

CS16 T14 Logic Schematics

- 1.TITLE PAGE
- 2.EC HISTORY
- 3.CPU(1/16) : DDI/EDP
- 4.CPU(2/16) : DDR CHANNEL-A
- 5.CPU(3/16) : DDR CHANNEL-B
- 6.CPU(4/16) : MISC/JTAG
- 7.CPU(5/16) : LPC/SPI/SMBUS/C-LINK
- 8.CPU(6/16) : LPSS/ISH
- 9.CPU(7/16) : AUDIO/SDXC
- 10.CPU(8/16) : PCIE/USB/SATA
- 11.CPU(9/16) : CSI-2/EMMC
- 12.CPU(10/16) : CLOCK SIGNALS
- 13.CPU(11/16) : SYSTEM PM
- 14.CPU(12/16) : CPU POWER (1/2)
- 15.CPU(13/16) : CPU POWER (2/2)
- 16.CPU(14/16) : PCH POWER
- 17.CPU(15/16) : GND
- 18.CPU(16/16) : CFG/RESERVED
- 19.XDP CONNECTOR
- 20.RTC BATTERY
- 21.SPI FLASH
- 22.DDR4 SO DIMM CHANNEL-A (1/2)
- 23.DDR4 SO DIMM CHANNEL-A (2/2)
- 24.DDR4 SO DIMM CHANNEL-B (1/2)
- 25.DDR4 SO DIMM CHANNEL-B (2/2)
- 26.LCD/LID/MIC/CAMERA/PWR SW
- 27.ALPINE RIDGE (1/2)
- 28.ALPINE RIDGE (2/2)
- 29.USB-C/CONN
- 30.DDI DEMULTIPLEXER
- 31.HDMI CONNECTOR
- 32.STORAGE I/F REDRIVER
- 33.SATA EXPRESS CONNECTOR
- 34.USB POWER/CONN(1/2)
- 35.USB POWER/CONN(2/2)
- 36.GBE JACKSONVILLE
- 37.GBE LAN SWITCH
- 38.GBE MAGNETICS
- 39.RJ45 CONNECTOR
- 40.N16S-GTR (1/6) : PEG I/F
- 41.N16S-GTR (2/6) : DIGITAL OUT I/F
- 42.N16S-GTR (3/6) : VRAM I/F
- 43.N16S-GTR (4/6) : GPIO
- 44.N16S-GTR (5/6) : POWER
- 45.N16S-GTR (6/6) : GND
- 46.VRAM CHANNEL-A
- 47.MEMORY TERMINATION
- 48.M.2 SOCKET 1 MODULE I/F
- 49.M.2 SOCKET 2 MODULE I/F
- 50.MEDIA CARD CONTROLLER
- 51.MEDIA CARD INTERFACE
- 52.AUDIO ALC3268-CG
- 53.AUDIO CONNECTOR
- 54.AUDIO JACK SENSE
- 55.AUDIO EXT MIC I/F
- 56.AUDIO SPEAKER
- 57.AUDIO BEEP
- 58.DOCKING CONNECTOR
- 59.MEC1653(1/3)
- 60.MEC1653(2/3)
- 61.MEC1653(3/3)
- 62.KEYBOARD/TRACK POINT
- 63.TOUCH PAD/NFC/FPR/SCR
- 64.FAN CONNECTOR
- 65.APS G-SENSOR
- 66.DISCRETE TPM 2.0
- 67.SMBUS SWITCH/LPC DEBUG PORT
- 68.THINK ENGINE-2(1/2)
- 69.THINK ENGINE-2(2/2)
- 70.DC-IN
- 71.BLANK
- 72.BATTERY INPUT
- 73.BATTERY CHARGER(BQ24780S)
- 74.CHARGER SELECTOR
- 75.DC/DC VCC5M/VCC3M (TPS51285B)
- 76.DC/DC IMVP8 CONTROLLER(NCP81208)
- 77.DC/DC VCCCPUCORE(NCP81382)
- 78.DC/DC VCCGFXCORE_I(NCP81382)
- 79.DC/DC VCCSA(NCP81382)
- 80.BLANK
- 81.BLANK
- 82.DC/DC VCC1R0_SUS(BD91364BMUU)
- 83.LOAD SW VCCST & VCCSTG
- 84.DC/DC VCC1R2A(SN1409027)
- 85.DC/DC VCC0R6B(TPS51206)
- 86.DC/DC VCC2R5A(TLV62080)
- 87.DC/DC VCC1R8_SUS(BU90104GWZ)
- 88.DC/DC VCCPCHCORE(NB682)
- 89.BLANK
- 90.BLANK
- 91.DC/DC VCCGFXCORE_D (NCP81172)
- 92.DC/DC VCC1R35VIDEO (SN1409027)
- 93.LOAD SW PCH SUS
- 94.LOAD SW LAN
- 95.LOAD SW VIDEO
- 96.LOAD SW B
- 97.LOAD SW WWAN & WLAN
- 98.PTH FOR SCREW HOLES

Windu Block Diagram

Project Code: CT470

2015 Dec '16

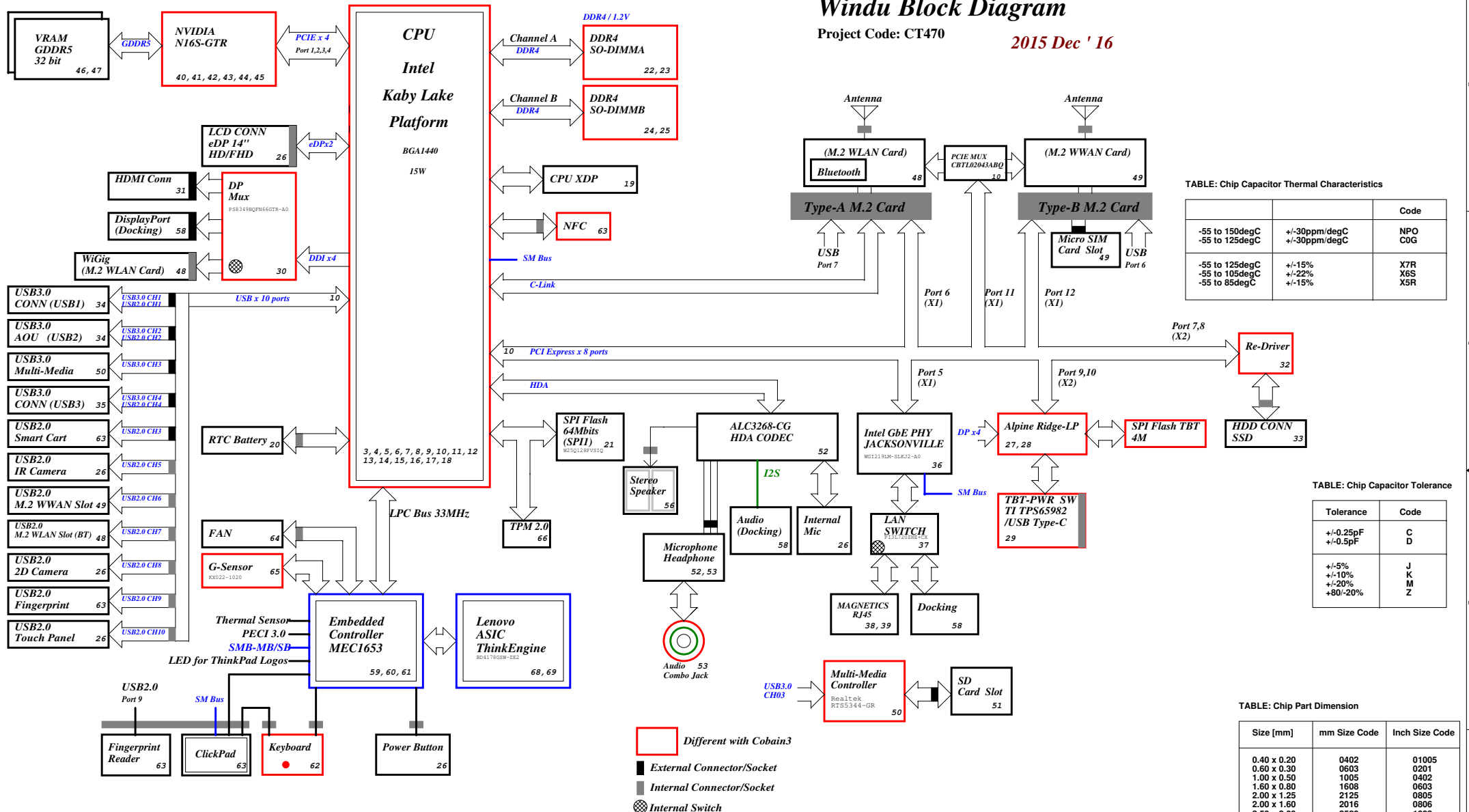


TABLE: Chip Capacitor Thermal Characteristics

| Temperature Range | Capacitance Change | Code |
|-------------------|--------------------|------|
| -55 to 150degC | +/-30ppm/degC | NPO |
| -55 to 125degC | +/-30ppm/degC | C0G |
| -55 to 125degC | +/-15% | X7R |
| -55 to 105degC | +/-22% | X6S |
| -55 to 85degC | +/-15% | X5R |

