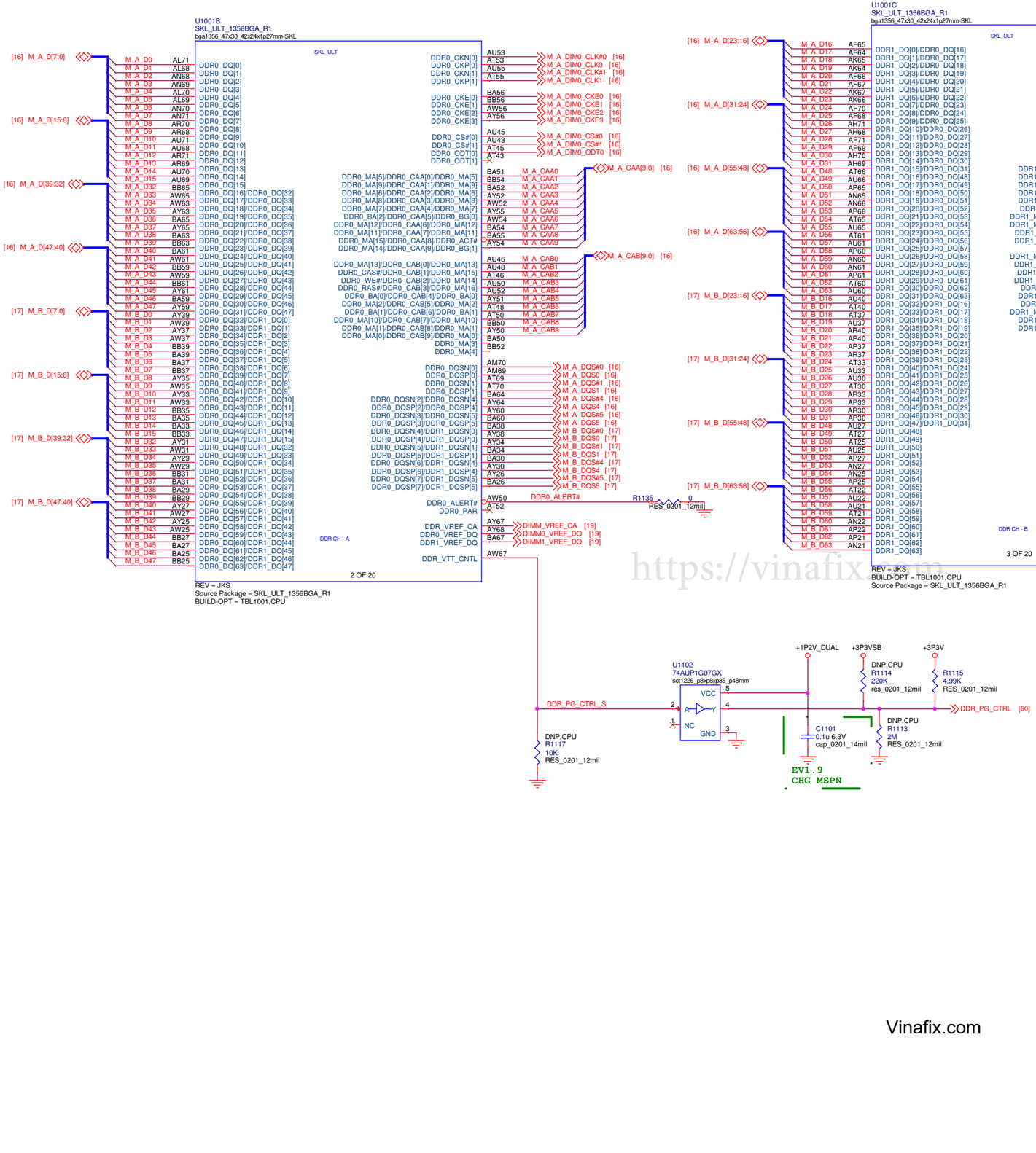
Battery
Connector
CON7001 0x16

ADUX1050
U3207 0x2C

ADUX7

R3286
R3288


+VCCSTG
R1008
1K
RES_0201_12mil
[63,66] H_PROCHOT#
R1037
100
RES_0402_16mil
[36] EC_PROCHOT
Q1001
SOT-VMT3_1p2xp8xp5_p4mm
RUM002N02GT2L
TPS0P35
TPS0P35
+VCCST_CPU
DNP,CPU
R1016
49.9
RES_0201_12mil
[36] H_PECI_R
R1002
499
RES_0201_12mil
H_PROCHOT#_R
DNP,CPU
C1008
47p
CAP_0201_14mil
[10] PM_THRMTRIP#
R1021
0
RES_0201_12mil
[18] XDP_BPM0
[18] XDP_BPM1
XDP_TP1001
[30] TS_IRQ_3V3_N
XDP_TP1002
[31] SAR_INDICATION_1
[31] SAR_INDICATION_2
R1035
0
RES_0201_12mil
TP_CATERR#_R
PROC_DETECT#
GPP_E3
GPP_E7
PROC_POPIRCOMP
PCH_OPIRCOMP
OPCE_RCOMP
OPC_RCOMP
R1022
R1023
R1024
R1025
49.9
RES_0201_12mil
U1001D
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL
SKL_ULT
CATERR#
PECI
PROCHOT#
THERMTRIP#
SKTOCC#
CPU MISC
BPM#[0]
BPM#[1]
BPM#[2]
BPM#[3]
GPP_E3/CPU_GP0
GPP_E7/CPU_GP1
GPP_B3/CPU_GP2
GPP_B4/CPU_GP3
PROC_POPIRCOMP
PCH_OPIRCOMP
OPCE_RCOMP
OPC_RCOMP
4 OF 20
REV = JKS
Source Package = SKL_ULT_1356BGA_R1
TBL1001,CPU
JTAG
PROC_TCK
PROC_TDI
PROC_TDO
PROC_TMS
PROC_TRST#
PCH_JTAG_TCK
PCH_JTAG_TDI
PCH_JTAG_TDO
PCH_JTAG_TMS
PCH_TRST#
JTAGX
MTP1012 SP_TP_SMDp58mm
MTP1013 SP_TP_SMDp58mm
MTP1014 SP_TP_SMDp58mm
MTP1015 SP_TP_SMDp58mm
MTP1016 SP_TP_SMDp58mm
PLACE TP's on BOTTOM,
XDP_TCK [18]
XDP_TDI [18]
XDP_TDO [18]
XDP_TMS [18]
XDP_TRST#_BUF [18]
R1004
R1005
49.9
RES_0201_12mil
DNP,CPU
PLACE TP's on BOTTOM,
+VCCSTG
MTP1004 SP_TP_SMDp58mm
MTP1001 SP_TP_SMDp58mm
MTP1005 SP_TP_SMDp58mm
MTP1003 SP_TP_SMDp58mm
MTP1000 SP_TP_SMDp58mm
MTP1002 SP_TP_SMDp58mm
R1027
R1028
R1026
R1030
49.9
1K
RES_0201_12mil
DNP,CPU
PCH_JTAG_TCK [18]
PCH_JTAG_TDI [18]
PCH_JTAG_TDO [18]
PCH_JTAG_TMS [18]
XDP_TRST# [18]
PCH_JTAGX [18]
R1029
49.9
RES_0201_12mil
TBL1001
CPU
MSPN
Intel PN
i3
X904344-001
SKLU22i3
i5
X904343-001
SKLU22i5
i7
X904345-001
SKLU22i7
+VCCST_CPU
R1020
1K
RES_0201_12mil
[75] H_THERMTRIP#
R1018
0
RES_0201_12mil
PM_THRMTRIP# [10]
U1001A
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL
SKL_ULT
DDI1_TXN[0]
DDI1_TXP[0]
DDI1_TXN[1]
DDI1_TXP[1]
DDI1_TXN[2]
DDI1_TXP[2]
DDI1_TXN[3]
DDI1_TXP[3]
DDI
DDI2_TXN[0]
DDI2_TXP[0]
DDI2_TXN[1]
DDI2_TXP[1]
DDI2_TXN[2]
DDI2_TXP[2]
DDI2_TXN[3]
DDI2_TXP[3]
DISPLAY SIDEBANDS
GPP_E18/DDPB_CTRLCLK
GPP_E19/DDPB_CTRLDATA
GPP_E20/DDPC_CTRLCLK
GPP_E21/DDPC_CTRLDATA
GPP_E22/DDPD_CTRLCLK
GPP_E23/DDPD_CTRLDATA
EDP_RCOMP
1 OF 20
REV = JKS
Source Package = SKL_ULT_1356BGA_R1
TBL1001,CPU
EDP
EDP_TXN[0]
EDP_TXP[0]
EDP_TXN[1]
EDP_TXP[1]
EDP_TXN[2]
EDP_TXP[2]
EDP_TXN[3]
EDP_TXP[3]
EDP_AUXN
EDP_AUXP
EDP_DISP_UTIL
DDI1_AUXN
DDI1_AUXP
DDI2_AUXN
DDI2_AUXP
DDI3_AUXN
DDI3_AUXP
GPP_E13/DDPB_HPD0
GPP_E14/DDPC_HPD1
GPP_E15/DDPD_HPD2
GPP_E16/DDPE_HPD3
GPP_E17/EDP_HPD
EDP_BKLTEN
EDP_BKLTCTL
EDP_VDDEN
DDI Port 1: base port
DDI Port 2: SL1
[47] DDI1_DATA0_DN
[47] DDI1_DATA0_DP
[47] DDI1_DATA1_DN
[47] DDI1_DATA1_DP
[47] DDI1_DATA2_DN
[47] DDI1_DATA2_DP
[47] DDI1_DATA3_DN
[47] DDI1_DATA3_DP
[71] DDI2_DATA0_DN
[71] DDI2_DATA0_DP
[71] DDI2_DATA1_DN
[71] DDI2_DATA1_DP
[71] DDI2_DATA2_DN
[71] DDI2_DATA2_DP
[71] DDI2_DATA3_DN
[71] DDI2_DATA3_DP
[46] DDPB_CTRL_CLK
[46] DDPB_CTRL_DATA
[46] DDPC_CTRL_CLK
[46] DDPC_CTRL_DATA
[40] PCH_CODEC_IRQ
[64] RTD3_CR_PWREN
EDP_COMP
INT. PD
+VCCIO
R1006
24.9
RES_0201_12mil
EDP_TX0_DN [57]
EDP_TX0_DP [57]
EDP_TX1_DN [57]
EDP_TX1_DP [57]
EDP_TX2_DN [57]
EDP_TX2_DP [57]
EDP_TX3_DN [57]
EDP_TX3_DP [57]
eDP x 4
EDP_AUX_DN [57]
EDP_AUX_DP [57]
DDPB_AUX_DN [46]
DDPB_AUX_DP [46]
DDPC_AUX_DN [46]
DDPC_AUX_DP [46]
L_BKLTEN [72]
L_BKLT_CTRL_IN [57]
EDP_VDD_EN [65]
+3VSUS_ORG
R1039
10K
RES_0201_12mil
R1038
10K
RES_0201_12mil
DNP,CPU
R1019
0
RES_0201_12mil
DDPB_DP_HPD [47]
SL1_DP_HPD [71]
EXT_SMI# [36]
EXT_SCI# [36]
EDP_HPD [57]
SMI and SCI can be set to HIGH in S5 in EC code
and they need to set LOW before go to deep sleep
R1032
R1033
R1017
100K
1M
100K
RES_0201_12mil
https://vinafix.com



+1P2V_DUAL

C13017 22u 4V cap_0603_40mil
C13018 22u 4V cap_0603_40mil
C13019 22u 4V cap_0603_40mil

C1241 10u 6.3V CAP_0402_28mil
C1240 10u 6.3V CAP_0402_28mil
C1239 10u 6.3V CAP_0402_28mil
C1238 10u 6.3V CAP_0402_28mil

Place on secondary side, underneath the package

DNP,CPU C1237 10u 4V cap_0402_0p65mm
DNP,CPU C1236 10u 4V cap_0402_0p65mm
DNP,CPU C1244 1u 6.3V CAP_0201_14mil
DNP,CPU C1243 1u 6.3V CAP_0201_14mil
DNP,CPU C1242 1u 6.3V CAP_0201_14mil
DNP,CPU C1232 1u 6.3V CAP_0201_14mil

R1201 0 RES_0402_16mil

C13020 10u 4V cap_0402_0p65mm

DNP,CPU C1245 1u 6.3V CAP_0201_14mil

Place on secondary side, underneath the package

+VCCST_CPU
C1246 1u 6.3V CAP_0402_22mil

from lVSB, control SLP_S4 (S3 rail)
+VCCSTG

Place on secondary side, underneath the package

DNP,CPU C1247 1u 6.3V CAP_0402_22mil

+VCCST_CPU
C1249 1u 6.3V CAP_0402_22mil

C1248 1u 6.3V CAP_0402_22mil

+VCCPLL_OC
DNP,CPU R1202 0 RES_0402_16mil

U1001N
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
CPU POWER 3 OF 4

AU23 VDDQ_AU23
AU28 VDDQ_AU28
AU35 VDDQ_AU35
AU42 VDDQ_AU42
BB23 VDDQ_BB23
BB32 VDDQ_BB32
BB41 VDDQ_BB41
BB47 VDDQ_BB47
BB51 VDDQ_BB51

VDDQC AM40
VCCST A18
VCCSTG_A22 A22
VCCPLL_OC AL23
VCCPLL_K20 K20
VCCPLL_K21 K21

VCCIO_SENSE AM23
VSSIO_SENSE AM22
VSSSA_SENSE H21
VCCSA_SENSE H20

VCCIO AK28
VCCIO AK30
VCCIO AL30
VCCIO AL42
VCCIO AM28
VCCIO AM30
VCCIO AM42

VCCSA AK23
VCCSA AK25
VCCSA G23
VCCSA G25
VCCSA G27
VCCSA G28
VCCSA J22
VCCSA J23
VCCSA J27
VCCSA K23
VCCSA K25
VCCSA K27
VCCSA K28
VCCSA K30
VCCSA

14 OF 20
REV = JKS

Place on secondary side, underneath the package

DNP,CPU C1262 10u 4V cap_0402_0p65mm
DNP,CPU C1261 10u 4V cap_0402_0p65mm
DNP,CPU C1259 1u 6.3V CAP_0201_14mil
DNP,CPU C1258 1u 6.3V CAP_0201_14mil
DNP,CPU C1257 1u 6.3V CAP_0201_14mil
DNP,CPU C1260 1u 6.3V CAP_0201_14mil
C1265 1u 6.3V CAP_0402_22mil
C1266 1u 6.3V CAP_0402_22mil
C1263 1u 6.3V CAP_0402_22mil
+VCCIO
C1264 1u 6.3V CAP_0402_22mil

Place on secondary side, underneath the package

C1273 1u 6.3V CAP_0201_14mil
C1274 1u 6.3V CAP_0201_14mil
C1275 1u 6.3V CAP_0201_14mil
C1268 1u 6.3V CAP_0201_14mil
C1269 1u 6.3V CAP_0201_14mil
C1267 1u 6.3V CAP_0201_14mil
C1271 1u 6.3V CAP_0201_14mil
+VCCSA
C1272 10u 4V cap_0402_0p65mm
C1270 10u 4V cap_0402_0p65mm
C1277 10u 4V cap_0402_0p65mm
C1276 10u 4V cap_0402_0p65mm
C1278 10u 4V cap_0402_0p65mm
C1279 10u 4V cap_0402_0p65mm
C1280 10u 4V cap_0402_0p65mm

+VCCSA
C1281 10u 4V cap_0402_0p65mm
C1282 10u 4V cap_0402_0p65mm
C1283 10u 4V cap_0402_0p65mm
C1284 10u 4V cap_0402_0p65mm
C1286 10u 4V cap_0402_0p65mm
C1285 10u 4V cap_0402_0p65mm

EV1.9
was:X867508-004

VCCIO_SENSE [56]
VSSSA_SENSE [66]
VCCSA_SENSE [66]

U1001L
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

+VCC_CORE

SKL_ULT
CPU POWER 1 OF 4

A30 VCC_A30
A34 VCC_A34
A39 VCC_A39
A44 VCC_A44
AK33 VCC_AK33
AK35 VCC_AK35
AK37 VCC_AK37
AK38 VCC_AK38
AK40 VCC_AK40
AL33 VCC_AL33
AL37 VCC_AL37
AL40 VCC_AL40
AM32 VCC_AM32
AM33 VCC_AM33
AM35 VCC_AM35
AM37 VCC_AM37
AM38 VCC_AM38
G30 VCC_G30

RSVD_K32 K32
RSVD_AK32 AK32

VCCOPC_AB62 AB62
VCCOPC_P62 P62
VCCOPC_V62 V62

VCC_OPC_1P8_H63 H63
VCC_OPC_1P8_G61 G61

VCCOPC_SENSE AC63
VSSOPC_SENSE AE63

VCCEOPIO AE62
VCCEOPIO AG62

VCCEOPIO_SENSE AL63
VSSEOPIO_SENSE AJ62

12 OF 20
REV = JKS
BUILD-OPT = TBL1001,CPU
Source Package = SKL_ULT_1356BGA_R1

+VCC_CORE

VCC_G32 G32
VCC_G33 G33
VCC_G35 G35
VCC_G37 G37
VCC_G38 G38
VCC_G40 G40
VCC_G42 G42
VCC_J30 J30
VCC_J33 J33
VCC_J37 J37
VCC_J40 J40
VCC_K33 K33
VCC_K35 K35
VCC_K37 K37
VCC_K38 K38
VCC_K40 K40
VCC_K42 K42
VCC_K43 K43

VCC_SENSE E32
VSS_SENSE E33

VCC_CORE_SENSE [66]
VSS_CORE_SENSE [66]

VIDALERT# B63
VIDSCK A63
VIDSOUT D64

H_CPU_SVIDALERT# R1216 220 res_0201_12mil
H_CPU_SVIDCLK R1209 0 RES_0201_12mil
H_CPU_SVIDDAT R1207 0 RES_0201_12mil

VIDALERT# [66]
VIDSCLK [66]
VIDSOUT [66]

+VCCST_CPU
R1215 56 res_0201_12mil
R1212 100 RES_0201_12mil

VCCSTG_G20 G20
+VCCSTG
+VCCSTG is control by SLP_S0, but it can overwrite by XDP, that means it need power for XDP intrafece

Place on secondary side, underneath the package

+VCCEDRAM
C1228 10u 4V cap_0402_0p65mm
C1252 1u 6.3V CAP_0201_14mil
C1253 1u 6.3V CAP_0201_14mil
C1250 1u 6.3V CAP_0201_14mil
C1254 1u 6.3V CAP_0201_14mil
C1255 1u 6.3V CAP_0201_14mil
C1256 1u 6.3V CAP_0201_14mil

+1P8V
C1251 6.3V 1u CAP_0201_14mil

[58] VCCOPC_SENSE

+VCCEOPIO
C1231 10u 4V cap_0402_0p65mm
C1230 10u 4V cap_0402_0p65mm

[58] VCCOPIO_SENSE

Place on secondary side, underneath the package

U1001M
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL
SKL_ULT
CPU POWER 2 OF 4
13 OF 20
REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU
+VCCGT
+VCCGT_SENSE
+VCCGT_SENSE
[66] VCCGT_SENSE
[66] VSSGT_SENSE
VCCGT_SENSE
VSSGT_SENSE
VCCGTX_SENSE
VSSGTX_SENSE
VCCGTX_AK42
VCCGTX_AK43
VCCGTX_AK45
VCCGTX_AK46
VCCGTX_AK48
VCCGTX_AK50
VCCGTX_AK52
VCCGTX_AK53
VCCGTX_AK55
VCCGTX_AK56
VCCGTX_AK58
VCCGTX_AK60
VCCGTX_AK70
VCCGTX_AL43
VCCGTX_AL46
VCCGTX_AL50
VCCGTX_AL53
VCCGTX_AL56
VCCGTX_AL60
VCCGTX_AM48
VCCGTX_AM50
VCCGTX_AM52
VCCGTX_AM53
VCCGTX_AM56
VCCGTX_AM58
VCCGTX_AU58
VCCGTX_AU63
VCCGTX_BB57
VCCGTX_BB66
THIS IS PLACE ON VCCGTX pins (they are connected to +VCCGT)
Place on secondary side, underneath the package
only for 23e
EV1.9
was:X867508-004
EV1.9
was:X867508-003
EV19
WAS: 0402
EV1.9
was:X867508-002
EV1.9
was:X867508-001
EV1.9 was:0805
+VCC_CORE
Place on secondary side, underneath the package
EV1.9
was:X867508-004

U1001P
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
GND 1 OF 3

A5	VSS	VSS	AL65
A67	VSS	VSS	AL66
A70	VSS	VSS	AM13
AA2	VSS	VSS	AM21
AA4	VSS	VSS	AM25
AA65	VSS	VSS	AM27
AA68	VSS	VSS	AM43
AB15	VSS	VSS	AM45
AB16	VSS	VSS	AM46
AB18	VSS	VSS	AM55
AB21	VSS	VSS	AM60
AB8	VSS	VSS	AM61
AD13	VSS	VSS	AM68
AD16	VSS	VSS	AM71
AD19	VSS	VSS	AM8
AD20	VSS	VSS	AN20
AD21	VSS	VSS	AN23
AD62	VSS	VSS	AN28
AD8	VSS	VSS	AN30
AE64	VSS	VSS	AN32
AE65	VSS	VSS	AN33
AE66	VSS	VSS	AN35
AE67	VSS	VSS	AN37
AE68	VSS	VSS	AN38
AE69	VSS	VSS	AN40
AF1	VSS	VSS	AN42
AF10	VSS	VSS	AN58
AF15	VSS	VSS	AN63
AF17	VSS	VSS	AP10
AF2	VSS	VSS	AP18
AF4	VSS	VSS	AP20
AF63	VSS	VSS	AP23
AG16	VSS	VSS	AP28
AG17	VSS	VSS	AP32
AG18	VSS	VSS	AP35
AG19	VSS	VSS	AP38
AG20	VSS	VSS	AP42
AG21	VSS	VSS	AP58
AG71	VSS	VSS	AP63
AH13	VSS	VSS	AP68
AH6	VSS	VSS	AP70
AH63	VSS	VSS	AR11
AH64	VSS	VSS	AR15
AH67	VSS	VSS	AR16
AJ15	VSS	VSS	AR20
AJ18	VSS	VSS	AR23
AJ20	VSS	VSS	AR28
AJ4	VSS	VSS	AR35
AK11	VSS	VSS	AR42
AK16	VSS	VSS	AR43
AK18	VSS	VSS	AR45
AK21	VSS	VSS	AR46
AK22	VSS	VSS	AR48
AK27	VSS	VSS	AR5
AK63	VSS	VSS	AR50
AK68	VSS	VSS	AR52
AK69	VSS	VSS	AR53
AK8	VSS	VSS	AR55
AL2	VSS	VSS	AR58
AL28	VSS	VSS	AR63
AL32	VSS	VSS	AR8
AL35	VSS	VSS	AT2
AL38	VSS	VSS	AT20
AL4	VSS	VSS	AT23
AL45	VSS	VSS	AT28
AL48	VSS	VSS	AT35
AL52	VSS	VSS	AT4
AL55	VSS	VSS	AT42
AL58	VSS	VSS	AT56
AL64	VSS	VSS	AT58
	VSS		

16 OF 20

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

U1001Q
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
GND 2 OF 3

AT63	VSS	VSS	BA49
AT68	VSS	VSS	BA53
AT71	VSS	VSS	BA57
AU10	VSS	VSS	BA6
AU15	VSS	VSS	BA62
AU20	VSS	VSS	BA66
AU32	VSS	VSS	BA71
AU38	VSS	VSS	BB18
AV1	VSS	VSS	BB26
AV68	VSS	VSS	BB30
AV69	VSS	VSS	BB34
AV70	VSS	VSS	BB38
AV71	VSS	VSS	BB43
AW10	VSS	VSS	BB55
AW12	VSS	VSS	BB6
AW14	VSS	VSS	BB60
AW16	VSS	VSS	BB64
AW18	VSS	VSS	BB67
AW21	VSS	VSS	BB70
AW23	VSS	VSS	C1
AW26	VSS	VSS	C25
AW28	VSS	VSS	C5
AW30	VSS	VSS	D10
AW32	VSS	VSS	D11
AW34	VSS	VSS	D14
AW36	VSS	VSS	D18
AW38	VSS	VSS	D22
AW41	VSS	VSS	D25
AW43	VSS	VSS	D26
AW45	VSS	VSS	D30
AW47	VSS	VSS	D34
AW49	VSS	VSS	D39
AW51	VSS	VSS	D44
AW53	VSS	VSS	D45
AW55	VSS	VSS	D47
AW57	VSS	VSS	D48
AW6	VSS	VSS	D53
AW60	VSS	VSS	D58
AW62	VSS	VSS	D6
AW64	VSS	VSS	D62
AW66	VSS	VSS	D66
AW8	VSS	VSS	D69
AY66	VSS	VSS	E11
B10	VSS	VSS	E15
B14	VSS	VSS	E18
B18	VSS	VSS	E21
B22	VSS	VSS	E46
B30	VSS	VSS	E50
B34	VSS	VSS	E53
B39	VSS	VSS	E56
B44	VSS	VSS	E6
B48	VSS	VSS	E65
B53	VSS	VSS	E71
B58	VSS	VSS	F1
B62	VSS	VSS	F13
B66	VSS	VSS	F2
B71	VSS	VSS	F22
BA1	VSS	VSS	F23
BA10	VSS	VSS	F27
BA14	VSS	VSS	F28
BA18	VSS	VSS	F32
BA2	VSS	VSS	F33
BA23	VSS	VSS	F35
BA28	VSS	VSS	F37
BA32	VSS	VSS	F38
BA36	VSS	VSS	F4
F68	VSS	VSS	F40
BA45	VSS	VSS	F42
	VSS	VSS	BA41

17 OF 20

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

U1001R
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
GND 3 OF 3

F8	VSS	VSS	L18
G10	VSS	VSS	L2
G22	VSS	VSS	L20
G43	VSS	VSS	L4
G45	VSS	VSS	L8
G48	VSS	VSS	N10
G5	VSS	VSS	N13
G52	VSS	VSS	N19
G55	VSS	VSS	N21
G58	VSS	VSS	N6
G6	VSS	VSS	N65
G60	VSS	VSS	N68
G63	VSS	VSS	P17
G66	VSS	VSS	P19
H15	VSS	VSS	P20
H18	VSS	VSS	P21
H71	VSS	VSS	R13
J11	VSS	VSS	R6
J13	VSS	VSS	T15
J25	VSS	VSS	T17
J28	VSS	VSS	T18
J32	VSS	VSS	T2
J35	VSS	VSS	T21
J38	VSS	VSS	T4
J42	VSS	VSS	U10
J8	VSS	VSS	U63
K16	VSS	VSS	U64
K18	VSS	VSS	U66
K22	VSS	VSS	U67
K61	VSS	VSS	U69
K63	VSS	VSS	U70
K64	VSS	VSS	V16
K65	VSS	VSS	V17
K66	VSS	VSS	V18
K67	VSS	VSS	W13
K68	VSS	VSS	W6
K70	VSS	VSS	W9
K71	VSS	VSS	Y17
L11	VSS	VSS	Y19
L16	VSS	VSS	Y20
L17	VSS	VSS	Y21
	VSS		

18 OF 20

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

CFG4	
0 **Default**	enable eDP
1	Disable eDP

TP1516

U1001S
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
RESERVED SIGNALS-1

[18] CFG0 E68 CFG[0]
[18] CFG1 B67 CFG[1]
[18] CFG2 D65 CFG[2]
[18] CFG3 D67 CFG[3]
[18] CFG4 E70 CFG[4]
[18] CFG5 C68 CFG[5]
[18] CFG6 D68 CFG[6]
[18] CFG7 C67 CFG[7]
[18] CFG8 F71 CFG[8]
[18] CFG9 G69 CFG[9]
[18] CFG10 F70 CFG[10]
[18] CFG11 G68 CFG[11]
[18] CFG12 H70 CFG[12]
[18] CFG13 G71 CFG[13]
[18] CFG14 H69 CFG[14]
[18] CFG15 G70 CFG[15]
[18] CFG16 E63 CFG[16]
[18] CFG17 F63 CFG[17]
[18] CFG18 E66 CFG[18]
[18] CFG19 F66 CFG[19]

R1507 49.9 RES_0201_12mil
CFG_RCOMP E60 CFG_RCOMP
[18] ITP_PMODE E8 ITP_PMODE

R1501
1K
RES_0201_12mil

AY2 RSVD_AY2
AY1 RSVD_AY1
D1 RSVD_D1
D3 RSVD_D3
K46 RSVD_K46
K45 RSVD_K45
AL25 RSVD_AL25
AL27 RSVD_AL27
C71 RSVD_C71
B70 RSVD_B70
F60 RSVD_F60
A52 RSVD_A52
BA70 RSVD_TP_BA70
BA68 RSVD_TP_BA68
J71 RSVD_J71
J68 RSVD_J68
F65 VSS_F65
G65 VSS_G65
F61 RSVD_F61
E61 RSVD_E61

RSVD_TP_BB68 BB68
RSVD_TP_BB69 BB69
RSVD_TP_AK13 AK13 RSVD_TP_AK13 — TP1503 SP_TP_SMDp58mm
RSVD_TP_AK12 AK12 RSVD_TP_AK12 — TP1502 SP_TP_SMDp58mm
RSVD_BB2 BB2
RSVD_BA3 BA3
TP5 AU5
TP6 AT5
RSVD_D5 D5
RSVD_D4 D4
RSVD_B2 B2
RSVD_C2 C2
RSVD_B3 B3
RSVD_A3 A3
RSVD_AW1 AW1
RSVD_E1 E1
RSVD_E2 E2
RSVD_BA4 BA4
RSVD_BB4 BB4
RSVD_A4 A4
RSVD_C4 C4
TP4 BB5
RSVD_A69 A69
RSVD_B69 B69
RSVD_AY3 AY3 RSVD_AY3 — R1502 0 RES_0201_12mil DNP,CPU
RSVD_D71 D71
RSVD_C70 C70
RSVD_C54 C54
RSVD_D54 D54
TP1 AY4
TP2 BB3
VSS_AY71 AY71
ZVM# AR56 — ZVM# [58]
RSVD_TP_AW71 AW71
RSVD_TP_AW70 AW70
MSM# AP56 — MSM# [58]
PROC_SELECT# C64 PROC_SELECT#

MFang 8Jan15: [Intel] used in the HVM testing should be left not connected.

ZVM# and MSM# may need to control the VCCOPC and VCCEOPIO

+VCCST_CPU
R1540 100K RES_0201_12mil DNP,CPU

100k ohm resistor only needed for Cannonlake

19 OF 20

REV = JKS
TBL1001,CPU
Source Package = SKL_ULT_1356BGA_R1

U1001T
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
SPARE

AW69 RSVD_AW69
AW68 RSVD_AW68
AU56 RSVD_AU56
AW48 RSVD_AW48
C7 RSVD_C7
U12 RSVD_U12
U11 RSVD_U11
H11 RSVD_H11
RSVD_F6 F6
RSVD_E3 E3
RSVD_C11 C11
RSVD_B11 B11
RSVD_A11 A11
RSVD_D12 D12
RSVD_C12 C12
RSVD_F52 F52

+1P8VSUS_ORG
DNP,CPU
C1501
1u
CAP_0402_22mil
6.3V

20 OF 20

REV = JKS
TBL1001,CPU
Source Package = SKL_ULT_1356BGA_R1

U1601
H9CCNNN8JTALAR-NTD
bga178_13x17_11x11p5x1_p8xp65mm

U1602
H9CCNNN8JTALAR-NTD
bga178_13x17_11x11p5x1_p8xp65mm

TBL1601,DDR

TBL1601,DDR

TBL2301,DDR

TBL2301,DDR

U1701
H9CCNNN8JTALAR-NTD
bga178_13x17_11x11p5x1_p8xp65mm

U1702
H9CCNNN8JTALAR-NTD
bga178_13x17_11x11p5x1_p8xp65mm

TBL1601,DDR

TBL2301,DDR

EV1.9

PRIMARY XDP connector

[15,18] CFG3
ROUTE WITH MINIMAL STUB WITH RESPECT TO CFG<3>
DB,XDP
R1841
1K
RES_0201_12mil

+1VSB
DB,XDP
R1838
0
RES_0201_12mil
+1VSB_XDP

+1VSB_XDP
DB,XDP
RES_0201_12mil
R1840
0

DNP,XDP
R1803
49.9
RES_0201_12mil

XDP_PIN1

DB,XDP
J1801
X869110-001
B2B 60P
conn_b2b-r_60_4mtg_14p2x2p54xp88_p4mm
RECEPTACLE

1			2
3	[24] XDP_PREQ#	CFG17 [15]	4
5	[24] XDP_PRDY#	CFG16 [15]	6
7			8
9	[15,18] CFG0	CFG8 [15]	10
11	[15] CFG1	CFG9 [15]	12
13			14
15	[15] CFG2	CFG10 [15]	16
17	[15,18] CFG3	CFG11 [15]	18
19			20
21	[10] XDP_BPM0	CFG19 [15]	22
23	[10] XDP_BPM1	CFG18 [15]	24
25			26
27	[15] CFG4	CFG12 [15]	28
29	[15] CFG5	CFG13 [15]	30
31			32
33	[15] CFG6	CFG14 [15]	34
35	[15] CFG7	CFG15 [15]	36
37			38
39	PM_RSMRST_PWRGD_XDP	CLK_XDP_R_DP	40
41	PM_PWRBTN#_XDP	CLK_XDP_R_DN	42
43			44
45	[15,18] CFG0	XDP_RST#_R	46
47	XDP_MOSI_R	XDP_DBRESET#_R	48
49			50
51	[21] SMBDATA	XDP_TDO_BUF	52
53	[21] SMBCLK		54
55	XDP_TCK1	XDP_TDI_R	56
57			58
59		XDP_PIN60	60
61	MTG1	MTG2	62
63	MTG3	MTG4	64

+1VSB_XDP
+3P3VSB
DNP,XDP
C1803
1u 6.3V
CAP_0201_14mil
GND
DB,XDP
R1826
1.5K
RES_0201_12mil

+1VSB_XDP
DB,XDP
R1844
1K
RES_0201_12mil

+3P3V
DB,XDP
R1823
1K
RES_0201_12mil

+VCCSTG
DNP,XDP
R1825
49.9
RES_0201_12mil
Place R1825 within 1100mil from CPU

[22,36] RSMRST#
[22] PCH_PWRBTN#
[30,32,33] PWR_SW_N
R1842 DB,XDP 1K RES_0201_12mil
R1807 DB,XDP 0 RES_0201_12mil
R1804 DNP,XDP 0 RES_0201_12mil

[21] SPI0_MOSI_XDP
R1846 DB,XDP 0 RES_0201_12mil

R1843 DNP,XDP 0 XDP_CFG0
RES_0201_12mil

DB,XDP
PC1804
0.1u 6.3V
cap_0201_14mil
GND

DB,XDP
PC1805
0.1u 6.3V
cap_0201_14mil
GND

[10] PCH_JTAG_TCK
[10] XDP_TCK
R1821 DB,XDP 0
RES_0201_12mil

[10] PCH_JTAGX
R1853 DNP,XDP 0 RES_0201_12mil
R1811 DB,XDP 0 RES_0201_12mil

R1805 DB,XDP 0 RES_0201_12mil → CLK_XDP_DP [20]
R1806 DB,XDP 0 RES_0201_12mil → CLK_XDP_DN [20]
R1837 DB,XDP 0 RES_0201_12mil → ITP_PMODE [15]
R1808 DNP,XDP 1K RES_0201_12mil → PLT_RST#_BUF [22,36,38,43,75]
R1810 DB,XDP 0 RES_0201_12mil → PCH_SYS_RST# [22]
R1809 DB,XDP 0 RES_0201_12mil → XDP_TRST#_BUF [10]
R1849 DB,XDP 0 RES_0201_12mil → XDP_TDO [10]
R1851 DB,XDP 0 RES_0201_12mil → XDP_TRST# [10]
XDP_TDI [10]
XDP_TMS [10]

DB,XDP
C1801
0.01u 10V
CAP_0201_14mil
GND

DNP,XDP
R1852
0
RES_0201_12mil

[21] XDP_SPI0_IO2
R1845 DB,XDP 0
RES_0201_12mil

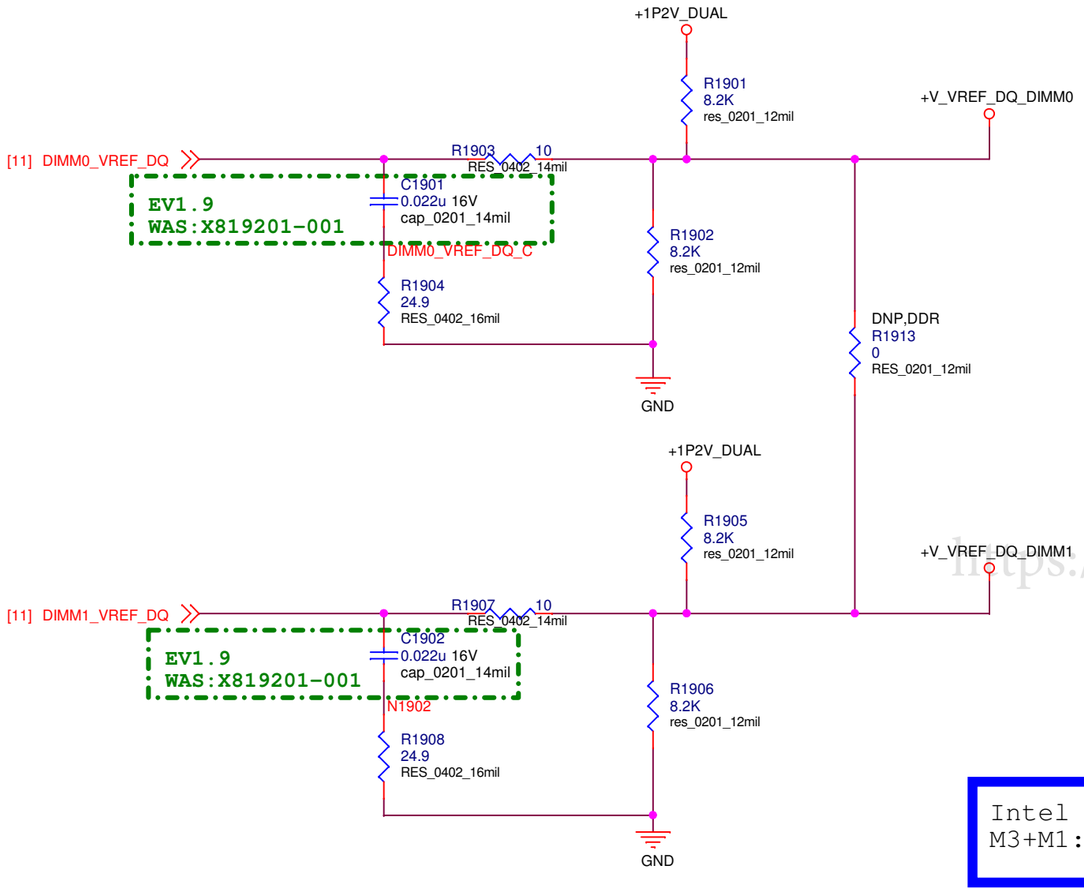
R1854 DNP,XDP 0
RES_0201_12mil

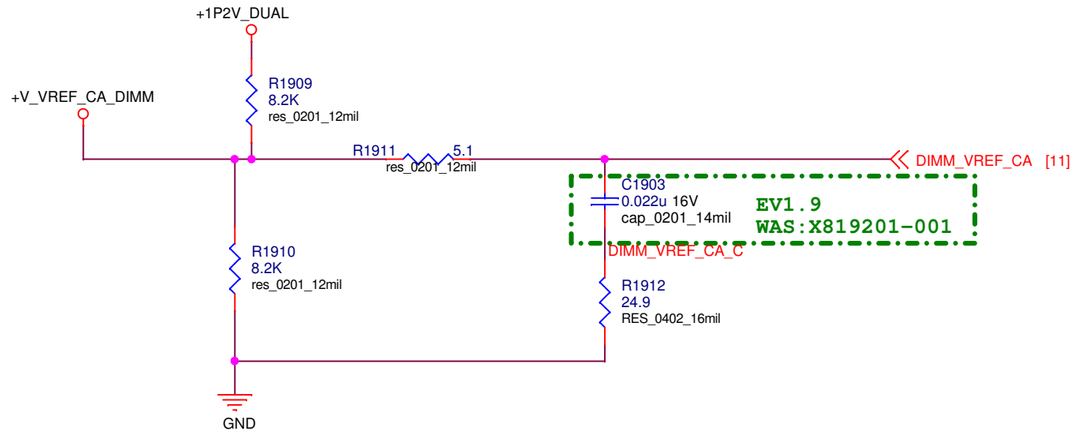
R1822 DB,XDP 0 RES_0201_12mil → PCH_JTAG_TDI [10]
R1848 DB,XDP 0 RES_0201_12mil → PCH_JTAG_TMS [10]
R1847 DB,XDP 0 RES_0201_12mil → PCH_JTAG_TDO [10]

For the signals only go to XDP, the 0R should be close to XDP connector.
For the signals to both XDP and target circuit, the option resistor locaction should follow the target signal routing.