TABLE: Chip Capacitor Tolerance

| Tolerance | Code |
|-----------|------|
| +/-0.25pF | C |
| +/-0.5pF | D |
| +/-5% | J |
| +/-10% | K |
| +/-20% | M |
| +80/-20% | Z |

TABLE: Chip Part Dimension

| Size [mm] | mm Size Code | Inch Size Code |
|-------------|--------------|----------------|
| 0.40 x 0.20 | 0402 | 01005 |
| 0.50 x 0.30 | 0603 | 0201 |
| 1.00 x 0.50 | 1005 | 0402 |
| 1.60 x 0.80 | 1608 | 0603 |
| 2.00 x 1.25 | 2125 | 0805 |
| 2.00 x 1.60 | 2016 | 0806 |
| 2.50 x 2.00 | 2520 | 1008 |
| 3.20 x 1.60 | 3216 | 1206 |
| 3.20 x 2.50 | 3225 | 1210 |
| 4.50 x 1.60 | 4516 | 1806 |
| 4.50 x 2.50 | 4525 | 1810 |
| 4.50 x 3.20 | 4532 | 1812 |
| 5.00 x 2.50 | 5025 | 2010 |
| 6.40 x 3.20 | 6432 | 2512 |

EC SMBus0 address

| Device | Address |
|------------------|------------|
| G-Sensor (KX023) | 0011 110Xb |

PCH SM Bus address

| Device | Address |
|----------------------|------------|
| CH-A DDR DIMM0 (J53) | 1001 0000b |
| CH-B DDR DIMM1 (J43) | 1001 0001b |

PCH SM Bus0 address

| Device | Address |
|----------------|---------|
| Intel Lan_L219 | 0XC8 |

| Security Classification | LC Future Center Secret Data | | Title |
|--|------------------------------|-----------------|---------------|
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL INFORMATION. IT IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF LC FUTURE CENTER. | | | Block Diagram |
| Document Number | Windu-1 | | Rev 0.1 |
| Date | Wednesday, November 02, 2016 | | Page 2 of 98 |

www.vinafix.com

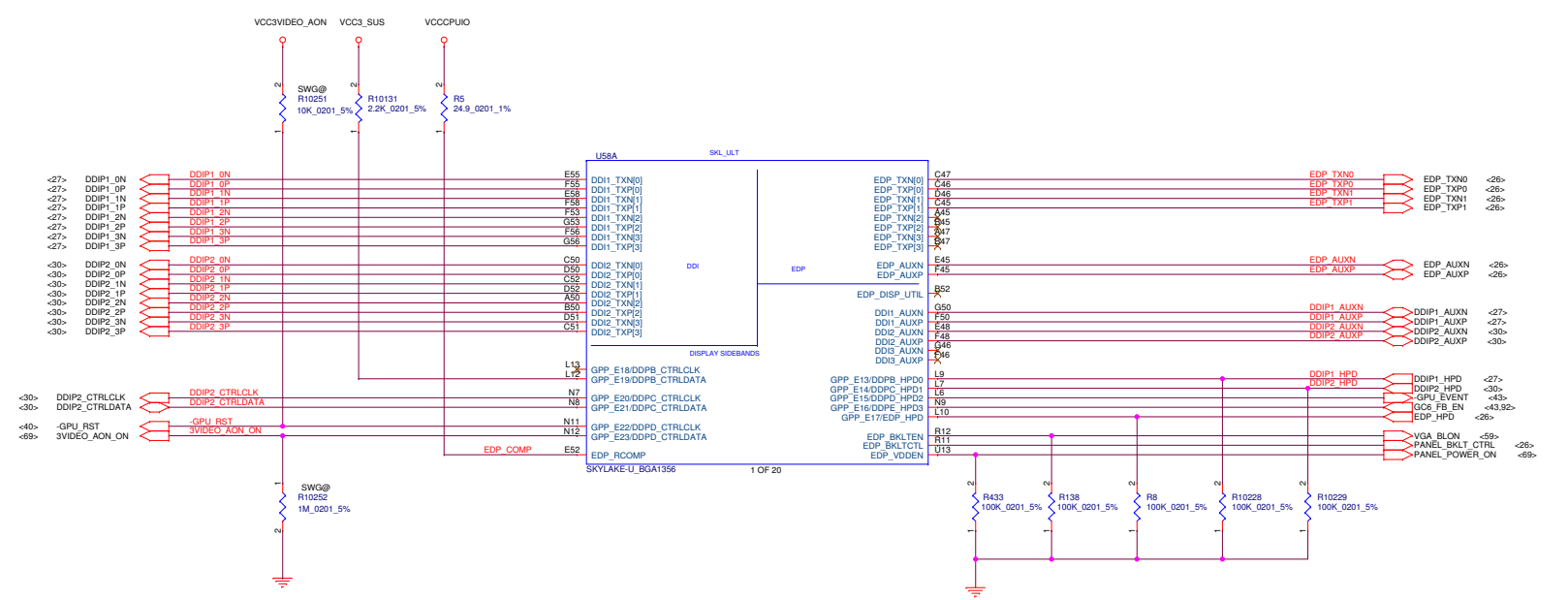
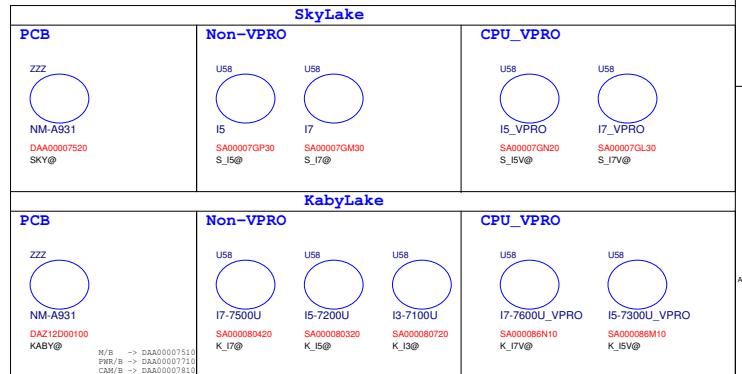
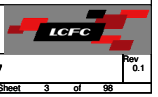


TABLE : Functional Strap

| | |
|----------------------|-------------------------|
| DDPB_CTRLDATA | |
| HIGH | Port B is detected. |
| LOW | Port B is not detected. |
| DDPC_CTRLDATA | |
| HIGH | Port C is detected. |
| LOW | Port C is not detected. |



| | | | |
|--|------------------------------|-----------------|--|
| Security Classification | LC Future Center Secret Data | | Title |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | CPU(1/16) : DDI/EDP Document Number: 044001 Date: Wednesday, November 02, 2016 Sheet 3 of 98 |