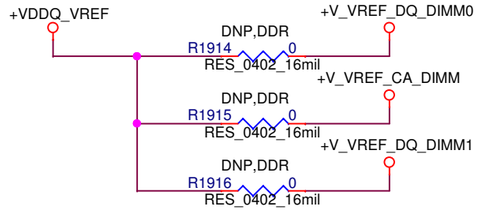
LPDDR3 Vref

M3: CPU driven VREF path is stuffed be default.
M1: VREF_DQ driven by a Voltage Divider Network during Processor power-off





Intel 0203
M3+M1: Default Recommendation



+3P3V

R2052 10K RES_0201_12mil

R2048 10K RES_0201_12mil

[43] SSD_PCIECLK_REQ_N

[50] PCIE_WIFI_CLKREQ_N

U1001J
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT
CLOCK SIGNALS

D42	CLKOUT_PCIE_N0	
C42	CLKOUT_PCIE_P0	
AR10	GPP_B5/SRCCLKREQ0#	
B42	CLKOUT_PCIE_N1	[43] PCIECLK_SSD_DN
A42	CLKOUT_PCIE_P1	[43] PCIECLK_SSD_DP
AT7	GPP_B6/SRCCLKREQ1#	
D41	CLKOUT_PCIE_N2	
C41	CLKOUT_PCIE_P2	
AT8	GPP_B7/SRCCLKREQ2#	
D40	CLKOUT_PCIE_N3	
C40	CLKOUT_PCIE_P3	
AT10	GPP_B8/SRCCLKREQ3#	
B40	CLKOUT_PCIE_N4	
A40	CLKOUT_PCIE_P4	
AU8	GPP_B9/SRCCLKREQ4#	
E40	CLKOUT_PCIE_N5	[50] PCIE_WIFI_RCLK_DN
E38	CLKOUT_PCIE_P5	[50] PCIE_WIFI_RCLK_DP
AU7	GPP_B10/SRCCLKREQ5#	

10 OF 20

F43	CLKOUT_ITPXDP_N	CLK_XDP_DN [18]
E43	CLKOUT_ITPXDP_P	CLK_XDP_DP [18]
BA17	GPD8/SUSCLK	WIFI_32K_CLK_R
E37	XTAL24_IN	XTAL_24M_IN
E35	XTAL24_OUT	XTAL_24M_OUT
E42	XCLK_BIASREF	XCLK_BIASREF
AM18	RTCX1	RTC_X1
AM20	RTCX2	RTC_X2
AN18	SRTCRST#	SRTC_RST# [20]
AM16	RTCRST#	RTC_RST# [20,36]

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

EV1.9 WAS INSTALL

R2010 DNP,CPU 33 RES_0201_12mil

WIFI_32K_CLK [50]

XTAL_24M_IN

XTAL_24M_OUT R2035 1M RES_0201_12mil

xtal_4_3p2x2p5xp8_2p2x1p7mm
24MHZ X2002
EV1.9 WAS:X879083-001

C2007 50V 10p CAP_0201_14mil

C2006 10p 50V CAP_0201_14mil

this need 2.71K 0.5% resistor.
the power rail connector
to the rail of VCCCLK5

+VCCCLK5_R

R2036 1% 2.7K RES_0402_16MIL

EV1.9 CHG MSPN

R2001 10M RES_0201_12mil

R2005 0 CTAL_1 RES_0201_12mil

X2001 32.7 KHz xtal_3p2x1p5xp9_2p5mm

C2001 15p 25V CAP_0201_14mil 2%

EV1.9 CHG MSPN

DNP,CPU R2022 60.4 res_0201_12mil

C2002 15p 25V CAP_0201_14mil 2%

EV1.9 CHG MSPN

HDA_SDO:
1.Flash descriptor security:
Sampled Low: in effect.
Sampled High: override

2.HDA_SDOwhich sample high on the rising edge of PWROK
Will also disable Intel ME.

DNP,CPU R2009 1K RES_0201_12mil +3P3VSB

U1001G
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

AUDIO

[40] AZ_SYNC_1	RES_0201_12mil R2020 33	HDA_SYNC_R
[40] AZ_BITCLK_1	RES_0201_12mil R2053 33	HDA_BCLK_R
[40] AZ_SDATA_OUT_1	RES_0201_12mil R2054 33	HDA_SDO_R INT. PD
[40] AZ_SDATA_IN0		was HDA_SDI0_R
[40] AZ_RST#_1	R2056 33 RES_0201_12mil	HDA_RST#_R

BA22	HDA_SYNC/I2S0_SFRM	
AY22	HDA_BLK/I2S0_SCLK	
BB22	HDA_SDO/I2S0_TXD	
BA21	HDA_SDI0/I2S0_RXD	
AY21	HDA_SDI1/I2S1_RXD	
AW22	HDA_RST#/I2S1_SCLK	
J5	GPP_D23/I2S_MCLK	
AY20	I2S1_SFRM	
AW20	I2S1_TXD	
AK7	GPP_F1/I2S2_SFRM	
AK6	GPP_F0/I2S2_SCLK	
AK9	GPP_F2/I2S2_TXD	
AK10	GPP_F3/I2S2_RXD	
H5	GPP_D19/DMIC_CLK0	[20,32,40,42] DMIC1_CLK
D7	GPP_D20/DMIC_DATA0	[20,32,40,42] DMIC1_DATA
D8	GPP_D17/DMIC_CLK1	[20] DMIC2_CLK_XDP
C8	GPP_D18/DMIC_DATA1	[20] DMIC2_DATA_XDP
AW5	GPP_B14/SPKR	INT. PD

SKL_ULT

SDIO/SDXC

AB11	GPP_G0/SD_CMD	
AB13	GPP_G1/SD_DATA0	
AB12	GPP_G2/SD_DATA1	
W12	GPP_G3/SD_DATA2	
W11	GPP_G4/SD_DATA3	
W10	GPP_G5/SD_CD#	No SD support
W8	GPP_G6/SD_CLK	
W7	GPP_G7/SD_WP	
BA9	GPP_A17/SD_PWR_EN#/ISH_GP7	
BB9	GPP_A16/SD_1P8_SEL	
AB7	SD_RCOMP	SD_RCOMP
AF13	GPP_F23	

7 OF 20

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

R2080 200 RES_0201_12mil

+VCC_RTC

R2021 20K RES_0201_12mil SRTC_RST# [20]

C2003 1u 6.3V CAP_0402_22mil

R2002 20K RES_0201_12mil RTC_RST# [20,36]

C2004 1u 6.3V CAP_0402_22mil

+3P3V

+3V_EC

R2006 1K RES_0201_12mil

DNP,CPU R2003 100K RES_0201_12mil

TOP_SWAP_1A

U2001A
SN74LVC2G66YZPR
BGA8_P9X1P9xp5_p5mm

C2005 0.1u 25V CAP_0402_22mil

A1 1A
B2 EN
VCC A2
1B B1
GND D1

TOP_SWAP

U2001B
SN74LVC2G66YZPR
BGA8_P9X1P9xp5_p5mm

TOP_SWAP_2A D2
TOP_SWAP_EN# C1
2A
2EN
2B C2

R2007 49.9K RES_0201_12mil

to EC PIN D9

[36] EC_UEFI_TOP_SWAP

Q2001 RUM002N02GT2L SOT-VMT3_1p2xp8xp5_p4mm

R2004 100K RES_0201_12mil

DNP,CPU R2008 100K RES_0201_12mil

STP_A16OVR:
A16 swap override Strap/
Top-Block swap override jumper

High=Enabled A16 swap override/ Top-Block swap override
Low=Default

[20,32,40,42] DMIC1_CLK
[20,32,40,42] DMIC1_DATA

TPS0P35 XDP_TP2001

TPS0P35 XDP_TP2002

TPS0P35 XDP_TP2003
TPS0P35 XDP_TP2004

DMIC2_CLK_XDP [20]
DMIC2_DATA_XDP [20]

Connected to device.
Default : Clock free run. (PD 10K).
Reserver 10K PU for power saving purpose.

[18] XDP_SPI0_IO2
[18] SPI0_MOSI_XDP

R2133 1K RES_0201_12mil
R2134 1K RES_0201_12mil

Close to PCH

[37] SPI_CLK
[37] SPI_SO
[37] SPI_SI
[37] SPI_WP_IO2
[37] SPI_HOLD#_IO3
[37] SPI_CS#0

R2136 15 SPI_CLK_R
R2135 15 SPI_SO_R
R2139 15 SPI_SI_R
R2137 15 SPI_WP_IO2_R
R2138 15 RES_0201_12mil SPI_HOLD#_IO3_R
R2141 15 RES_0201_12mil SPI_CS#0_R

EV1.9 ADD

[30] TS_SPI_CLK
[30] TS_SPI_MISO
[30] TS_SPI_MOSI
[25,53,54] CAM_F_PWR_DN_N
[25,53,54] CAM_R_PWR_DN_N
[30] TS_SPI_CS_N

R2109 15 RES_0201_12mil TS_SPI_CLK_R
R2105 15 RES_0201_12mil TS_SPI_MISO_R
R2101 15 RES_0201_12mil TS_SPI_MOSI_R
R2111 DNP,CPU 330 res_0201_12mil GPP_D21_R
R2108 DNP,CPU 330 res_0201_12mil GPP_D22_R
R2112 15 RES_0201_12mil TS_SPI_CS_N_R

[36] RC_IN#
DNP,CPU C2105 100p CAP_0201_14mil

+3P3V
R2132 8.2K res_0201_12mil
[36,38] PCH_SERIRQ
Serial Interrupt Request

U1001E
SKL_ULT_1356BGA_R1
PCB Footprint = bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT

SPI - FLASH
SPI0_CLK AV2
SPI0_MISO AW3
SPI0_MOSI AV3
SPI0_IO2 AW2
SPI0_IO3 AU4
SPI0_CS0# AU3
SPI0_CS1# AU2
SPI0_CS2# AU1

SPI - TOUCH
GPP_D1/SPI1_CLK M2
GPP_D2/SPI1_MISO M3
GPP_D3/SPI1_MOSI J4
GPP_D21/SPI1_IO2 V1
GPP_D22/SPI1_IO3 V2
GPP_D0/SPI1_CS# M1

C LINK
CL_CLK G3
CL_DATA G2
CL_RST# G1

GPP_A0/RCIN# AW13
GPP_A6/SERIRQ AY11

5 OF 20

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

SMBUS, SMLINK
1
GPP_C0/SMBCLK R7
GPP_C1/SMBDATA R8
GPP_C2/SMBALERT# R10 INT. PD SMBALERT#
GPP_C3/SML0CLK R9 SML0CLK
GPP_C4/SML0DATA W2 SML0DAT
GPP_C5/SML0ALERT# W1 INT. PD was SMB0ALERT#
GPP_C6/SML1CLK W3
GPP_C7/SML1DATA V3
GPP_B23/SML1ALERT#/PCHHOT# AM7 INT. PD SMB1ALERT#

LPC
GPP_A1/LAD0/ESPI_IO0 AY13 LAD0 [36,38]
GPP_A2/LAD1/ESPI_IO1 BA13 LAD1 [36,38]
GPP_A3/LAD2/ESPI_IO2 BB13 LAD2 [36,38]
GPP_A4/LAD3/ESPI_IO3 AY12 LAD3 [36,38]
GPP_A5/LFRAME#/ESPI_CS# BA12 LFRAME# [36,38]
GPP_A14/SUS_STAT#/ESPI_RESET# BA11 SUS_STAT#_R TP2128
SP_TP_SMDp58mm

GPP_A9/CLKOUT_LPC0/ESPI_CLK AW9 CK_24M_EC_R
GPP_A10/CLKOUT_LPC1 AY9 CK_24M_TPM_R
GPP_A8/CLKRUN# AW11

+3P3V
R2131 8.2K res_0201_12mil
PM_CLKRUN# [36,38]

+3P3V
R2102 1K RES 0201 12mil
R2103 1K RES 0201 12mil
R2107 1K RES 0201 12mil
R2110 1K RES 0201 12mil
R2104 1K RES 0201 12mil
R2106 1K RES 0201 12mil

R7 SMBCLK [18]
R8 SMBDATA [18]
R10 TP2101
SP_TP_SMDp58mm
W1 SD_CD#_PCH [48]
W3 SML1_PCH_CLK [35]
V3 SML1_PCH_DATA [35]
AM7

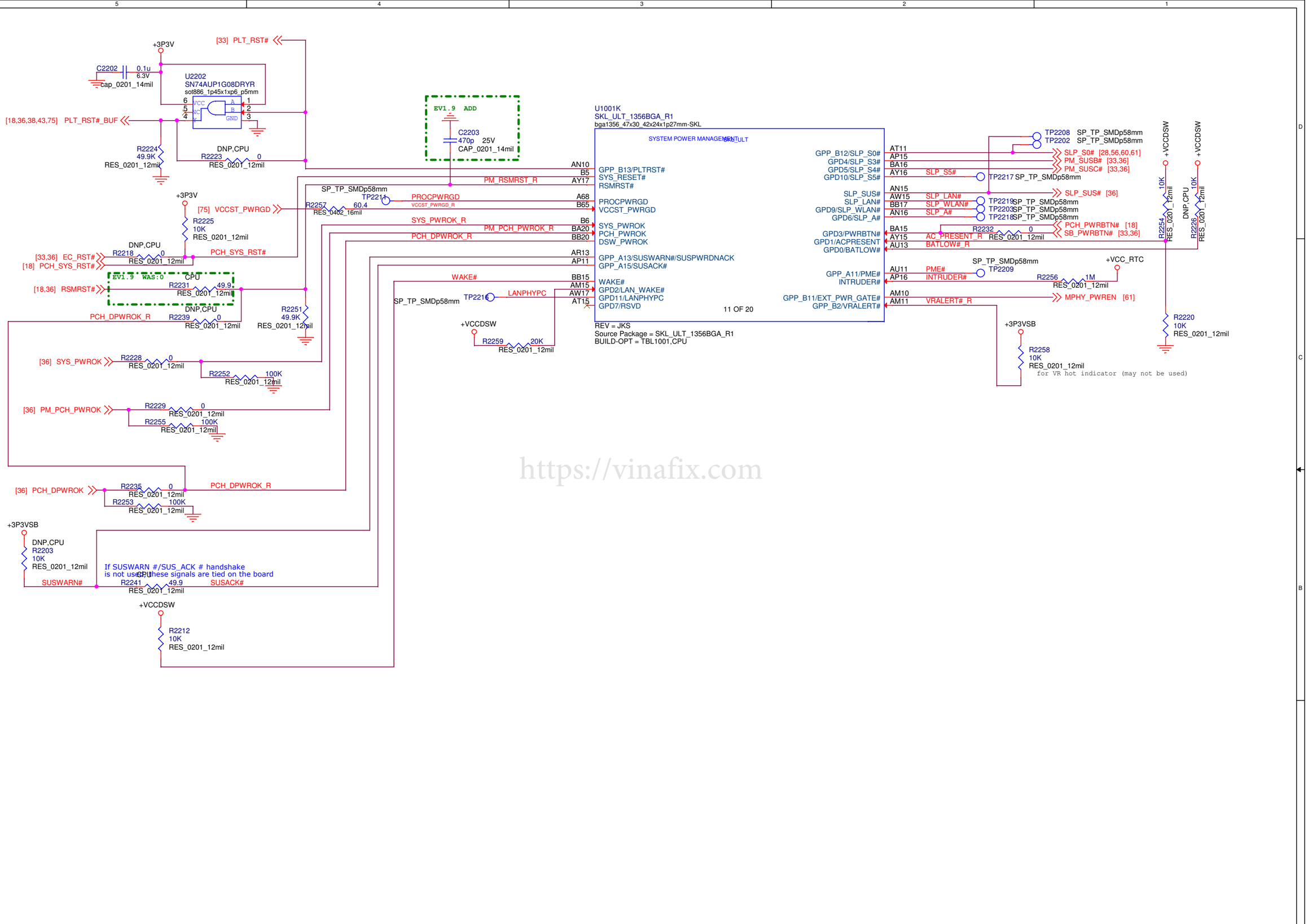
R2140 150K RES_0201_12mil +3P3VSB

EV1.9
WAS 0402

RES_0201_12mil R2123 22 5% CK_24M_EC [36]
RES_0201_12mil R2129 22 5% CK_24M_TPM [38]

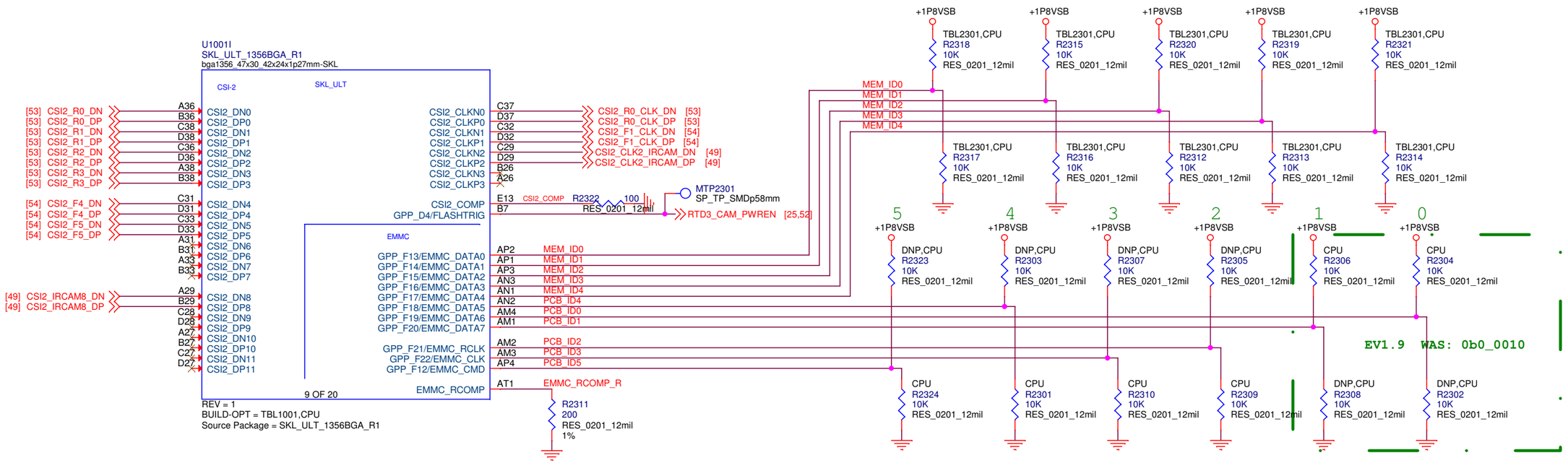
DNP,CPU C2103 10p CAP_0201_14mil 50V
DNP,CPU C2104 10p 50V CAP_0201_14mil

GPP_C2/SMBALERT#	
0 **Default**	Disable ME crypto TLS
1	Enable ME crypto TLS



Rev 4	EC Processor ID		PCH Processor ID	TPM			EC Board Rev	PCH Board ID[3:0]				DRAM Manufacturer		RAM Speed	RAM Size & Calibration		
Signal	EC_ID1	ED_ID0	PCB_ID5	PCB_ID4			R3619	PCB_ID3	PCB_ID2	PCB_ID1	PCB_ID0	MEM_ID1	MEM_ID0	MEM_ID4	MEM_ID3	MEM_ID2	ZQ1
	1 = R3642 0 = R3643	1 = R3640 0 = R3641	1 = R2323 0 = R2324	1 = R2303 0 = R2301	R3813 R3815 R3816	R3814		1 = R2307 0 = R2310	1 = R2305 0 = R2309	1 = R2306 0 = R2308	1 = R2304 0 = R2302	1 = R2315 0 = R2316	1 = R2318 0 = R2317	1 = R2321 0 = R2314	1 = R2319 0 = R2313	1 = R2320 0 = R2312	R1602 R1604 R1702 R1704
	U22 = 0 U23E = 1 Y = 0 S = 1	**U22 = 0 U23E=0 Y = 1 S = 1**	U = 0 Y = 1	Infineon = 0 Nation Z = 1	Infineon = DNP NationZ = POP	Infineon = POP NationZ =DNP						**Hynix = 0 Samsung = 0**	**Hynix = 0 Samsung = 1**	1600 LPDDR3 = 0 1866 LPDDR3 = 1	4GB = 0 8GB = 0 16GB = 1	4 GB = 0 8 GB = 1 16 GB = 0	4GB = DNP 8GB = POP 16GB = POP
EV 0.9							80.6 Ω	0	0	0	0						
EV 1.0							169 Ω	0	0	0	1						
EV 1.5							698 Ω	0	0	1	0						
EV 1.9							909 Ω	0	0	1	1						

TBL2301



U1001H
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT

PCIE/USB3/SATA

H13 PCIE1_RXN/USB3_5_RXN
G13 PCIE1_RXP/USB3_5_RXP
B17 PCIE1_TXN/USB3_5_TXN
A17 PCIE1_TXP/USB3_5_TXP

G11 PCIE2_RXN/USB3_6_RXN
F11 PCIE2_RXP/USB3_6_RXP
D16 PCIE2_TXN/USB3_6_TXN
C16 PCIE2_TXP/USB3_6_TXP

H16 PCIE3_RXN
G16 PCIE3_RXP
D17 PCIE3_TXN
C17 PCIE3_TXP

G15 PCIE4_RXN
F15 PCIE4_RXP
B19 PCIE4_TXN
A19 PCIE4_TXP

F16 PCIE5_RXN
E16 PCIE5_RXP
C19 PCIE5_TXN
D19 PCIE5_TXP

G18 PCIE6_RXN
F18 PCIE6_RXP
D20 PCIE6_TXN
C20 PCIE6_TXP

[43] PCIE_SSD_RX7_DN
[43] PCIE_SSD_RX7_DP
[43] PCIE_SSD_TX7_DN
[43] PCIE_SSD_TX7_DP
F20 PCIE7_RXN/SATA0_RXN
E20 PCIE7_RXP/SATA0_RXP
B21 PCIE7_TXN/SATA0_TXN
A21 PCIE7_TXP/SATA0_TXP

[43] PCIE_SSD_RX8_DN
[43] PCIE_SSD_RX8_DP
[43] PCIE_SSD_TX8_DN
[43] PCIE_SSD_TX8_DP
G21 PCIE8_RXN/SATA1A_RXN
F21 PCIE8_RXP/SATA1A_RXP
D21 PCIE8_TXN/SATA1A_TXN
C21 PCIE8_TXP/SATA1A_TXP

PCIE WIFI
[50] PCIE_WIFI_RX9_DN
[50] PCIE_WIFI_RX9_DP
[50] PCIE_WIFI_TX9_DN
[50] PCIE_WIFI_TX9_DP
E22 PCIE9_RXN
E23 PCIE9_RXP
B23 PCIE9_TXN
A23 PCIE9_TXP

F25 PCIE10_RXN
E25 PCIE10_RXP
D23 PCIE10_TXN
C23 PCIE10_TXP

SP_TP_SMDp58mm TP2417
SP_TP_SMDp58mm TP2418

PCIE_RCOMPN
R2401 100 PCIE_RCOMPP
RES_0201_12mil
F5 PCIE_RCOMPN
E5 PCIE_RCOMPP

[18] XDP_PRDY#
[18] XDP_PREQ#
D56 PROC_PRDY#
D61 PROC_PREQ#

TP2419 PIRQA#
SP_TP_SMDp58mm
BB11 GPP_A7/PIRQA#

E28 PCIE11_RXN/SATA1B_RXN
E27 PCIE11_RXP/SATA1B_RXP
D24 PCIE11_TXN/SATA1B_TXN
C24 PCIE11_TXP/SATA1B_TXP
E30 PCIE12_RXN/SATA2_RXN
F30 PCIE12_RXP/SATA2_RXP
A25 PCIE12_TXN/SATA2_TXN
B25 PCIE12_TXP/SATA2_TXP

8 OF 20

SSIC / USB3

USB3_1_RXN H8 USB3_CONN_RX_DN [45]
USB3_1_RXP G8 USB3_CONN_RX_DP [45]
USB3_1_TXN C13 USB3_CONN_TX_DN [45]
USB3_1_TXP D13 USB3_CONN_TX_DP [45]
USB Type A

USB3_2_RXN/SSIC_1_RXN J6 USB3_SL1_RX_DN [71]
USB3_2_RXP/SSIC_1_RXP H6 USB3_SL1_RX_DP [71]
USB3_2_TXN/SSIC_1_TXN B13 USB3_SL1_TX_DN [71]
USB3_2_TXP/SSIC_1_TXP A13 USB3_SL1_TX_DP [71]
USB SL1

USB3_3_RXN/SSIC_2_RXN J10
USB3_3_RXP/SSIC_2_RXP H10
USB3_3_TXN/SSIC_2_TXN B15
USB3_3_TXP/SSIC_2_TXP A15

USB3_4_RXN E10 USB3_SDXC_RX_DN [48]
USB3_4_RXP F10 USB3_SDXC_RX_DP [48]
USB3_4_TXN C15 USB3_SDXC_TX_DN [48]
USB3_4_TXP D15 USB3_SDXC_TX_DP [48]
USB3.0 SDXC

USB2

USB2N_1 AB9 USB2_CONN_DN [45]
USB2P_1 AB10 USB2_CONN_DP [45]
USB Type A

USB2N_2 AD6 USB2_SL1_DN [71]
USB2P_2 AD7 USB2_SL1_DP [71]
USB SL2

USB2N_3 AH3
USB2P_3 AJ3

USB2N_4 AD9
USB2P_4 AD10

USB2N_5 AJ1 USB2_BT_DN [50]
USB2P_5 AJ2 USB2_BT_DP [50]
BT

USB2N_6 AF6
USB2P_6 AF7

USB2N_7 AH1 USB2_BLADE_DN [74]
USB2P_7 AH2 USB2_BLADE_DP [74]
BLADE

USB2N_8 AF8
USB2P_8 AF9

USB2N_9 AG1
USB2P_9 AG2

USB2N_10 AH7
USB2P_10 AH8

USB2_COMP AB6 USB2_COMP R2402 113 res_0201_12mil
USB2_ID AG3
USB2_VBUSSENSE AG4 GND

+3VSUS_ORG
R2417 10K DNP,CPU
R2418 10K DNP,CPU
R2420 10K DNP,CPU
R2419 10K CPU
RES_0201_12mil

USB_CONN_OC# [45]

GPP_E9/USB2_OC0# A9
GPP_E10/USB2_OC1# C9 GPP_E10
GPP_E11/USB2_OC2# D9 GPP_E11
GPP_E12/USB2_OC3# B9 GPP_E12

XDP_TP2400 TPS0P35
XDP_TP2401 TPS0P35
XDP_TP2402 TPS0P35
XDP_TP2403 TPS0P35

GPP_E4/DEVSLP0 J1 GPP_E4
GPP_E5/DEVSLP1 J2 GPP_E5
GPP_E6/DEVSLP2 J3 GPP_E6

XDP_TP2404 TPS0P35
XDP_TP2405 TPS0P35
XDP_TP2406 TPS0P35

GPP_E0/SATAXPCIE0/SATAGP0 H2 GPP_E0
GPP_E1/SATAXPCIE1/SATAGP1 H3 GPP_E1
GPP_E2/SATAXPCIE2/SATAGP2 G4 GPP_E2

XDP_TP2407 TPS0P35
XDP_TP2408 TPS0P35
XDP_TP2409 TPS0P35

GPP_E8/SATALED# H1 GPP_E8
XDP_TP2410 TPS0P35

R2403 0 DEVSLP_SSD [43]
R2409 0 SSD_SATA_PCIE_DET_N [43]
RES_0201_12mil

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

No reboot strap
Low: Disable (Default)
High:Enable

DNP,CPU
+3P3V R2543 1K RES_0201_12mil
SKL_NO_REBOOT

U1001F
SKL_ULT_1356BGA_R1
bga1356_47x30_42x24x1p27mm-SKL

SKL_ULT

LPSS

GPP_B15/GSPI0_CS# AN8
GPP_B16/GSPI0_CLK AP7
GPP_B17/GSPI0_MISO AP8
GPP_B18/GSPI0_MOSI AR7 INT. PD

[31] PCH_SAM_INT
GPP_B19/GSPI1_CS# AM5
GPP_B20/GSPI1_CLK AN7
GPP_B21/GSPI1_MISO AP5
[25] BBS_BIT0
GPP_B22/GSPI1_MOSI AN5 INT. PD

+3P3V
RES_0201_12mil 499 R2589
RES_0201_12mil 499 R2590

[33,71] PCH_UART0_RXD
[33,71] PCH_UART0_TXD
[31,33] SWD_CLK
[31,33] SWD_DIO
DNP,CPU R2525 0 SWD_CLK_R
DNP,CPU R2526 0 SWD_DIO_R
RES_0201_12mil
RES_0201_12mil
EV19
WAS: INSTALL
GPP_C8/UART0_RXD AB1
GPP_C9/UART0_TXD AB2
GPP_C10/UART0_RTS# W4
GPP_C11/UART0_CTS# AB3

[25,62,64] RTD3_AUD_PWR
GPP_C20/UART2_RXD AD1
GPP_C21/UART2_TXD AD2
GPP_C22/UART2_RTS# AD3
GPP_C23/UART2_CTS# AD4

[25,31] LID_CLOSED

TO SAM [31,33] SH_I2C_SDA
[31,33] SH_I2C_SCL
GPP_C16/I2C0_SDA U7
GPP_C17/I2C0_SCL U6

[28] PMI_I2C_SDA
[28] PMI_I2C_SCL
GPP_C18/I2C1_SDA U8
GPP_C19/I2C1_SCL U9

[54] I2C_SDA_FCAM R2522 0 RES_0201_12mil I2C_SDA_FCAM_R
[54] I2C_SCL_FCAM R2523 0 RES_0201_12mil I2C_SCL_FCAM_R
GPP_F4/I2C2_SDA AH9
GPP_F5/I2C2_SCL AH10

[53] I2C_SDA_RCAM R2520 0 RES_0201_12mil I2C_SDA_REAR_IR_CAM
[53] I2C_SCL_RCAM R2521 0 RES_0201_12mil I2C_SCL_REAR_IR_CAM
GPP_F6/I2C3_SDA AH11
GPP_F7/I2C3_SCL AH12
GPP_F8/I2C4_SDA AF11
GPP_F9/I2C4_SCL AF12

[49] I2C_SDA_IRCAM 0 R2527 RES_0201_12mil
[49] I2C_SCL_IRCAM 0 R2528 RES_0201_12mil

4.99K RES_0201_12mil R2504
4.99K RES_0201_12mil R2506
4.99K RES_0201_12mil R2507
4.99K RES_0201_12mil R2508

I2C PU can be placed anywhere along the net

+1P8V_CAM_F
+1P8V_CAM_R

6 OF 20

REV = JKS
Source Package = SKL_ULT_1356BGA_R1
BUILD-OPT = TBL1001,CPU

ISH

GPP_D9 P2
GPP_D10 P3
GPP_D11 P4
GPP_D12 P1
TPANEL_RST#_R R2511 0 RES_0201_12mil
TPANEL_RST# [25,30]
RTD3_TPANEL_PWR [25,62,64]
CAM_R_XO_EN [25,53]
CAM_F_XO_EN [25,54]

GPP_D5/ISH_I2C0_SDA
GPP_D6/ISH_I2C0_SCL
M4 CAM_F_PWR_DN_N_R R2512 330 res_0201_12mil MTP2531
N3 CAM_R_PWR_DN_N_R R2513 CPU 330 res_0201_12mil MTP2530
CAM_F_PWR_DN_N [21,53,54]
CAM_R_PWR_DN_N [21,53,54]

GPP_D7/ISH_I2C1_SDA N1
GPP_D8/ISH_I2C1_SCL N2
CAM_IR_PWR_DN_N_R R2509 1K RES_0201_12mil
CAM_IRCAM_XO_EN [49]
CAM_IR_PWR_DN_N [49]
MTP2501 SP_TP_SMDp58mm

GPP_F10/I2C5_SDA/ISH_I2C2_SDA AD11
GPP_F11/I2C5_SCL/ISH_I2C2_SCL AD12
FLASH_PROTECT_N_R R2598 0 RES_0201_12mil
FLASH_PROTECT_N [30]

GPP_D13/ISH_UART0_RXD/SML0BDATA/I2C4B_SDA U1
GPP_D14/ISH_UART0_TXD/SML0BCLK/I2C4B_SCL U2
GPP_D15/ISH_UART0_RTS# U3
GPP_D16/ISH_UART0_CTS#/SML0BALERT# U4
TS_BRD_REV[0] [25,30]
TS_BRD_REV[1] [25,30]
TCON_BRD_REV [25,57]
TCON_VENDOR_ID [25,57]

GPP_C12/UART1_RXD/ISH_UART1_RXD AC1
GPP_C13/UART1_TXD/ISH_UART1_TXD AC2
GPP_C14/UART1_RTS#/ISH_UART1_RTS# AC3
GPP_C15/UART1_CTS#/ISH_UART1_CTS# AB4
was PCIE_GPU_PERST#
SL1_CONN [25,31]
SH_INT [25,31,33]
PCIE_WIFI_WAKE_N [25,50]
TP2514 SP_TP_SMDp58mm

GPP_A18/ISH_GP0 AY8
GPP_A19/ISH_GP1 BA8
GPP_A20/ISH_GP2 BB7
GPP_A21/ISH_GP3 BA7
GPP_A22/ISH_GP4 AY7
GPP_A23/ISH_GP5 AW7
GPP_A12/BM_BUSY#/ISH_GP6 AP13
WLAN_PWD_N [25,50]
DISPLAY_OFF# [25,36,64]
PCIE_WIFI_DISABLE_N [25,50]
PCIE_WIFI_PERST_N [25,50]
PCIE_SSD_PERST#_R R2599 0 RES_0201_12mil
WWAN_PWREN [25,65]
PCIE_SSD_PERST# [43]

TP2513 SP_TP_SMDp58mm
TP2521 SP_TP_SMDp58mm
TP2515 SP_TP_SMDp58mm
TP2516 SP_TP_SMDp58mm

EV1.9 SWAP
PCIE_WIFI_WAKE_N
and
DISPLAY_OFF#

[30] PCH_I2C1_SDA_TS
[30] PCH_I2C1_SCL_TS
+3VSUS_ORG

R2532 DNP,CPU 10K RES_0201_12mil
R2567 DNP,CPU 49.9K RES_0201_12mil PCIE_WIFI_DISABLE_N [25,50]
R2531 DNP,CPU 10K RES_0201_12mil
R2573 DNP,CPU 49.9K RES_0201_12mil PCIE_WIFI_PERST_N [25,50]
R2591 DNP,CPU 10K RES_0201_12mil SH_INT [25,31,33]
R2530 49.9K RES_0201_12mil
R2552 DNP,CPU 10K RES_0201_12mil RTD3_CAM_PWREN [23,52]
R2592 49.9K RES_0201_12mil
R2577 CPU 10K RES_0201_12mil PCIE_WIFI_WAKE_N [25,50]
R2535 DNP,CPU 49.9K RES_0201_12mil

RES_0201_12mil 1.21K R2586
RES_0201_12mil 1.21K R2587
+1P8V_TS

+1P8V
RES_0201_12mil R2560 49.9K TCON_BRD_REV [25,57]
RES_0201_12mil R2561 49.9K TCON_VENDOR_ID [25,57]
RES_0201_12mil R2562 49.9K TS_BRD_REV[0] [25,30]
RES_0201_12mil R2563 49.9K TS_BRD_REV[1] [25,30]

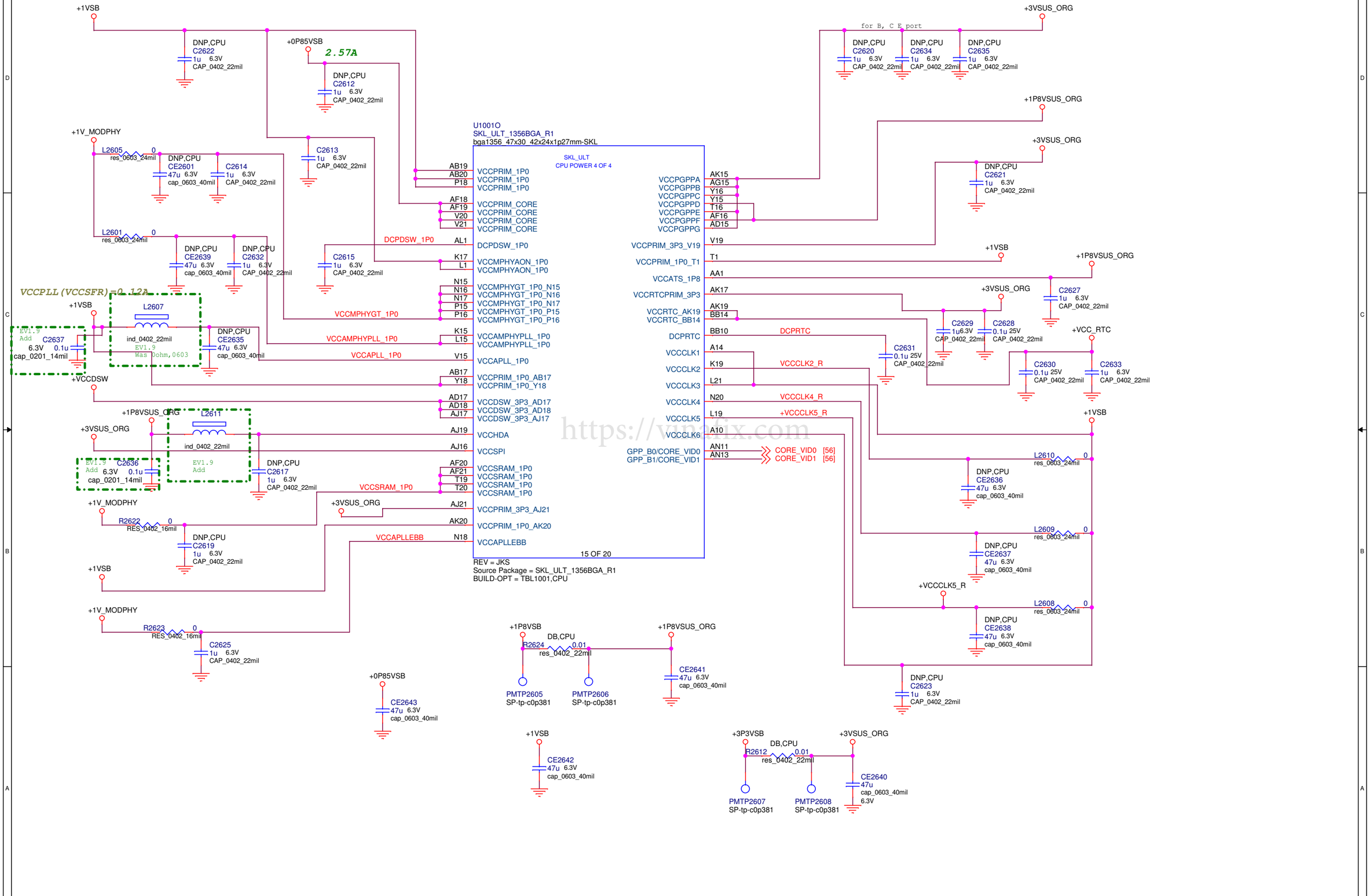
R2539 DNP,CPU 49.9K RES_0201_12mil DISPLAY_OFF# [25,36,64]
R2572 49.9K RES_0201_12mil WWAN_PWREN [25,65]
R2595 49.9K RES_0201_12mil RTD3_AUD_PWR [25,62,64]
R2559 49.9K RES_0201_12mil RTD3_TPANEL_PWR [25,62,64]
R2596 10K RES_0201_12mil TPANEL_RST# [25,30]
R2578 49.9K RES_0201_12mil LID_CLOSED [25,31]
R2502 49.9K RES_0201_12mil CAM_R_XO_EN [25,53]
R2503 49.9K RES_0201_12mil CAM_F_XO_EN [25,54]
R2548 49.9K RES_0201_12mil WLAN_PWD_N [25,50]
R2514 49.9K RES_0201_12mil SL1_CONN [25,31]

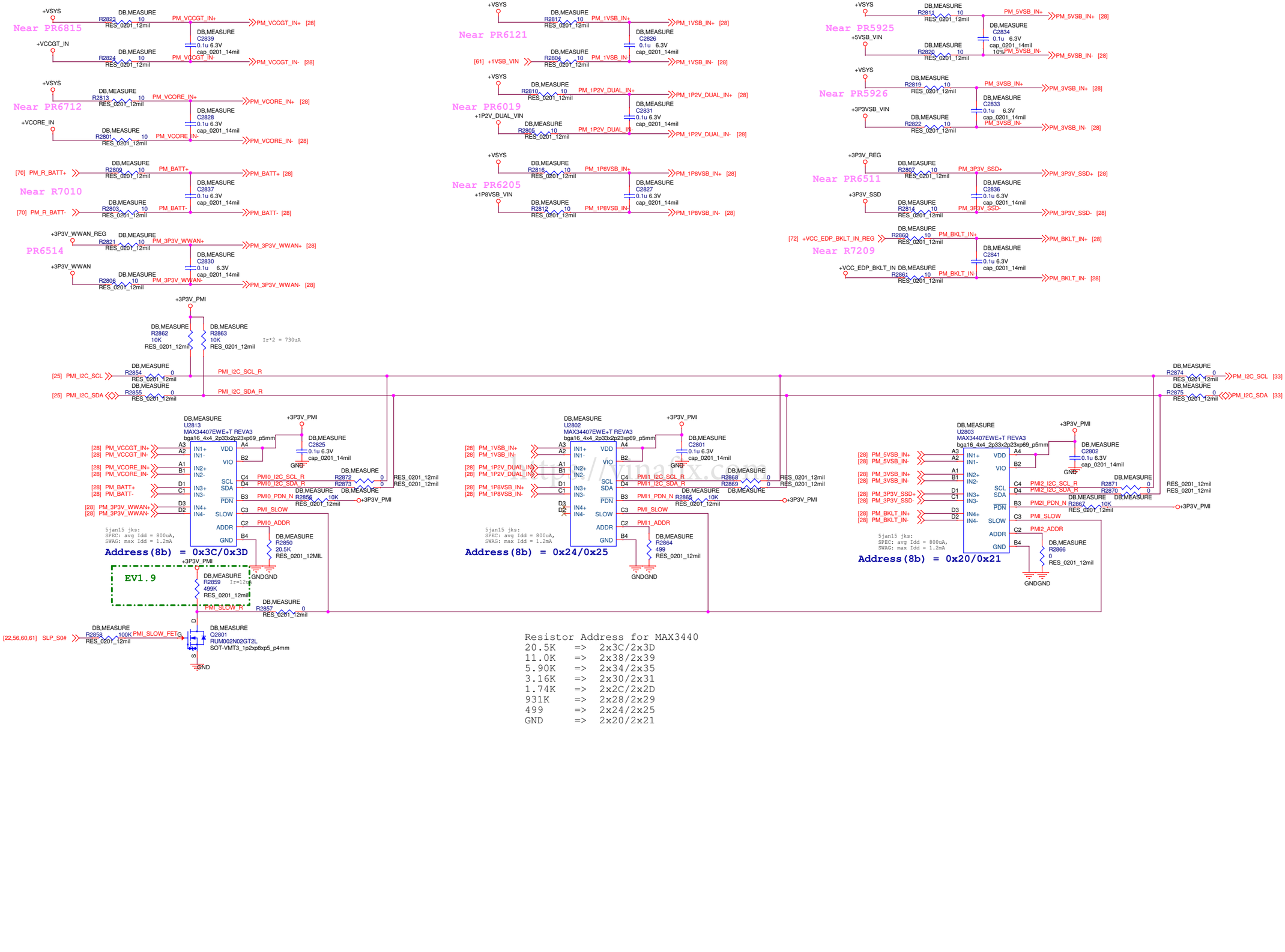
BBS_BIT0,BBS_BIT1 : Boot BIOS Strap

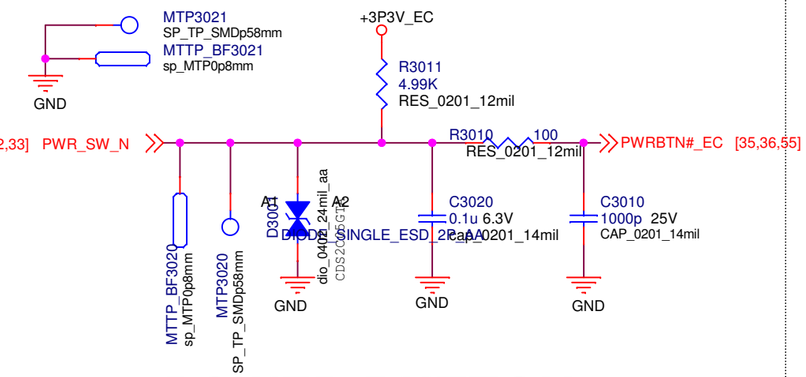
Boot BIOS Strap	
BBS_BIT0	Boot BIOS Location
1	LPC
0	SPI **(PCH)**

Sampled on rising edge of PWROK.

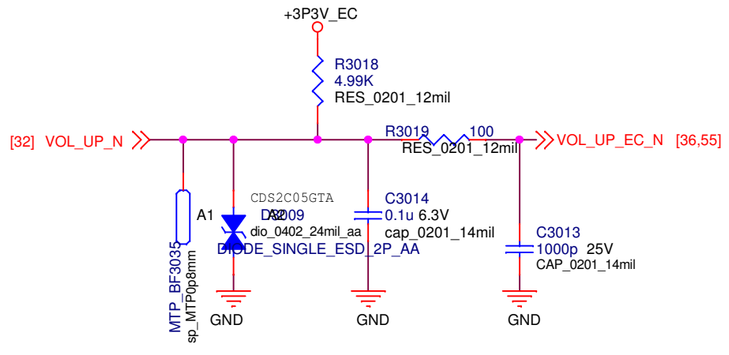
[25] BBS_BIT0
+3P3V
RES_0201_12mil R2501 DNP,CPU 10K
R2574 DNP,CPU 49.9K RES_0201_12mil



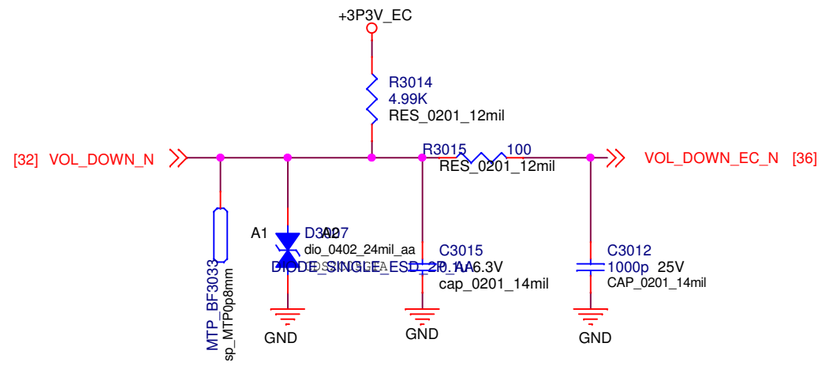

Near PR6815
Near PR6712
Near R7010
PR6514
Near PR6121
Near PR6019
Near PR6205
Near PR5925
Near PR5926
Near PR6511
Near R7209
EV1.9
Address(8b) = 0x3C/0x3D
Address(8b) = 0x24/0x25
Address(8b) = 0x20/0x21
5jan15 jks:
SPEC: avg Idd = 800uA,
SWAG: max Idd = 1.2mA
Ir*2 = 730uA
Resistor Address for MAX3440
20.5K => 2x3C/2x3D
11.0K => 2x38/2x39
5.90K => 2x34/2x35
3.16K => 2x30/2x31
1.74K => 2x2C/2x2D
931K => 2x28/2x29
499 => 2x24/2x25
GND => 2x20/2x21



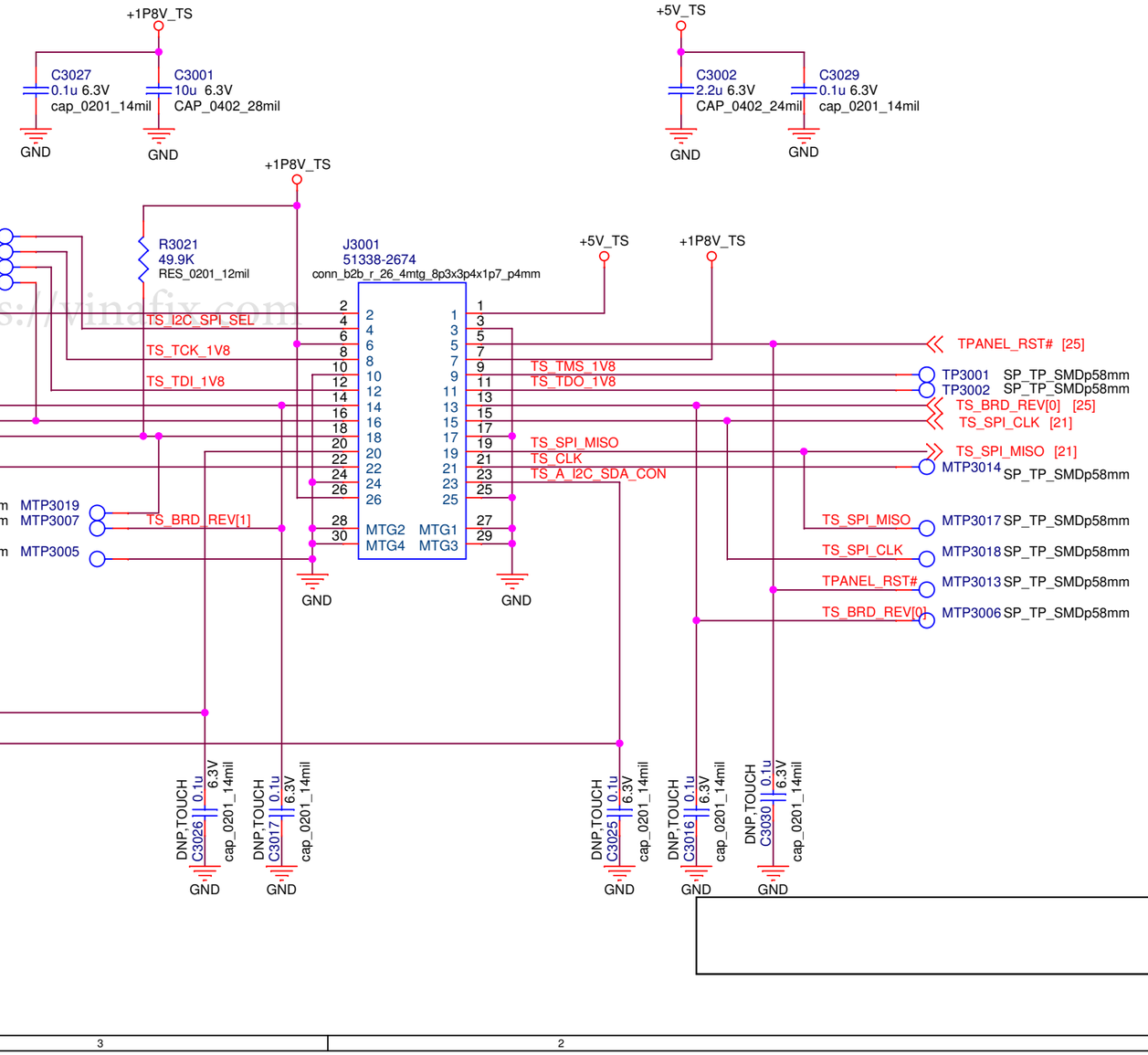
POWER BUTTON



VOL_UP BUTTON



VOL_DOWN BUTTON

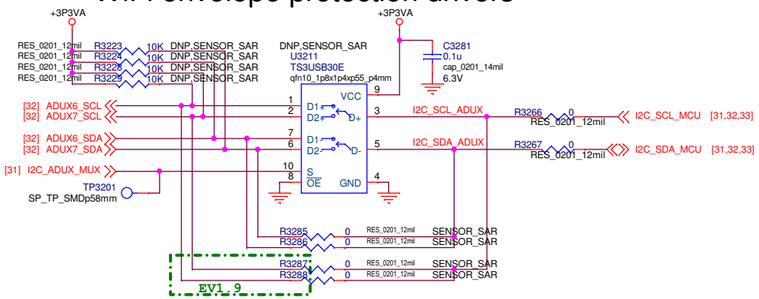


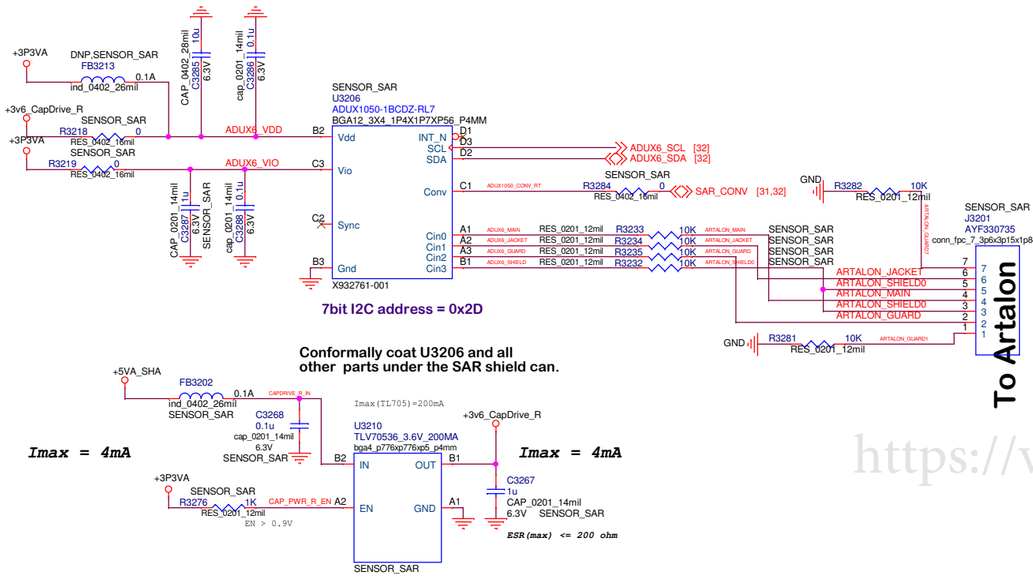
SENSOR MCU

Authentication

Address 0x28

WiFi envelope protection drivers



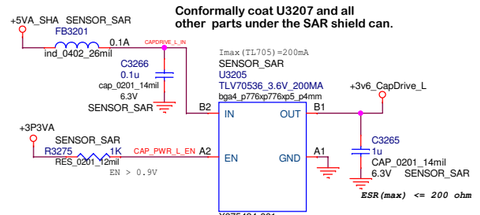


Conformally coat U3206 and all other parts under the SAR shield can.

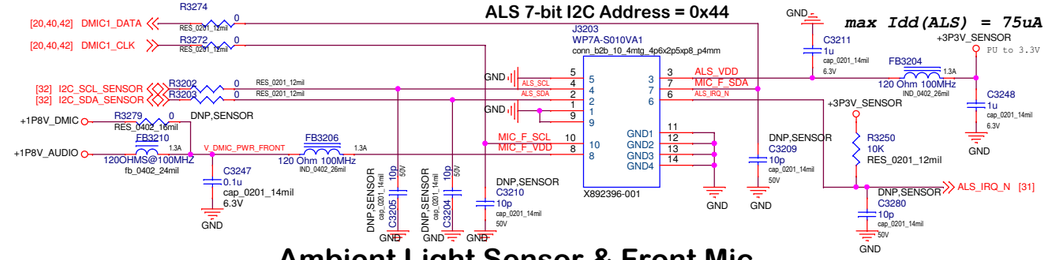
Imax = 4mA

Imax = 4mA

Conformally coat U3207 and all other parts under the SAR shield can.

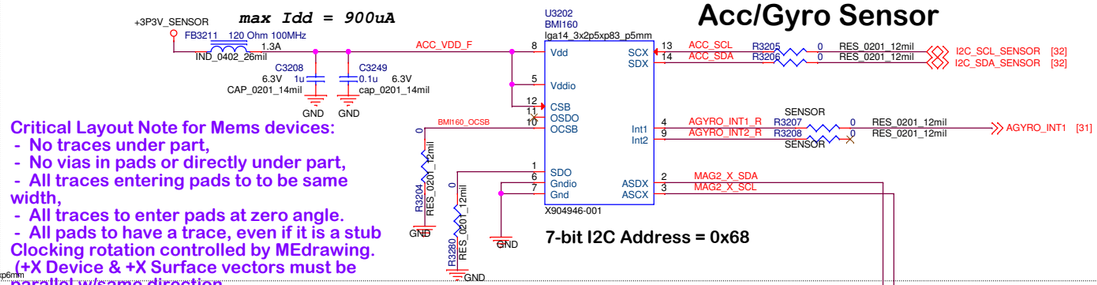


ALS 7-bit I2C Address = 0x44



Ambient Light Sensor & Front Mic

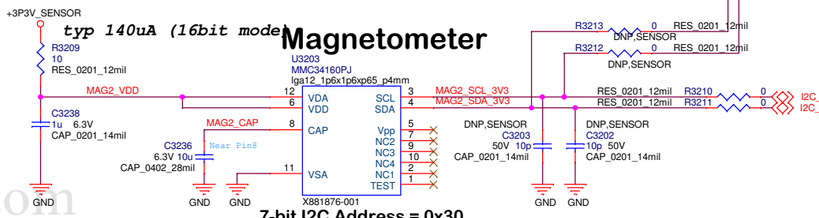
Acc/Gyro Sensor



Critical Layout Note for Mems devices:
- No traces under part,
- No vias in pads or directly under part,
- All traces entering pads to to be same width,
- All traces to enter pads at zero angle.
- All pads to have a trace, even if it is a stub

Clocking rotation controlled by MEdrawing. (+X Device & +X Surface vectors must be parallel w/same direction

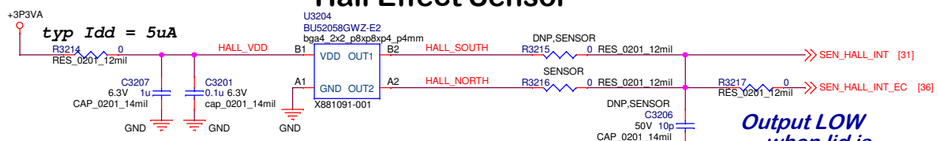
Magnetometer



Critical Layout Note:
Extremely sensitive to ferrous materials:
Local ferrite bead to be >8mm remote
No traces carrying >8mA within 10mm ... on any layer.
Clocking rotation controlled by MEdrawing.

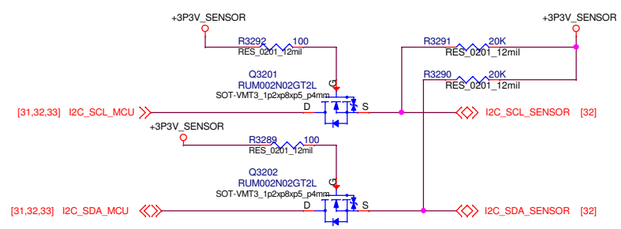
This change, putting the MAG behind the AGyro allows us to take advantage of the time-stamped FIFO in the AGyro to reduce power consumption and address load on the I2C bus -- in addition to improving jitter filtering in post processing. Eventually this will enable IR range camera frame syncing.

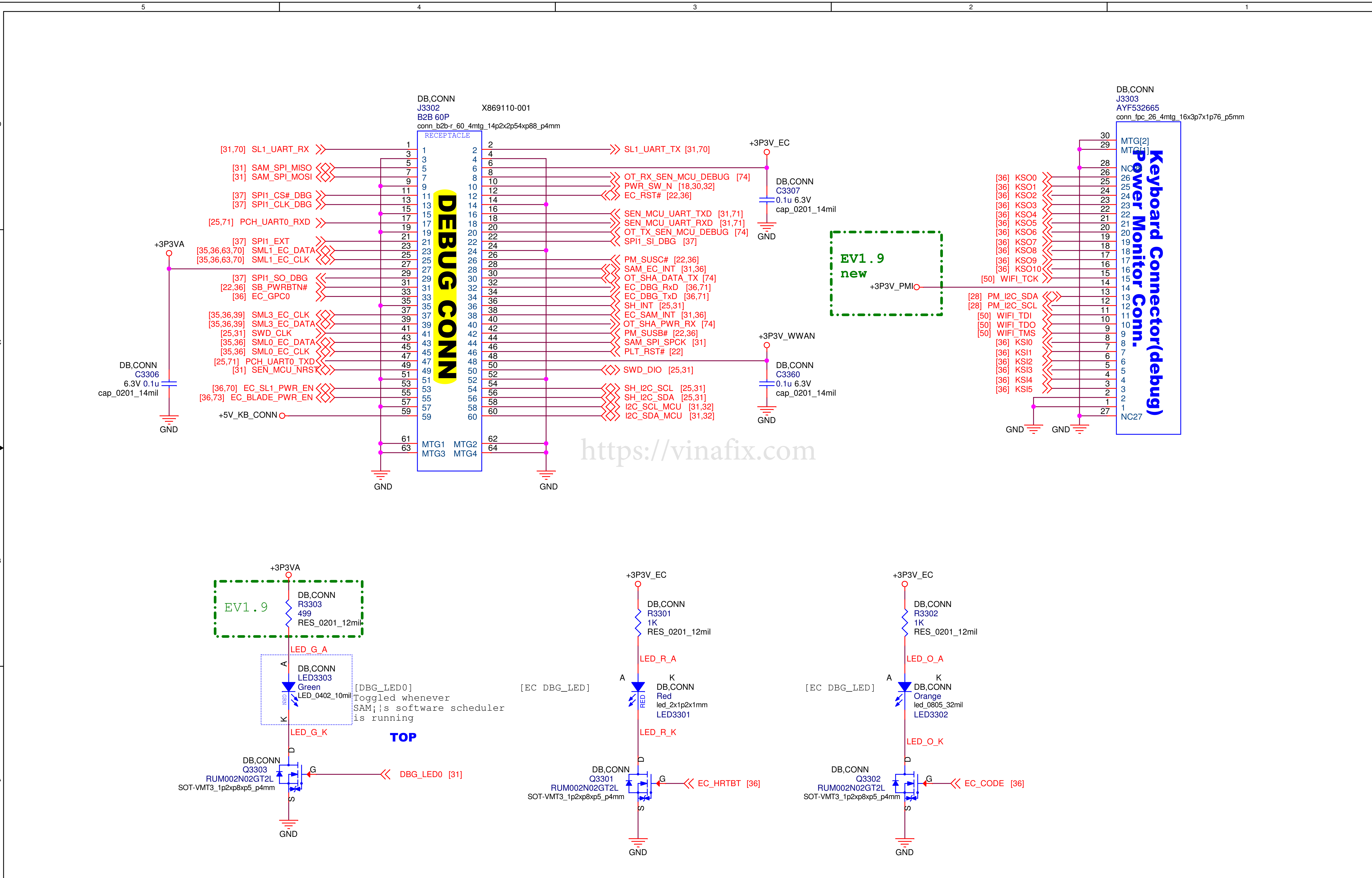
Hall Effect Sensor



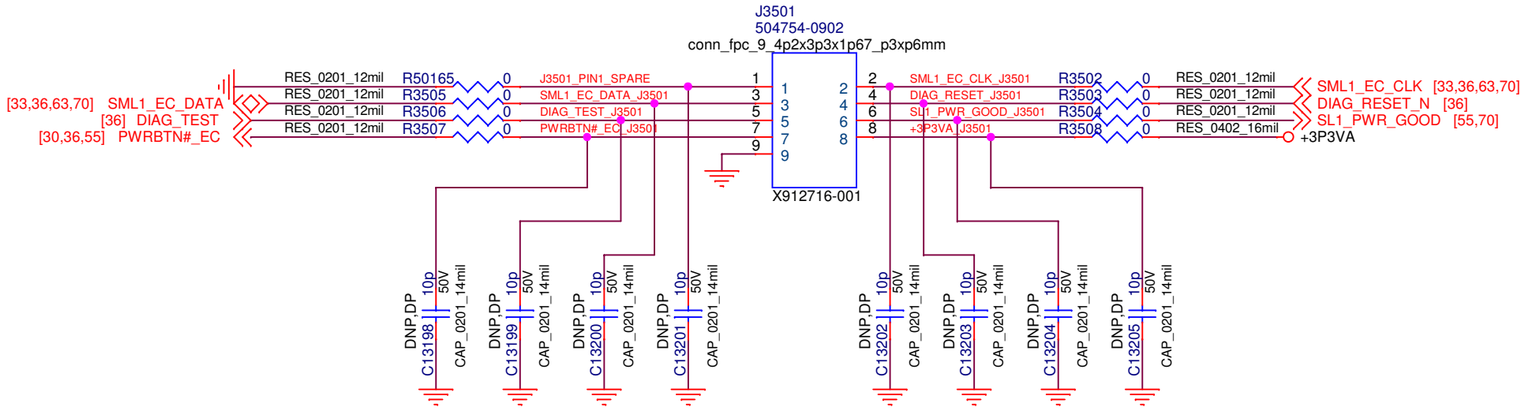
Output LOW ...when lid is closed

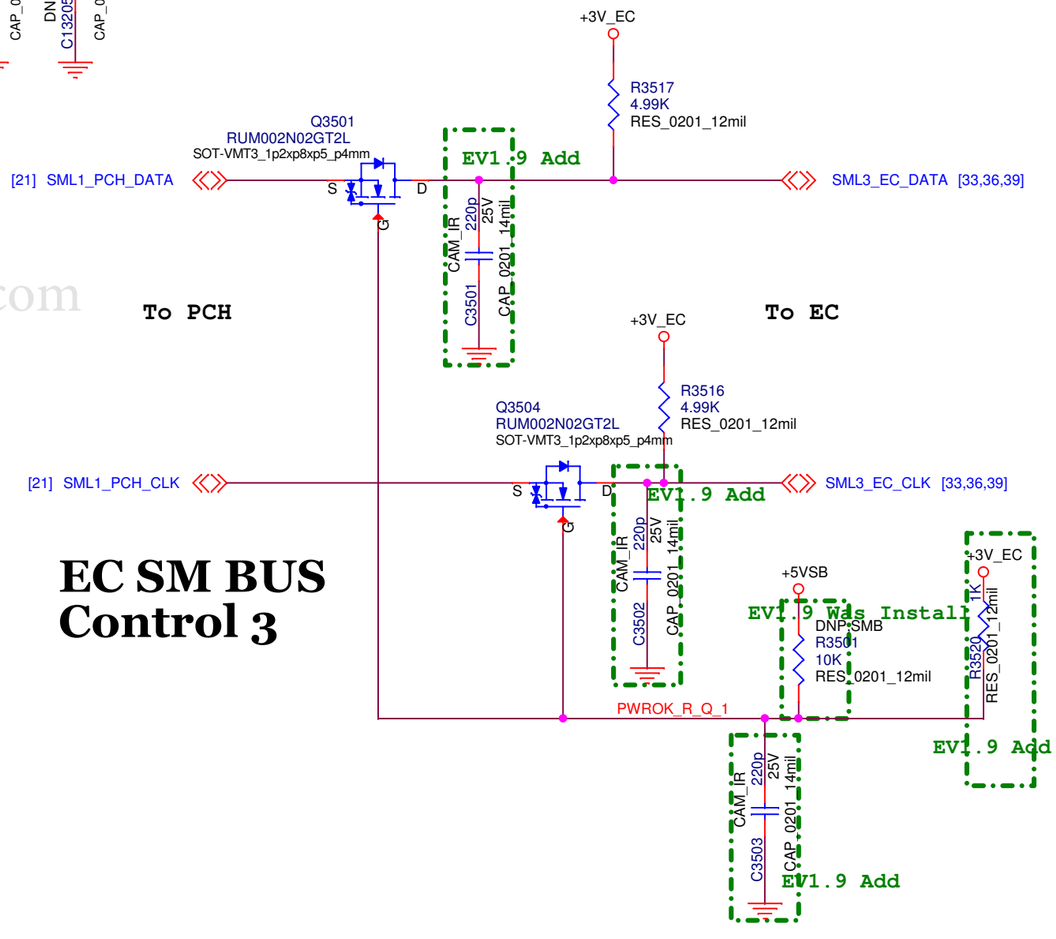
Critical Layout Note:
Sensitive to ferrous materials
Do not mount under a steel shield can
If mounted on Glass side of board,
Trigger may occur as early as 30Gauss North B-field or as late as 50Gauss North B-field
Be careful not to mount within 15mm of speaker autofocus camera or other magnet.
X-Y location controlled by MEdrawing.

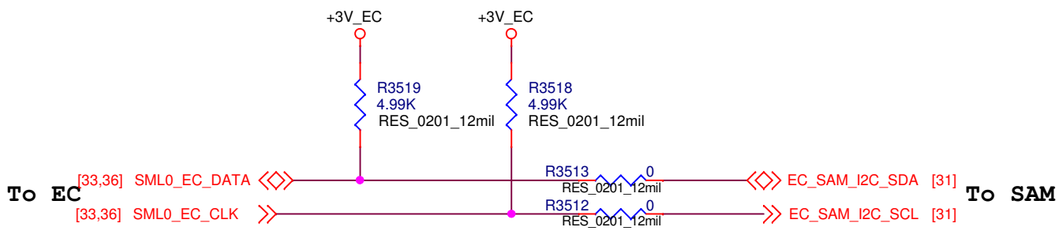



DB,CONN
J3302
B2B 60P
X869110-001
conn_b2b-r_60_4mtg_14p2x2p54xp88_p4mm
RECEPTACLE
DEBUG CONN
[31,70] SL1_UART_RX
[31] SAM_SPI_MISO
[31] SAM_SPI_MOSI
[37] SPI1_CS#_DBG
[37] SPI1_CLK_DBG
[25,71] PCH_UART0_RXD
[37] SPI1_EXT
[35,36,63,70] SML1_EC_DATA
[35,36,63,70] SML1_EC_CLK
[37] SPI1_SO_DBG
[22,36] SB_PWRBTN#
[36] EC_GPC0
[35,36,39] SML3_EC_CLK
[35,36,39] SML3_EC_DATA
[25,31] SWD_CLK
[35,36] SML0_EC_DATA
[35,36] SML0_EC_CLK
[25,71] PCH_UART0_TXD
[31] SEN_MCU_NRST
[36,70] EC_SL1_PWR_EN
[36,73] EC_BLADE_PWR_EN
+5V_KB_CONN
SL1_UART_TX [31,70]
OT_RX_SEN_MCU_DEBUG [74]
PWR_SW_N [18,30,32]
EC_RST# [22,36]
SEN_MCU_UART_TXD [31,71]
SEN_MCU_UART_RXD [31,71]
OT_TX_SEN_MCU_DEBUG [74]
SPI1_SI_DBG [37]
PM_SUSC# [22,36]
SAM_EC_INT [31,36]
OT_SHA_DATA_TX [74]
EC_DBG_RxD [36,71]
EC_DBG_TxD [36,71]
SH_INT [25,31]
EC_SAM_INT [31,36]
OT_SHA_PWR_RX [74]
PM_SUSB# [22,36]
SAM_SPI_SPCK [31]
PLT_RST# [22]
SWD_DIO [25,31]
SH_I2C_SCL [25,31]
SH_I2C_SDA [25,31]
I2C_SCL_MCU [31,32]
I2C_SDA_MCU [31,32]
MTG1 MTG2 MTG3 MTG4
+3P3VA
DB,CONN
C3306
6.3V 0.1u
cap_0201_14mil
+3P3V_EC
DB,CONN
C3307
0.1u 6.3V
cap_0201_14mil
+3P3V_WWAN
DB,CONN
C3360
0.1u 6.3V
cap_0201_14mil
GND
EV1.9
new
+3P3V_PMI
DB,CONN
J3303
AYF532665
conn_fpc_26_4mtg_16x3p7x1p76_p5mm
Keyboard Connector(debug)
Power Monitor Conn.
MTG[2]
MTG[1]
NC
NC27
[36] KSO0
[36] KSO1
[36] KSO2
[36] KSO3
[36] KSO4
[36] KSO5
[36] KSO6
[36] KSO7
[36] KSO8
[36] KSO9
[36] KSO10
[50] WIFI_TCK
[28] PM_I2C_SDA
[28] PM_I2C_SCL
[50] WIFI_TDI
[50] WIFI_TDO
[50] WIFI_TMS
[36] KSI0
[36] KSI1
[36] KSI2
[36] KSI3
[36] KSI4
[36] KSI5
EV1.9
DB,CONN
R3303
499
RES_0201_12mil
LED_G_A
DB,CONN
LED3303
Green
LED_0402_10mil
LED_G_K
[DBG_LED0]
Toggled whenever
SAM¡¦s software scheduler
is running
TOP
DB,CONN
Q3303
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
DBG_LED0 [31]
+3P3V_EC
DB,CONN
R3301
1K
RES_0201_12mil
LED_R_A
[EC DBG_LED]
DB,CONN
Red
led_2x1p2x1mm
LED3301
LED_R_K
DB,CONN
Q3301
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
EC_HRTBT [36]
+3P3V_EC
DB,CONN
R3302
1K
RES_0201_12mil
LED_O_A
[EC DBG_LED]
DB,CONN
Orange
led_0805_32mil
LED3302
LED_O_K
DB,CONN
Q3302
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
EC_CODE [36]
https://vinafix.com

DIAGNOSTIC CONNECTOR







EC SM BUS Control 3

Q3101
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
[36] RTCRST_CTRL
R3169 0 RES_0201_12mil
RTCRST_CTRL_R
R3167 100K RES_0201_12mil
RTC_RST# [20]
GND

+3V_EC
R3607 0 res_0603_24mil
+3V_EC_VBAT
DNP,EC R3618 0 res_0603_24mil
C3604 0.1u 6.3V cap_0201_14mil

+3P3V_EC
R3605 2.32K res_0201_12mil
EC_GPI0
EV1.9 was 698
TBL2301,EC
R3619 909 RES_0402_16mil
X807179-001
BRD_ID_EN_D
Q3601
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
BRD_ID_EN [36]

+3P3V_EC
+3V_EC
R3606 0 res_0603_24mil
DNP,EC C3601 10u 6.3V CAP_0402_28mil
C3611 0.1u 6.3V cap_0201_14mil
C3609 0.1u 6.3V cap_0201_14mil
C3603 0.1u 6.3V cap_0201_14mil
C3606 0.1u 6.3V cap_0201_14mil
C3607 0.1u 6.3V cap_0201_14mil
C3608 0.1u 6.3V cap_0201_14mil
C3602 10u 6.3V CAP_0402_28mil
C3610 0.1u 6.3V cap_0201_14mil
C3612 0.1u 6.3V cap_0201_14mil
+3P3V
R3608 0 res_0603_24mil
EC_VCC
GND

U3601
IT8528VG/FX
bga128_13x13_7x7xp97_p5mm

Input Only

J4 VBAT
K4 VSTBY4
K10 VSTBY5
E4 VSTBY(PLL)
D5 VSTBY3
D4 VSTBY2
D10 VSTBY1
E9 AVCC
J5 VCC

ADC0/GPI0 G10 GPI
ADC1/GPI1 G13 GPI
ADC2/GPI2 G12 GPI
ADC3/GPI3 F9 GPI
ADC4/GPI4 F13 GPI
ADC5/DCD1#/GPI5 F10 GPI (ADC)
ADC6/DSR1#/GPI6 F12 GPI
ADC7/CTS1#/GPI7 E13 GPI

TP3612 SP_TP_SMDp58mm
TP3608 SP_TP_SMDp58mm
ALL_SUS_PWRGD [61,75] Check CRB time
ALL_SYS_PWRGD [58,66,75]
VRM_PWRGD [58,66,75]
VCCDSW_EN [55,76]
EC_ADP_IOUT [63]
EC_BAT_IOUT [63]
SLP_SUS# [22]
Charger

PWM0/GPA0 M5 PU GPI (GPO) jks 10nov: was EC_CTL
PWM1/GPA1 N5 PU GPI (GPO) EC_MAG_DET [70]
PWM2/GPA2 M6 PU GPI (GPO)
PWM3/GPA3 N6 PU GPI (GPO)
PWM4/GPA4 K6 PU GPI EC_HRTBT [33]
PWM5/GPA5 J6 PU GPI VOL_DOWN_EC_N [30]
PWM6/SSCK/GPA6 M7 PU GPI CPUFAN1_PWM [39]
PWM7/RIG1#/GPA7 K7 PU GPI DIAG_RESET_N [35]

DNP,EC C3615 0.1u 6.3V cap_0201_14mil
DNP,EC C3616 0.1u 6.3V cap_0201_14mil
DNP,EC C3617 0.1u 6.3V cap_0201_14mil
C3623 0.1u 6.3V cap_0201_14mil
C3620 0.1u 6.3V cap_0201_14mil
EC C3619 470p25V CAP_0201_14mil
EV1.9 install

Debug UART to BLADE
RXD/SIN0/GPB0 A4 PU GPI EC_DBG_RxD [33,71]
TXD/SOUT0/GPB1 A3 PU GPI EC_DBG_TxD [33,71]
RING#/PWRFAIL#/CK32KOUT/LPCRST#/GPB7 A1 PD GPI (GPO) RSMRST# [18,22]
PM_SUSC# [22,33]
EC C3622 470p 25V CAP_0201_14mil
EV1.9 install

KSO16/SMOSI/GPC3 K13 PD GPI DIAG_TEST [35]
TMRI0/GPC4 C2 PD GPI EC_EXT_DC_OK [70]
KSO17/SMISO/GPC5 J10 PD GPI
TMRI1/GPC6 E1 PD GPI (GPO) PM_PCH_PWROK [22]
PWUREQ#/BBO/SMCLK2ALT/GPC7 M2 PU GPI (GPO) SYS_PWROK [22]

RI1#/GPD0 N1 PU GPI
RI2#/GPD1 N3 PU GPI EC_ID0
GINT/CTS0#/GPD5 N7 PU GPI EC_ID1
TACH0A/GPD6 M11 PD GPI CPUFAN1_TACH [39]
TACH1A/TMA1/GPD7 M12
[12/4] Remove TS_BRD_REV[1]
TP3611 SP_TP_SMDp58mm
TP3607 SP_TP_SMDp58mm
DNP,TBL2301,EC R3640 10K
TBL2301,EC R3641 10K
DNP,TBL2301,EC R3642 10K
TBL2301,EC R3643 10K
+3V_EC RES_0201_12mil
GND RES_0201_12mil
to configure EC_ID[1:0], see TBL2301