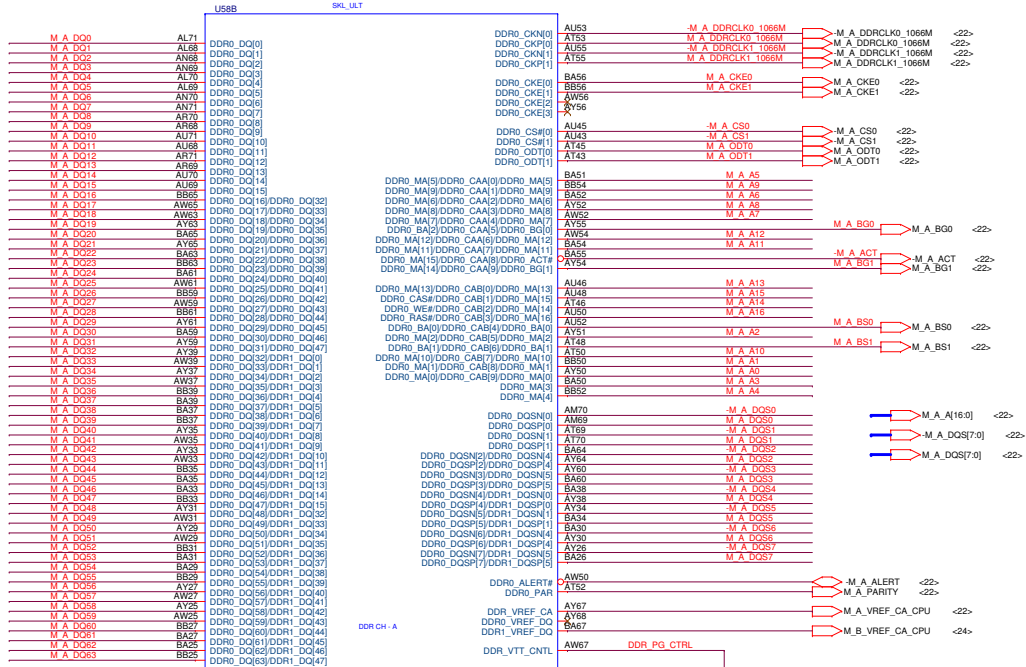
<22> M_A_DQ[63:0]

TABLE

| | Pin | Interleave | Non-Interleave | |
|---------|---------|-------------|----------------|-------------|
| Block 0 | AL71 | DDR0_DQ[0] | DDR0_DQ[0] | |
| | AL68 | DDR0_DQ[1] | DDR0_DQ[1] | |
| | AN68 | DDR0_DQ[2] | DDR0_DQ[2] | |
| | AN69 | DDR0_DQ[3] | DDR0_DQ[3] | |
| | AL70 | DDR0_DQ[4] | DDR0_DQ[4] | |
| | AL69 | DDR0_DQ[5] | DDR0_DQ[5] | |
| | AN70 | DDR0_DQ[6] | DDR0_DQ[6] | |
| | AN71 | DDR0_DQ[7] | DDR0_DQ[7] | |
| | AR70 | DDR0_DQ[8] | DDR0_DQ[8] | |
| | AR68 | DDR0_DQ[9] | DDR0_DQ[9] | |
| Block 2 | AU71 | DDR0_DQ[10] | DDR0_DQ[10] | |
| | AU68 | DDR0_DQ[11] | DDR0_DQ[11] | |
| | AR71 | DDR0_DQ[12] | DDR0_DQ[12] | |
| | AR69 | DDR0_DQ[13] | DDR0_DQ[13] | |
| | AU70 | DDR0_DQ[14] | DDR0_DQ[14] | |
| | AU69 | DDR0_DQ[15] | DDR0_DQ[15] | |
| | Block 4 | BB65 | DDR0_DQ[16] | DDR0_DQ[32] |
| | | AW65 | DDR0_DQ[17] | DDR0_DQ[33] |
| | | AW63 | DDR0_DQ[18] | DDR0_DQ[34] |
| | | AA63 | DDR0_DQ[19] | DDR0_DQ[35] |
| AA65 | | DDR0_DQ[20] | DDR0_DQ[36] | |
| AA65 | | DDR0_DQ[21] | DDR0_DQ[37] | |
| BA63 | | DDR0_DQ[22] | DDR0_DQ[38] | |
| BB63 | | DDR0_DQ[23] | DDR0_DQ[39] | |
| BA61 | | DDR0_DQ[24] | DDR0_DQ[40] | |
| AW61 | | DDR0_DQ[25] | DDR0_DQ[41] | |
| Block 6 | BB59 | DDR0_DQ[26] | DDR0_DQ[42] | |
| | AW59 | DDR0_DQ[27] | DDR0_DQ[43] | |
| | BB61 | DDR0_DQ[28] | DDR0_DQ[44] | |
| | AA61 | DDR0_DQ[29] | DDR0_DQ[45] | |
| | AA59 | DDR0_DQ[30] | DDR0_DQ[46] | |
| | AA59 | DDR0_DQ[31] | DDR0_DQ[47] | |
| | AY39 | DDR0_DQ[32] | DDR1_DQ[0] | |
| | AW39 | DDR0_DQ[33] | DDR1_DQ[1] | |
| | AY37 | DDR0_DQ[34] | DDR1_DQ[2] | |
| | AW37 | DDR0_DQ[35] | DDR1_DQ[3] | |
| Block 4 | BB39 | DDR0_DQ[36] | DDR1_DQ[4] | |
| | BA39 | DDR0_DQ[37] | DDR1_DQ[5] | |
| | BA37 | DDR0_DQ[38] | DDR1_DQ[6] | |
| | BB37 | DDR0_DQ[39] | DDR1_DQ[7] | |
| | AY35 | DDR0_DQ[40] | DDR1_DQ[8] | |
| | AW35 | DDR0_DQ[41] | DDR1_DQ[9] | |
| | AY33 | DDR0_DQ[42] | DDR1_DQ[10] | |
| | AW33 | DDR0_DQ[43] | DDR1_DQ[11] | |
| | BB35 | DDR0_DQ[44] | DDR1_DQ[12] | |
| | BA35 | DDR0_DQ[45] | DDR1_DQ[13] | |
| Block 6 | BA33 | DDR0_DQ[46] | DDR1_DQ[14] | |
| | BB33 | DDR0_DQ[47] | DDR1_DQ[15] | |
| | AY31 | DDR0_DQ[48] | DDR1_DQ[32] | |
| | AW31 | DDR0_DQ[49] | DDR1_DQ[33] | |
| | AY29 | DDR0_DQ[50] | DDR1_DQ[34] | |
| | AW29 | DDR0_DQ[51] | DDR1_DQ[35] | |
| | BB31 | DDR0_DQ[52] | DDR1_DQ[36] | |
| | BA31 | DDR0_DQ[53] | DDR1_DQ[37] | |
| | BA29 | DDR0_DQ[54] | DDR1_DQ[38] | |
| | BB29 | DDR0_DQ[55] | DDR1_DQ[39] | |
| Block 4 | AY27 | DDR0_DQ[56] | DDR1_DQ[40] | |
| | AW27 | DDR0_DQ[57] | DDR1_DQ[41] | |
| | AY25 | DDR0_DQ[58] | DDR1_DQ[42] | |
| | AW25 | DDR0_DQ[59] | DDR1_DQ[43] | |
| | BB27 | DDR0_DQ[60] | DDR1_DQ[44] | |
| | BA27 | DDR0_DQ[61] | DDR1_DQ[45] | |
| | BA25 | DDR0_DQ[62] | DDR1_DQ[46] | |
| | BB25 | DDR0_DQ[63] | DDR1_DQ[47] | |

LOGIC

LOGIC



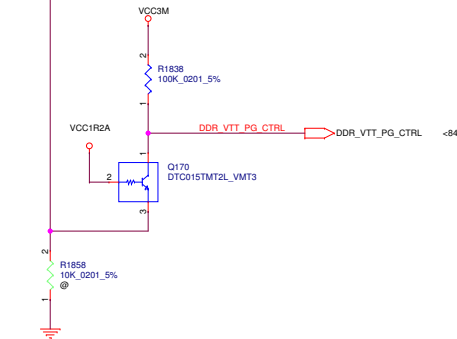
TABLE

| | Pin | Interleave | Non-Interleave |
|---------|------|--------------|----------------|
| Block 0 | AM70 | DDR0_DQSN[0] | DDR0_DQSN[0] |
| | AM69 | DDR0_DQSP[0] | DDR0_DQSP[0] |
| | AT69 | DDR0_DQSN[1] | DDR0_DQSN[1] |
| | AT70 | DDR0_DQSP[1] | DDR0_DQSP[1] |
| Block 2 | AA64 | DDR0_DQSN[2] | DDR0_DQSN[4] |
| | AA64 | DDR0_DQSP[2] | DDR0_DQSP[4] |
| | AY60 | DDR0_DQSN[3] | DDR0_DQSN[5] |
| | AA60 | DDR0_DQSP[3] | DDR0_DQSP[5] |
| Block 4 | BA38 | DDR0_DQSN[4] | DDR1_DQSN[0] |
| | AY38 | DDR0_DQSP[4] | DDR1_DQSP[0] |
| | AY34 | DDR0_DQSN[5] | DDR1_DQSN[1] |
| | BA34 | DDR0_DQSP[5] | DDR1_DQSP[1] |
| Block 6 | BA30 | DDR0_DQSN[6] | DDR1_DQSN[4] |
| | AY30 | DDR0_DQSP[6] | DDR1_DQSP[4] |
| | AY26 | DDR0_DQSN[7] | DDR1_DQSN[5] |
| | BA26 | DDR0_DQSP[7] | DDR1_DQSP[5] |