L80HLAT/BAO/GPE0 N2 PD GPI (GPO)
EGAD/GPE1 A13 PD GPI (GPO)
EGCS#/GPE2 A12 PD GPI (GPO)
EGCLK/GPE3 B12 PD GPI (GPO)
PWRSW/GPE4 E2 PU GPI MCU_PWRBTN#_R R3634 0 RES_0201_12mil
RTS1#/GPE5 N8 PD GPI (GPO) SEN_HALL_INT_EC [32]
LPCPD#/GPE6 M1 PD GPI (GPO) PWRBTN#_EC [30,35,55]
L80LLAT/GPE7 M3 PU GPI PCH_DPWROK [22]
EC_EXT_DCIN_EN [70]
VSUS_ON [56,59,61,62]
SUSC_EC# [45,60,61,62]
SUSB_EC# AND [36]
TP3610 SP_TP_SMDp58mm
EV1.9
Charger
R3639 100K RES_0201_12mil
R3638 100K RES_0201_12mil

SSCE1#/FSCE1#/GPG0 E6 GPO,H
FDIO2/DTR1#/SBUSY/GPG1/ID7 A5 PD GPO(GPI)
SSCE0#/GPG2 E7 GPI (GPO) EC_PROCHOT [10]
FDIO3/DSR0#/GPG6 D6 GPI
PM_SUSB# [22,33,36]
EC SC3605 470p 25V CAP_0201_14mil
EV1.9 WAS:DNP

CLKRUN#/GPH0/ID0 D8 PD GPI (OD) PM_CLKRUN# [21,38]
CRX1/SIN1/SMCLK3/GPH1/ID1 E8 PD GPI (OD) SML3_EC_CLK [33,35,39]
CTX1/SOUT1/SMDAT3/GPH2/ID2 D7 PD GPI (OD) SML3_EC_DATA [33,35,39]
HSCE#/GPH3/ID3 A9 PD GPI RTCRST_CTRL [36]
HSCK/GPH4/ID4 B8 PD GPI EC_BLADE_5VLDSW_EN [73]
HMISO/GPH5/ID5 A8 PD GPI (GPO) EC_BLADE_PWR_EN [33,73]
HMOSI/GPH6/ID6 B7 PD GPI (GPO) EC_SL1_PWR_EN [33,70]
TEMP SENSOR

LAD0/GPM0 K1 Func1 [21,38] LAD0
LAD1/GPM1 J2 Func1 [21,38] LAD1
LAD2/GPM2 J1 Func1 [21,38] LAD2
LAD3/GPM3 H2 Func1 [21,38] LAD3
LPCCLK/GPM4 K2 Func1 [21] CK_24M_EC
LFRAME#/GPM5 H1 Func1 [21,38] LFRAME#
LPCRST#/GPD2 M4 Func1 PU [18,22,38,43,75] PLT_RST#_BUF
SERIRQ/GPM6 G2 (OD) Func1 [21,38] PCH_SERIRQ
ECSMI#/GPD4 L2 (OD) GPI PU [10] EXT_SMI#
ECSCI#/GPD3 N4 (OD) GPI PU [10] EXT_SCI#
GA20/GPB5 F1 GPO,L [25,64] DISPLAY_OFF#
KBRST#/GPB6 H4 GPO,L [21] RC_IN#
WRST# L1

TP3605 SP_TP_SMDp58mm
TP3601 SP_TP_SMDp58mm
TP3602 SP_TP_SMDp58mm
TP3603 SP_TP_SMDp58mm
TP3604 SP_TP_SMDp58mm

R3628 0 RES_0201_12mil EXT_SMI#_R
R3629 0 RES_0201_12mil EXT_SCI#_R
R3602 0 RES_0201_12mil CS_ENTRY#_R
R3603 0 RES_0201_12mil EC_GPB6
+3P3VO
R3601 10K RES_0201_12mil
[22,33] EC_RST#

KSI0/STB# J12 [33] KSI0
KSI1/AFD# J13 [33] KSI1
KSI2/INIT# J9 [33] KSI2
KSI3/SLIN# H12 [33] KSI3
KSI4 H9 [33] KSI4
KSI5 H10 [33] KSI5
KSI6 H13
KSI7 G9
KSO0/PD0 M8 [33] KSO0
KSO1/PD1 J7 [33] KSO1
KSO2/PD2 N9 [33] KSO2
KSO3/PD3 M9 [33] KSO3
KSO4/PD4 K8 [33] KSO4
KSO5/PD5 J8 [33] KSO5
KSO6/PD6 N10 [33] KSO6
KSO7/PD7 M10 [33] KSO7
KSO8/ACK# N11 [33] KSO8
KSO9/BUSY K9 [33] KSO9
KSO10/PE N12 [33] KSO10
KSO11/ERR# N13
KSO12/SLCT M13
KSO13 L12
KSO14 L13
KSO15 K12

+3V_EC
R3627 100K RES_0201_12mil
D3601 RB520CS30202L dio_sod882_1xp6xp5_p7mm 30V 200mA
+3V_EC
D3602 RB520CS3002L dio_sod882_1xp6xp5_p7mm 30V 200mA
[75] FORCE_OFF#
C3605 1u 6.3V CAP_0201_14mil
DNP,EC SC3603 100p 25V CAP_0201_14mil
DNP,EC SC3601 100p 25V CAP_0201_14mil
DNP,EC SC3602 100p 25V CAP_0201_14mil

NOTE: 40K <= PD(75K) <= 190K
R3635 100K RES_0201_12mil
GPI PD D1 [33] EC_GPC0 CRX0/GPC0
GPI PD D2 [33] EC_CODE CTX0/TMA0/GPB2
GPI PU A11 [36] BRD_ID_EN PS2CLK0/TMB0/CEC/GPF0
GPI PU B11 [63] EC_CHG_ACOK PS2DAT0/TMB1/GPF1
GPI PU A10 [63,70] EC_BATA_DET_N PS2CLK1/DTR0#/GPF2
GPI PU B10 [20] EC_UEFI_TOP_SWAP PS2DAT1/RTS0#/GPF3
GPI PU B9 PS2CLK2/GPF4
[12/4] Remove TS_BRD_REV[0]
PS2DAT2/GPF5
(OD) GPI B4 [33,35] SML0_EC_CLK SMCLK0/GPB3
(OD) GPI A2 [33,35] SML0_EC_DATA SMDAT0/GPB4
(OD) GPI B3 [33,35,63,70] SML1_EC_CLK SMCLK1/GPC1
(OD) GPI B2 [33,35,63,70] SML1_EC_DATA SMDAT1/GPC2
R3626 43 RES_0402_16mil H_PECI_EC
GPI B1 [10] H_PECI_R SMCLK2/PECI/GPF6
GPI PU C1 SMDAT2/PECIRQT#/GPF7

GPI C12 [22,33] SB_PWRBTN#
GPI B13 [31,33] SAM_EC_INT DAC5/RIG0#/GPJ5
GPI C13 DAC4/DCD0#/GPJ4
[12/4] Remove TCON_BRD_REV[0]
DAC3/TACH1B/GPJ3
GPI D13 DAC2/TACH0B/GPJ2
GPI E12 HDIO3/GPJ1
GPI TACH2/HDIO2/GPJ0
[30,55] VOL_UP_EC_N
F2 CK32K/GPJ6
G1 CK32KE/GPJ7
[12/4] Remove TCON_BRD_REV[1]
DNP,EC R3630 100K RES_0201_12mil

R3612 0 RES_0201_12mil SCE#_EC_R
R3611 0 RES_0201_12mil SCK_EC_R
R3610 0 RES_0201_12mil SI_EC_R
R3609 0 RES_0201_12mil SO_EC_R
[37] SCE#_EC
[37] SCK_EC
[37] SI_EC
[37] SO_EC
A7 FSCE#
B5 FSCK
B6 FMOSI
A6 FMISO

VSS2 F4
VCORE K5
VSS3 F5
VSS1 E5
VSS4 G4
VSS6 H5
VSS5 G5
AVSS E10
EC_VCORE
C3613 0.1u 6.3V cap_0201_14mil
DNP,EC C3614 1u 6.3V CAP_0201_14mil
DNP,EC R3613 0 RES_0402_16mil

PLEASE DO NOT PLACE ANY PULL-UP RESISTOR ON GPG0, GPG2 AND GPG6 (Reserved hardware strapping).

SMBUS device list

PCH: SMB, SML0, SML1 — 100KHz — EC: SM3
SM1 — Charger
SM2 — PECI
SM0 — SAM
Temp Sensor

7-bit I2C Address = 0x4E

EV1.9 ADD

+3P3VSB
U3602
SN74AUP1G08DRYR
sot886_1p45x1xp6_p5mm
C3621 0.1u 6.3V cap_0201_14mil
[22,33,36] PM_SUSB#
[36] SUSB_EC#_AND
TP3613 SP_TP_SMDp58mm
SUSB_EC# [47,56,61,62,64,65,76]
DNP,EC R3614 0 RES_0201_12mil

EC SPI ROM

MT 15dec14: CLK <= 80MHz

+3P3V_EC

R3722 10K RES_0201_12mil

R3721 10K RES_0201_12mil

R3723 10K RES_0201_12mil

EC_SPI_HOLD#

+3P3V_EC

C3729
0.1u 6.3V
cap_0201_14mil
GND

U3703
W25X40CLUXIG
son9_2x3xp6_p5mm

GND

[36] SCE#_EC
[36] SO_EC
WP#_U3703

1 /CS
2 DO(IO1)
3 /WP
4 GND

GND_PAD 9
VCC 8
/HOLD 7
CLK 6
DI(IO0) 5

GND

MSPN = X893206-001

SCK_EC [36]
SI_EC [36]

UEFI SPI ROM

+3VSUS_ORG

R3704 1K RES_0201_12mil

R3709 1K RES_0201_12mil DNP,EC

(128Mb=16MB @104MHz)

Needs to >= 66MHz

U3702
W25Q128FVPIQ
son9_5x6xp8_1p27mm

SPI1_CS#0
SPI1_SO
SPI1_WP#

1 CS#
2 DO(IO1)
3 WP#(IO2)
4 GND1
9 GND2

VCC 8
HOLD#(IO3) 7
CLK 6
DI(IO0) 5

SPI1_HOLD#
SPI1_CLK
SPI1_SI

GND

+3VSUS_ORG

DNP,EC
R3701
1K
RES_0201_12mil

C3727
0.1u 6.3V
cap_0201_14mil
GND

+3VSUS_ORG

C3701
0.1u 6.3V
cap_0201_14mil
GND

+3VSUS_ORG

DNP,EC
R3719 100K RES_0201_12mil

R3720 100K RES_0201_12mil
GND

+3VSUS_ORG

R3717 1K RES_0201_12mil

R3718 1K RES_0201_12mil

DB,EC
U3701
TS3A27518EZQSR
bga24_5x5_3x3x1_p5mm

SPI1_CLK
SPI1_SI
SPI1_SO
SPI1_WP#
SPI1_HOLD#
SPI1_CS#0

A1 COM1
B1 COM2
C1 COM3
D1 COM4
E1 COM5
D2 COM6

V+ C2
EN# C4
IN1 B4
IN2 D3
GND C3

A3 N.C.
B3 NC1
A2 NC2
A4 NC3
B5 NC4
C5 NC5
A5 NC6

NO1 E2
NO2 E3
NO3 E4
NO4 D5
NO5 D4
NO6 E5

GND

TP3707
SP_TP_SMDp58mm

SPI1_EXT [33]

SPI_CLK = 20/33/50Mhz

[21] SPI_CLK
[21] SPI_SI
[21] SPI_SO
[21] SPI_WP_IO2
[21] SPI_HOLD#_IO3
[21] SPI_CS#0

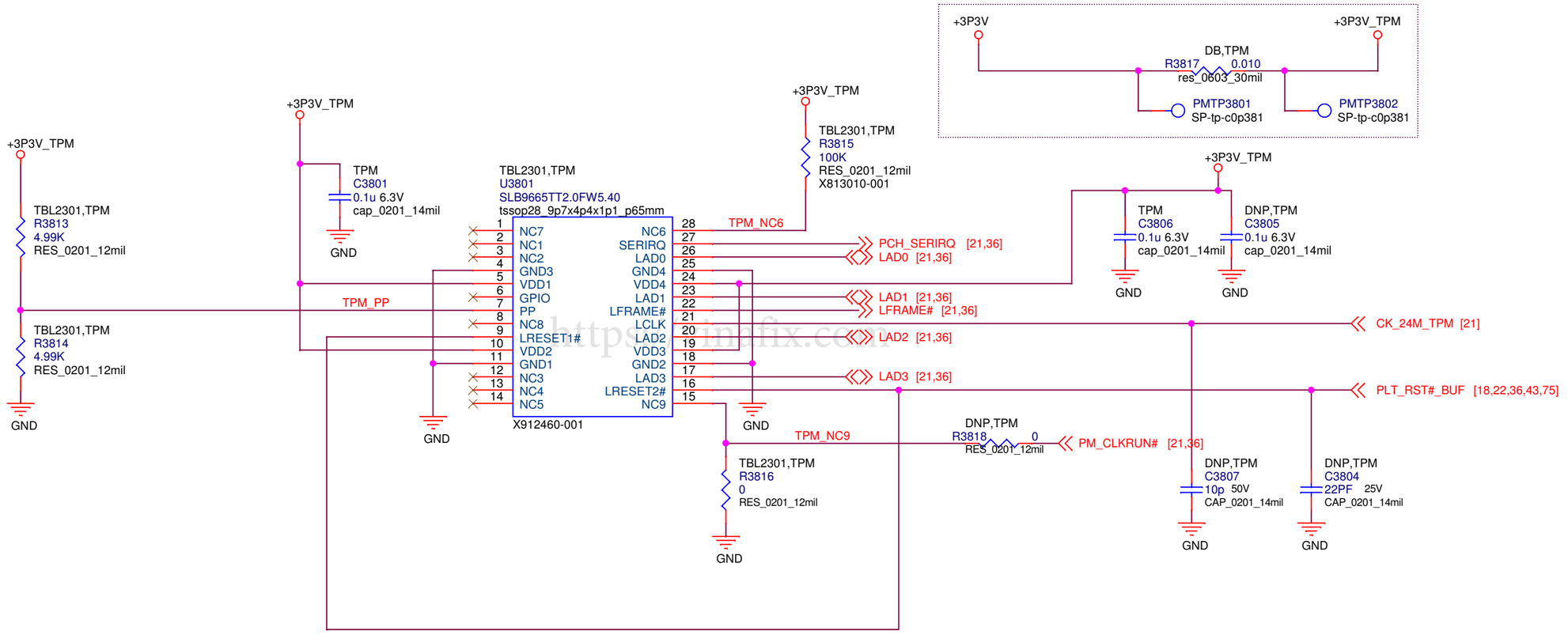
SPI1_WP#_DBG
SPI1_HOLD#_DBG

SPI1_CLK_DBG [33]
SPI1_SI_DBG [33]
SPI1_SO_DBG [33]
SPI1_CS#_DBG [33]

SPI1_CLK	R3711	DNP,EC	0	RES_0201_12mil	SPI_CLK	TP3702 SP_TP_SMDp58mm
SPI1_SI	R3712	DNP,EC	0	RES_0201_12mil	SPI_SI	TP3701 SP_TP_SMDp58mm
SPI1_SO	R3713	DNP,EC	0	RES_0201_12mil	SPI_SO	TP3704 SP_TP_SMDp58mm
SPI1_WP#	R3714	DNP,EC	0	RES_0201_12mil	SPI_WP_IO2	TP3703 SP_TP_SMDp58mm
SPI1_HOLD#	R3715	DNP,EC	0	RES_0201_12mil	SPI_HOLD#_IO3	TP3705 SP_TP_SMDp58mm
SPI1_CS#0	R3716	DNP,EC	0	RES_0201_12mil	SPI_CS#0	TP3706 SP_TP_SMDp58mm

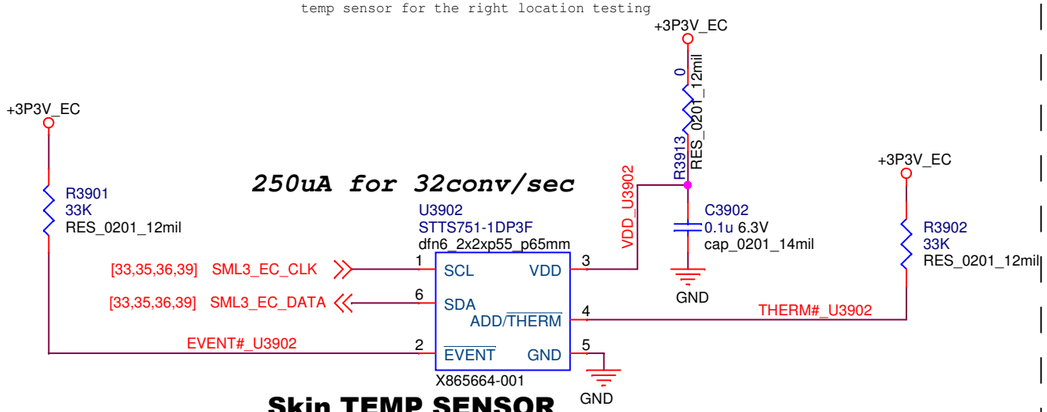
IN1/IN2 = L => COM to NC
IN1/IN2 = H => NC to COM

Trusted Platform Module

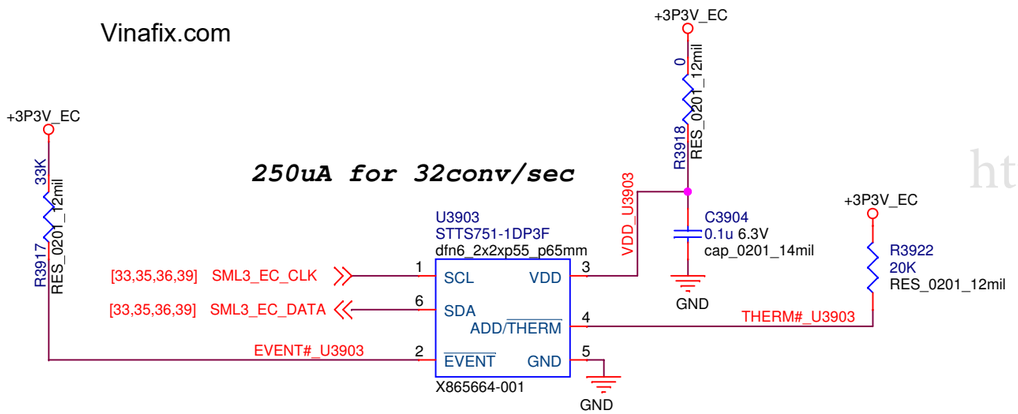


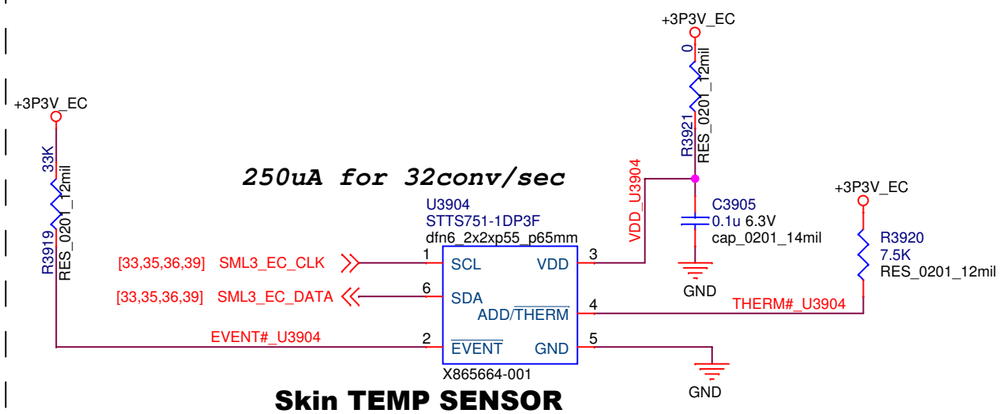
jks 6dec14: Only one sensor will be used for final product

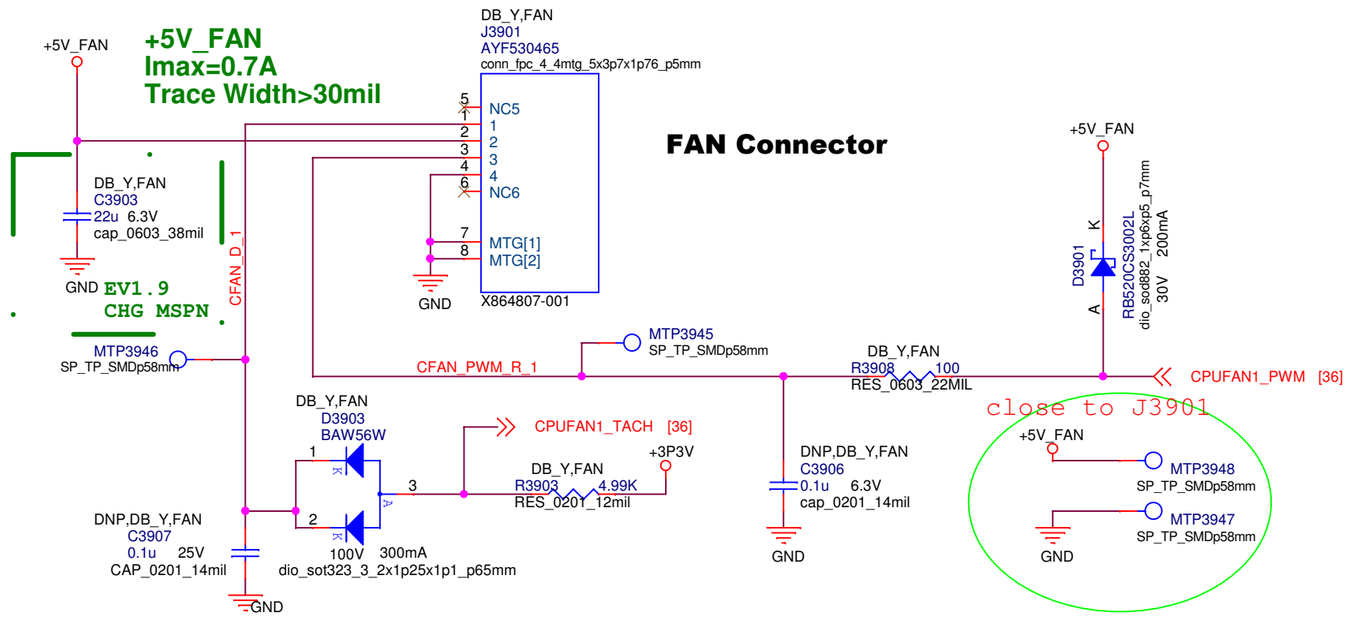
temp sensor for the right location testing

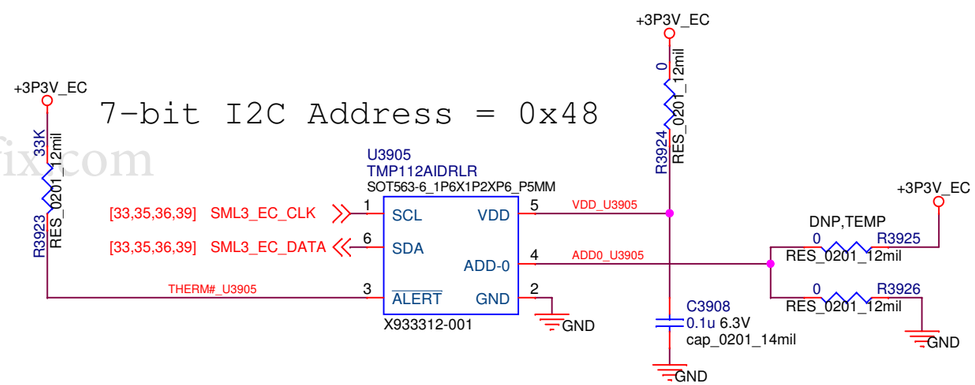


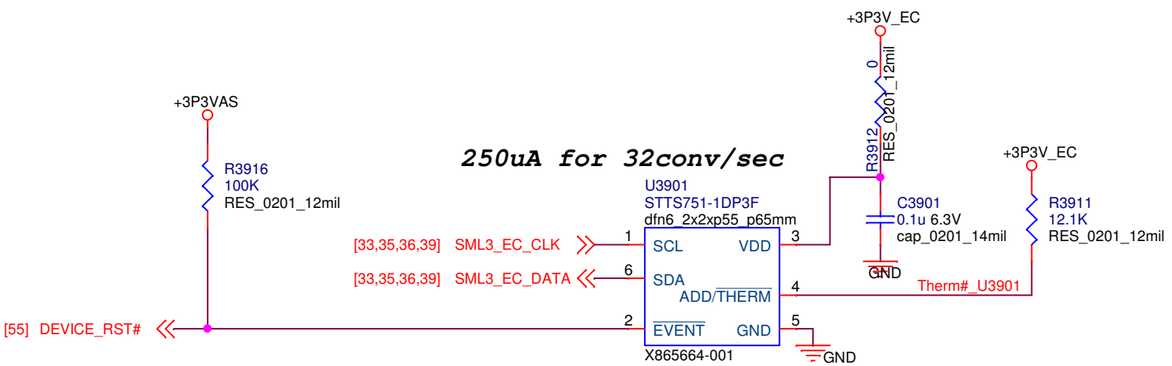
Vinafix.com











SPK Trace Width
1. Maximum trace resistance for each channel less than 0.5 ohms.
2. Each of 4 traces, measured from CODEC to speaker connector, less than 0.25 ohms

AUDIO_VREF
AC4019 2.2u CAP_0402_24mil 6.3V
AC4002 0.1u 6.3V cap_0201_14mil
AUDIO_VREF1
C4011 10u 6.3V CAP_0402_28mil
AC4010 0.1u 6.3V cap_0201_14mil
AGND

+5V_AUDIO
AR4034 0 res_0603_24mil
+5V_AUIDO_AVDD
C4010 10u 6.3V CAP_0402_28mil
AC4005 0.1u 6.3V cap_0201_14mil
L4010 600 OHM 2A ind_0805_44mil
+5V_AUIDO_PVDD
C4012 10u 10V cap_0603_36mil
AC4039 0.1u 6.3V cap_0201_14mil
C4014 10u 6.3V CAP_0402_28mil
AC4040 0.1u 6.3V cap_0201_14mil
GND

+1P8V_AUDIO
AR4014 0 res_0603_24mil
C4013 10u 6.3V CAP_0402_28mil
AC4021 0.1u 6.3V cap_0201_14mil
C4015 10u 6.3V CAP_0402_28mil
AC4041 0.1u 6.3V cap_0201_14mil
+1P8V_AUDIO_DVDD
EV1.9 WAS:10V
AC4014 2.2u 6.3V CAP_0402_22mil
AC4046 2.2u 6.3V CAP_0402_22mil
AGND

+1P8V_AUDIO
AR4008 10K RES_0201_12mil
CODEC_PD#_G
AR4007 10K RES_0201_12mil
Q4001 MMBT3904WT1G sot323_2x1p25x1p1_p65mm
[20,40] AZ_RST#_1
C4016 10u 6.3V CAP_0402_28mil
AC4003 0.1u 6.3V cap_0201_14mil
C4017 10u 6.3V CAP_0402_28mil
AGND

+1P8V_AUDIO
AR4018 100K RES_0201_12mil
[10] PCH_CODEC_IRQ

DNP,AUDIO
AR4002 0 RES_0201_12mil
AR4001 0 RES_0201_12mil
GND AGND

EV1.9 WAS:10V
AC4017 2.2u 6.3V CAP_0402_22mil
AC4018 2.2u 6.3V CAP_0402_22mil

TP4031 SP_TP_SMDp58mm
AGND
close to audio

U4009
ALC3269-CG
qfn57_7x7xp9_p4mm

43	VREF	
21	VREF1	
45	AVDD1	
23	PCBEEP	
46	PVDD1	
51	PVDD2	
7	DVDD	+1P8V_AUDIO_DVDD
19	DVDD_IO	
24	CPVDD/AVDD2	
31	CPVEE	CPVEE
29	CPVPP	CPVPP
30	CPVREF	
53	DMIC_CLK	[20,32,42] DMIC1_CLK
54	DMIC_DATA1	[20,32,42] DMIC1_DATA
41	MIC1_CAP	ALC298_MIC1_CAP
52	EAPD+PD#/GPIO11	CODEC_PD#
6	HD_I2S_SEL/IRQOUT/GPIO0	
5	I2S_IN/GPIO5	was I2S_IN (DSP)
3	I2S_OUT/GPIO6	was I2S_OUT (DSP)
56	I2S_BCLK/GPIO7	was I2S_BCLK (DSP)
55	I2S_MCLK/SPDIF_IN/GPIO8	was AUD_RESET (DSP)
1	I2S_LRCK/GPIO9	was I2S_LCLK (DSP)
2	GPIO1/DMIC_CLK2/SPDIF_OUT/I2S_IN_JD	
4	GPIO2/DMIC_DATA2/I2S_OUT_JD	
28	CBN1	CODEC_CBN1_R
25	CNB2	
27	CBP1	CODEC_CBP1_R
26	CBP2	CODEC_CBP2_R
13	HDA_BCLK/I2S_BCLK	
15	HDA_RESETB/I2S_MCLK	
16	HDA_SDATA_IN/I2S_SDO	SDATA_IN_R
17	HDA_SDATA_OUT/I2S_SDI	
14	HAD_SYNC/I2S_LRCK	
9	HP_JD/LINE1_JD	HPOUT_JD_R
32	HP_OUT_L	HPOUT_L [41]
33	HP_OUT_R	HPOUT_R [41]
12	I2C_CLK	
11	I2C_DATA	
8	I2S_OUT_JD/MIC_JD	COMBO_JACK [41]
44	LDO1_CAP	CODEC_LDO1
22	LDO2_CAP	CODEC_LDO2
18	LDO3_CAP	CODEC_LDO3
35	LINE1_L	DSP
34	LINE1_R	DSP
40	LINE1_VREFO	
36	MIC1_L/RING2	MIC1_L [41]
37	MIC1_R/SLEEVE	MIC1_R [41]
38	MIC1_VREFO_L/AGPO_0	MIC1_VREFO_L [41]
39	MIC1_VREFO_R/AGPO_1	
48	SPK_OUT_LN	SPK_L- [41]
47	SPK_OUT_LP	SPK_L+ [41]
49	SPK_OUT_RN	SPK_R- [41]
50	SPK_OUT_RP	SPK_R+ [41]
42	AVSS1	
20	AVSS2	
10	VD33STB	ALC298_VD22STB
57	E_PAD	

TP4001 TP4002 SP_TP_SMDp58mm SP_TP_SMDp58mm

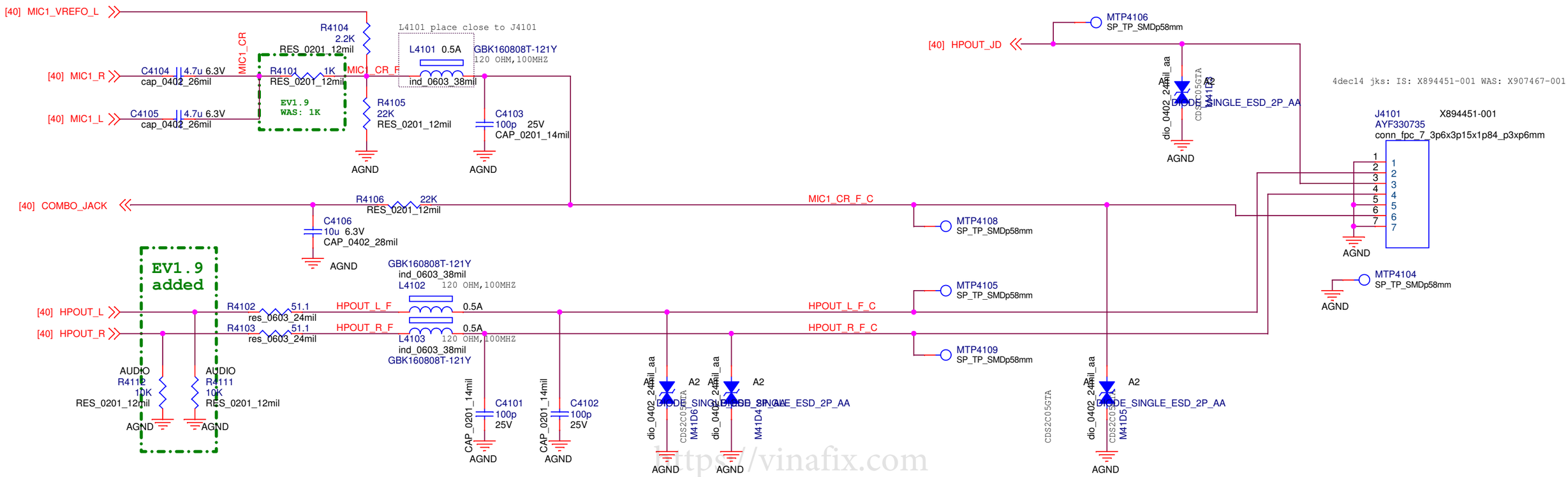
+1P8V_AUDIO
AR4019 100K RES_0201_12mil
HPOUT_JD_R
AR4006 200K RES_0201_12mil HPOUT_JD [41]
DNP,AUDIO AR4033 100K RES_0201_12mil
DNP,AUDIO AC4038 0.1u 6.3V cap_0201_14mil
AGND

AZ_BITCLK_1 [20]
AZ_RST#_1 [20,40]
AZ_SDATA_IN0 [20]
AZ_SDATA_OUT_1 [20]
AZ_SYNC_1 [20]
AR4004 33 RES_0201_12mil
DNP,AUDIO AC4012 22PF 25V CAP_0201_14mil
DNP,AUDIO AC4011 22PF 25V CAP_0201_14mil
GND

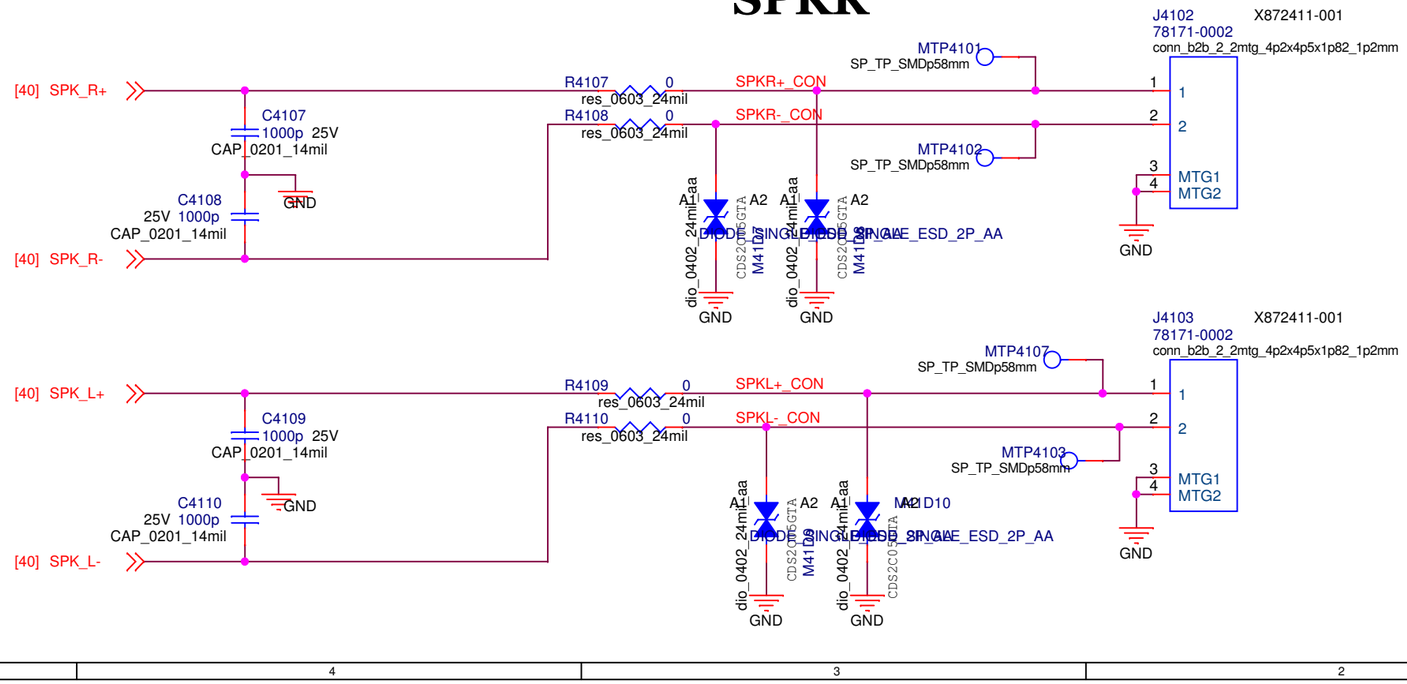
CODEC_LDO1
CODEC_LDO2
CODEC_LDO3
AC4023 0.1u 6.3V cap_0201_14mil
AC4016 10u 6.3V CAP_0402_28mil
AC4024 0.1u 6.3V cap_0201_14mil
AC4025 10u 6.3V CAP_0402_28mil
AC4026 0.1u 6.3V cap_0201_14mil
AC4027 10u 6.3V CAP_0402_28mil
GND AGND

+5V_AUDIO
AR4035 10K RES_0201_12mil
DNP,AUDIO AR4036 100K RES_0201_12mil
GND AGND GND

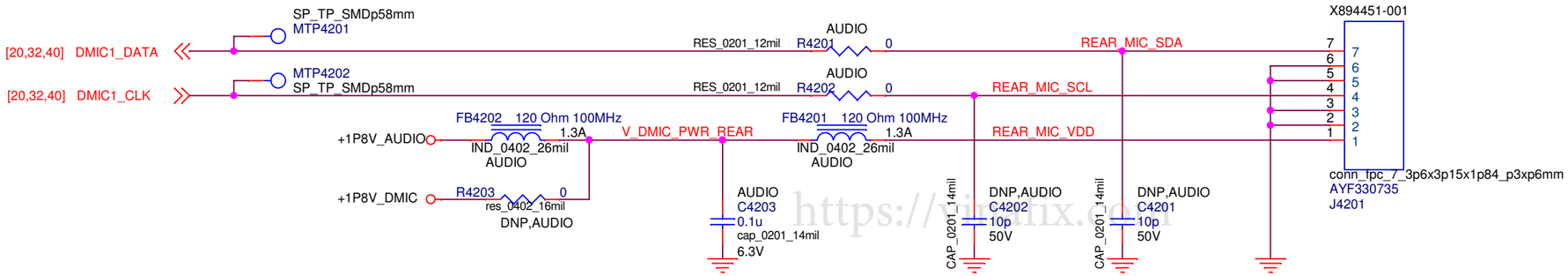
Audio Jack/MIC1 Combo Jack



SPKR



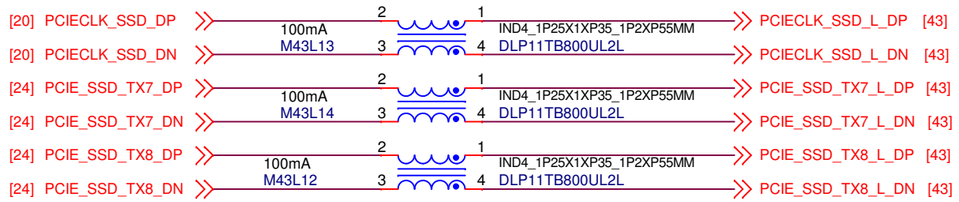
RearMicFlex

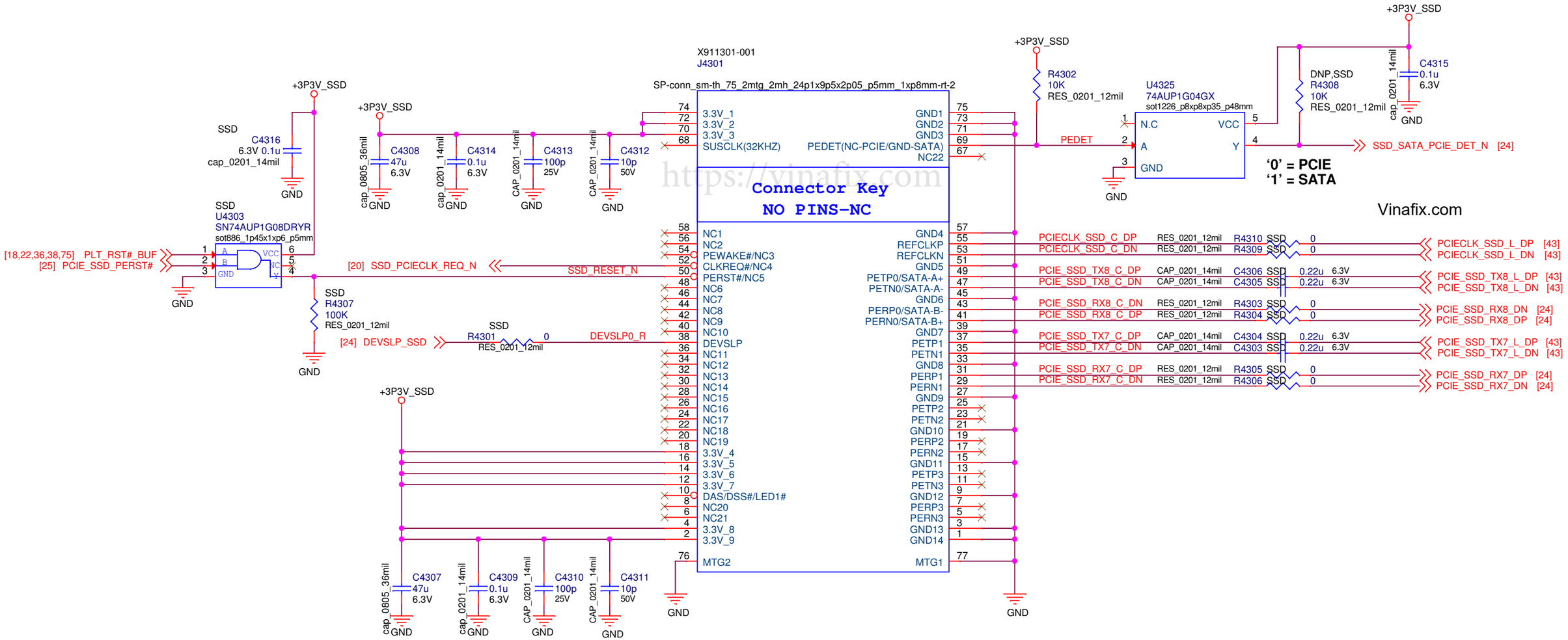


Condition	PCI Express* Gen 2 Only	PCI Express* Gen 3 Only	SATA Only	PCI Express* Gen2/SATA	PCI Express* Gen3/SATA
Processor Tx	100 nF	220 nF	10 nF	100 nF	220 nF
Processor Rx	None	None	10 nF [2]	None	None [3]

2. Design Constraint: For SATA only application, both Tx and Rx channels need to have 10 nF capacitors on the motherboard. This option supports all SATA devices. However, the 10 nF capacitor on Rx can be removed if DC coupled ODDs / devices are NOT used.

3. Design Constraint: For PCIe* Gen 2/ SATA multiplexed configuration, motherboard Tx requires a 100 nF AC capacitor and NO AC capacitor is required for motherboard Rx channel. This option DOES NOT support DC coupled ODDs / Devices.





UU4501
DF5G7M2N
dfn5_1p3xp8xp4_p45mm

USB3_TYPA_TX_DN 1 IO1
USB3_TYPA_RX_DP 3 IO2
USB3_TYPA_RX_DN 4 IO3
USB3_TYPA_TX_DP 5 IO5
GND 2
GND

[24] USB3_CONN_RX_DN
[24] USB3_CONN_RX_DP
L4502
DLP11TB800UL2L
IND4_1P25X1XP35_1P2XP55MM
USB3_TYPA_RX_DN
USB3_TYPA_RX_DP

cap_0201_14mil
[24] USB3_CONN_TX_DN
[24] USB3_CONN_TX_DP
C4513 0.1u 6.3V
C4512 0.1u 6.3V
USB3_CONN_TX_C_DN
USB3_CONN_TX_C_DP
100mA
L4501
IND4_1P25X1XP35_1P2XP55MM
DLP11TB800UL2L
USB3_TYPA_TX_DN
USB3_TYPA_TX_DP
cap_0201_14mil

MTP4501
SP_TP_SMDp58mm
MTTP_BF4501
sp_MTP0p8mm
MTTP_BF4502
sp_MTP0p8mm
MTP4502
SP_TP_SMDp58mm

U4503
IP3319CX6
bga6_2x3ns_p95x1p34xp6_p4mm
[24] USB2_CONN_DP
[24] USB2_CONN_DN
A1 DP_O
B1 DM_O
DP_I A2
DM_I B2
C2
ID
C1
GND
GND
USB2_TYPA_DP
USB2_TYPA_DN

MTP4503
SP_TP_SMDp58mm
GND
MTTP_BF4503
sp_MTP0p8mm
GND

+5V_USBPWR
EV1.9 was -003
J4501
X910059-004
SP-conn_usb3_9_10MTG_2MH_17p1x15p5x4p44_2p5mm
1 VBUS
2 D-
3 D+
4 GND
5 STDA_SSRX-
6 STDA_SSRX+
7 GND_DRAIN
8 STDA_SSTX-
9 STDA_SSTX+
MTG10 19
MTG9 18
MTG8 17
MTG7 16
MTG6 15
MTG5 14
MTG4 13
MTG3 12
MTG2 11
MTG1 10
MSPN = X910059-004

A1 D4501
dio_0402_24mil_aa
DIODE_SINGLE_ESD_2P_AA

1.5 => ILIM(11.8K) => 2 A
Imax = 2.1 A

+5VSB
C4511
1u 6.3V
CAP_0201_14mil

U4504
NCP380HMUAJAATBG
dfn7_2x2xp55_p65mm
FLAG# IN
EN
GND1 OUT
GND2 ILIM
+5V_USBPWR_REG
+5V_USBPWR_ILIM
R4512
11.8K
res_0201_12mil

[24] USB_CONN_OC#
[36,60,61,62] SUSC_EC#
RES_0201_12mil R4515 0
RES_0201_12mil R4510 0
USB_CONN_OC#_R
+5V_USBPWR_EN

jks 6dec14: chg from ceramic to tant for space saving

C7648 47u 16V cap_3p5x2p8x1p2mm
C7649 47u 16V cap_3p5x2p8x1p2mm
C7647 47u 16V cap_3p5x2p8x1p2mm

DB,USB
R4511 0.01
res_0402_22mil
PMTP4505
SP-tp-c0p381
PMTP4504
SP-tp-c0p381

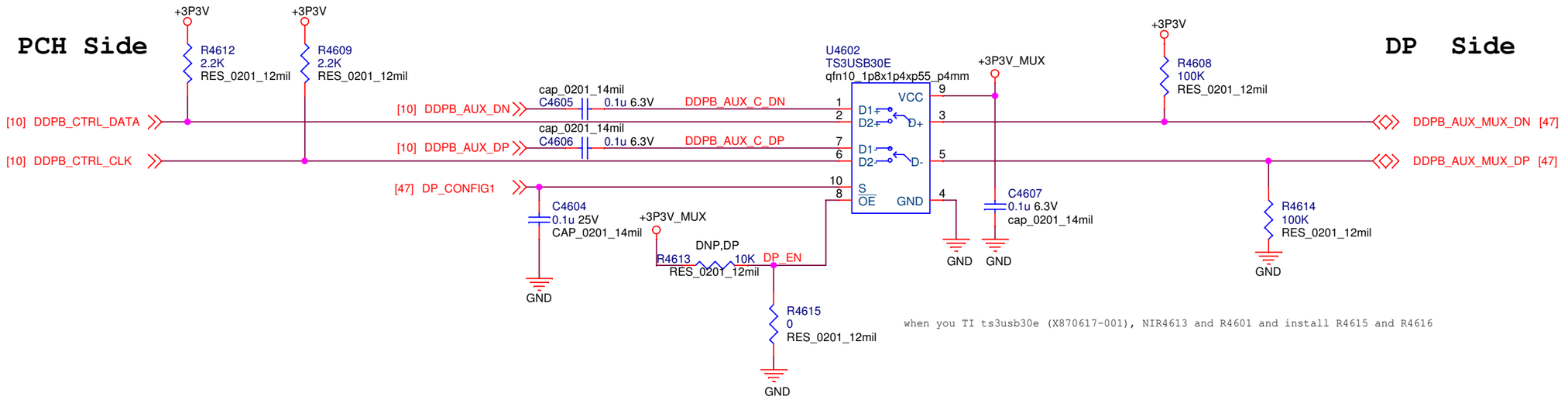
+5V_USBPWR
R4514
750
RES_0402_16mil
5.25**2/(750*.99)=37mW

+3P3VSB
R4513
499K
RES_0201_12mil
+5V_USBPWR_DISC_CTRL
+5V_USBPWR_disc

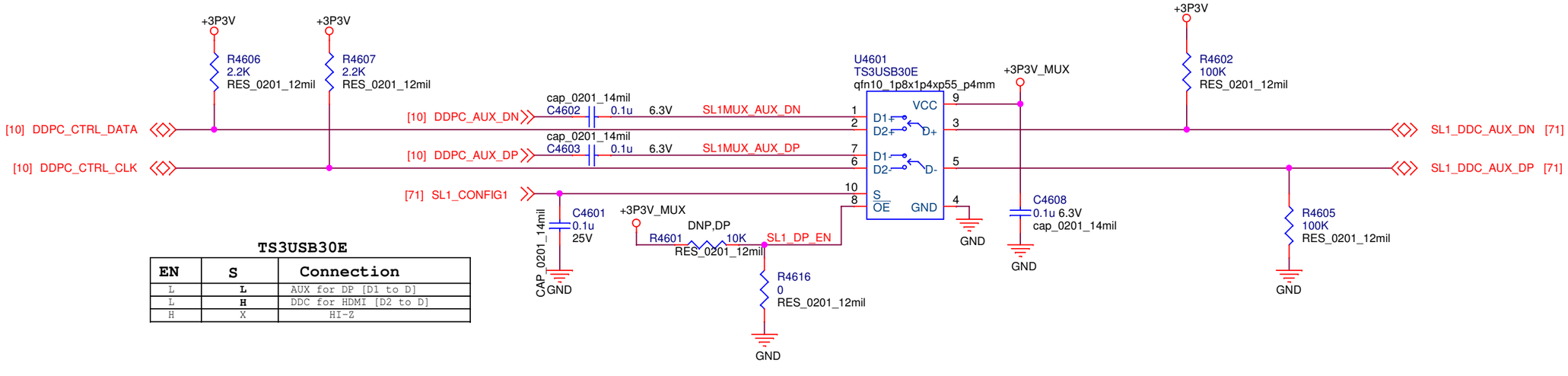
Q4501A
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm
Q4501B
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm

+5V_USBPWR
Imin = 1.5A (ng 19dec14)
Imax=1.9A

mDP mux to HDMI/DVI Dongle control



SL1 DP mux to HDMI/DVI Dongle control



TS3USB30E

EN	S	Connection
L	**L**	AUX for DP [D1 to D]
L	**H**	DDC for HDMI [D2 to D]
H	X	HI-Z

NOTE:

Pass gate to prevent back-drive when sink device is on and PCH is powered down.

NOTE:

Place D4701 near to DP connector

NOTE:

Place those AC Caps near to DP connector.

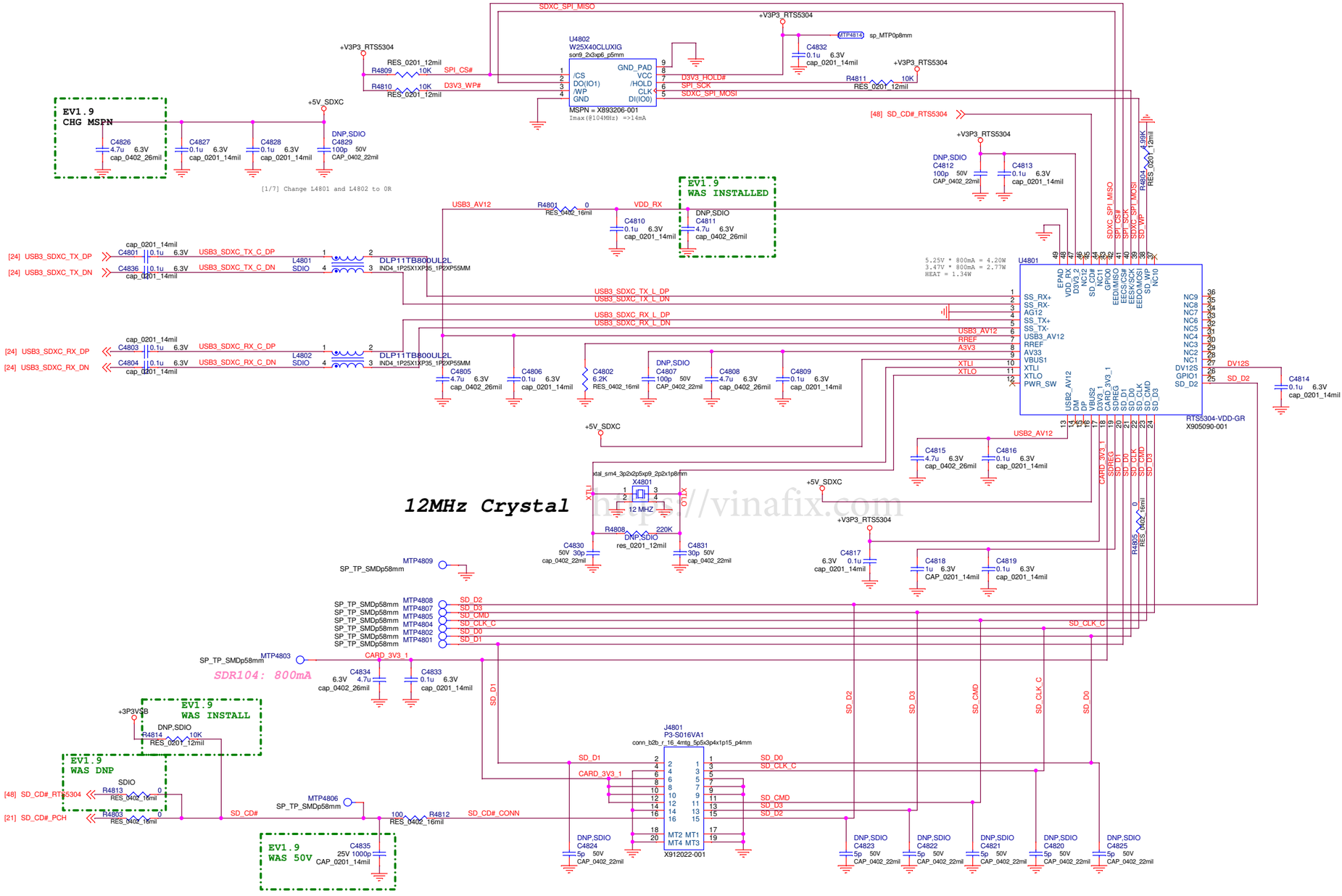
Vinafix.com

EV1.9 was -003

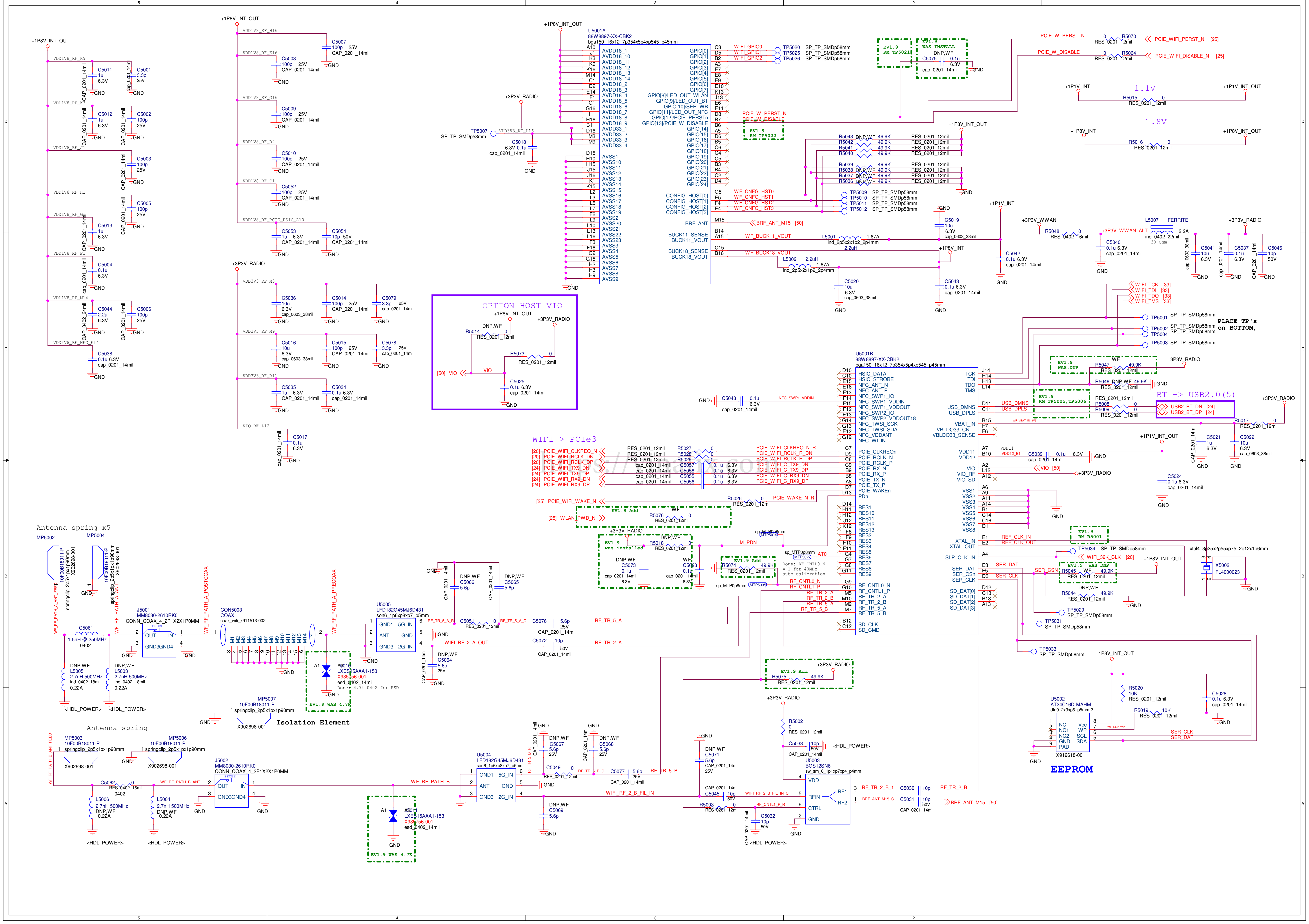
+3P3V mDP conn Imax = 0.5A

EV1.9 was:16V

ILIM(33K) ~ 0.8A meet VESA spec


12MHz Crystal
SDXC_SPI_MISO
+V3P3_RTS5304
U4802
W25X40CLUXIG
son9_2x3xp6_p5mm
MSPN = X893206-001
Imax(@104MHz) =>14mA
SPI_CS#
D3V3_WP#
D3V3_HOLD#
SPI_SCK
SDXC_SPI_MOSI
EV1.9
CHG MSPN
+5V_SDXC
DNP,SDIO
[1/7] Change L4801 and L4802 to 0R
[48] SD_CD#_RTS5304
EV1.9
WAS INSTALLED
USB3_AV12
VDD_RX
5.25V * 800mA = 4.20W
3.47V * 800mA = 2.77W
HEAT = 1.34W
U4801
RTS5304-VDD-GR
X905090-001
[24] USB3_SDXC_TX_DP
[24] USB3_SDXC_TX_DN
[24] USB3_SDXC_RX_DP
[24] USB3_SDXC_RX_DN
USB3_SDXC_TX_L_DP
USB3_SDXC_TX_L_DN
USB3_SDXC_RX_L_DP
USB3_SDXC_RX_L_DN
DLP11TB800UL2L
DLP11TB800UL2L
USB2_AV12
RREF
A3V3
XTLI
XTLO
DV12S
SD_D2
xtal_sm4_3p2x2p5xp9_2p2x1p8mm
X4801
12 MHZ
SDR104: 800mA
SD_D1
SD_D2
SD_D3
SD_CMD
SD_CLK_C
SD_D0
CARD_3V3_1
+3P3VSB
EV1.9
WAS INSTALL
EV1.9
WAS DNP
EV1.9
WAS 50V
SDIO
[48] SD_CD#_RTS5304
[21] SD_CD#_PCH
SD_CD#
SD_CD#_CONN
J4801
P3-S016VA1
conn_b2b_r_16_4mtg_5p5x3p4x1p15_p4mm
X912022-001

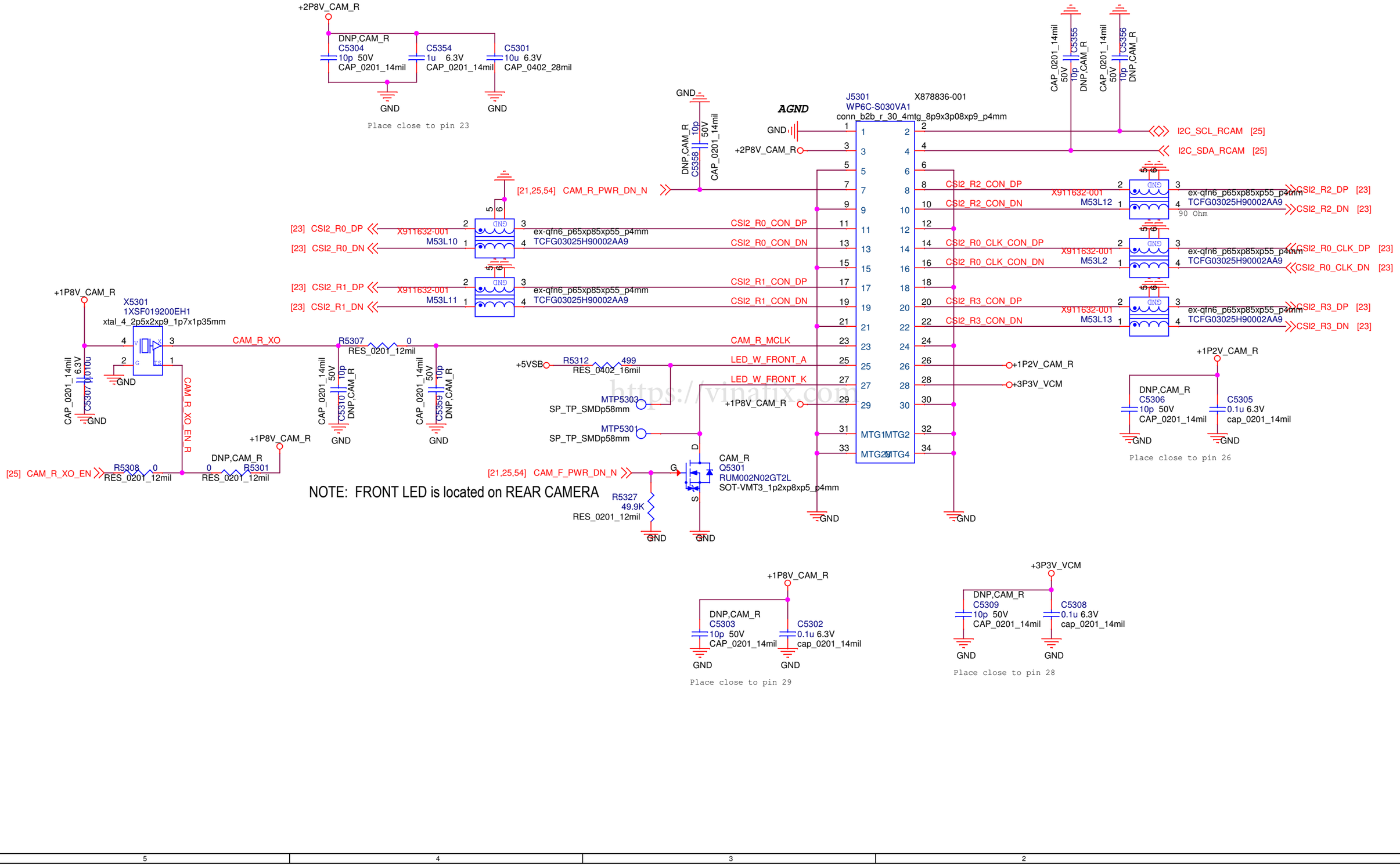
+VSYS
L4904 220 OHM
2A
ind_0805_42mil
EV1.9
WAS 6.3V
CAM_IR_LED_IN
C4917
10u
10V
cap_0603_36mil
GND
C4918
0.1u
10V
CAP_0201_14mil
GND
C4903
0.01u
25V
cap_0201_14mil
U4901
MP2370DJ
sot23-6_2p9x1p6x1_p95mm
IR_BST
BST
SW
IN
FB
EN
GND
IR_SW
IR_FB
L4903
4.7uH 100KHz
1.5A
ind_2p5x2x1_1p9mm
IR_OUT
[49] CAM_IR_STB
TP4904
tp_c0p75_1p70fm-nsp
EV1.9
WAS: INSTALL
DNP,CAM_IR
D4903
RB520CS3002L
dio_sod882_1xp6xp5_p7mm
R4915
2.05K
res_0201_12mil
CAM_IR_STB_R
MTP4902
SP_TP_SMDp58mm
R4905
49.9K
RES_0201_12mil
GND
D4901
1A
30V
dio_dsn2_1p6xp8xp31mm
C4921
0.01u
10V
CAP_0201_14mil
C4916
4.7u
10V
cap_0402_26mil
DNP,CAM_IR
C4912
10p
50V
CAP_0201_14mil
R4919
1K
RES_0402_6mil
1/16W
EV1.9
WAS:X911200-001
Note (15jan15): 300sq mm of top side copper is needed.
Vias (#'s?) to connect to bottom side copper
and a silicon thermal pad to bucket boss
D4902
Infra-Red
LED_3_3P85X3P85X1P63_1P12MM
X913457-001
EV1.9
WAS: 75K
R4903
150K
RES_0201_12mil
+3P3V
C4920
0.1u
6.3V
cap_0201_14mil
R4914
0
RES_0201_12mil
EV1.9
WAS: INSTALL
DNP,CAM_IR
R4911
220K
res_0201_12mil
U4902
TLV3011
sc70-6_2x1p25x1p1_p65mm-2
CAM_IR_STB_ERR_INM
R4912
4.99K
RES_0201_12mil
CAM_IR_STB_ERR_REF
CAM_IR_STB_ERR_INP
IN-
V+
REF
OUT
IN+
V-
CAM_IR_STB_ERR
R4907
100K
RES_0201_12mil
IR_FB_R
R4909
1K
RES_0201_12mil
IR_SENSE
DNP,CAM_IR
C4915
220p
25V
CAP_0201_14mil
R4908
7.5K
RES_0201_12mil
EV1.9 WAS: 787
EV1.9 WAS: 0.5
MTP4901
SP_TP_SMDp58mm
R4910
0.25
res_1206_p65mm
0.5W
C4919
1u
6.3V
CAP_0402_22mil
R4913
10K
RES_0201_12mil
DNP,CAM_IR
EV1.9
WAS: INSTALL
+1P8V_CAM_IR
DNP,CAM_IR
C4908
10p 50V
CAP_0201_14mil
C4906
0.1u 6.3V
cap_0201_14mil
X4901
1XSF019200EH1
xtal_4_2p5x2xp9_1p7x1p35mm
CAM_IRCAM_MCLK
0
R4901
RES_0201_12mil
CAM_IRCAM_XO
C4907
0.01u 10V
CAP_0201_14mil
DNP,CAM_IR
C4902
50V 10p
CAP_0201_14mil
DNP,CAM_IR
C4901
50V 10p
CAP_0201_14mil
DNP,CAM_IR
R4906
0
RES_0201_12mil
CAM_IRCAM_XO_EN_R
R4902
0
RES_0201_12mil
CAM_IRCAM_XO_EN [25]
J4901
WP6C-S024VA1
conn_b2b-r_24_4mtg_7p9x3p28xp9_p4mm
X879207-001
[23] CSI2_CLK2_IRCAM_DN
[23] CSI2_CLK2_IRCAM_DP
L4902
X911632-001
TCFG03025H90002AA9
ex-qfn6_p65xp85xp55_p4mm
CSI2_CLKN2_IR_CON
CSI2_CLKP2_IR_CON
[23] CSI2_IRCAM8_DN
[23] CSI2_IRCAM8_DP
L4901
X911632-001
TCFG03025H90002AA9
ex-qfn6_p65xp85xp55_p4mm
CSI2_DN8_IR_CON
CSI2_DP8_IR_CON
CAM_IR_STB [49]
CAM_IR_PWM
R4916
1K
RES_0201_12mil
PWM
CAM_IR_ULPM
R4917
1K
RES_0201_12mil
ULPM
CAM_IR_PWR_DN_N [25]
DNP,CAM_IR
C4913
50V 10p
CAP_0201_14mil
R4918
1K
RES_0201_12mil
CAM_IR_FSIN_VSYNC
FSIN/VSYNC
+2P8V_CAM_IR
DNP,CAM_IR
C4909
10p 50V
CAP_0201_14mil
C4904
0.1u 6.3V
cap_0201_14mil
C4905
10u 6.3V
CAP_0402_28mil
MTG0
MTG1
MTG2
MTG3
[25] I2C_SDA_IRCAM
[25] I2C_SCL_IRCAM
I2C_SDA_IRCAM
I2C_SCL_IRCAM
DNP,CAM_IR
C4911
50V 10p
CAP_0201_14mil
DNP,CAM_IR
C4910
10p 50V
CAP_0201_14mil
Vinafix.com
http://vinafix.com



U5001A
88W8897-XX-CBK2
bga150_16x12_7p354x5p4xp545_p45mm
U5001B
88W8897-XX-CBK2
OPTION HOST VIO
WIFI > PCIe3
BT -> USB2.0(5)
PLACE TP's on BOTTOM,
1.1V
1.8V
Antenna spring x5
Antenna spring
Isolation Element
EEPROM
U5002
AT24C16D-MAHM
U5003
BGS12SN6
U5004
LFD182G45MJ6D431
U5005
LFD182G45MJ6D431
J5001
MM8030-2610RK0
J5002
MM8030-2610RK0
CON5003
COAX
X5002
FL4000023
EV1.9 RM TP5021
EV1.9 WAS INSTALL
EV1.9 RM TP5022
EV1.9 WAS:DNP
EV1.9 RM TP5005,TP5006
EV1.9 Add
EV1.9 was installed
EV1.9 RM R5001
EV1.9 WAS DNP
EV1.9 WAS 4.7K
Done: 4.7k 0402 for ESD
Done: RF_CNTL0_N = 1 for 40MHz auto calibration
PCIE_W_PERST_N
PCIE_W_DISABLE
PCIE_WIFI_PERST_N [25]
PCIE_WIFI_DISABLE_N [25]
PCIE_WIFI_CLKREQ_N
PCIE_WIFI_RCLK_DN
PCIE_WIFI_RCLK_DP
PCIE_WIFI_TX9_DN
PCIE_WIFI_TX9_DP
PCIE_WIFI_RX9_DN
PCIE_WIFI_RX9_DP
PCIE_WIFI_WAKE_N
WLAN_PWD_N
USB2_BT_DN [24]
USB2_BT_DP [24]
WIFI_TCK [33]
WIFI_TDI [33]
WIFI_TDO [33]
WIFI_TMS [33]
WIFI_32K_CLK [20]
BRF_ANT_M15 [50]
+1P8V_INT_OUT
+3P3V_RADIO
+1P1V_INT
+1P1V_INT_OUT
+1P8V_INT
+3P3V_WWAN

EMPTY

10mA
15mA
55mA
+1P8V_CAM_R
+1P8V_CAM_F
+1P8V_CAM_IR
+3P3VSB
U5201
LD39115J18R_1p8V
bga4_2x2_p8xp8xp6_p4mm
B2 VIN VOUT B1
A2 EN GND A1
+1P8V_CAM_REG
PC5202 0.1u 6.3V cap_0201_14mil
PC5201 1u 6.3V CAP_0201_14mil
PC5204 0.1u 6.3V cap_0201_14mil
PC5203 10u 6.3V CAP_0402_28mil
PMTP5211 SP-tp-c0p381
PR5201 CAM_PWR 0 res_0402_16mil
PR5202 CAM_PWR 0 res_0402_16mil
PR5209 CAM_PWR 0 res_0402_16mil
PMTP5214 SP-tp-c0p381
PMTP5212 SP-tp-c0p381
PMTP5213 SP-tp-c0p381
MTP5214 SP_TP_SMDp58mm
MTP5212 SP_TP_SMDp58mm
MTP5213 SP_TP_SMDp58mm
[23,25,52] RTD3_CAM_PWREN
EV1.9
WAS:X867108-001
U5202
2.8V-LD39115J28R
bga4_p8xp8xp6_p4mm
+2P8V_CAM_R_REG
CAM_PWR PR5203 0 res_0402_16mil
+2P8V_CAM_R
45mA
MTP5209 SP_TP_SMDp58mm
PMTP5209 SP-tp-c0p381
PMTP5210 SP-tp-c0p381
PC5206 0.1u 6.3V cap_0201_14mil
PC5205 1u 6.3V CAP_0201_14mil
PC5208 0.1u 6.3V cap_0201_14mil
PC5207 10u 6.3V CAP_0402_28mil
U5203
2.8V-LD39115J28R
bga4_p8xp8xp6_p4mm
+2P8V_CAM_F_REG
CAM_PWR PR5204 0 res_0402_16mil
+2P8V_CAM_F
70mA
MTP5207 SP_TP_SMDp58mm
PMTP5208 SP-tp-c0p381
PMTP5207 SP-tp-c0p381
PC5210 0.1u 6.3V cap_0201_14mil
PC5209 1u 6.3V CAP_0201_14mil
PC5212 0.1u 6.3V cap_0201_14mil
PC5211 10u 6.3V CAP_0402_28mil
U5206
2.8V-LD39115J28R
bga4_p8xp8xp6_p4mm
+2P8V_CAM_IR_REG
CAM_PWR PR5207 0 res_0402_16mil
+2P8V_CAM_IR
20mA
MTP5206 SP_TP_SMDp58mm
PMTP5205 SP-tp-c0p381
PMTP5206 SP-tp-c0p381
PC5221 0.1u 6.3V cap_0201_14mil
PC5220 1u 6.3V CAP_0201_14mil
PC5223 0.1u 6.3V cap_0201_14mil
PC5222 10u 6.3V CAP_0402_28mil
GND
Vinafix.com
https://vinafix.com
+3P3VSB
PC5218 1u 6.3V CAP_0201_14mil
U5205
NX3P1108UK
bga4_2x2_p96xp96xp59_p5mm
A2 VIN VOUT A1
B2 EN GND B1
+3P3V_VCM_REG
CAM_PWR PR5206 0 res_0402_16mil
LED???
+3P3V_VCM
MTP5201 SP_TP_SMDp58mm
PMTP5202 SP-tp-c0p381
PMTP5201 SP-tp-c0p381
PC5219 0.1u 6.3V cap_0201_14mil
+1P8V_CAM_R
U5204
LP3991TLX-1.2/NOPB
bga4_2x2_1p43xp96xp675_p5mm
B2 VIN VOUT B1
A2 ON/OFF GND A1
+1P2V_CAM_R_REG
DB,CAM_PWR PR5205 0.010 res_0603_30mil
+1P2V_CAM_R
120mA
MTP5204 SP_TP_SMDp58mm
PMTP5203 SP-tp-c0p381
PMTP5204 SP-tp-c0p381
PC5214 0.1u 6.3V cap_0201_14mil
PC5213 1u 6.3V CAP_0201_14mil
PC5216 0.1u 6.3V cap_0201_14mil
PC5215 10u 6.3V CAP_0402_28mil
R5201 4.99K RES_0201_12mil
+1P2V_CAM_R_EN
PC5217 10u 6.3V CAP_0402_28mil


+2P8V_CAM_R
DNP,CAM_R
C5304
10p 50V
CAP_0201_14mil
C5354
1u 6.3V
CAP_0201_14mil
C5301
10u 6.3V
CAP_0402_28mil
GND
Place close to pin 23
GND
DNP,CAM_R
C5358
10p
50V
CAP_0201_14mil
AGND
J5301
WP6C-S030VA1
X878836-001
conn_b2b_r_30_4mtg_8p9x3p08xp9_p4mm
GND
+2P8V_CAM_R
[21,25,54] CAM_R_PWR_DN_N
GND
CAP_0201_14mil
C5355
50V
10p
DNP,CAM_R
GND
CAP_0201_14mil
C5356
50V
10p
DNP,CAM_R
I2C_SCL_RCAM [25]
I2C_SDA_RCAM [25]
[23] CSI2_R0_DP
[23] CSI2_R0_DN
X911632-001
M53L10
ex-qfn6_p65xp85xp55_p4mm
TCFG03025H90002AA9
CSI2_R0_CON_DP
CSI2_R0_CON_DN
[23] CSI2_R1_DP
[23] CSI2_R1_DN
X911632-001
M53L11
ex-qfn6_p65xp85xp55_p4mm
TCFG03025H90002AA9
CSI2_R1_CON_DP
CSI2_R1_CON_DN
CSI2_R2_CON_DP
CSI2_R2_CON_DN
X911632-001
M53L12
ex-qfn6_p65xp85xp55_p4mm
TCFG03025H90002AA9
90 Ohm
CSI2_R2_DP [23]
CSI2_R2_DN [23]
CSI2_R0_CLK_CON_DP
CSI2_R0_CLK_CON_DN
X911632-001
M53L2
ex-qfn6_p65xp85xp55_p4mm
TCFG03025H90002AA9
CSI2_R0_CLK_DP [23]
CSI2_R0_CLK_DN [23]
CSI2_R3_CON_DP
CSI2_R3_CON_DN
X911632-001
M53L13
ex-qfn6_p65xp85xp55_p4mm
TCFG03025H90002AA9
CSI2_R3_DP [23]
CSI2_R3_DN [23]
+1P8V_CAM_R
X5301
1XSF019200EH1
xtal_4_2p5x2xp9_1p7x1p35mm
CAM_R_XO
R5307
0
RES_0201_12mil
CAM_R_MCLK
CAP_0201_14mil
6.3V
C5307
0.010u
GND
CAM_R_XO_EN_R
CAP_0201_14mil
50V
10p
C5310
DNP,CAM_R
GND
CAP_0201_14mil
50V
10p
C5359
DNP,CAM_R
GND
+5VSB
R5312
499
RES_0402_16mil
LED_W_FRONT_A
LED_W_FRONT_K
MTP5303
SP_TP_SMDp58mm
+1P8V_CAM_R
MTP5301
SP_TP_SMDp58mm
CAM_R
Q5301
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
[21,25,54] CAM_F_PWR_DN_N
R5327
49.9K
RES_0201_12mil
GND
GND
MTG1
MTG2
MTG3
MTG4
+1P2V_CAM_R
+3P3V_VCM
+1P2V_CAM_R
DNP,CAM_R
C5306
10p 50V
CAP_0201_14mil
C5305
0.1u 6.3V
cap_0201_14mil
GND
GND
Place close to pin 26
+1P8V_CAM_R
R5308
0
RES_0201_12mil
[25] CAM_R_XO_EN
DNP,CAM_R
0
R5301
RES_0201_12mil
+1P8V_CAM_R
DNP,CAM_R
C5303
10p 50V
CAP_0201_14mil
C5302
0.1u 6.3V
cap_0201_14mil
GND
GND
Place close to pin 29
+3P3V_VCM
DNP,CAM_R
C5309
10p 50V
CAP_0201_14mil
C5308
0.1u 6.3V
cap_0201_14mil
GND
GND
Place close to pin 28
NOTE: FRONT LED is located on REAR CAMERA