TABLE

| Pin | DDR3L | LPDDR3 | DDR4 |
|------|-------------|-------------|-------------|
| BA51 | DDR0_MA[5] | DDR0_CAA[0] | DDR0_MA[5] |
| BB54 | DDR0_MA[6] | DDR0_CAA[1] | DDR0_MA[6] |
| AY52 | DDR0_MA[8] | DDR0_CAA[2] | DDR0_MA[8] |
| AW52 | DDR0_MA[7] | DDR0_CAA[3] | DDR0_MA[7] |
| AY55 | DDR0_BA[2] | DDR0_CAA[5] | DDR0_BG[0] |
| AW54 | DDR0_MA[12] | DDR0_CAA[6] | DDR0_MA[12] |
| BA54 | DDR0_MA[11] | DDR0_CAA[7] | DDR0_MA[11] |
| BA55 | DDR0_MA[15] | DDR0_CAA[8] | DDR0_ACT# |
| AY54 | DDR0_MA[14] | DDR0_CAA[9] | DDR0_BG[1] |
| AU46 | DDR0_MA[13] | DDR0_CAB[0] | DDR0_MA[13] |
| AU48 | DDR0_CAS# | DDR0_CAB[1] | DDR0_MA[15] |
| AT46 | DDR0_WE# | DDR0_CAB[2] | DDR0_MA[14] |
| AU50 | DDR0_RAS# | DDR0_CAB[3] | DDR0_MA[16] |
| AU52 | DDR0_BA[0] | DDR0_CAB[4] | DDR0_BA[0] |
| AY51 | DDR0_MA[2] | DDR0_CAB[5] | DDR0_MA[2] |
| AT48 | DDR0_BA[1] | DDR0_CAB[6] | DDR0_BA[1] |
| AT50 | DDR0_MA[10] | DDR0_CAB[7] | DDR0_MA[10] |
| BB50 | DDR0_MA[11] | DDR0_CAB[8] | DDR0_MA[11] |
| AY50 | DDR0_MA[0] | DDR0_CAB[9] | DDR0_MA[0] |
| BA50 | DDR0_MA[3] | Not Used | DDR0_MA[3] |
| BB52 | DDR0_MA[4] | Not Used | DDR0_MA[4] |

LOGIC

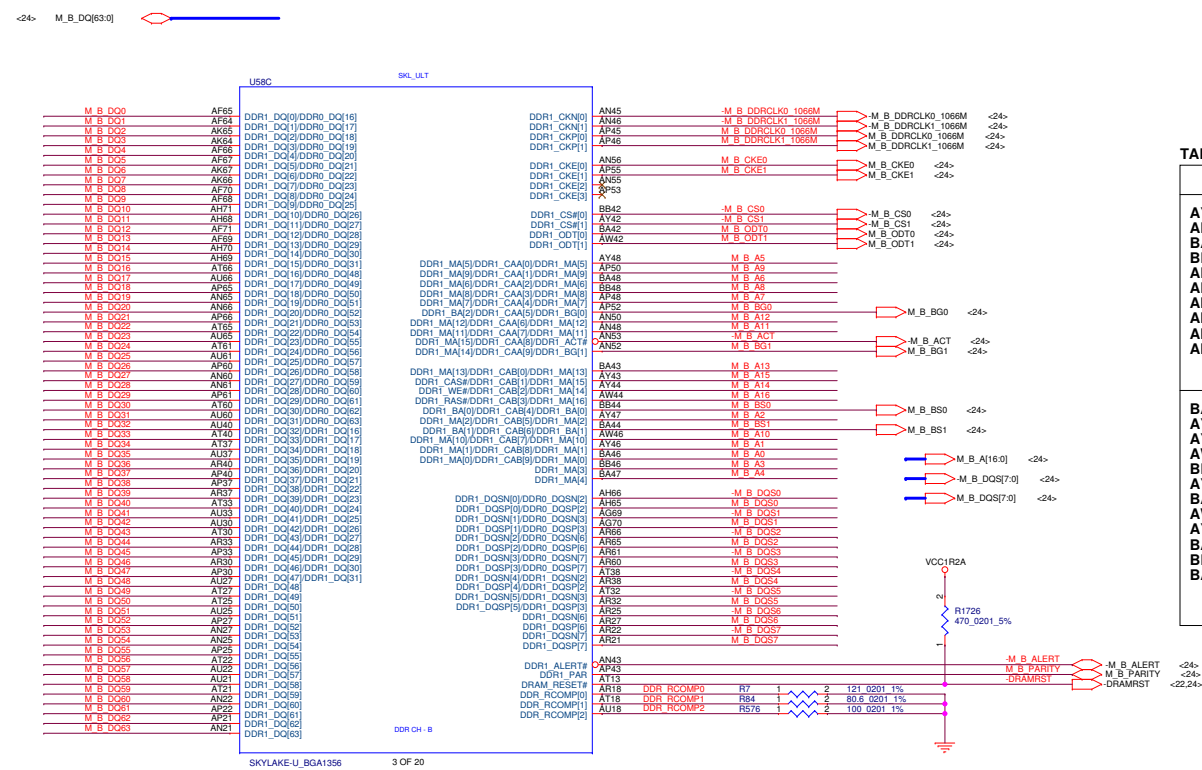


TABLE

| | Pin | Interleave | Non-Interleave |
|---------|-------------|-------------|----------------|
| Block 1 | AF65 | DDR1_DQ[0] | DDR0_DQ[16] |
| | AF64 | DDR1_DQ[1] | DDR0_DQ[17] |
| | AK65 | DDR1_DQ[2] | DDR0_DQ[18] |
| | AK64 | DDR1_DQ[3] | DDR0_DQ[19] |
| | AF66 | DDR1_DQ[4] | DDR0_DQ[20] |
| | AF67 | DDR1_DQ[5] | DDR0_DQ[21] |
| | AK67 | DDR1_DQ[6] | DDR0_DQ[22] |
| | AK66 | DDR1_DQ[7] | DDR0_DQ[23] |
| | AF70 | DDR1_DQ[8] | DDR0_DQ[24] |
| | AF68 | DDR1_DQ[9] | DDR0_DQ[25] |
| | AH71 | DDR1_DQ[10] | DDR0_DQ[26] |
| | AH68 | DDR1_DQ[11] | DDR0_DQ[27] |
| | AF71 | DDR1_DQ[12] | DDR0_DQ[28] |
| | AF69 | DDR1_DQ[13] | DDR0_DQ[29] |
| | AH70 | DDR1_DQ[14] | DDR0_DQ[30] |
| AH69 | DDR1_DQ[15] | DDR0_DQ[31] | |
| Block 3 | AT66 | DDR1_DQ[16] | DDR0_DQ[48] |
| | AU66 | DDR1_DQ[17] | DDR0_DQ[49] |
| | AP65 | DDR1_DQ[18] | DDR0_DQ[50] |
| | AN65 | DDR1_DQ[19] | DDR0_DQ[51] |
| | AN66 | DDR1_DQ[20] | DDR0_DQ[52] |
| | AP66 | DDR1_DQ[21] | DDR0_DQ[53] |
| | AT65 | DDR1_DQ[22] | DDR0_DQ[54] |
| | AU65 | DDR1_DQ[23] | DDR0_DQ[55] |
| | AT61 | DDR1_DQ[24] | DDR0_DQ[56] |
| | AU61 | DDR1_DQ[25] | DDR0_DQ[57] |
| | AP60 | DDR1_DQ[26] | DDR0_DQ[58] |
| | AN60 | DDR1_DQ[27] | DDR0_DQ[59] |
| | AN61 | DDR1_DQ[28] | DDR0_DQ[60] |
| | AP61 | DDR1_DQ[29] | DDR0_DQ[61] |
| | AT60 | DDR1_DQ[30] | DDR0_DQ[62] |
| AU60 | DDR1_DQ[31] | DDR0_DQ[63] | |
| Block 5 | AU40 | DDR1_DQ[32] | DDR1_DQ[16] |
| | AT40 | DDR1_DQ[33] | DDR1_DQ[17] |
| | AT37 | DDR1_DQ[34] | DDR1_DQ[18] |
| | AU37 | DDR1_DQ[35] | DDR1_DQ[19] |
| | AR40 | DDR1_DQ[36] | DDR1_DQ[20] |
| | AP40 | DDR1_DQ[37] | DDR1_DQ[21] |
| | AP37 | DDR1_DQ[38] | DDR1_DQ[22] |
| | AR37 | DDR1_DQ[39] | DDR1_DQ[23] |
| | AT33 | DDR1_DQ[40] | DDR1_DQ[24] |
| | AU33 | DDR1_DQ[41] | DDR1_DQ[25] |
| | AU30 | DDR1_DQ[42] | DDR1_DQ[26] |
| | AT30 | DDR1_DQ[43] | DDR1_DQ[27] |
| | AR33 | DDR1_DQ[44] | DDR1_DQ[28] |
| | AP33 | DDR1_DQ[45] | DDR1_DQ[29] |
| | AR30 | DDR1_DQ[46] | DDR1_DQ[30] |
| AP30 | DDR1_DQ[47] | DDR1_DQ[31] | |
| Block 7 | AU27 | DDR1_DQ[48] | DDR1_DQ[48] |
| | AT27 | DDR1_DQ[49] | DDR1_DQ[49] |
| | AT25 | DDR1_DQ[50] | DDR1_DQ[50] |
| | AU25 | DDR1_DQ[51] | DDR1_DQ[51] |
| | AP27 | DDR1_DQ[52] | DDR1_DQ[52] |
| | AN27 | DDR1_DQ[53] | DDR1_DQ[53] |
| | AN25 | DDR1_DQ[54] | DDR1_DQ[54] |
| | AP25 | DDR1_DQ[55] | DDR1_DQ[55] |
| | AT22 | DDR1_DQ[56] | DDR1_DQ[56] |
| | AU22 | DDR1_DQ[57] | DDR1_DQ[57] |
| | AU21 | DDR1_DQ[58] | DDR1_DQ[58] |
| | AT21 | DDR1_DQ[59] | DDR1_DQ[59] |
| | AN22 | DDR1_DQ[60] | DDR1_DQ[60] |
| | AP22 | DDR1_DQ[61] | DDR1_DQ[61] |
| | AP21 | DDR1_DQ[62] | DDR1_DQ[62] |
| AN21 | DDR1_DQ[63] | DDR1_DQ[63] | |