NOTE: REAR LED is located on FRONT CAMERA

EV1.9
WAS 0402

+5VSB
R5418
10K
RES_0201_12mil
1/20W

LED_W_REAR_A
MTP5402
SP_TP_SMDp58mm

MTP5401
SP_TP_SMDp58mm
LED_W_REAR_K

[21,25,53] CAM_R_PWR_DN_N
R5421
49.9K
RES_0201_12mil
Q5401
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
GND

+1P8V_CAM_F
Place close to pin 1 and 2
DNP,CAM_F
C5403
10p 50V
CAP_0201_14mil
C5402
0.1u 6.3V
cap_0201_14mil

J5401
WP6C-S030VA1
conn_b2b_r_30_4mtg_8p9x3p08xp9_p4mm

CSI2_F5_CON_DN
CSI2_F5_CON_DP
CSI2_F1_CON_CLK_DN
CSI2_F1_CON_CLK_DP
CSI2_F4_CON_DN
CSI2_F4_CON_DP
CAM_F_MCLK
I2C_SCL_FCAM
I2C_SDA_FCAM

ex-qfn6_p65xp85xp55_p4mm
TCFG03025H90002AA9
X911632-001
M54L14
M54L2
M54L15
CSI2_F5_DN [23]
CSI2_F5_DP [23]
CSI2_F1_CLK_DN [23]
CSI2_F1_CLK_DP [23]
CSI2_F4_DN [23]
CSI2_F4_DP [23]

[21,25,53] CAM_F_PWR_DN_N
[25] I2C_SCL_FCAM
[25] I2C_SDA_FCAM

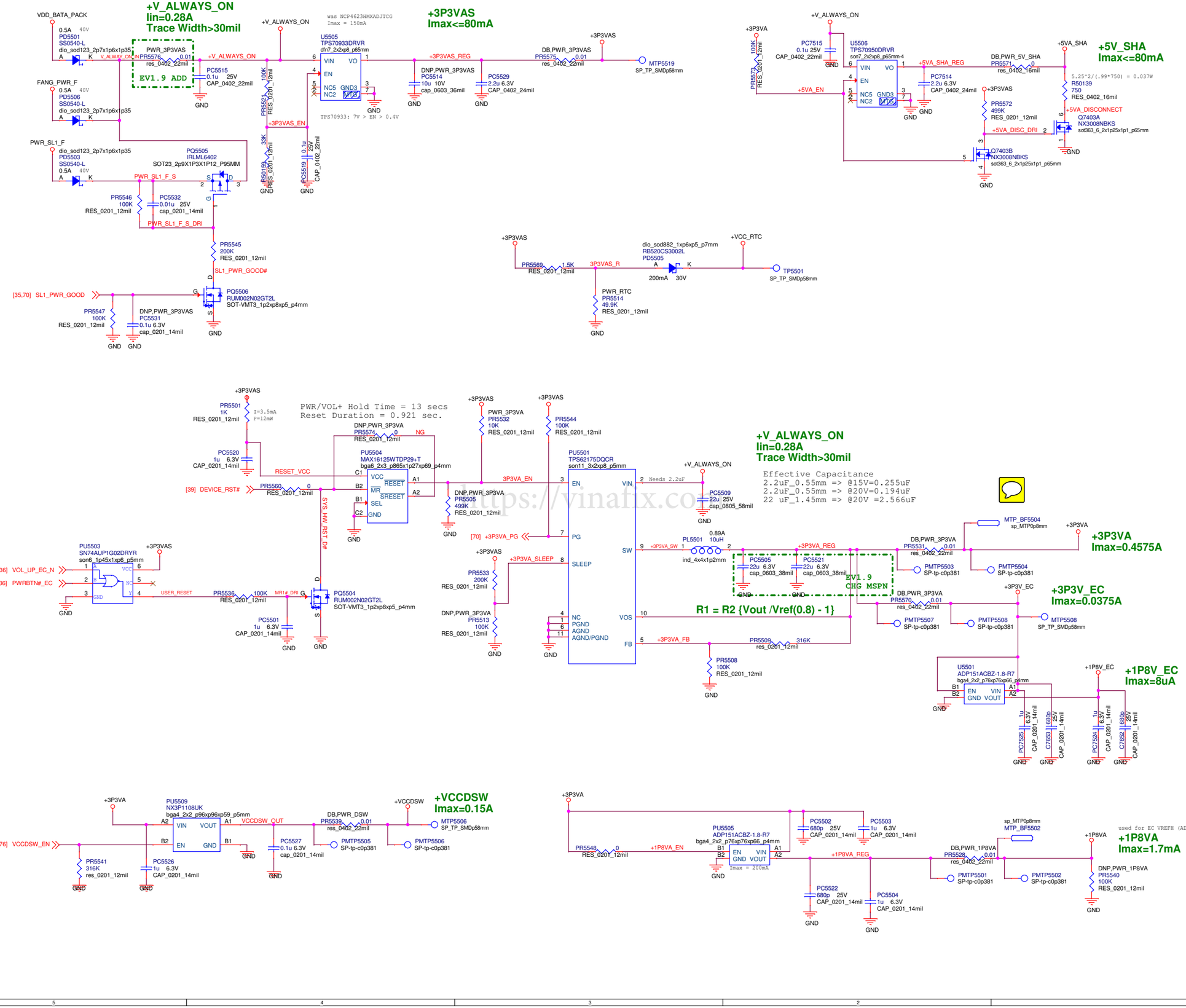
DNP,CAM_F
C5483
50V 10p
CAP_0201_14mil
C5482
50V 10p
CAP_0201_14mil

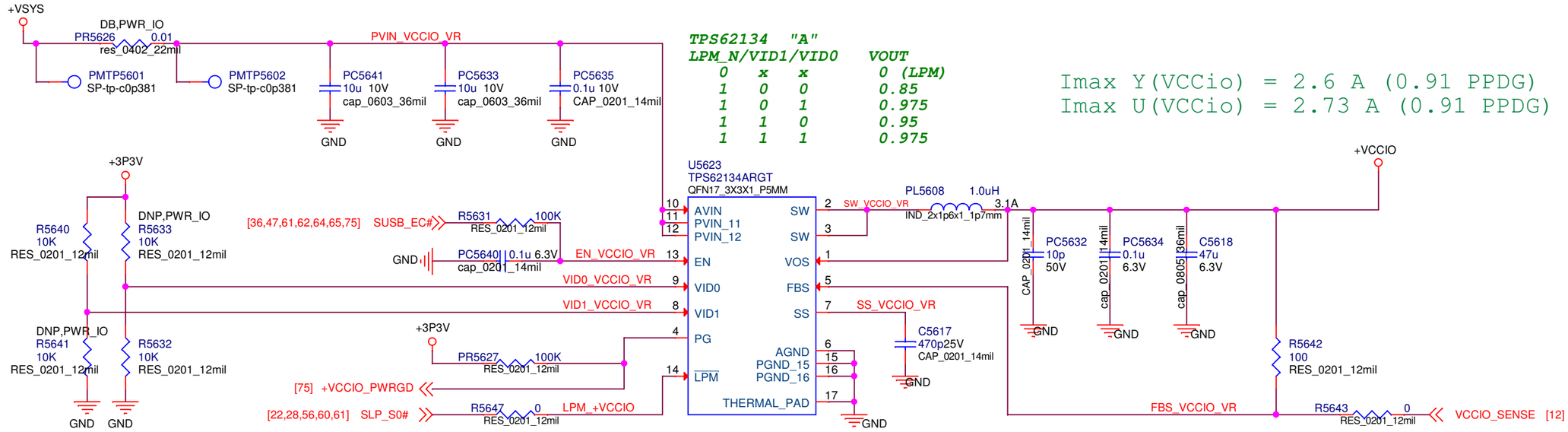
AGND
+2P8V_CAM_F
MTG1 MTG2 MTG3 MTG4

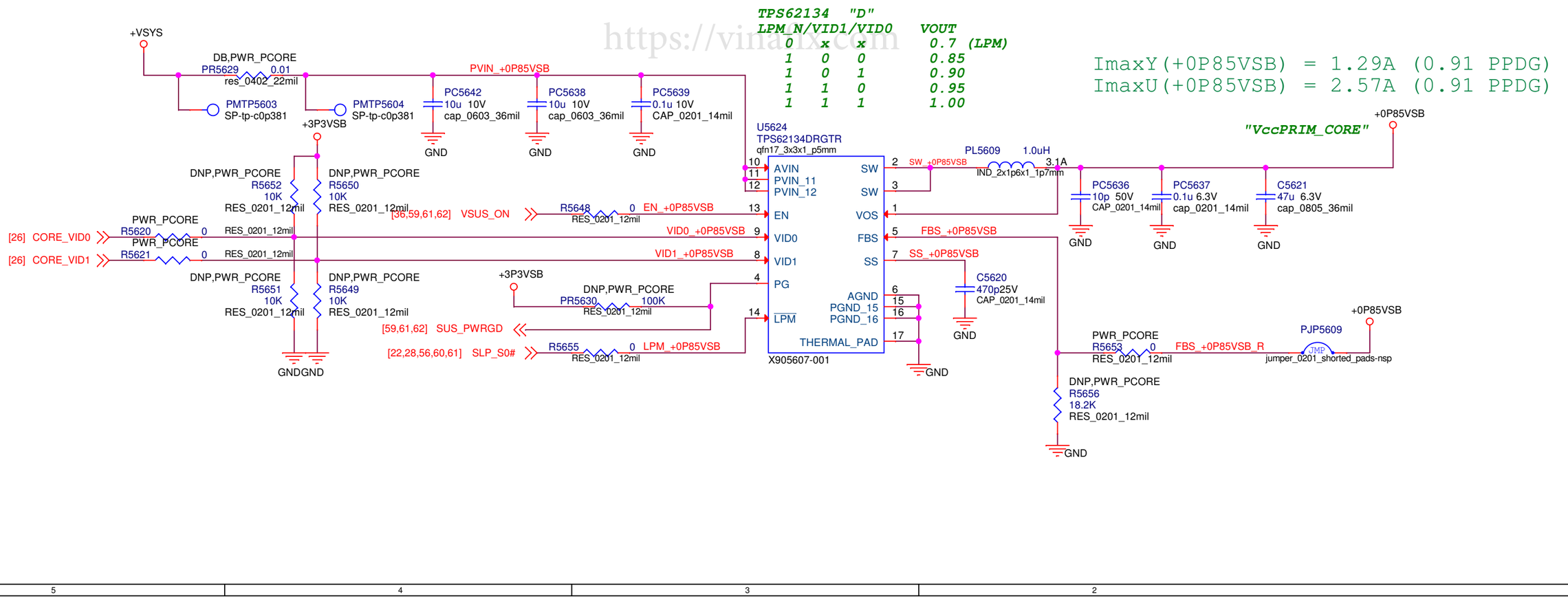
+2P8V_CAM_F
Place close to pin 29 and 30
DNP,CAM_F
C5404
10p 50V
CAP_0201_14mil
C5481
0.1u 6.3V
cap_0201_14mil
C5401
10u 6.3V
CAP_0402_28mil

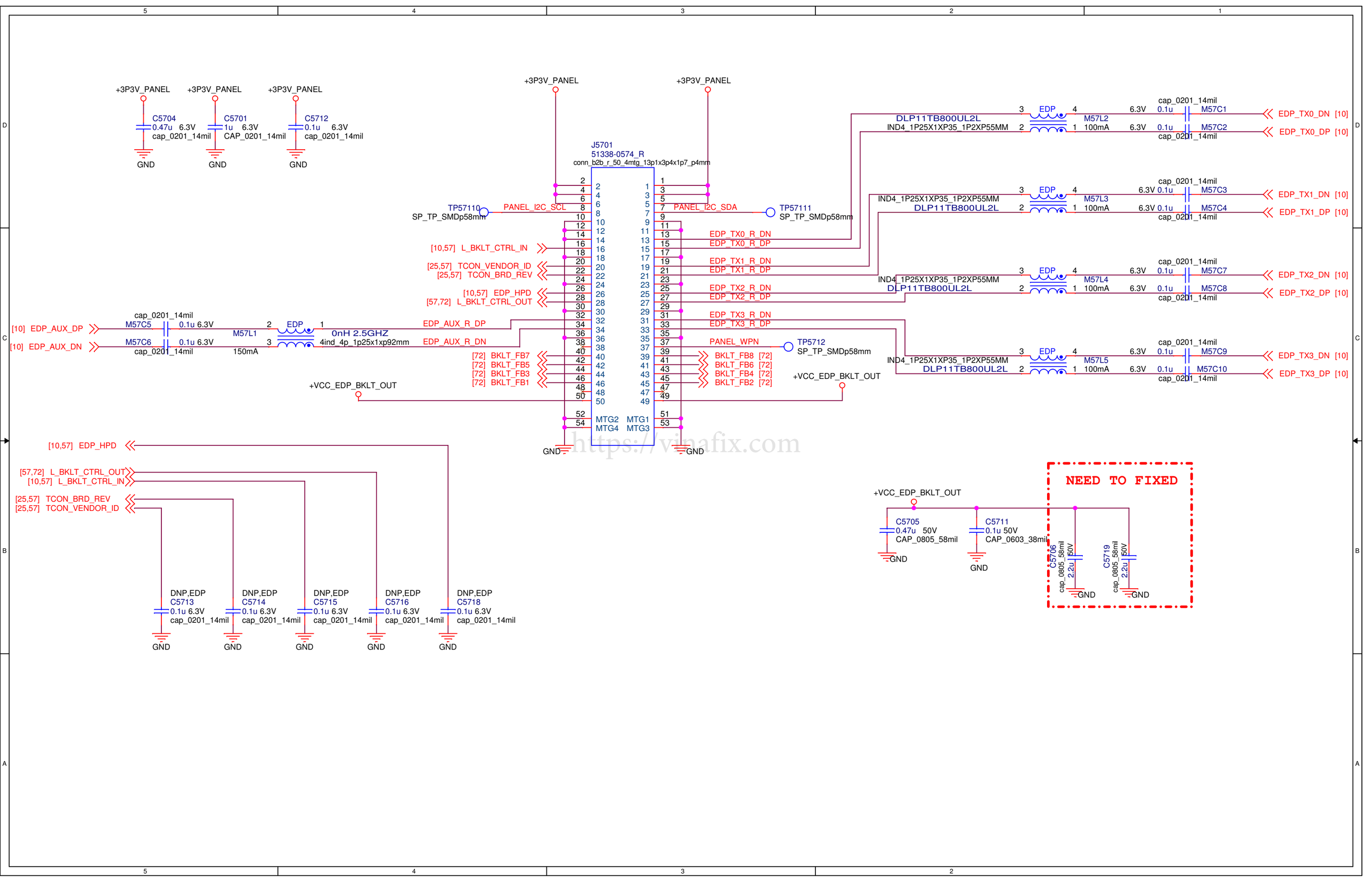
X5401
1XSF019200EH1
xtal_4_2p5x2xp9_1p7x1p35mm
0
R5404
RES_0201_12mil
CAM_F_XO
C5405
0.010u
CAP_0201_14mil
6.3V
DNP,CAM_F
C5486
10p
CAP_0201_14mil
50V
DNP,CAM_F
C5406
10p
CAP_0201_14mil
50V
CAM_F_XO_EN_R
+1P8V_CAM_F
DNP,CAM_F
0
R5401
RES_0201_12mil
0
R5405
RES_0201_12mil
CAM_F_XO_EN [25]

GND


+V_ALWAYS_ON
Iin=0.28A
Trace Width>30mil
was NCP4623HMXADJTCG
Imax = 150mA
+3P3VAS
Imax<=80mA
EV1.9 ADD
TPS70933: 7V > EN > 0.4V
+5V_SHA
Imax<=80mA
PWR/VOL+ Hold Time = 13 secs
Reset Duration = 0.921 sec.
Effective Capacitance
2.2uF_0.55mm => @15V=0.255uF
2.2uF_0.55mm => @20V=0.194uF
22 uF_1.45mm => @20V =2.566uF
+3P3VA
Imax=0.4575A
EV1.9 CHG MSPN
R1 = R2 {Vout /Vref(0.8) - 1}
+3P3V_EC
Imax=0.0375A
+1P8V_EC
Imax=8uA
+VCCDSW
Imax=0.15A
+1P8VA
Imax=1.7mA
used for EC VREFH (ADC)
https://vinafix.com







Parts only installed for 23e SKU

TPS62134 "C"

LPM_N	VID1	VID0	VOUT
0	x	x	0 (LPM)
1	0	0	0.80
1	0	1	0.95
1	1	0	1.00
1	1	1	1.05

+VSYS
U23E,DB,PWR_EDRAM
PR5820 0.01
res_0402_22mil
PMTP5801 SP-tp-c0p381
PMTP5802 SP-tp-c0p381
PVIN_EDRAM_VR
U23E,PWR_EDRAM PC5832 10u 10V cap_0603_36mil
U23E,PWR_EDRAM PC5824 10u 10V cap_0603_36mil
U23E,PWR_EDRAM PC5827 0.1u 10V CAP_0201_14mil
GND

Imax(1V)=3A
Efficiency=80%@2.8A
Theta(JA)=44.2

U23E,PWR_EDRAM
U5821
TPS62134CRGT
QFN17_3X3X1_P5MM

+3P3V
U23E,PWR_EDRAM R5877 10K RES_0201_12mil
DNP,U23E,PWR_EDRAM R5876 10K RES_0201_12mil
[36,58,66,75] ALL_SYS_PWRGD
U23E,PWR_EDRAM R5874 0 RES_0201_12mil
EN_EDRAM_VR
VID0_EDRAM_VR
VID1_EDRAM_VR
DNP,U23E,PWR_EDRAM R5878 10K RES_0201_12mil
U23E,PWR_EDRAM R5875 10K RES_0201_12mil
GNDGND
[36,58,66,75] VRM_PWRGD
U23E,PWR_EDRAM PR5821 0 RES_0201_12mil
EDRAM_PWRGD

AVIN, PVIN_11, PVIN_12, EN, VID0, VID1, PG, LPM
SW, SW, VOS, FBS, SS, AGND, PGND_15, PGND_16, THERMAL_PAD

EV1.9 was:X911086-001
PL5806 1.0uH 5.3A
PCB Footprint = ind_2ppx2x1p2_2mm
X936022-001
SW_EDRAM_VR
FBS_EDRAM_VR
SS_EDRAM_VR
U23E,PWR_EDRAM C5811 470p25V CAP_0201_14mil

+VCCEDRAM
U23E,PWR_EDRAM PC5822 10p 50V CAP_0201_14mil
U23E,PWR_EDRAM PC5823 0.1u 6.3V cap_0201_14mil
U23E,PWR_EDRAM C5812 47u 6.3V cap_0805_36mil
U23E,PWR_EDRAM R5879 100 RES_0201_12mil
U23E,PWR_EDRAM R5880 0 RES_0201_12mil
VCCOPC_SENSE [12]

Icc(max)=3.2A (22apr15)

+3P3V
DNP,U23E,PWR_EDRAM R5887 10K RES_0201_12mil
U23E,PWR_EDRAM R5884 0 RES_0201_12mil
LPM_EDRAM_VR
[15] ZVM#
R5886 0 RES_0201_12mil
VR_LPM_C
R5883 0 RES_0201_12mil
LPM_EOPIO_VR

TPS62134 "C"

LPM_N	VID1	VID0	VOUT
0	x	x	0 (LPM)
1	0	0	0.80
1	0	1	0.95
1	1	0	1.00
1	1	1	1.06

+VSYS
U23E,DB,PWR_EOPIO
PR5823 0.01
res_0402_22mil
PMTP5803 SP-tp-c0p381
PMTP5804 SP-tp-c0p381
PVIN_EOPIO_VR
U23E,PWR_EOPIO PC5833 10u 10V cap_0603_36mil
U23E,PWR_EOPIO PC5830 10u 10V cap_0603_36mil
U23E,PWR_EOPIO PC5831 0.1u 10V CAP_0201_14mil
GND

Imax(1V)=3A
Efficiency=80%@2.8A
Theta(JA)=44.2

U23E,PWR_EOPIO
U5822
TPS62134CRGT
QFN17_3X3X1_P5MM

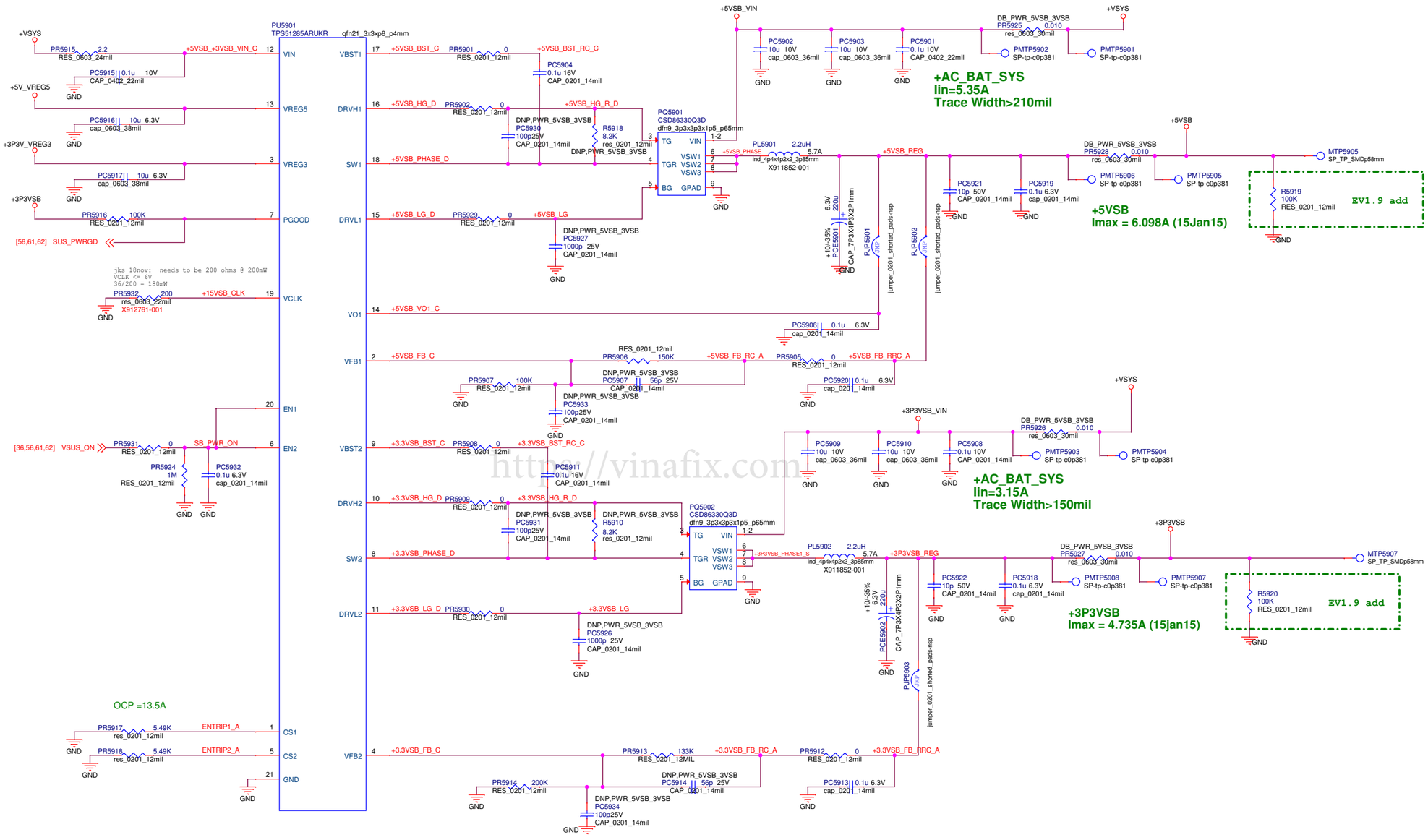
[15] MSM#
U23E,PWR_EOPIO R5892 0 RES_0201_12mil
DNP,U23E,PWR_EOPIO R5890 0 RES_0201_12mil
[36,58,66,75] ALL_SYS_PWRGD
U23E,PWR_EOPIO R5888 0 RES_0201_12mil
EN_EOPIO_VR
VID0_EOPIO_VR
VID1_EOPIO_VR
DNP,U23E,PWR_EOPIO R5891 0 RES_0201_12mil
DNP,U23E,PWR_EOPIO R5889 0 RES_0201_12mil
GND GND
[36,58,66,75] VRM_PWRGD
U23E,PWR_EOPIO PR5824 0 RES_0201_12mil
EOPIO_PWRGD
LPM_EOPIO_VR

AVIN, PVIN_11, PVIN_12, EN, VID0, VID1, PG, LPM
SW, SW, VOS, FBS, SS, AGND, PGND_15, PGND_16, THERMAL_PAD

SW_EOPIO_VR
U23E,PWR_EOPIO PL5807 1.0uH 3.1A
IND_2x1p6x1_1p7mm
FBS_EOPIO_VR
SS_EOPIO_VR
U23E,PWR_EOPIO C5814 470p 25V CAP_0201_14mil

+VCCEOPIO
U23E,PWR_EOPIO PC5828 10p 50V CAP_0201_14mil
U23E,PWR_EOPIO PC5829 0.1u 6.3V cap_0201_14mil
U23E,PWR_EOPIO C5815 47u 6.3V cap_0805_36mil
U23E,PWR_EOPIO R5893 100 RES_0201_12mil
U23E,PWR_EOPIO R5895 0 RES_0201_12mil
VCCOPIO_SENSE [12]

Icc(max)=2.0A


PU5901
TPS51285ARUKR
qfn21_3x3xp8_p4mm
+VSYS
PR5915 2.2
RES_0603_24mil
+5VSB_+3VSB_VIN_C
PC5915 0.1u 10V
CAP_0402_22mil
+5V_VREG5
PC5916 10u 6.3V
cap_0603_38mil
+3P3V_VREG3
PC5917 10u 6.3V
cap_0603_38mil
+3P3VSB
PR5916 100K
RES_0201_12mil
[56,61,62] SUS_PWRGD
VIN
VREG5
VREG3
PGOOD
jks 18nov: needs to be 200 ohms @ 200mW
VCLK <= 6V
36/200 = 180mW
PR5932 200
res_0603_22mil
X912761-001
+15VSB_CLK
VCLK
EN1
EN2
[36,56,61,62] VSUS_ON
PR5931 0
RES_0201_12mil
SB_PWR_ON
PR5924 1M
RES_0201_12mil
PC5932 0.1u 6.3V
cap_0201_14mil
OCP =13.5A
PR5917 5.49K
res_0201_12mil
ENTRIP1_A
PR5918 5.49K
res_0201_12mil
ENTRIP2_A
CS1
CS2
GND
VBST1
DRVH1
SW1
DRVL1
VO1
VFB1
VBST2
DRVH2
SW2
DRVL2
VFB2
+5VSB_BST_C
PR5901 0
RES_0201_12mil
+5VSB_BST_RC_C
PC5904
0.1u 16V
CAP_0201_14mil
+5VSB_HG_D
PR5902 0
RES_0201_12mil
+5VSB_HG_R_D
DNP,PWR_5VSB_3VSB
PC5930
100p25V
CAP_0201_14mil
R5918
8.2K
res_0201_12mil
+5VSB_PHASE_D
+5VSB_LG_D
PR5929 0
RES_0201_12mil
+5VSB_LG
DNP,PWR_5VSB_3VSB
PC5927
1000p 25V
CAP_0201_14mil
+5VSB_VO1_C
+5VSB_FB_C
RES_0201_12mil
PR5906 150K
+5VSB_FB_RC_A
PR5907 100K
RES_0201_12mil
DNP,PWR_5VSB_3VSB
PC5907 56p 25V
CAP_0201_14mil
DNP,PWR_5VSB_3VSB
PC5933
100p25V
CAP_0201_14mil
+3.3VSB_BST_C
PR5908 0
RES_0201_12mil
+3.3VSB_BST_RC_C
PC5911
0.1u 16V
CAP_0201_14mil
+3.3VSB_HG_D
PR5909 0
RES_0201_12mil
+3.3VSB_HG_R_D
DNP,PWR_5VSB_3VSB
PC5931
100p25V
CAP_0201_14mil
DNP,PWR_5VSB_3VSB
R5910
8.2K
res_0201_12mil
+3.3VSB_PHASE_D
+3.3VSB_LG_D
PR5930 0
RES_0201_12mil
+3.3VSB_LG
DNP,PWR_5VSB_3VSB
PC5926
1000p 25V
CAP_0201_14mil
+3.3VSB_FB_C
PR5913 133K
RES_0201_12MIL
+3.3VSB_FB_RC_A
PR5914 200K
RES_0201_12mil
DNP,PWR_5VSB_3VSB
PC5914 56p 25V
CAP_0201_14mil
DNP,PWR_5VSB_3VSB
PC5934
100p25V
CAP_0201_14mil
PQ5901
CSD86330Q3D
dfn9_3p3x3p3x1p5_p65mm
TG VIN
TGR VSW1 VSW2 VSW3
BG GPAD
PQ5902
CSD86330Q3D
dfn9_3p3x3p3x1p5_p65mm
+5VSB_VIN
PC5902 10u 10V
cap_0603_36mil
PC5903 10u 10V
cap_0603_36mil
PC5901 0.1u 10V
CAP_0402_22mil
DB_PWR_5VSB_3VSB
PR5925 0.010
res_0603_30mil
PMTP5902
SP-tp-c0p381
PMTP5901
SP-tp-c0p381
+AC_BAT_SYS
Iin=5.35A
Trace Width>210mil
PL5901 2.2uH 5.7A
ind_4p4x4p2x2_3p85mm
X911852-001
+5VSB_PHASE
+5VSB_REG
+10/-35% 6.3V 220u
PCE5901
CAP_7P3X4P3X2P1mm
PJP5901
jumper_0201_shorted_pads-nsp
PJP5902
jumper_0201_shorted_pads-nsp
PC5906 0.1u 6.3V
cap_0201_14mil
PR5905 0
RES_0201_12mil
PC5920 0.1u 6.3V
cap_0201_14mil
PC5921 10p 50V
CAP_0201_14mil
PC5919 0.1u 6.3V
cap_0201_14mil
DB_PWR_5VSB_3VSB
PR5928 0.010
res_0603_30mil
+5VSB
PMTP5906
SP-tp-c0p381
PMTP5905
SP-tp-c0p381
MTP5905
SP_TP_SMDp58mm
R5919
100K
RES_0201_12mil
EV1.9 add
+5VSB
Imax = 6.098A (15Jan15)
+3P3VSB_VIN
PC5909 10u 10V
cap_0603_36mil
PC5910 10u 10V
cap_0603_36mil
PC5908 0.1u 10V
CAP_0201_14mil
DB_PWR_5VSB_3VSB
PR5926 0.010
res_0603_30mil
PMTP5903
SP-tp-c0p381
PMTP5904
SP-tp-c0p381
+AC_BAT_SYS
Iin=3.15A
Trace Width>150mil
PL5902 2.2uH 5.7A
ind_4p4x4p2x2_3p85mm
X911852-001
+3P3VSB_PHASE1_S
+3P3VSB_REG
+10/-35% 6.3V 220u
PCE5902
CAP_7P3X4P3X2P1mm
PJP5903
jumper_0201_shorted_pads-nsp
PC5922 10p 50V
CAP_0201_14mil
PC5918 0.1u 6.3V
cap_0201_14mil
DB_PWR_5VSB_3VSB
PR5927 0.010
res_0603_30mil
+3P3VSB
PMTP5908
SP-tp-c0p381
PMTP5907
SP-tp-c0p381
MTP5907
SP_TP_SMDp58mm
R5920
100K
RES_0201_12mil
EV1.9 add
+3P3VSB
Imax = 4.735A (15jan15)
https://vinafix.com

PU6002
TPS51367RVER
qfn29_4p5x3p5x1_p4mm

+5VSB
PR6003 4.7 RES_0603_24mil
+1P2V_DUAL_V5
GND
PC6002 2.2u 6.3V CAP_0402_24mil
18 V5

[36,45,60,61,62] SUSC_EC#
PR6005 0 RES_0201_12mil
+1P2V_DUAL_EN
28 EN
GND
PC6003 0.01u 10V CAP_0201_14mil

+1P2V_DUAL
DNP,PWR_1P2V_DUAL
PR6016 100K RES_0201_12mil
[75] +1P2V_DUAL_PWRGD
1 PGOOD

Low power mode for Connected Stanby
GND
PC6015 2700p CAP_0402_22mil
+1P2V_DUAL_SL
21 SLEW

[11,60] DDR_PG_CTRL
[22,28,56,61] SLP_S0#
DNP,PWR_1P2V_DUAL
PR6024 0 RES_0201_12mil
PR6025 0 RES_0201_12mil
PR6011 0 RES_0201_12mil
+1P2V_DUAL_LP
2 LP#
GND
DNP,PWR_1P2V_DUAL

+5VSB
PR6007 10K RES_0201_12mil
+1P2V_DUAL_OC
20 TRIP

OCP =12A
GND
DNP,PWR_1P2V_DUAL
PR6008 0 RES_0201_12mil

Fsw =800kHz
GND
DNP,PWR_1P2V_DUAL
PR6009 0 RES_0201_12mil
+1P2V_DUAL_MD
3 MODE

+1P2V_DUAL_VREF
cap_0201_14mil
PC6010 0.1u 6.3V
DNP,PWR_1P2V_DUAL
PR6010 15K res_0201_12mil
DNP,PWR_1P2V_DUAL
PR6001 10K RES_0201_12mil
26 VREF

+1P2V_DUAL_REFIN
25 REFIN

REFIN = FLOAT (1.2V)

DNP,PWR_1P2V_DUAL
GND
PC6014 0.1u 6.3V cap_0201_14mil

PJP6001
+1P2V_DUAL
JMP jumper_0201_shorted_pads-nsp
+1P2V_DUAL_VSNS_C
PR6013 0 RES_0201_12mil
+1P2V_DUAL_VSNS
22 VSNS

Near DDR
PC6013 1000p 25V CAP_0201_14mil

PJP6002
GND
JMP jumper_0201_shorted_pads-nsp
+1P2V_DUAL_VGNS_C
PR6014 0 RES_0201_12mil
+1P2V_DUAL_VGNS
23 GSNS

GND
DNP,PWR_1P2V_DUAL
PC6012 0.1u 6.3V cap_0201_14mil

4 NC
27 RA
24 REFIN2
19 GND1
29 GND2
10 PGND1
11 PGND2
12 PGND3
13 PGND4
14 PGND5
GND

+1P2V_DUAL_VIN
15 VIN1
16 VIN2
17 VIN3
PC6019 0.1u 10V CAP_0201_14mil
PC6017 10u 10V cap_0603_36mil
PC6018 10u 10V cap_0603_36mil
GND

DB,PWR_1P2V_DUAL
PR6019 0.010 res_0603_30mil
+VSYS
PMTP6001 SP-tp-c0p381
PMTP6002 SP-tp-c0p381

+VSYS
Iin=1.7A
Trace Width>80mil

25nov jks: REMOVE 0ohm 0805 from +1P2V_DUAL_BOOT

5 BST
+1P2V_DUAL_BOOT
PC6001 0.1u 6.3V cap_0201_14mil

6 SW1
7 SW2
8 SW3
9 SW4
+1P2V_DUAL_PHASE
PL6001 0.33uH 12A ind_4p4x4p2x1p2_3p85mm

PCE6001 470u 2V 20% cap_7p3x4p3x2p1mm
PC6009 0.1u 6.3V cap_0201_14mil
PC6021 10p 50V CAP_0201_14mil
GND
+1P2V_DUAL

Imax Y(+1P2V_DUAL) = 4.5/3.5 A (0.91 PPDG)
Imax U(+1P2V_DUAL) = 4.5/3.5 A (0.91 PPDG)
+1P2V_DUAL
Imax = 7.950A (15Jan15)
TDC = 3.5A

Imax Y(+V_VDDQ_VTT) = 0.6 A (0.91 PPDG)
Imax U(+V_VDDQ_VTT) = 0.6 A (0.91 PPDG)

+5VSB
PR6018 2.2 RES_0201_12mil
+5V
DNP,PWR_VTT
PR6017 2.2 RES_0201_12mil
+V_VDDQ_VTT_VDD
GND
PC6006 0.1u 6.3V cap_0201_14mil

PU6001
TPS51206DSQR
son11_2x2x8_p4mm
10 VDD
1 VDDQSNS
2 VLDOIN
7 S3
9 S5
3 VTT
5 VTTSNS
6 VTTREF
8 GND1
11 GND2
4 PGND

[11,60] DDR_PG_CTRL
PR6026 0 S3_VDDQ_VTT_REG RES_0201_12mil

[36,45,60,61,62] SUSC_EC#
PR6027 0 S5_VDDQ_VTT_REG RES_0201_12mil

+VDDQ_VREF
PC6016 0.22u 6.3V CAP_0201_14mil
GND

VDDQSNS_VDDQ_VTT_REG
PR6023 0.010 res_0603_30mil
DB,PWR_VTT
+1P2V_DUAL
PMTP6003 SP-tp-c0p381
PMTP6004 SP-tp-c0p381
PC6005 10u 10V cap_0603_36mil

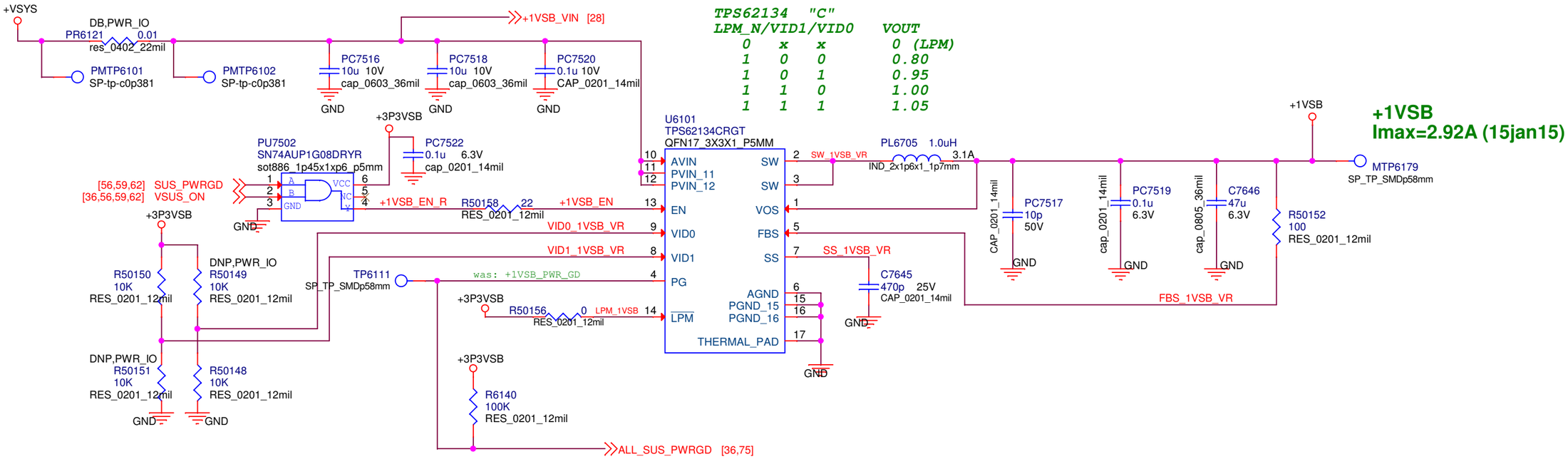
VTTSNS_VDDQ_VTT_REG
PR6022 0 RES_0201_12mil
DNP,PWR_VTT
PC6020 1000p 25V CAP_0201_14mil
PC6007 10u 10V cap_0603_36mil
+V_VDDQ_VTT