LOGIC

LOGIC



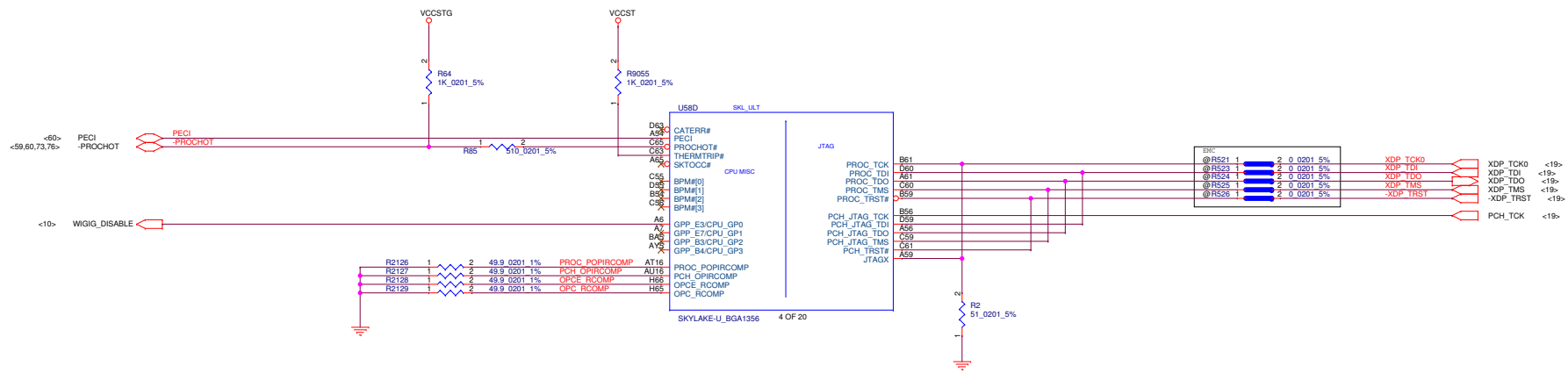
TABLE

| | Pin | Interleave | Non-Interleave |
|---------|------|--------------|----------------|
| Block 1 | AH66 | DDR1_DQSN[0] | DDR0_DQSN[2] |
| | AH65 | DDR1_DQSP[0] | DDR0_DQSP[2] |
| | AG69 | DDR1_DQSN[1] | DDR0_DQSN[3] |
| | AG70 | DDR1_DQSP[1] | DDR0_DQSP[3] |
| Block 3 | AR66 | DDR1_DQSN[2] | DDR0_DQSN[6] |
| | AR65 | DDR1_DQSP[2] | DDR0_DQSP[6] |
| | AR61 | DDR1_DQSN[3] | DDR0_DQSN[7] |
| | AR60 | DDR1_DQSP[3] | DDR0_DQSP[7] |
| Block 5 | AT38 | DDR1_DQSN[4] | DDR1_DQSN[2] |
| | AR38 | DDR1_DQSP[4] | DDR1_DQSP[2] |
| | AT32 | DDR1_DQSN[5] | DDR1_DQSN[3] |
| | AR32 | DDR1_DQSP[5] | DDR1_DQSP[3] |
| Block 7 | AR25 | DDR1_DQSN[6] | DDR1_DQSN[6] |
| | AR27 | DDR1_DQSP[6] | DDR1_DQSP[6] |
| | AR21 | DDR1_DQSN[7] | DDR1_DQSN[7] |
| | AR21 | DDR1_DQSP[7] | DDR1_DQSP[7] |

TABLE

| Pin | DDR3L | LPDDR3 | DDR4 |
|------|-------------|-------------|-------------|
| AY48 | DDR1_MA[5] | DDR1_CAA[0] | DDR1_MA[5] |
| AP50 | DDR1_MA[9] | DDR1_CAA[1] | DDR1_MA[9] |
| BA48 | DDR1_MA[6] | DDR1_CAA[2] | DDR1_MA[6] |
| BB48 | DDR1_MA[8] | DDR1_CAA[3] | DDR1_MA[8] |
| AP48 | DDR1_MA[7] | DDR1_CAA[4] | DDR1_MA[7] |
| AP52 | DDR1_BA[2] | DDR1_CAA[5] | DDR1_BG[0] |
| AN50 | DDR1_MA[12] | DDR1_CAA[6] | DDR1_MA[12] |
| AN48 | DDR1_MA[11] | DDR1_CAA[7] | DDR1_MA[11] |
| AN53 | DDR1_MA[15] | DDR1_CAA[8] | DDR1_ACT# |
| AN52 | DDR1_MA[14] | DDR1_CAA[9] | DDR1_BG[1] |
| BA43 | DDR1_MA[13] | DDR1_CAB[0] | DDR1_MA[13] |
| AY43 | DDR1_CAS# | DDR1_CAB[1] | DDR1_MA[15] |
| AY44 | DDR1_WE# | DDR1_CAB[2] | DDR1_MA[14] |
| AW44 | DDR1_RAS# | DDR1_CAB[3] | DDR1_MA[16] |
| BB44 | DDR1_BA[0] | DDR1_CAB[4] | DDR1_BA[0] |
| AY47 | DDR1_MA[2] | DDR1_CAB[5] | DDR1_MA[2] |
| BA44 | DDR1_BA[1] | DDR1_CAB[6] | DDR1_BA[1] |
| AW46 | DDR1_MA[10] | DDR1_CAB[7] | DDR1_MA[10] |
| AY46 | DDR1_MA[1] | DDR1_CAB[8] | DDR1_MA[1] |
| BA46 | DDR1_MA[0] | DDR1_CAB[9] | DDR1_MA[0] |
| BB46 | DDR1_MA[3] | Not Used | DDR1_MA[3] |
| BA47 | DDR1_MA[4] | Not Used | DDR1_MA[4] |

LOGIC



| | | | |
|--|------------------------------|-----------------|---|
| Security Classification | LC Future Center Secret Data | | Title |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | CPU(4/16) : MISC/JTAG Document Number: C Date: Wednesday, November 02, 2016 Sheet 6 of 98 |



Rev 0.1

TABLE : Functional Strap

| SPI0_MOSI (Boot Halt) | |
|-----------------------|--------------------|
| HIGH | Disabled (Default) |
| LOW | Enabled |

TABLE : Functional Strap

| SPI0_MISO (JTAG ODT Disable) | |
|------------------------------|-------------------|
| HIGH | Enabled (Default) |
| LOW | Disabled |

TABLE : Functional Strap

| GPP_C5/SML0ALERT # (LPC or eSPI) | |
|----------------------------------|---------------------------|
| HIGH | eSPI is selected |
| LOW | LPC is selected (Default) |

← LOGIC

TABLE : Functional Strap

| GPP_C2/SMBALERT# (TLS Confidentiality) | |
|--|---|
| HIGH | Enable ME Crypto TLS with Confidentiality |
| LOW | Disable ME Crypto TLS (Default) |

← LOGIC

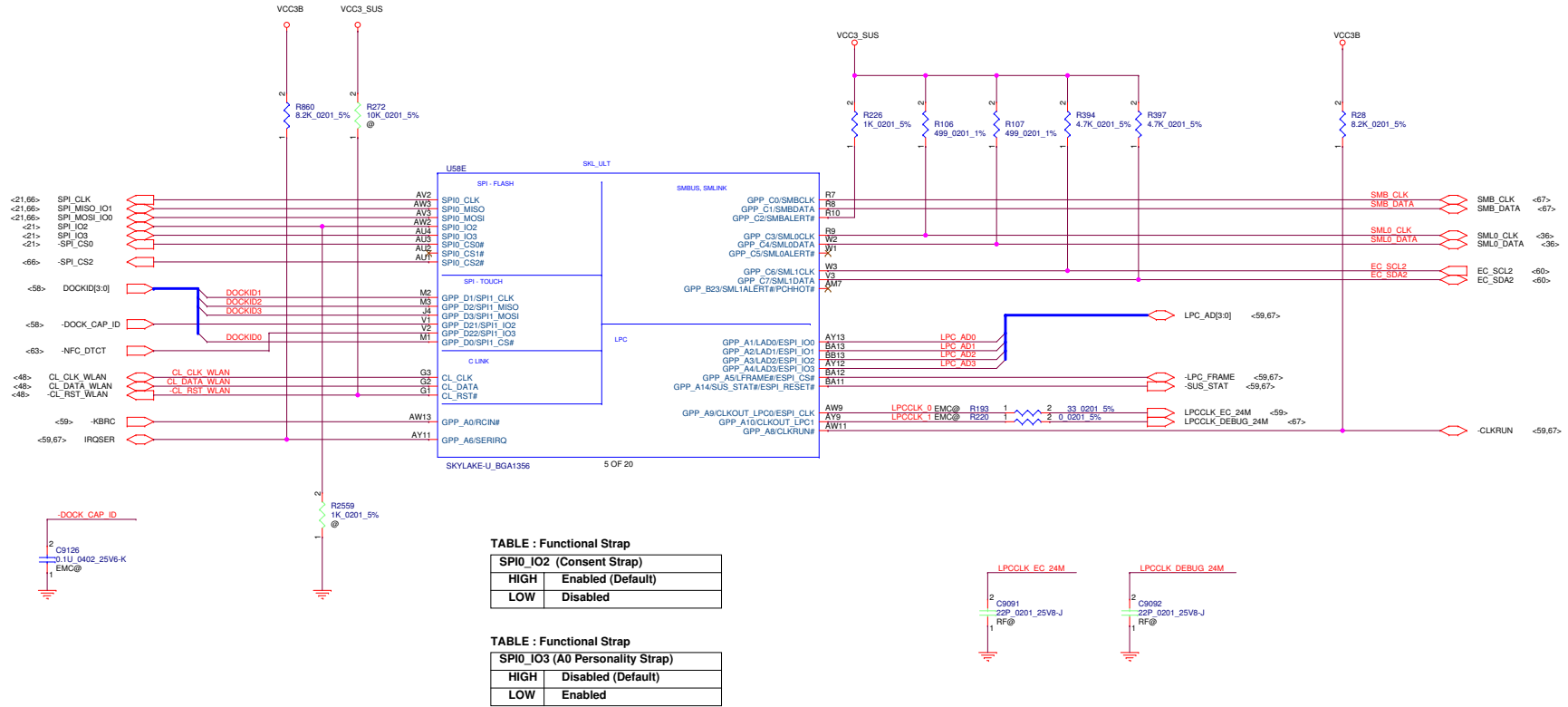


TABLE : Functional Strap

| SPI0_IO2 (Consent Strap) | |
|--------------------------|-------------------|
| HIGH | Enabled (Default) |
| LOW | Disabled |

TABLE : Functional Strap

| SPI0_IO3 (A0 Personality Strap) | |
|---------------------------------|--------------------|
| HIGH | Disabled (Default) |
| LOW | Enabled |

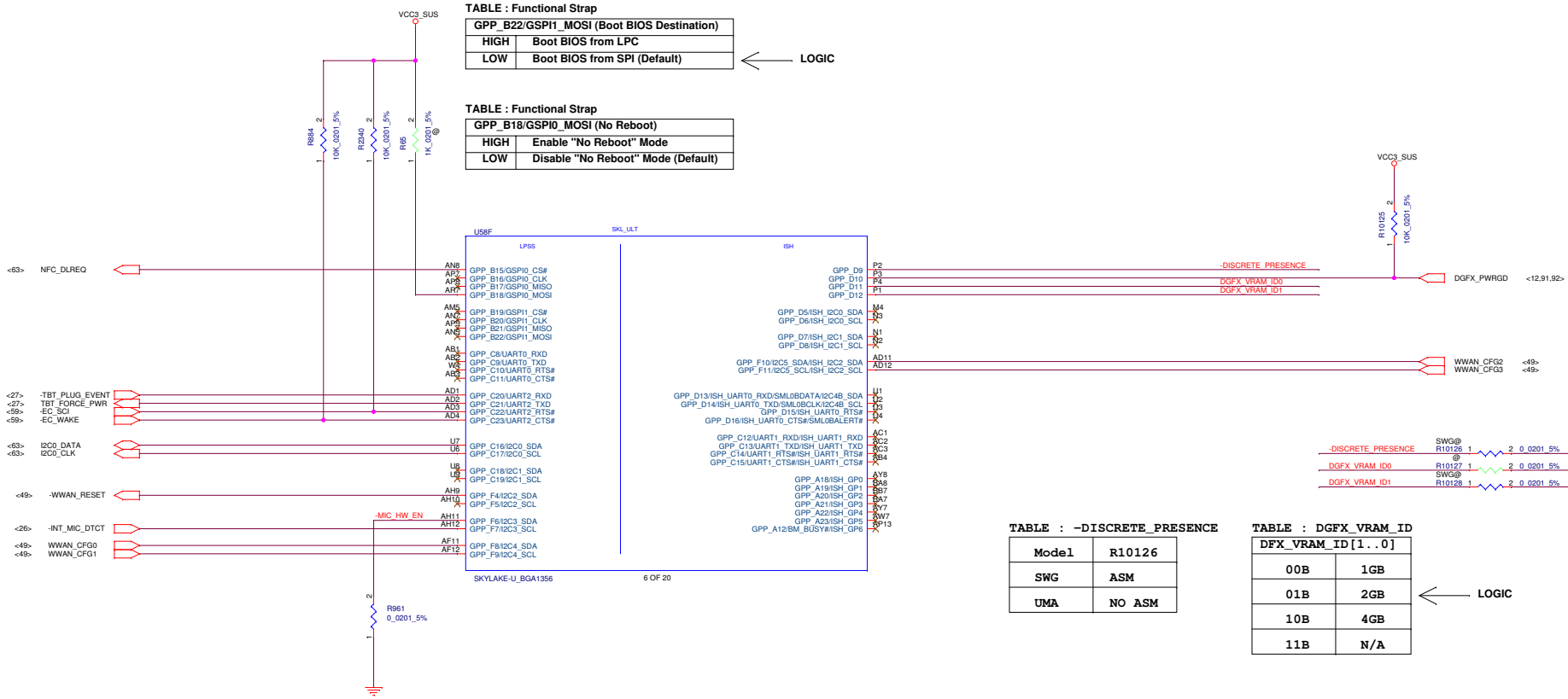


TABLE : Functional Strap

| GPP_B22/GSP11_MOSI (Boot BIOS Destination) | |
|--|------------------------------|
| HIGH | Boot BIOS from LPC |
| LOW | Boot BIOS from SPI (Default) |

← LOGIC

TABLE : Functional Strap

| GPP_B18/GSP10_MOSI (No Reboot) | |
|--------------------------------|------------------------------------|
| HIGH | Enable "No Reboot" Mode |
| LOW | Disable "No Reboot" Mode (Default) |