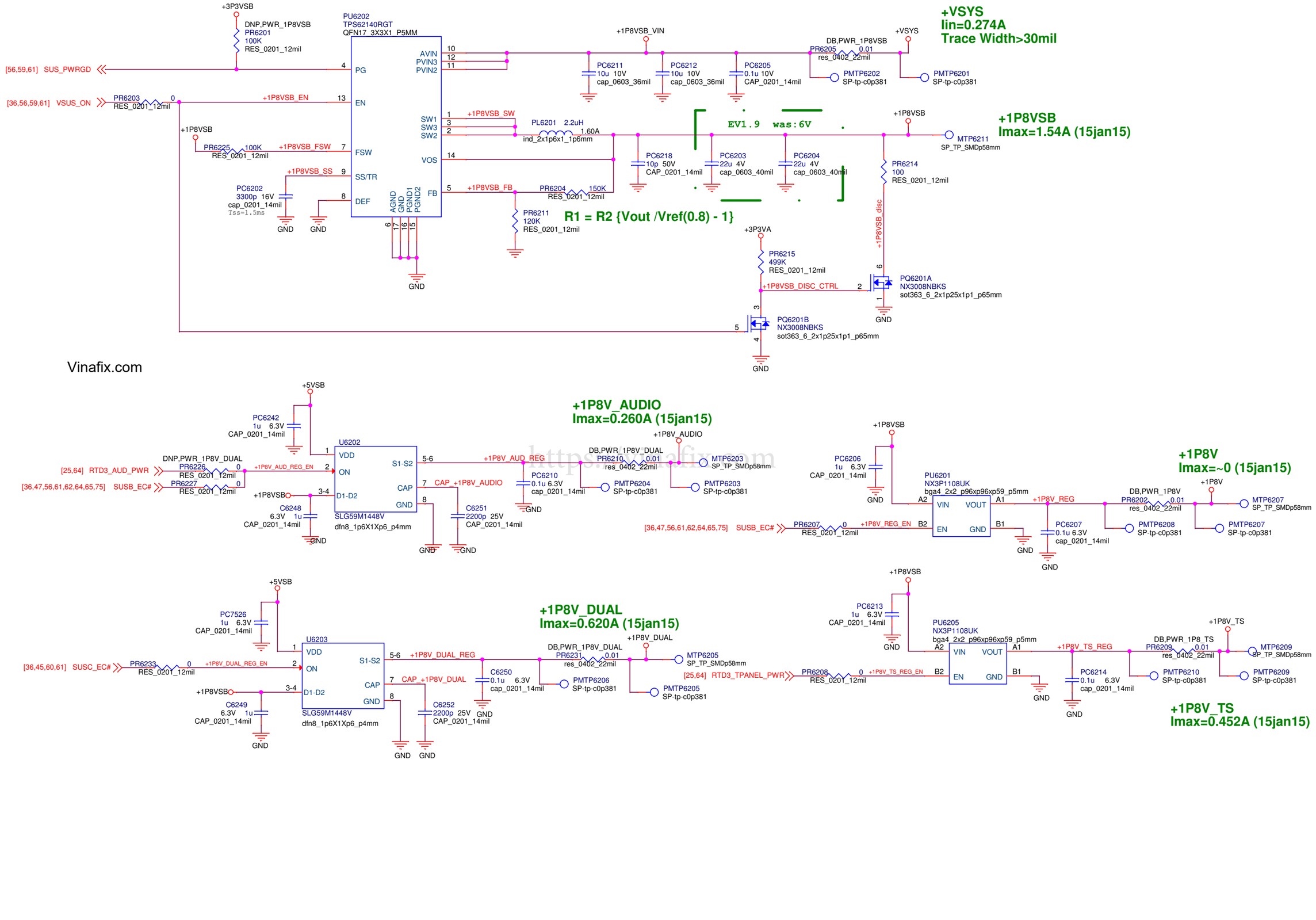
+V_VDDQ_VTT
Imax=1A
Trace Width>40mil

+V_VDDQ_VTT
Imax = 0.600A (15Jan15)

+3P3VSB
+1P2V_DUAL
PU6003
SLG5NT1477VTR
dfn9_1p5x2xp8_p4mm
1 VDD
2 D1
3-4 D2
9 ON
S1 5-6
S2 7
GND 8
PC6022 0.1u 6.3V cap_0201_14mil
PC6025 1u 6.3V CAP_0201_14mil
[61] S0iX_EN
+VCCPLL_OC_REG
PC6023 1u 6.3V CAP_0201_14mil
PC6024 10u 10V cap_0603_36mil
DB,PWR_PLL
PR6028 0.01 res_0402_22mil
PMTP6006 SP-tp-c0p381
+VCCPLL_OC
PMTP6005 SP-tp-c0p381

+VCCPLL_OC
Imax = 0.350A (15Jan15)


TPS62134 "C"
LPM_N/VID1/VID0 VOUT
0 x x 0 (LPM)
1 0 0 0.80
1 0 1 0.95
1 1 0 1.00
1 1 1 1.05
+1VSB
Imax=2.92A (15jan15)
+VCCSTG
Imax = 0.16A (15jan15)
+VCCST_CPU
160mA (15jan15)
+1V_MODPHY
Imax = 1.633 A (15jan15)
note: usb & pcie ports used
EV1.9 Add
EV1.9
WAS:INSTALL
U6101
TPS62134CRGT
QFN17_3X3X1_P5MM
PU6102
SLG5NT1477VTR
dfn9_1p5x2xp8_p4mm
PU6103
SLG5NT1477VTR
dfn9_1p5x2xp8_p4mm
PU6104
SN74AUP1G08DRYR
sot886_1p45x1xp6_p5mm
PU7502
SN74AUP1G08DRYR
sot886_1p45x1xp6_p5mm
PU6105
SLG59M1448V
dfn8_1p6X1Xp6_p4mm
PL6705 1.0uH
IND_2x1p6x1_1p7mm
MTP6179
SP_TP_SMDp58mm
MTP6103
SP_TP_SMDp58mm
TP6111
SP_TP_SMDp58mm
PMTP6101
PMTP6102
PMTP6104
PMTP6112
PMTP6113
PMTP6114
PMTP6115
PC7516 10u 10V cap_0603_36mil
PC7518 10u 10V cap_0603_36mil
PC7520 0.1u 10V CAP_0201_14mil
PC7522 0.1u 6.3V cap_0201_14mil
PC7517 10p 50V
PC7519 0.1u 6.3V
C7646 47u 6.3V
C7645 470p 25V CAP_0201_14mil
R50158 22 RES_0201_12mil
R50152 100 RES_0201_12mil
R50150 10K RES_0201_12mil
R50149 10K RES_0201_12mil
R50151 10K RES_0201_12mil
R50148 10K RES_0201_12mil
R50156 0 RES_0201_12mil
R6140 100K RES_0201_12mil
PR6150 0 RES_0201_12mil
PR6152 0 RES_0201_12mil
PR6151 0 RES_0201_12mil
PR6124 0.01 res_0402_22mil
PR6119 100K RES_0201_12mil
R6131 0 RES_0201_12mil
R6141 0 res_0603_24mil
PC6140 0.1u 6.3V cap_0201_14mil
PC6142 1u 6.3V CAP_0201_14mil
PC6141 1u 6.3V CAP_0201_14mil
PC6101 0.1u 6.3V cap_0201_14mil
PC6157 6.3V 1u CAP_0201_14mil
PC6154 1u CAP_0201_14mil 6.3V
PC6155 2200p 25V CAP_0201_14mil
PC6156 10u 6.3V cap_0603_38mil
PC6112 0.1u 6.3V cap_0201_14mil
PC6120 1u 6.3V CAP_0201_14mil
PC6119 6.3V 0.1u cap_0201_14mil
PC6126 1u 6.3V CAP_0201_14mil
PC6125 10u 6.3V cap_0603_38mil
+VSYS
+1VSB_VIN [28]
+3P3VSB
+1VSB
+VCCSTG
GND
SUS_PWRGD [56,59,62]
VSUS_ON [36,56,59,62]
SUSB_EC# [36,47,56,62,64,65,75]
SLP_S0# [22,28,56,60]
S0iX_EN [60]
SUSC_EC# [36,45,60,62]
MPHY_PWREN [22]
ALL_SUS_PWRGD [36,75]
+1VSB_EN_R
+1VSB_EN
VID0_1VSB_VR
VID1_1VSB_VR
was: +1VSB_PWR_GD
LPM_1VSB
SW_1VSB_VR
SS_1VSB_VR
FBS_1VSB_VR
+VCCSTG_REG
+VCCST_EN
+VCCST_CPU_REG
+VCCST_REG_CAP
+1V_MODPHY_REG
PWR_STG
PWR_1VMODPHY
PWR_STCPU
DB,PWR_IO
DNP,PWR_IO
DB,PWR_1VMODPHY
DNP,PWR_1VMODPHY
AVIN
PVIN_11
PVIN_12
SW
VOS
FBS
SS
EN
VID0
VID1
PG
LPM
AGND
PGND_15
PGND_16
THERMAL_PAD
VDD
D1
D2
ON
S1
S2
GND
VCC
NC
Y
A
B
S1-S2
D1-D2
CAP


+VSYS
Iin=0.274A
Trace Width>30mil
+1P8VSB
Imax=1.54A (15jan15)
EV1.9 was:6V
R1 = R2 {Vout /Vref(0.8) - 1}
PU6202
TPS62140RGT
QFN17_3X3X1_P5MM
+1P8V_AUDIO
Imax=0.260A (15jan15)
+1P8V_DUAL
Imax=0.620A (15jan15)
+1P8V
Imax=~0 (15jan15)
+1P8V_TS
Imax=0.452A (15jan15)
Vinafix.com

CHGR_VIN
Iin=9.731A
Trace Width>389mil

+SYS
Iin=8A
Trace Width>320mil

+SYS
Imax = 12.0A
TDC = 10.0A

*Cgs>=40*Cgd*
Cgs.9 >= 40*Cgd*1.1*
*Cgs >= (1.1/0.9)*40*1nF*
Cgs >= 49nF

CHGR needs 200uF for loop stability
{2*f*pi = 1/sqrt(L*C)}

EffCap@20V=3.22uF*3=9.66uF

EV1.9 CHG MSPN

EV1.9 CHG MSPN

7-bit I2C Address = 0x12

I(ripple)=Vin*DutyCycle*(1-DutyCycle)/(FreqSwitch*L)
I(ripple)= 20%~40% I(charge)
Vin(12.6V+/-10%) => I(ripple)@2.2uH => 1.93A, 40.5%
Vin(12.6V+/-10%) => I(ripple)@3.3uH => 1.29A, 27.0%
assuming 60W, DutyCycle=0.5, Freq=1020KHz

I(Vcc) typ 8mA
Pwr=1mW

+5V_TS
Imax=0.0027A

R6431 75 RES_0402_16mil
R6430 75 RES_0402_16mil
DSG_+5V_TS
+5VSB
C6423 6.3V 1u CAP_0201_14mil
U6407 G5244A31U dfn6_1p5x1p5xp8_p5mm
1 IN OUT 6
2 NC EN 4
3 DSG GND 5
GND
+5V_TS_REG
C6422 6.3V 10u CAP_0402_28mil
+5V
+5V_TS
DNP,DB,PWR_5V_TS
0.01 R6445 res_0402_22mil
PMTP6419 SP-tp-c0p381
PMTP6420 SP-tp-c0p381
DB,PWR_5V_TS
0.01 R6428 res_0402_22mil
PMTP6413 SP-tp-c0p381
MTP6413 SP_TP_SMDp58mm
PMTP6414 SP-tp-c0p381

G5244A31U
Imax= 2.5A
Rdc=120mOhm

[25,62] RTD3_TPANEL_PWR
R6452 0 RES_0201_12mil
+5V_TS_EN
C6421 0.1u 6.3V cap_0201_14mil
GND

+5V_SDXC
Imax= 880mA

+5VSB
DNP,PWR_5V_SDXC
R6453 0 RES_0402_16mil

SLG59M1448V
Imax= 2.5A
Rdc(@70C)=20mOhm

C6413 1u 6.3V CAP_0201_14mil
U6402 SLG59M1448V dfn8_1p6X1Xp6_p4mm
1 VDD S1-S2 5-6 +5V_SDXC_REG
[10] RTD3_CR_PWREN
R6413 0 RES_0201_12mil
ON_+5V_SDXC
2 ON
3-4 D1-D2 CAP 7 CAP_+5V_SDXC
GND 8
C6411 2200p 25V CAP_0201_14mil
GND
+5V_SDXC
DB,PWR_5V_SDXC
R6414 0.01 res_0402_22mil
PMTP6404 SP-tp-c0p381
MTP6404 SP_TP_SMDp58mm
PMTP6412 SP-tp-c0p381
C6412 10u 6.3V CAP_0402_28mil
GND

+5V_AUDIO
Imax=1.05A

+5VSB
C6406 1u 6.3V CAP_0201_14mil
U6404 SLG59M1448V dfn8_1p6X1Xp6_p4mm
1 VDD S1-S2 5-6 +5V_AUDIO_REG
DNP,PWR_5V_AUDIO
[25,62] RTD3_AUD_PWR
R6447 0 RES_0201_12mil
ON_+5V_AUDIO_REG
2 ON
3-4 D1-D2 CAP 7 CAP_+5V_AUDIO_REG
[36,47,56,61,62,64,65,75] SUSB_EC#
R6448 0 RES_0201_12mil
GND 8
C6415 2200p 25V CAP_0201_14mil
GND
+5V_AUDIO
DB,PWR_5V_AUDIO
R6418 0.010 res_0603_18mil
PMTP6410 SP-tp-c0p381
MTP6410 SP_TP_SMDp58mm
PMTP6411 SP-tp-c0p381
C6429 10u 6.3V cap_0402_26mil TMAX=0.65mm
GND
EV1.9 WAS:X867508-001

+5V
Imax=0.2A

+5VSB
C6407 1u 6.3V CAP_0201_14mil
U6405 SLG59M1448V dfn8_1p6X1Xp6_p4mm
1 VDD S1-S2 5-6 +5V_REG
[36,47,56,61,62,64,65,75] SUSB_EC#
2 ON
3-4 D1-D2 CAP 7 CAP_+5V_REG
GND 8
C6414 2200p 25V CAP_0201_14mil
GND
+5V
DB,PWR_5V
R6411 0.01 res_0402_22mil
PMTP6406 SP-tp-c0p381
MTP6406 SP_TP_SMDp58mm
PMTP6407 SP-tp-c0p381
C6428 10u 6.3V cap_0402_26mil TMAX=0.65mm
GND
EV1.9 WAS:X867508-001

+5V_FAN
Imax=0.7A

+5V
DB_Y,PWR_5V_FAN
C6424 1u 6.3V CAP_0201_14mil
U6408 SLG59M1448V dfn8_1p6X1Xp6_p4mm
1 VDD S1-S2 5-6 +5V_FAN_REG
DB_Y,PWR_5V_FAN
[25,36] DISPLAY_OFF#
R6403 1K RES_0201_12mil
ON_+5V_FAN_REG
2 ON
3-4 D1-D2 CAP 7 CAP_+5V_FAN_REG
SP_TP_SMDp58mm MTP6402
GND 8
DB_Y,PWR_5V_FAN
C6425 2200p 25V CAP_0201_14mil
GND
+5V_FAN
DB_Y,DB,PWR_5V_FAN
R6432 0.01 res_0402_22mil
PMTP6408 SP-tp-c0p381
PMTP6409 SP-tp-c0p381
DB_Y,PWR_5V_FAN
C6427 10u 6.3V cap_0402_26mil TMAX=0.65mm
GND
EV1.9 WAS:X867508-001

+5V_KB_CONN
Imin=0.5A (ng 18dec14)

Close Page 73

EffCap(22uf_0603@5V) = 4.7uF X 6 = 28uF
EffCap(10uf_0.90mm@5V) = 2.7uF
EffCap(10uf_0.95mm@5V) = 4.8uF
EffCap(22uf_0805_1.4mm@5V) = 7.5uF X 6 = 45uF

+3P3VSB
R6405 100K RES_0201_12mil
[31] BLADE_+5V_KB_CONN_EN
R6419 1K RES_0201_12mil
U6401 NCP380HMUAJAATBG dfn7_2x2xp55_p65mm
3 FLAG# IN 6
4 EN
5 GND1 OUT 1 +5V_BLADE_REG
7 GND2 ILIM 2 5V_BLADE_REG_ILIM
GND
Imax(DFN) <= 2.1A
Imax(DFN) <= 2.1A
1.02A <= ILIM(20K) <= 1.38A
0.5 A <= ILIM(43K) <= 0.65A
+5VSB
C6401 1u 6.3V CAP_0201_14mil
GND
SP-tp-c0p381 PMTP6416
SP-tp-c0p381 PMTP6415
DB,BLADE_PWR
R6402 0.01 res_0402_22mil
+5V_KB_CONN
R6426 44.2K res_0201_12mil
C6402 10u 6.3V CAP_0402_28mil
C6446 22u 6.3V cap_0603_38mil
C6447 22u 6.3V cap_0603_38mil
C6448 22u 6.3V cap_0603_38mil
R6401 1K RES_0201_12mil
BLADE_5V_PWR_EN_R
MTP6405 SP_TP_SMDp58mm
R6404 100K RES_0201_12mil
GND
+3P3VSB
R6442 499K RES_0201_12mil
+5V_SL2_disc_CTRL
Q6402B NX3008NBKS sot363_6_2x1p25x1p1_p65mm
3 5 4
GND
C6443 22u 6.3V cap_0603_38mil
C6444 22u 6.3V cap_0603_38mil
C6445 22u 6.3V cap_0603_38mil
+5V_SL2_disc
Q6402A NX3008NBKS sot363_6_2x1p25x1p1_p65mm
6 2 1
GND

+5V_SL1
Imin=1.5A

Close Page 70

EffCap(22uf_0603@5V) = 4.7uF X 9 = 42uF
EffCap(10uf_0.90mm@5V) = 2.7uF
EffCap(10uf_0.95mm@5V) = 4.8uF
EffCap(22uf_0805_1.4mm@5V) = 7.5uF X 9 = 68uF

+3P3VSB
Imax(DFN) <= 2.1A
Imax(DFN) <= 2.1A
1.02A <= ILIM(20K) <= 1.38A
0.5 A <= ILIM(43K) <= 0.65A
ILIM(11.8K) <= 2.0A
R6423 100K RES_0201_12mil
[31] SL1_5V_OC#
[31,70] SL1_5V_PWR_EN
R6421 1K RES_0201_12mil
U6403 NCP380HMUAJAATBG dfn7_2x2xp55_p65mm
3 FLAG# IN 6
4 EN
5 GND1 OUT 1 +5V_SL1_REG
7 GND2 ILIM 2 5V_SL1_REG_ILIM
+5VSB
C6403 1u 6.3V CAP_0201_14mil
C6420 22u 6.3V cap_0603_38mil
C6419 22u 6.3V cap_0603_38mil
C6418 22u 6.3V cap_0603_38mil
SP-tp-c0p381 PMTP6417
SP-tp-c0p381 PMTP6418
DB,SL_PWR
R6424 0.01 res_0402_22mil
+5V_SL1
R6429 11.8K res_0201_12mil
D6404 BZX584C6V2 6.2V 5mA
C6404 10u 6.3V CAP_0402_28mil
C6417 22u 6.3V cap_0603_38mil
C6416 22u 6.3V cap_0603_38mil
C6410 22u 6.3V cap_0603_38mil
R6425 1K RES_0201_12mil
SL1_5V_PWR_EN_R
TP6401 SP_TP_SMDp58mm
+3P3VSB
R6420 499K RES_0201_12mil
Q6401B NX3008NBKS sot363_6_2x1p25x1p1_p65mm
3 5 4
GND
C6408 22u 6.3V cap_0603_38mil
C6409 22u 6.3V cap_0603_38mil
C6405 22u 6.3V cap_0603_38mil
+5V_SL1_disc
+5V_SL1_disc_CTRL
Q6401A NX3008NBKS sot363_6_2x1p25x1p1_p65mm
6 2 1
GND
R6422 100K RES_0201_12mil
GND

+3P3V_PANEL
Imax=0.451A (06dec14 sc)
Trace Width>50mil

+3P3VSB
PC6503 6.3V 1u CAP_0201_14mil
GND
PU6504 TPS22920YZPR BGA8_2x4_P9X1P9xp5_p5mm
A2 B2 C2 D2 | VIN1 VIN2 VIN3 ON | VOUT1 VOUT2 VOUT3 GND | A1 B1 C1 D1
+3P3V_PANEL_REG
PC6501 0.1u 6.3V cap_0201_14mil
GND
DB,PWR_3P3_PANEL PR6508 0.01 res_0402_22mil
PMTP6502 SP-tp-c0p381
PMTP6501 SP-tp-c0p381
+3P3V_PANEL
MTP6585 SP_TP_SMDp58mm
PR6544 75 RES_0603_24mil
PR6515 75 RES_0603_24mil
DSG_+3P3V_PANEL
[10] EDP_VDD_EN
PR6519 1K RES_0201_12mil
+3P3V_PANEL_EN
MTP6519 SP_TP_SMDp58mm
DNP,PWR_3P3_PANEL PR6529 100K RES_0201_12mil
GND
+3P3VSB
R6504 499K
+3P3V_PANEL_DISC_CTRL
Q6501B NX3008NBKS
Q6501A NX3008NBKS sot363_6_2x1p25x1p1_p65mm
+3P3V_PANEL_EN
GND

+3P3V_MUX
Imax=0.0033A

+3P3VSB
PR6524 0 RES_0201_12mil
+3P3V_MUX

+3P3V_PMI
Imax = 2mA

+3P3VSB
PWR_3P3 PR6546 0 RES_0201_12mil
+3P3V_PMI

+1P8V_DMIC
Imax=0.02A
Trace Width>20mil

+5V_AUDIO
DNP,PWR_1P8_DMIC PC6523 6.3V 1u CAP_0201_14mil
GND
DNP,PWR_1P8_DMIC PR6532 0 RES_0201_12mil
DMIC_1P8V_EN
DNP,PWR_1P8_DMIC PU6509 WLCSP4_1P8V_LDO BGA4_2x2_p8xp8xp5_p4mm
B2 A2 | VIN EN | VOUT GND | B1 A1
DMIC_1P8V_REG
DNP,PWR_1P8_DMIC PC6522 2.2u 6.3V CAP_0402_24mil
GND
DNP,PWR_1P8_DMIC PR6533 0.01 res_0402_22mil
PMTP6509 SP-tp-c0p381
PMTP6510 SP-tp-c0p381
+1P8V_DMIC

+3P3V_SSD
Imax=1.2A
Trace Width>50mil

+3P3V_REG
DB,PWR_3P3V PR6511 0.010 res_0603_30mil
PMTP6512 SP-tp-c0p381
PMTP6511 SP-tp-c0p381
+3P3V_SSD
MTP6511 SP_TP_SMDp58mm

+3P3V
Imax=0.41A
Trace Width>70mil

+3P3VSB
PC6511 1u 6.3V CAP_0201_14mil
GND
PU6502 TPS22920YZPR BGA8_2x4_P9X1P9xp5_p5mm
A2 B2 C2 D2 | VIN1 VIN2 VIN3 ON | VOUT1 VOUT2 VOUT3 GND | A1 B1 C1 D1
[36,47,56,61,62,64,65,75] SUSB_EC#
GND
PC6512 0.1u 6.3V cap_0201_14mil
GND
DB,PWR_3P3V PR6510 0.01 res_0402_22mil
PMTP6514 SP-tp-c0p381
PMTP6513 SP-tp-c0p381
+3P3V
MTP76102 SP_TP_SMDp58mm

+3P3V_WWAN
Imax=1.5A
Trace Width>60mil

+3P3VSB
PC6507 1u 6.3V CAP_0201_14mil
GND
PU6501 TPS22920YZPR BGA8_2x4_P9X1P9xp5_p5mm
A2 B2 C2 D2 | VIN1 VIN2 VIN3 ON | VOUT1 VOUT2 VOUT3 GND | A1 B1 C1 D1
+3P3V_WWAN_REG
GND
PC6508 0.1u 6.3V cap_0201_14mil
GND
DB,PWR_3P3_WWAN PR6514 0.010 res_0603_30mil
PMTP6518 SP-tp-c0p381
PMTP6517 SP-tp-c0p381
+3P3V_WWAN
MTP6517 SP_TP_SMDp58mm
[25] WWAN_PWREN
PR6503 0 RES_0201_12mil
+3P3V_WWAN_EN
DNP,PWR_3P3_WWAN PR6502 0 RES_0201_12mil
[36,47,56,61,62,64,65,75] SUSB_EC#

+3P3V_SENSOR
Imax=0.021175A
Trace Width>20mil

+3P3VSB
PC6509 1u 6.3V CAP_0201_14mil
GND
PU6506 NX3P1108UK bga4_2x2_p96xp96xp59_p5mm
A2 | VIN EN | VOUT GND | A1 B1
[31] SENSORS_PWR_EN
B2
DNP,PWR_3P3V_SENSOR PR6547 100K RES_0201_12mil
GND
+3P3V_SENSOR_REG
GND
PC6510 0.1u 6.3V cap_0201_14mil
GND
DB,PWR_3P3V_SENSOR PR6505 0.01 res_0402_22mil
PMTP6516 SP-tp-c0p381
PMTP6515 SP-tp-c0p381
+3P3V_SENSOR
MTP6515 SP_TP_SMDp58mm

EV1.9
WAS Rev 1.0
IS: Rev 2.1

U6612
ISL95857HRTZ-TS2722
QFN41_5X5P85_P4MM

MSPN = X933397-001

Place RT6606 close to PL6704
Place RT6605 close to Q6708
Place RT6602 close to L6805
Place RT6601 close to Q6811
Place RT6607 close to L6703
Place RT6904 close to Q6916
Place RT6903 close to PL6905

	SKL-U 2+2 (15W)	SKL-U 2+3e (15W)
Intel SPEC		
ICCMAX/TDC of Vcore	28A/21A	29A/21A
ICCMAX/TDC of VCCGT	31A/18A	57A/32A
ICCMAX/TDC of VCCSA	4.5A/3.7A	5.1A/4.5A
ICCMAX/TDC of VCCGTx	N/A	7A/4A
DC_LL of Vcore	2.35 mohm	2.1 mohm
DC_LL of VCCGT	3.1 mohm	2 mohm
DC_LL of VCCSA	10.3 mohm	10.3 mohm
DC_LL of VCCGTx	N/A	6.9 mohm
Change items		
Vcore	No need to changed	No need to changed
VCCGT	R6674 : 150kohm (ICCMAX) R6640 : 1.24kohm (60A OCP) R6644 : 3.09kohm (LL 3.1mohm)	R6674 : 165kohm (ICCMAX) R6640 : 1.69kohm (80A OCP) R6644 : 2.68kohm(LL 2mohm)
VCCSA	No need to changed	No need to changed
VCCGTx	Disable U6916	Enable U6916

	U22	U23E
R6674	150K	165K
R6696	90.9K	88.7K
R6644	3.92K	3.09K
C6624	680pF	390pF
R6640	1.24K	1.69K
R6602	150K	121K
R6618	118K	100K

9V to 12V

+VSYS

+VCORE_IN

DB,PWR_CORE
PR6712 0.010
res_0603_30mil

PMTP6702
SP-tp-c0p381

PMTP6701
SP-tp-c0p381

+5V

C6761
4.7u 10V
cap_0402_26mil

GND

U6713
ISL95808HRZ
dfn9_2x2x1_p5mm-2

VCC
FCCM
PWM
UGATE
PHASE
BOOT
LGATE
GND
MTG

[66] FCCM_A

[66] PWM_A

UGATE_VCORE

PHASE_VCORE

LGATE_VCORE

Q6710
BSZ065N03LS
mosfet8_3p3x3p3x1p1_p65mm

5-8
D
G
S
1-3

CAP_0201_14mil
PC6714
1000p 25V

cap_0603_36mil
PC6715
10u 10V

PCE6743 22u 25V
20
CAP_3P5X2P8X2P1MM

+VCC_CORE

Icc(max) <= 29A
TDC[A] <= 21A

PL6704 0.15UH, 20A
18A
ind_7p05x6p6x1p8_6p05mm

EV1.9 WAS:3.65K

R6750
1.1K
RES_0402_16mil

ISUMP_A [66]

R6751
0
RES_0402_16mil

[66] ISUMN_A

cap_3_7p3x4p3x1_6p1mm
C6762
220u 2V

cap_3_7p3x4p3x1_6p1mm
C6763
220u 2V

BOOT_VCORE

R6749 0
res_0603_24mil

PHASE_R_VCORE

C6760 0.22u 25V
cap_0603_36mil

Q6708
BSZ019N03LS
mosfet8_3p3x3p3x1p1_p65mm

+5V

C6765
4.7u 10V
cap_0402_26mil

GND

U6714
ISL95808HRZ
dfn9_2x2x1_p5mm-2

VCC
FCCM
PWM
UGATE
PHASE
BOOT
LGATE
GND
MTG

[66] FCCM_C

[66] PWM_C

UGATE_VCCSA

PHASE_VCCSA

LGATE_VCCSA

Q6706
BSZ0907ND
mosfet10_3x3xp9_p65mm

10
2
3
4
S1
D1
S1D2
S2
5
6
7
1
8
9

+VCCSA_IN

PC6716
1000p 25V
CAP_0201_14mil

PC6717
10u 10V
cap_0603_36mil

PC6718
10u 10V
cap_0603_36mil

DB,PWR_SA
PR6714 0.010
res_0603_30mil

PMTP6704
SP-tp-c0p381

PMTP6703
SP-tp-c0p381

+VSYS

+VCCSA

Icc(max) <= 5.1A
TDC[A] <= 4.5A

X905644-001
L6703 0.56uH
6.5A
ind_4x15x4x2_3p7mm

R6753
3.65K
res_0402_22mil

ISUMP_C [66]

R6754
0
RES_0402_16mil

[66] ISUMN_C

PC6766
47u 6.3V
cap_0805_36mil

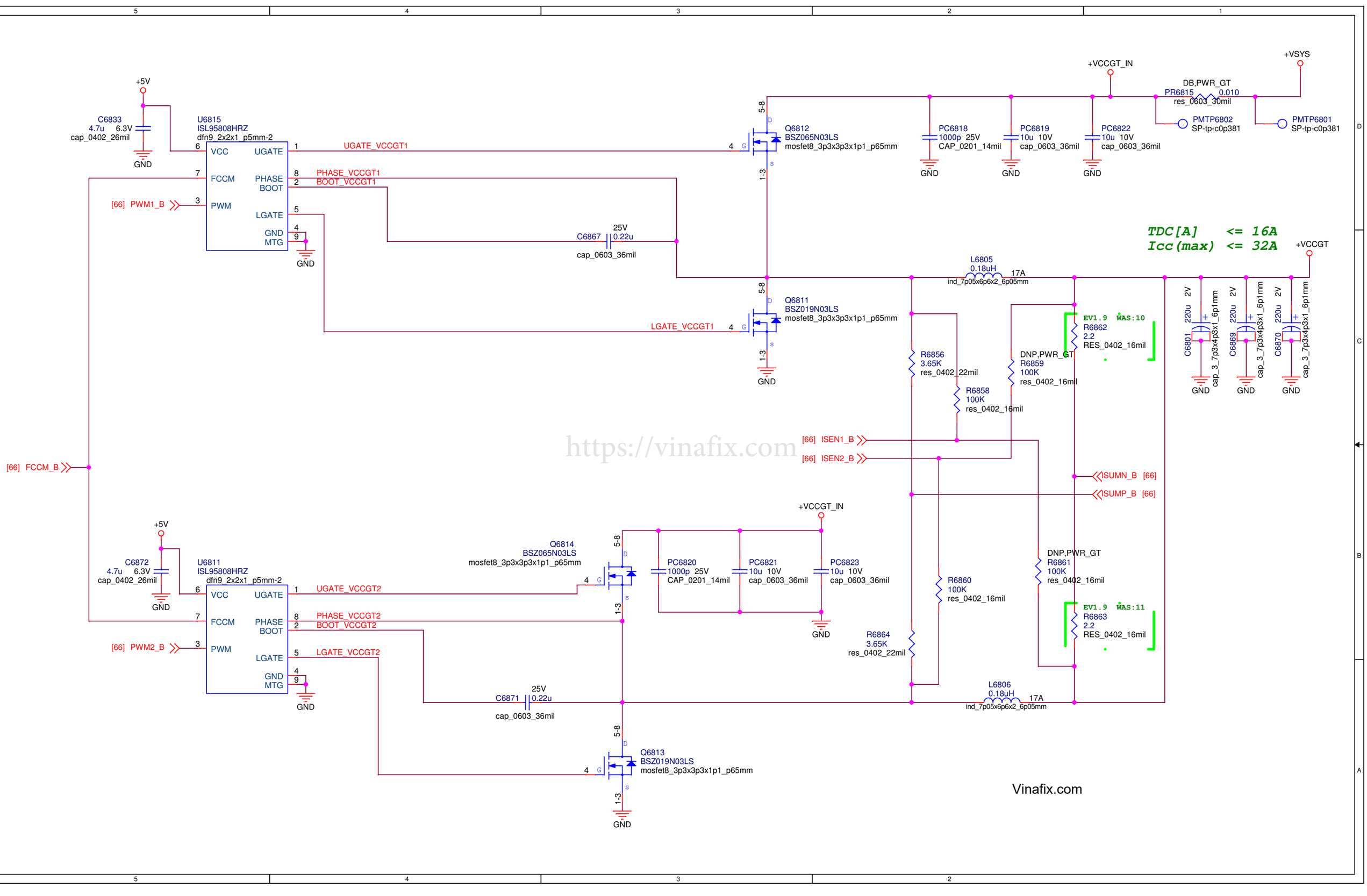
PC6719
47u 6.3V
cap_0805_36mil

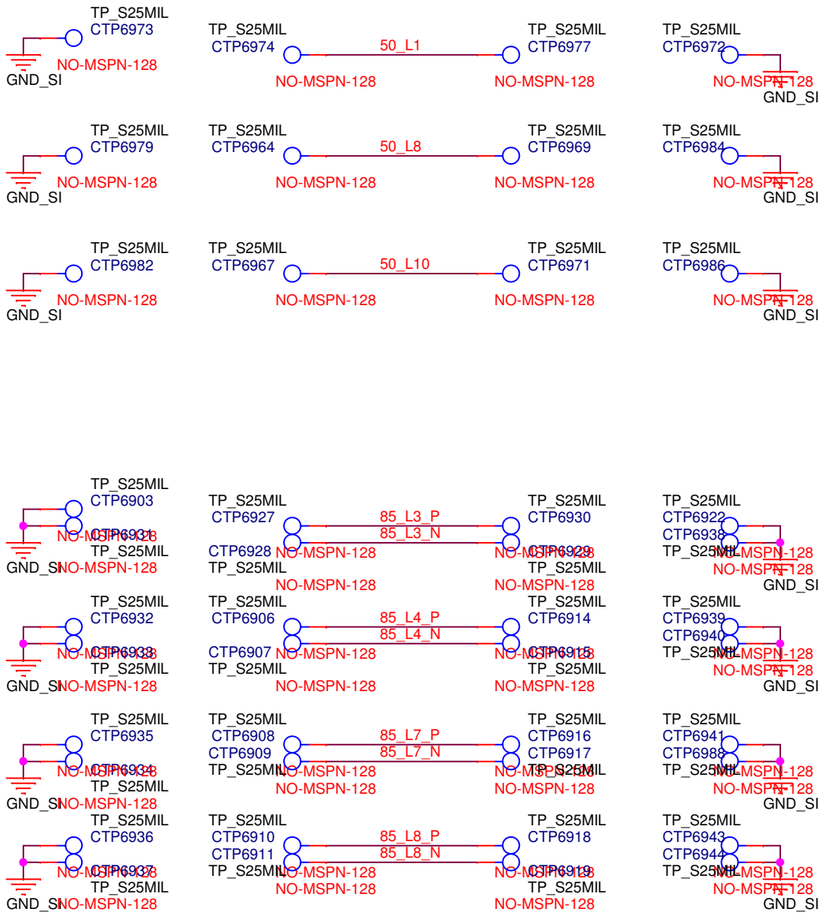
BOOT_VCCSA

R6752 0
res_0603_24mil

PHASE_R_VCCSA

C6764 0.22u 25V
cap_0603_36mil

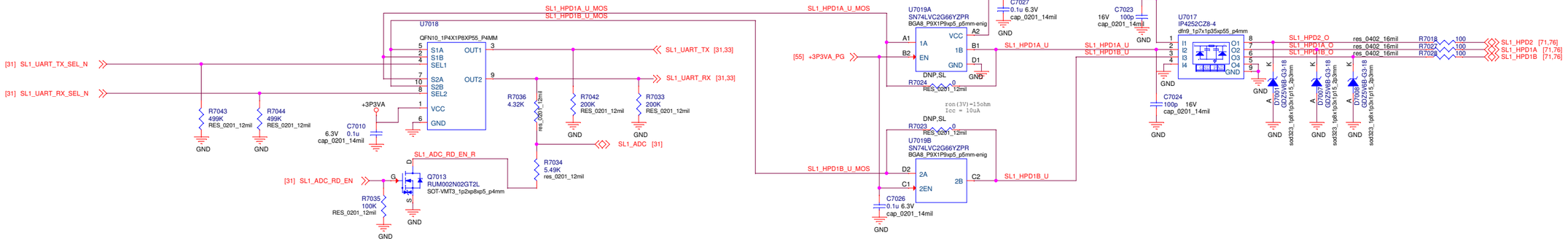

+5V
C6833
4.7u 6.3V
cap_0402_26mil
GND
U6815
ISL95808HRZ
dfn9_2x2x1_p5mm-2
VCC
FCCM
PWM
UGATE
PHASE
BOOT
LGATE
GND
MTG
[66] PWM1_B
[66] FCCM_B
UGATE_VCCGT1
PHASE_VCCGT1
BOOT_VCCGT1
LGATE_VCCGT1
C6867
25V
0.22u
cap_0603_36mil
Q6812
BSZ065N03LS
mosfet8_3p3x3p3x1p1_p65mm
Q6811
BSZ019N03LS
mosfet8_3p3x3p3x1p1_p65mm
+VCCGT_IN
PC6818
1000p 25V
CAP_0201_14mil
PC6819
10u 10V
cap_0603_36mil
PC6822
10u 10V
cap_0603_36mil
DB,PWR_GT
PR6815
0.010
res_0603_30mil
+VSYS
PMTP6802
SP-tp-c0p381
PMTP6801
SP-tp-c0p381
TDC[A] <= 16A
Icc(max) <= 32A
+VCCGT
L6805
0.18uH
17A
ind_7p05x6p6x2_6p05mm
R6856
3.65K
res_0402_22mil
R6858
100K
res_0402_16mil
DNP,PWR_GT
R6859
100K
res_0402_16mil
EV1.9 WAS:10
R6862
2.2
RES_0402_16mil
C6801
C6869
C6870
220u 2V
cap_3_7p3x4p3x1_6p1mm
[66] ISEN1_B
[66] ISEN2_B
ISUMN_B [66]
ISUMP_B [66]
+5V
C6872
4.7u 6.3V
cap_0402_26mil
U6811
ISL95808HRZ
dfn9_2x2x1_p5mm-2
[66] PWM2_B
UGATE_VCCGT2
PHASE_VCCGT2
BOOT_VCCGT2
LGATE_VCCGT2
Q6814
BSZ065N03LS
mosfet8_3p3x3p3x1p1_p65mm
Q6813
BSZ019N03LS
mosfet8_3p3x3p3x1p1_p65mm
+VCCGT_IN
PC6820
1000p 25V
CAP_0201_14mil
PC6821
10u 10V
cap_0603_36mil
PC6823
10u 10V
cap_0603_36mil
R6860
100K
res_0402_16mil
R6864
3.65K
res_0402_22mil
DNP,PWR_GT
R6861
100K
res_0402_16mil
EV1.9 WAS:11
R6863
2.2
RES_0402_16mil
C6871
25V
0.22u
cap_0603_36mil
L6806
0.18uH
17A
ind_7p05x6p6x2_6p05mm
https://vinafix.com
Vinafix.com



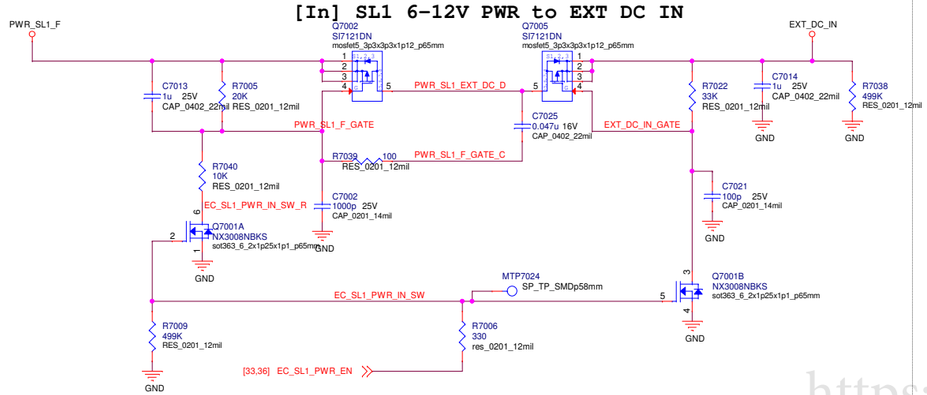
EV1.9 30mar
GND becomes GND_SI

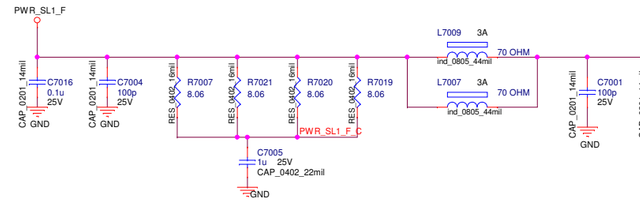
NOTE: WAS:tp_ss0635mm IS:TP_S25MIL

HPD FOR SL1 (ONE/TWO WIRE UART)

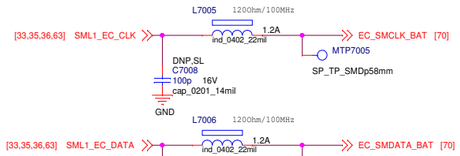


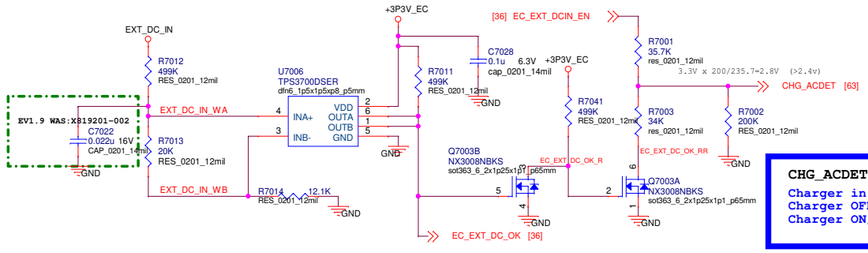
[In] SL1 6-12V PWR to EXT DC IN





Present State			Trigger	Output		
SL1_UART_TX	SL1_UART_RX	1W/2W Detect	Initial A/D read	SL1_UART_TX_SEL_N	SL1_UART_RX_SEL_N	SL Polarity
Low	Low	Detach	n/a	Low	Low	Detach
Low	High	1W	n/a	High	Low	Straight up
High	Low	1W	n/a	Low	High	Reversed
High	High	2W	Valid	Low	Low	Straight up
High	High	2W	Invalid	High	High	Reversed

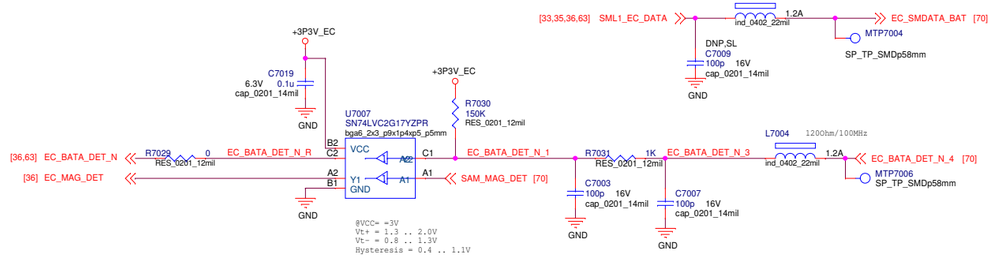


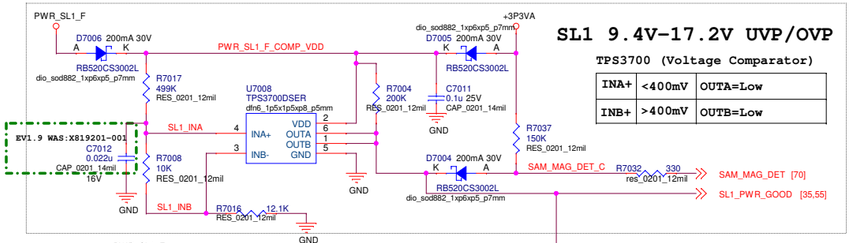


TPS3700 (Voltage Comparator)

INA+	<400mV	OUTA=Low
INB+	>400mV	OUTB=Low

CHG_ACDET	EC_EXT_DCIN_EN	EXT_DC_IN >9V
Charger in RESET	0	X
Charger OFF/ SMBUS EN	1	No
Charger ON/ SMBUS EN	1	YES

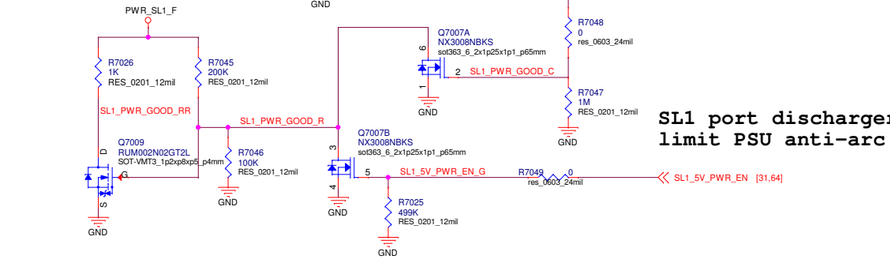




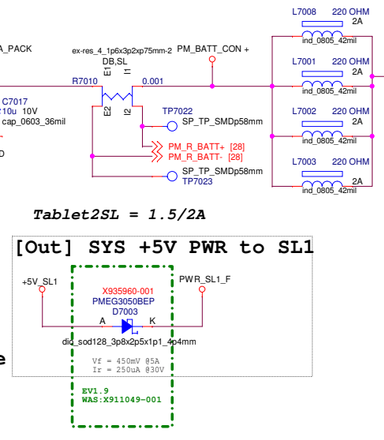
SL1 9.4V-17.2V UVP/OVP

TPS3700 (Voltage Comparator)

INA+	<400mV	OUTA=Low
INB+	>400mV	OUTB=Low



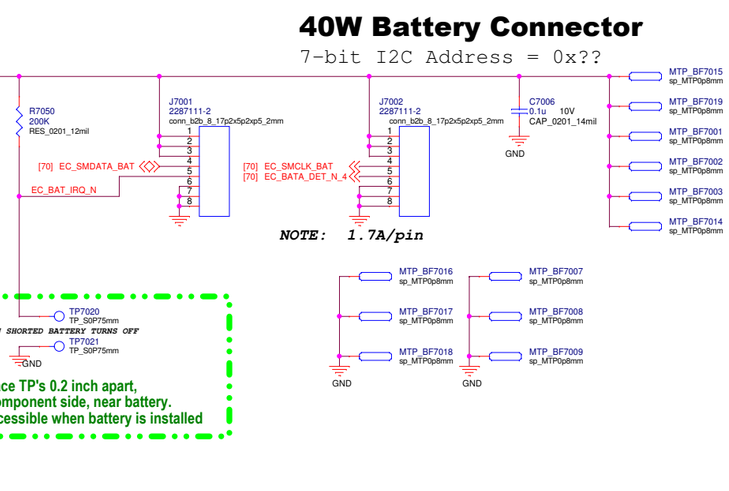
SL1 port discharger
limit PSU anti-arc pulse voltage



Tablet2SL = 1.5/2A

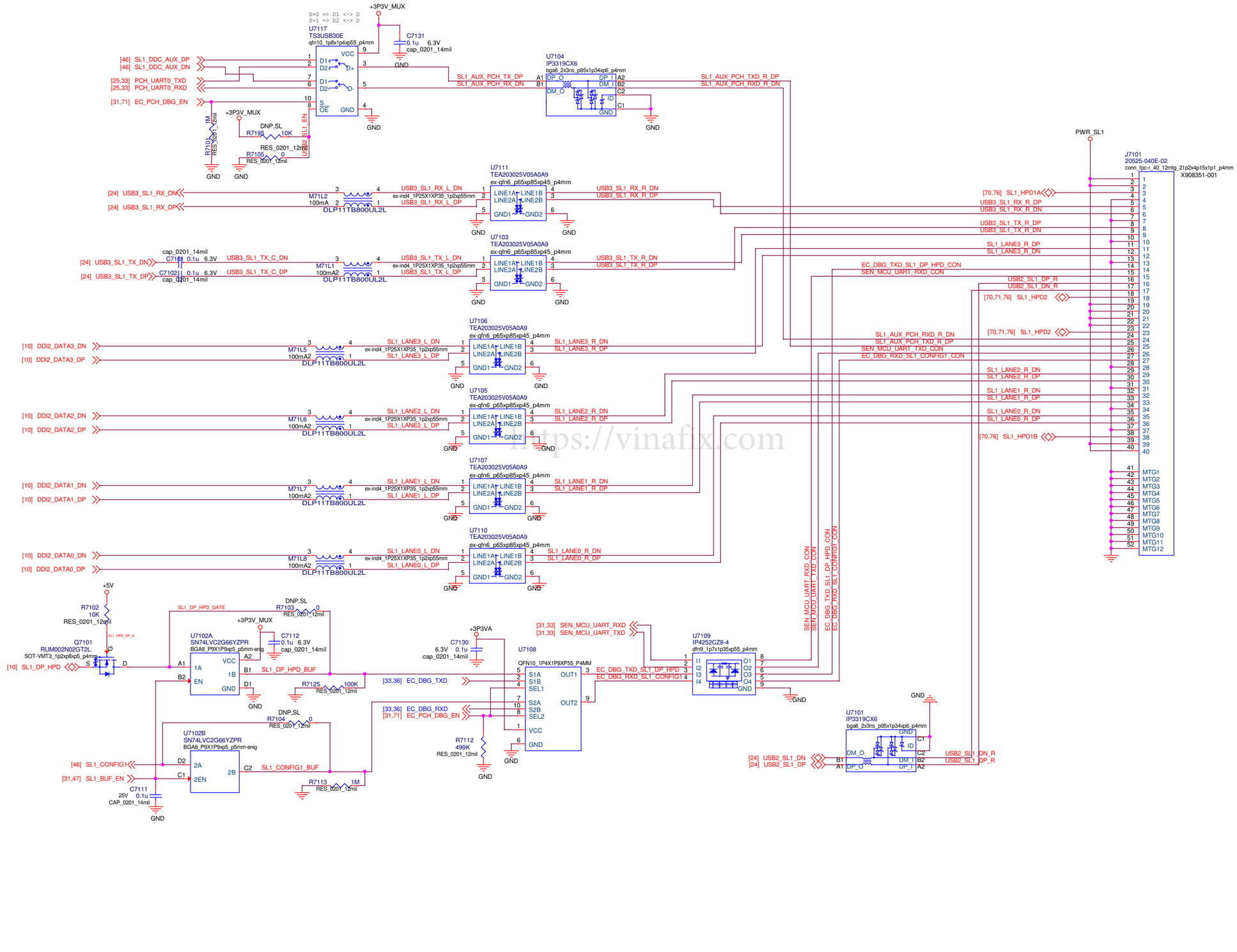
40W Battery Connector

7-bit I2C Address = 0x??



NOTE: 1.7A/pin

5jan14: Place TP's 0.2 inch apart,
Place on component side, near battery.
Must be accessible when battery is installed



+3P3VAS
R7201
499K
RES_0201_12mil
+3P3V_HDP_EN
[31] SL1_3P3V_DIS
R7206
499K
RES_0201_12mil
GND
Q7201
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm
GND
U7201
RT9728AHZQW
dfn7_2x2xp8_p65mm-2
+3P3V_HDP_EN
EN/EN#
FAULT#
VIN
ILIM
VOUT
GND1
GND2
+3P3V_HPD
Imax=75mA
+3P3V_HPD
MTP7283
SP_TP_SMDp58mm
+3P3VAS
DB,PWR_3P3V_HPD
R7202
0.01
res_0402_22mil
C7209
10u 6.3V
CAP_0402_28mil
GND
+3P3V_HPD_VIN
R7203
0
RES_0201_12mil
+3P3V_HPD_ILIMIT
DNP,PWR_3P3V_HPD
R7204
33K
RES_0201_12mil
GND
C7202
10u 6.3V
CAP_0402_28mil
GND
C7203
10u 6.3V
CAP_0402_28mil
GND
isolated ground on layer 2 to tie Cin GND, Cout GND, and controller PGND together. Then tie this isolated ground plane to main GND under the exposed pads.

+VCC_EDP_BKLT_IN_REG [28]
SP-tp-c0p381
PMTP7221
SP-tp-c0p381
PMTP7222
+VSYS
Q7203
IRLML6402
SOT23_2p9X1P3X1P12_P95MM
DB,PWR_BKLT
R7209
0.01
res_0402_22mil
R7213
100K
RES_0201_12mil
C7224
1000p 25V
CAP_0201_14mil
DNP,PWR_BKLT
C7225
0.1u 10V
CAP_0201_14mil
GND
BKLT_EDP_IN_DRI
R7212
200K
RES_0201_12mil
BKLT_EDP_IN_DRI_R
R7210
4.99K
RES_0201_12mil
R7211
4.99K
RES_0201_12mil
+VCC_EDP_BKLT_IN_DISC
Q7202B
SSM6N15AFU
SOT363_6_2x1p25X1_P65MM
+3P3V_PANEL
R7215
22K
RES_0201_12mil
R7214
100K
RES_0201_12mil
BKLT_EDP_IN_R
DNP,PWR_BKLT
C7253
0.1u 6.3V
cap_0201_14mil
Q7202A
SSM6N15AFU
SOT363_6_2x1p25X1_P65MM
GND
jks 15dec14:
EffCap (10u@8.7V) = 1.4uF
EffCap (22u@8.7V) = 3.6uF
Novatek: Cin = 4.7uF
+VCC_EDP_BKLT_IN
C7210
22u 10V
cap_0603_40mil
C7201
10u 10V
cap_0603_36mil
GND
+VCC_EDP_BKLT_IN
Imax=??A
TDC=??A
Novatek 15dec14: Ipeak(Vin=6V) = 1.144A
L7204
10uH
2.5A
ind_5p4x5p2x1p8mm
X911507-001
Rdc = 154mOhm
X913828-001
PMEG6030EVP
D7201
dio_sod128_3p8x2p5x1p1_4p4mm
BKLT_LX
+VCC_EDP_BKLT_OUT_R
jks 15dec14:
EffCap (10u@28V) = 1.5uF
EffCap (4.7u@28V) = 0.8uF
Novatek: Cout = 4.7uF
R7333
0
RES_0402_16mil
+VCC_EDP_BKLT_OUT
MTP7201
SP_TP_SMDp58mm
R7230
681K
res_0201_12mil
R7231
20K
RES_0201_12mil
C7206
10u 50V
cap_1206_72mil
C7207
10u 50V
cap_1206_72mil
DNP,PWR_BKLT
C7208
10u 50V
cap_1206_72mil
DNP,PWR_BKLT
EV1.9
was:INSTALL
R7207
10
res_0603_22mil
+VCC_BKLT
C7204
1u 10V
CAP_0402_22mil
EV1.9
WAS 0603
GND
EV1.9
WAS NNT50273QG/A
U7202
MP3388SGR
qfn25_4x4xp9_p5mm
VIN
EN
OSC
PWMI
ISET
PWMO
COMP
PGND2
PGND1
AGND1
AGND2
VCC
SW2
SW1
OVP
LED8
LED7
LED6
LED5
LED4
LED3
LED2
LED1
FPWM
VFAULT
[10] L_BKLTEN
R7208
1K
RES_0201_12mil
BKLT_EN
SP_TP_SMDp58mm
SP_TP_SMDp58mm
MTP7224
MTP7225
R7228
10K
RES_0201_12mil
BKLT_OSC
BKLT_PWM_R
[57] L_BKLT_CTRL_OUT
R7226
1K
RES_0201_12mil
R7227 X936061-001 90.9K
res_0201_12mil
BKLT_ISET
R7232 0.068u
cap_0201_14mil
BKLT_MIX
C7211
0.47u
cap_0201_14mil
BKLT_COMP_R
R7229 X933171-001 270
res_0201_12mil
BKLT_COMP
C7255
1u 10V
CAP_0402_22mil
GND
BKLT_OVS
BKLT_FB8_R
BKLT_FB7_R
BKLT_FB6_R
BKLT_FB5_R
BKLT_FB4_R
BKLT_FB3_R
BKLT_FB2_R
BKLT_FB8_1
RES_0201_12mil
R7218
R7219
R7220
R7221
R7222
R7223
R7224
R7225
0
BKLT_FB8 [57,72]
BKLT_FB7 [57,72]
BKLT_FB6 [57,72]
BKLT_FB5 [57,72]
BKLT_FB4 [57,72]
BKLT_FB3 [57,72]
BKLT_FB2 [57,72]
BKLT_FB1 [57,72]
BKLT_SC1
BKLT_NG2
PWR_BKLT
C7254
150p 50V
CAP_0402_22mil
EV1.9 install
DNP,PWR_BKLT
R7239
1K
RES_0201_12mil
GND
MTP7202
MTP7203
MTP7206
MTP7210
MTP7204
MTP7205
MTP7207
MTP7208
SP_TP_SMDp58mm
BKLT_FB1 [57,72]
BKLT_FB2 [57,72]
BKLT_FB3 [57,72]
BKLT_FB4 [57,72]
BKLT_FB5 [57,72]
BKLT_FB6 [57,72]
BKLT_FB7 [57,72]
BKLT_FB8 [57,72]

BLADE Connector

+5V_KB_CONN
Imax = 0.5A

SP_TP_SMDp58mm MTP7314
SP_TP_SMDp58mm MTP7315
SP_TP_SMDp58mm MTP7316
SP_TP_SMDp58mm MTP7317
[74] BLADE_TX_USB_D+
[74] BLADE_RX_USB_D-
[74] +5V_SHA_CONN_UART_RX_CONN
[74] BLADE_AUTH_DATA_UART_TX_CONN

J7302
2287111-2
conn_b2b_8_17p2x5p2xp5_2mm
X904496-001
1 2 3 4 5 6 7 8
GND

MTP_BF7305 sp_MTP0p8mm
MTP_BF7306 sp_MTP0p8mm
MTP_BF7313 sp_MTP0p8mm
MTP_BF7314 sp_MTP0p8mm
GND

MTP_BF7309 sp_MTP0p8mm
MTP_BF7310 sp_MTP0p8mm
MTP_BF7311 sp_MTP0p8mm
MTP_BF7312 sp_MTP0p8mm

FANG_PWR
D7301
A1 A2
V18MLA0402NR
dio_0402_24mil_aa
GND
R7301
100K
RES_0201_12mil
GND
C7301
0.1u 25V
CAP_0402_22mil
GND
L7301 220 OHM
2A
ind_0805_42mil
FANG_PWR_F

+5V_KB_CONN
L7304 120Ohm/100MHz
ind_0402_22mil
1.2A
+5V_KB
C7302
0.1u 6.3V
cap_0201_14mil
GND
A1 A2
D7302
V18MLA0402NR
dio_0402_24mil_aa
GND

SP_TP_SMDp58mm MTP7319
SP_TP_SMDp58mm MTP7318
GND

FANG_PWR
J7303
2287111-2
conn_b2b_8_17p2x5p2xp5_2mm
X904496-001
1 2 3 4 5 6 7 8
GND

eFang power = 3.5A max
using +1 rule

[In] BLADE 6-12V PWR to EXT DC IN

Imax=4.5A

EXT_DC_IN
Q7303
SI7121DN
mosfet5_3p3x3p3x1p12_p65mm
R7302
33K
RES_0201_12mil
EXT_DC_IN_FET_GATE
DNP,BLADE
C7310
1000p 25V
CAP_0201_14mil
GND
FANG_DRAIN_FET_PWR
Q7301
SI7121DN
mosfet5_3p3x3p3x1p12_p65mm
DNP,BLADE
C7303
25V 0.047u
CAP_0402_22mil
DNP,BLADE
R7318
100
RES_0201_12mil
FANG_PWR_F
EV1.9
WAS 0603
C7304
1u 25V
CAP_0402_22mil
FANG_PWR_FET_GATE
R7304
20K
RES_0201_12mil
DNP,BLADE
C7309 25V
1000p
CAP_0201_14mil
GND
R7310
10K
RES_0201_12mil
Q7302A
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm
GND
EC_BLADE_PWR_IN_SW
Q7302B
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm
MTP7301
SP_TP_SMDp58mm
R7308
499K
RES_0201_12mil
GND
R7303
330
RES_0402_16mil
[33,36] EC_BLADE_PWR_EN
GND

[31] BLADE_AUTH_PWR_EN
GND
R7311
1M
RES_0201_12mil

Rds(on)=120mOhm (typ)
Iq=170uA

+5VA_SHA
R7307
100K
RES_0201_12mil
SHA_OC#
SHA_VIN
SHA_ILIMIT

U7301
RT9728AHZQW
dfn7_2x2xp8_p65mm-2
EN/EN# VOUT
FAULT#
VIN GND1
ILIM GND2

+5V_SHA_CONN
+5V_SHA_CONN
Imax=75mA
C7305 0.1u 6.3V cap_0201_14mil
R7305 2.2K RES_0201_12mil
C7307 1u 6.3V CAP_0201_14mil
C7308 22p 25V CAP_0201_14mil
GND

+5VA_SHA
DB,BLADE
R7314 0.01
res_0402_22mil
PMTP7321
SP-tp-c0p381
PMTP7322
SP-tp-c0p381
BLADE
R7313 0
RES_0402_16mil
C7306
10u 6.3V
cap_0603_38mil
GND
EV1.9
CHG MSPN
DNP,BLADE
R7319
33K
RES_0201_12mil
GND

Imax = 1.4A
50mA <= ILIM(connected to VIN) <=100mA

+VSYS
L7313 30OHMS @100MHZ
1.7A
IND_0402_24mil
L7312 30OHMS @100MHZ
1.7A
IND_0402_24mil
FANG_PWR_IN
C7312
2.2u
CAP_0603_38mil
25V
GND
C7313
0.1u
CAP_0201_14mil
25V
GND

V(operating) = 4.5 to 13.8 Max

U7302
TPS2592ZADRCR
son11_3x3x1_p5mm
VIN3 VIN2 VIN1
OUT1 OUT2 OUT3
BFET
EN/UVLO dV/dT
ILIM GND_PAD

current = 3A
FANG_PWR_OUT
C7316
0.1u
CAP_0201_14mil
25V
GND
C7317
2.2u
CAP_0603_38mil
25V
GND

X935960-001
PMEG3050BEP
D7303
A K
dio_sod128_3p8x2p5x1p1_4p4mm
Vf = 450mV @5A
Ir = 250uA @30V
EV1.9
WAS:X911049-001

FANG_PWR_F
C7315
2.2u
CAP_0603_38mil
25V
GND

LTE eFANG PWR = 2.10A(min)
2.47A(nom)
2.84A(max)

[36] EC_BLADE_5VLDSW_EN
R7309 0
RES_0201_12mil
R7315
100K
RES_0201_12mil
GND
C7314
1000p
CAP_0201_14mil
25V 10%
GND
C7311
1000p
CAP_0201_14mil
25V 10%
GND
FANG_REG_ILIM
R7316 59K
RES_0201_12mil
GND
MTP7320
SP_TP_SMDp58mm

+5VA_SHA
10uA
R7411
499K
RES_0201_12mil
LEGACY_MODE
[74] USB_MODE
Q7401A
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm
GND
+5VA_SHA
10uA
R7409
499K
RES_0201_12mil
USB_MODE_R
Q7401B
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm
GND
One Wire UART from SAM (HPD_DET_SL2)
[31] BLADE_AUTH_DATA
C7412
22p 25V
CAP_0201_14mil
Icc(max)=500uA
+5VA_SHA
U7402A
SN74LVC2G66YZPR
BGA8_P9X1P9xp5_p5mm
VCC
1A
1B
EN
GND
A1
B2
A2
B1
D1
C7401
0.1u 6.3V
cap_0201_14mil
GND
+5V_SHA_CONN
C7413
0.1u 6.3V
cap_0201_14mil
GND
C1
D2
2EN
2A
2B
C2
BGA8_P9X1P9xp5_p5mm
SN74LVC2G66YZPR
U7402B
Icc(max)=500uA
+5VA_SHA
U7401A
SN74LVC2G66YZPR
BGA8_P9X1P9xp5_p5mm
C7410
0.1u 6.3V
cap_0201_14mil
GND
+5V_SHA_CONN_UART_RX
R7415 EV1.9 chg mspn
150K
RES_0201_12mil
GND
U7401B
SN74LVC2G66YZPR
BGA8_P9X1P9xp5_p5mm
R7403 DNP,BLADE0
RES_0402_16mil
OT_SHA_PWR_RX [33]
R7404 DNP,BLADE0
RES_0402_16mil
OT_SHA_DATA_TX [33]
[33] OT_RX_SEN_MCU_DEBUG
[33] OT_TX_SEN_MCU_DEBUG
DNP,BLADE
R7401
R7413
RES_0402_16mil
+3P3V_EC
C7414
1u 6.3V
CAP_0201_14mil
GND
U7406
SN74AVC2T245
QFN10_1p8x1p4xp55_p4mm
VCCB
VCCA
B1
B2
A1
A2
OE
DIR1
DIR2
GND
+1P8V_EC
C7409
0.1u 6.3V
cap_0201_14mil
GND
[31] BLADE_UART_RX
[31] BLADE_UART_TX
OT_RX_SEN_MCU_IN_R
OT_TX_SEN_MCU_OUT_R
R7408
0
RES_0201_12mil
GND
Icca=8uA
Iccb=8uA
R7402
71.5K
res_0402_16mil
GND
GND
+1P8V_EC
DNP,BLADE
R7405
10K
RES_0201_12mil
R7414
33
RES_0402_16mil
R7407
33
RES_0402_16mil
OT_RX_SEN_MCU_IN_TI
OT_TX_SEN_MCU_OUT_TI
BZX584C3V6
dio_sod523_1p2xp8xp65_1p1mm
D7402
D7401
GND
GND
DNP,BLADE
C7407
0.1u 25V
CAP_0402_22mil
C7408
C7411
C7416
GND
GND
1.2A
120Ohm/100MHz
ind_0402_22mil
L7401
L7402
BLADE_AUTH_DATA_UART_TX
C7402
25V 100p
CAP_0201_14mil
C7403
100p 25V
CAP_0201_14mil
GND
GND
U7405
IP4252CZ8-4
dfn9_1p7x1p35xp55_p4mm
I1
I2
I3
I4
O1
O2
O3
O4
GND
+5V_SHA_CONN_UART_RX_CONN [73]
BLADE_AUTH_DATA_UART_TX_CONN [73]
GND
[24] USB2_BLADE_DP
[24] USB2_BLADE_DN
L7403
TCFG03025H90002AA9
qfn6_p65xp85xp55_p4mm
MUXED_ACC_D+_L
MUXED_ACC_D-_L
GND
GND
GND
ACC plug
MUX
ACC Remove
No ACC
+5V_SHA_CONN
BLADE_AUTH_DATA
OT_TX
OT_RX
+5V_KB_CONN
RX
TX
D+
D-
CB=H :=> NO <-> COM
CP=L :=> NC <-> COM
+3P3VA
U7504
TS3USB30E
qfn10_1p8x1p4xp55_p4mm
VCC
D1+
D2+
D+
D1-
D2-
D-
S
OE
GND
C7415
0.1u
6.3V
cap_0201_14mil
GND
OT_TX_SEN_MCU_OUT_TI_F
OT_RX_SEN_MCU_IN_TI_F
[31] BLADE_UART_USB_N
R7410
0
USB_MODE
RES_0201_12mil
R7412
100K
RES_0201_12mil
GND
C7406
0.1u
6.3V
cap_0201_14mil
GND
BLADE_UART_MUX_EN
R7406
100K
RES_0201_12mil
GND
USB_MODE
[74]
U7404
IP4292CZ10-TBR
DIO_ARRAY_10_ESD_1X2P5XP55_P5MM
GND
BLADE_TX_USB_D+ [73]
BLADE_RX_USB_D- [73]
DNP,BLADE
C7404
50V 100p
CAP_0402_22mil
DNP,BLADE
C7405
100p 50V
CAP_0402_22mil
GND
GND

ALL_SYS_PWRGD [36,58,66]

+3P3V

PR7502
4.99K
RES_0201_12mil

+3P3VSB

+VCCST_CPU

U7502
74AUP1G07GX
sot1226_p8xp8xp35_p48mm

C7504
0.1u 6.3V
cap_0201_14mil

R7502
10K
RES_0201_12mil

VCCST_PWRGD [22]

PD7502
RB520CS3002L
dio_sod882_1xp6xp5_p7mm
30V 200mA

[36,61] ALL_SUS_PWRGD

PD7503
RB520CS3002L
dio_sod882_1xp6xp5_p7mm
30V 200mA

[60] +1P2V_DUAL_PWRGD

PD7504
RB520CS3002L
dio_sod882_1xp6xp5_p7mm
30V 200mA

[56] +VCCIO_PWRGD

Main power enable

[36,47,56,61,62,64,65] SUSB_EC#

+3P3V_EC

PR7508
100K
RES_0201_12mil

FORCE_OFF# [36,75]

To EC_RST#

PD7501
RB520CS3002L
dio_sod882_1xp6xp5_p7mm
200mA
30V

PR7503
665K
res_0201_12mil

ALL_SYS_PWRGD_R

PQ7501B
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm

PQ7501A
NX3008NBKS
sot363_6_2x1p25x1p1_p65mm

PC7501
0.1u 6.3V
cap_0201_14mil

PC7502
22u 6.3V
cap_0603_38mil

PU7501
SN74AUP1G08DRYR
sot886_1p45x1xp6_p5mm

[36,58,66] VRM_PWRGD

PR7507
0
RES_0201_12mil

VRM_PWRGD_R

ALL_SYS_PWRGD_DRI

EV1.9
CHG MSPN

+VCCST_CPU

PR7505
330
res_0201_12mil

H_THERMTRIP#_BASE

PC7503
0.1u 6.3V
cap_0201_14mil

DNP,PWR_PROT
R7501
0
RES_0201_12mil

PQ7505
RUM002N02GT2L
SOT-VMT3_1p2xp8xp5_p4mm

[10] H_THERMTRIP#

PQ7504
PMBT3904M
sot883b_3_1xp6xp4_p35mm

H_THERMTRIP#_SW

FORCE_OFF# [36,75]

To EC_RST#

X910413-001

[18,22,36,38,43] PLT_RST#_BUF

SFT1 SHIELD
MSPN = X933943-001
SHIELD, FRAME, T1, V1
PCB Footprint = shield-X933943-001

SFT2 SHIELD
MSPN = X933944-001
SHIELD, FRAME, T2, V1
PCB Footprint = shield-X933944-001

SFT3 SHIELD
MSPN = X933945-001
SHIELD, FRAME, T3, V1
PCB Footprint = shield-X933945-001

SFT4 SHIELD
MSPN = X933946-001
SHIELD, FRAME, T4, V1
PCB Footprint = shield-X933946-001

SFT5 SHIELD
MSPN = X933947-001
SHIELD, FRAME, T5, V1
PCB Footprint = shield-X933947-001

SFT6 SHIELD
MSPN = X933948-001
SHIELD, FRAME, T6, V1
PCB Footprint = shield-X933948-001

SFT7 SHIELD
MSPN = X933949-001
SHIELD, FRAME, T7, V1
PCB Footprint = shield-X933949-001

GND

SFT8 SHIELD
MSPN = X933950-001
SHIELD, FRAME, T8, V1
PCB Footprint = shield-X933950-001

SFT9 SHIELD
MSPN = X933951-001
SHIELD, FRAME, T9, V1
PCB Footprint = shield-X933951-001

SFT10 SHIELD
MSPN = X933952-001
SHIELD, FRAME, T10, V1
PCB Footprint = shield-X933952-001

SFT11 SHIELD
MSPN = X933953-001
SHIELD, FRAME, T11, V1
PCB Footprint = shield-X933953-001

SFT12 SHIELD
MSPN = X933954-001
SHIELD, FRAME, T12, V1
PCB Footprint = shield-X933954-001

GND

SFB1 DNP,MECH_SHIELD SHIELD
MSPN = X933968-001
SHIELD, FRAME, B1, V1
PCB Footprint = shield-X933968-001

SFB2 MECH_SHIELD SHIELD
MSPN = X933969-001
SHIELD, FRAME, B2, V1
PCB Footprint = shield-X933969-001

SFB3 DNP,MECH_SHIELD SHIELD
MSPN = X933970-001
SHIELD, FRAME, B3, V1
PCB Footprint = shield-X933970-001

SFB4 MECH_SHIELD SHIELD
MSPN = X933971-001
SHIELD, FRAME, B4, V1
PCB Footprint = shield-X933971-001

SFB5 DNP,MECH_SHIELD SHIELD
MSPN = X933972-001
SHIELD, FRAME, B5, V1
PCB Footprint = shield-X933972-001

SFB6 MECH_SHIELD SHIELD
MSPN = X933973-001
SHIELD, FRAME, B6, V1
PCB Footprint = shield-X933973-001

SFB7 DNP,MECH_SHIELD SHIELD
MSPN = X933974-001
SHIELD, FRAME, B7, V1
PCB Footprint = shield-X933974-001

GND

SFB8 DNP,MECH_SHIELD SHIELD
MSPN = X933975-001
SHIELD, FRAME, B8, V1
PCB Footprint = shield-X933975-001

SFB9 MECH_SHIELD SHIELD
MSPN = X933976-001
SHIELD, FRAME, B9, V1
PCB Footprint = shield-X933976-001

SFB10 MECH_SHIELD SHIELD
MSPN = X933976-001
SHIELD, FRAME, B9, V1
PCB Footprint = shield-X933976-001

GND

H7601
Value = X934367-001
washer-X934367-001
GND

H7602
Value = X934367-001
washer-X934367-001
GND

EV1.9 Add

J7601
25SMT-4442-01
gndfoam_3p6x1p7x1p6
GND

J7602
25SMT-4442-01
gndfoam_3p6x1p7x1p6
GND

J7603
25SMT-4442-01
gndfoam_3p6x1p7x1p6
GND

J7604
25SMT-4442-01
gndfoam_3p6x1p7x1p6
GND

EV1.9 Add

PWR_SL1
MTTP_BF7670 sp_MTP0p8mm
MTTP_BF7653 sp_MTP0p8mm
MTTP_BF7654 sp_MTP0p8mm
MTTP_BF7655 sp_MTP0p8mm
MTTP_BF76105 sp_MTP0p8mm
MTTP_BF76103 sp_MTP0p8mm

PWR_SL1
MTP_BF7670 sp_MTP0p8mm
MTP_BF7653 sp_MTP0p8mm
MTP_BF7654 sp_MTP0p8mm
MTP_BF7655 sp_MTP0p8mm
MTP_BF76105 sp_MTP0p8mm
MTP_BF76103 sp_MTP0p8mm

MTP_BF7656 sp_MTP0p8mm GND
MTP_BF7671 sp_MTP0p8mm GND
MTP_BF7672 sp_MTP0p8mm GND
MTP_BF7673 sp_MTP0p8mm GND
MTP_BF76104 sp_MTP0p8mm GND
MTP_BF76102 sp_MTP0p8mm GND

MTTP_BF7656 sp_MTP0p8mm GND
MTTP_BF7671 sp_MTP0p8mm GND
MTTP_BF7672 sp_MTP0p8mm GND
MTTP_BF7673 sp_MTP0p8mm GND
MTTP_BF76104 sp_MTP0p8mm GND
MTTP_BF76102 sp_MTP0p8mm GND

[36,55] VCCDSW_EN >> MTP7669 SP_TP_SMDp58mm

[70,71] SL1_HPD2 <> MTP76101 SP_TP_SMDp58mm
[70,71] SL1_HPD1B <> MTP7682 SP_TP_SMDp58mm
[70,71] SL1_HPD1A <> MTP7684 SP_TP_SMDp58mm

MP7605
Value = X935458-001
MSPN = X935458-001
PCB Footprint = sp-pem_nut-x935458-001-1
GND

EV1.9 was:X912411-001
gold plating option provided
for both top and bottom layers

EV1.9
remove fence
x930139-001

MP7601
Value = X934094-001
MSPN = X934094-001
SP-PEM_NUT-X934094-001_3p60x2p45d
GND

MP7602
Value = X934094-001
MSPN = X934094-001
SP-PEM_NUT-X934094-001_3p60x2p45d
GND

EV1.9 was X911169-001

MP7603
Value = X934094-001
MSPN = X934094-001
SP-PEM_NUT-X934094-001_3p60x2p45d
GND

MP7604
Value = X934094-001
MSPN = X934094-001
SP-PEM_NUT-X934094-001_3p60x2p45d
GND

+0P85VSB MTP7686 SP_TP_SMDp58mm
+VCCGT MTP7652 SP_TP_SMDp58mm
+VCCSA MTP7657 SP_TP_SMDp58mm
+VCCIO MTP7662 SP_TP_SMDp58mm
+VCCST_CPU MTP7661 SP_TP_SMDp58mm
+VCCSTG MTP7659 SP_TP_SMDp58mm
+VCCEDRAM MTP7658 SP_TP_SMDp58mm
+VCCEOPIO MTP7660 SP_TP_SMDp58mm
+1P2V_DUAL MTP7611 SP_TP_SMDp58mm
+V_VDDQ_VTT MTP7612 SP_TP_SMDp58mm
+VCC_CORE MTP7613 SP_TP_SMDp58mm
+VDDQ_VREF TP7614 SP_TP_SMDp58mm

PTH18 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH1 c1p35x0p75d mtg_pin_c1p35x0p75d
PTH2 c1p35x0p75d mtg_pin_c1p35x0p75d
PTH3 c1p35x0p75d mtg_pin_c1p35x0p75d
GND

EV1.9
remove PTH4-PTH9

PTH19
MSPN = NO-MSPN-119
MTG_pin_slot-3p00x3p50_2p50X3p00d
GND

EV1.9
remove PTH20
slot-3p00x3p50_2p50X3p0

EV1.9
remove PTH10
MH31x2.5d

PTH11 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH12 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH13 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH14 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH15 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH16 MH3.1x2.5d mtg_hole_3p10x2p50d
PTH17 MH3.1x2.5d mtg_hole_3p10x2p50d
GND