TABLE : -DISCRETE_PRESENCE

| Model | R10126 |
|-------|--------|
| SWG | ASM |
| UMA | NO ASM |

TABLE : DGF_X_VRAM_ID

| DFX_VRAM_ID[1..0] | |
|-------------------|-----|
| 00B | 1GB |
| 01B | 2GB |
| 10B | 4GB |
| 11B | N/A |

← LOGIC

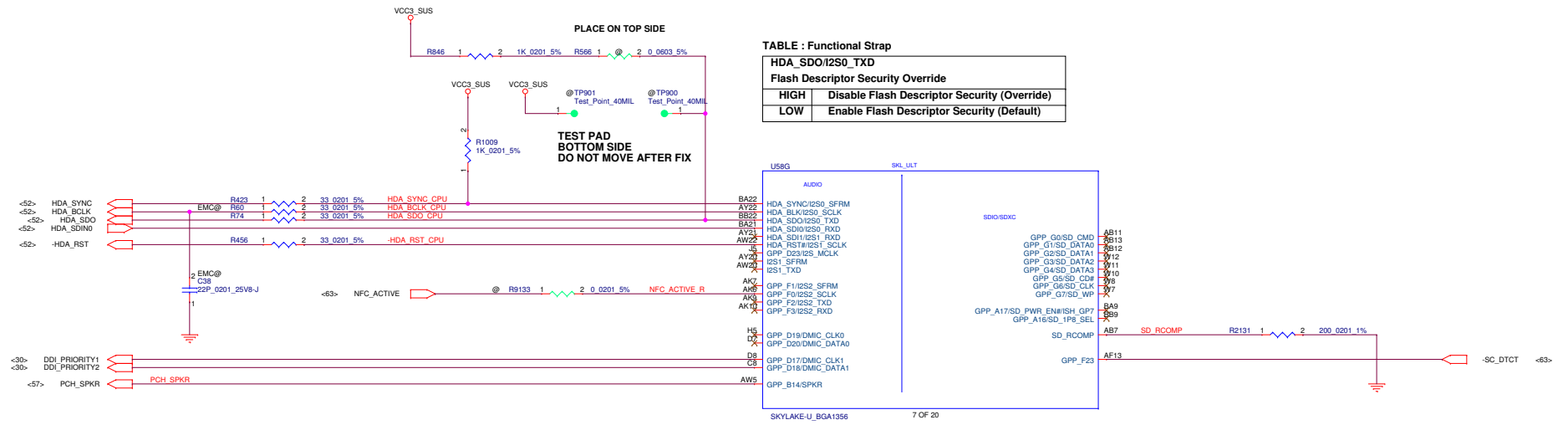


TABLE : Functional Strap

| HDA_SDO/I2S0_TXD | |
|------------------------------------|--|
| Flash Descriptor Security Override | |
| HIGH | Disable Flash Descriptor Security (Override) |
| LOW | Enable Flash Descriptor Security (Default) |

TABLE : Functional Strap

| GPP_B14/SPKR (Top Swap Override) | |
|----------------------------------|-----------------------------------|
| HIGH | Enable "Top Swap" Mode |
| LOW | Disable "Top Swap" Mode (Default) |

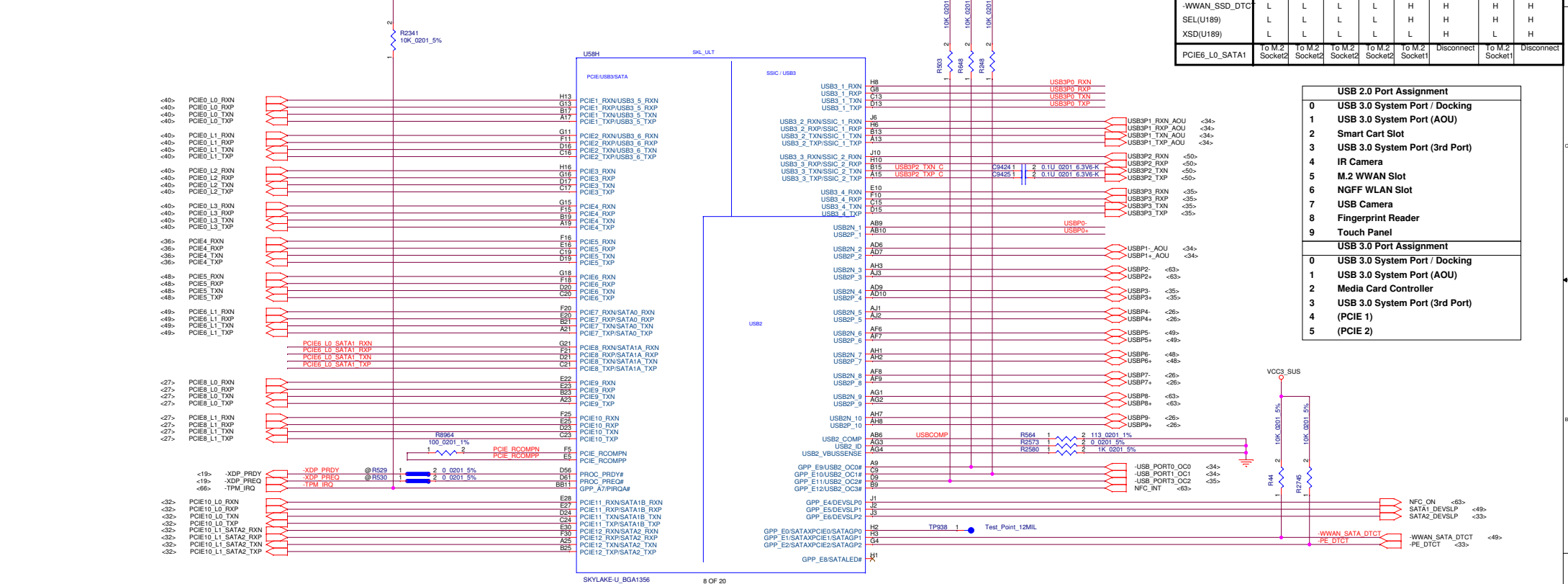
← LOGIC

| Flexible I/O Configuration | | | |
|----------------------------|--------------------|---------------|-----------------|
| I/O | High Speed Signals | Configuration | Net Name |
| Port 1 | USB3 1 | USB3 1 | USB3P0 |
| Port 2 | USB3 2/SSIC | USB3 2 | USB3P1 |
| Port 3 | USB3 3 | USB3 3 | USB3P2 |
| Port 4 | USB3 4 | USB3 4 | USB3P3 |
| Port 5 | USB3 5/PCIE 1 | PCIE 1 (x4) | PCIE0 |
| Port 6 | USB3 6/PCIE 2 | PCIE 2 (x4) | PCIE0 |
| Port 7 | PCIE 3 (GbE) | PCIE 3 (x4) | PCIE0 |
| Port 8 | PCIE 4 (GbE) | PCIE 4 (x4) | PCIE0 |
| Port 9 | PCIE 5 (GbE) | PCIE 5 (GbE) | PCIE4 |
| Port 10 | PCIE 6 | PCIE 6 | PCIE5 |
| Port 11 | PCIE 7/SATA 0 | PCIE 7 (x2) | PCIE6_L1 |
| Port 12 | PCIE 8/SATA 1A | GPIO STRAP | PCIE6_L0_SATA1 |
| Port 13 | PCIE 9 (GbE) | PCIE 9 (x2) | PCIE8_L0 |
| Port 14 | PCIE 10 (GbE) | PCIE 9 (x2) | PCIE8_L1 |
| Port 15 | PCIE 11/SATA 1B | PCIE 11 (x2) | PCIE10_L0 |
| Port 16 | PCIE 12/SATA 2 | GPIO STRAP | PCIE10_L1_SATA2 |

| PCIe Port Assignment | |
|----------------------|--------------------------------------|
| 0 (x4) | Discrete GPU |
| 4 | GbE PHY |
| 5 | M.2 WLAN Slot Port 0 |
| 6 (x2) | Optane x2 or M.2 WLAN Slot Port 1x 1 |
| 8 (x2) | Alpine Ridge-LP |
| 10 (x2) | Main Storage x 2 |

| SATA Port Assignment | |
|----------------------|-----------------------|
| 0 | (PCIe 7) |
| 1A | SATA SSD on WWAN slot |
| 1B | (PCIe 11) |
| 2 | SATA SSD Main Storage |

| TABLE OF USB3.0 SW (U189) | | | |
|---------------------------|---------------|-------------|--|
| Vendor | P/N | LCFC P/N | |
| NXP | CBTL02042ABQ | SA00005R500 | |
| PERICOM | PI3PCIE321ZBE | SA00005RJ00 | |
| TOSHIBA | TC7PCI3212MT | SA000066600 | |



| | WWAN Slot | | | | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|------------|----------------|------------|
| | Optane | | SATA Cache | | WWAN Card | | None | |
| WIGIG_DISABLE | L | H | L | H | L | H | L | H |
| -WWAN_SSD_DTC | L | L | L | L | H | H | H | H |
| SEL(U189) | L | L | L | L | H | H | H | H |
| XSD(U189) | L | L | L | L | L | L | L | L |
| PCIE6_L0_SATA1 | To M.2 Socket2 | To M.2 Socket2 | To M.2 Socket2 | To M.2 Socket2 | To M.2 Socket1 | Disconnect | To M.2 Socket1 | Disconnect |

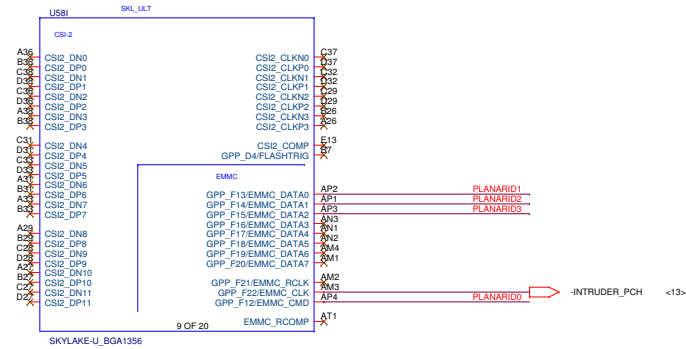
| USB 2.0 Port Assignment | |
|-------------------------|--------------------------------|
| 0 | USB 3.0 System Port / Docking |
| 1 | USB 3.0 System Port (AOU) |
| 2 | Smart Card Slot |
| 3 | USB 3.0 System Port (3rd Port) |
| 4 | IR Camera |
| 5 | M.2 WWAN Slot |
| 6 | NGFF WLAN Slot |
| 7 | USB Camera |
| 8 | Fingerprint Reader |
| 9 | Touch Panel |

| USB 3.0 Port Assignment | |
|-------------------------|--------------------------------|
| 0 | USB 3.0 System Port / Docking |
| 1 | USB 3.0 System Port (AOU) |
| 2 | Media Card Controller |
| 3 | USB 3.0 System Port (3rd Port) |
| 4 | (PCIe 1) |
| 5 | (PCIe 2) |

| TABLE OF USB2.0 SW (U161) | | |
|---------------------------|---------------|-------------|
| Vendor | P/N | LCFC P/N |
| PERICOM | PI3USB102ZMEX | SA00005RH00 |
| NXP | NX3DV42GU | SA00005RI00 |

| TABLE of USB3.0 SW (U160) | | |
|---------------------------|---------------|-------------|
| Vendor | P/N | LCFC P/N |
| NXP | CBTL02042ABQ | SA00005R500 |
| PERICOM | PI3PCIE321ZBE | SA00005RJ00 |
| TOSHIBA | TC7PCI3212MT | SA000066600 |

| Security Classification | | LC Future Center Secret Data | |
|-------------------------|------------|------------------------------|-----------|
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 |

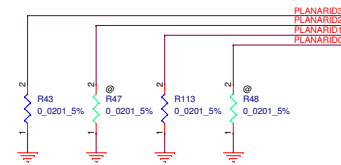


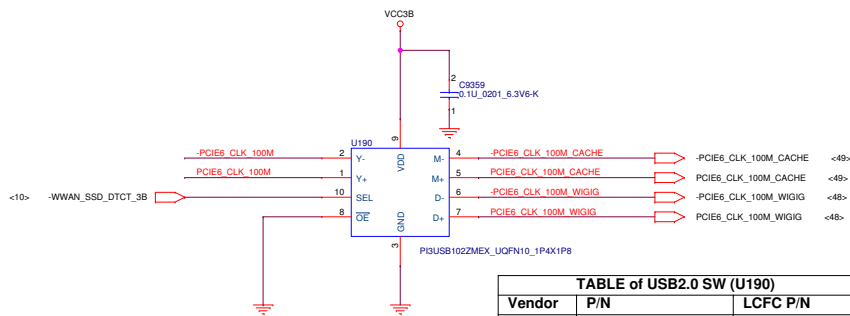
TABLE

| LEVEL | PLANAR ID | | | |
|-------|-----------|-----|------|-----|
| | 3 | 2 | 1 | 0 |
| | R43 | R47 | R113 | R48 |
| 1 | NA | NA | NA | NA |
| 0 | ASM | ASM | ASM | ASM |

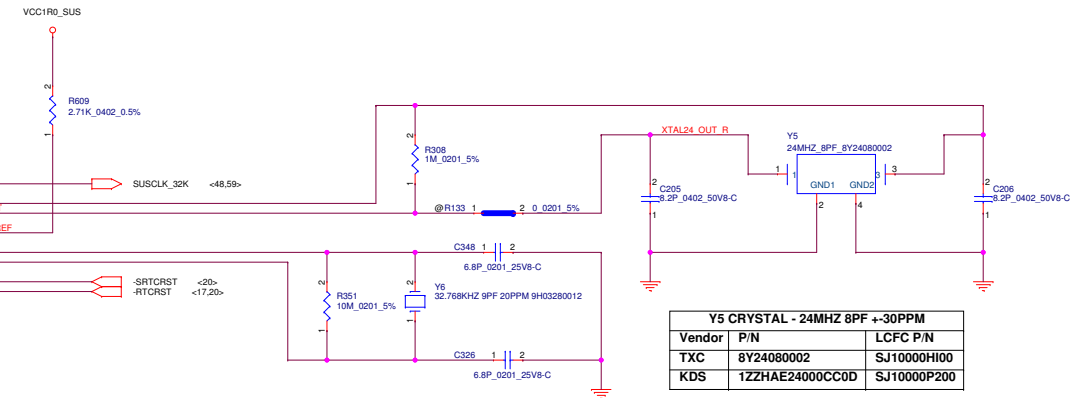
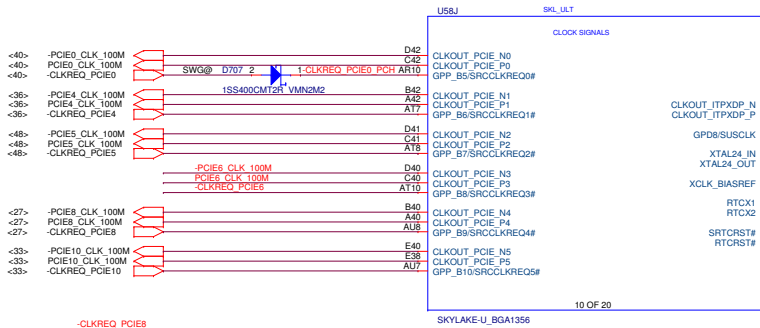
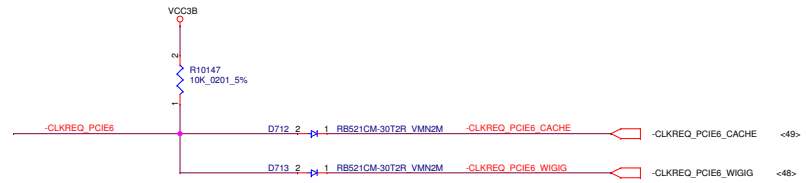
TABLE

| LEVEL | PLANARID[3..0] |
|-------|----------------|
| SDV | 0000B |
| FVT | 0001B |
| FVT-2 | 0010B |
| SIT | 0011B |
| SIT-R | 0100B |
| SVT | 0101B |



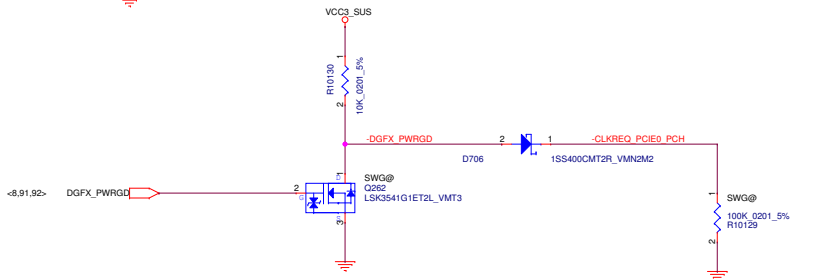


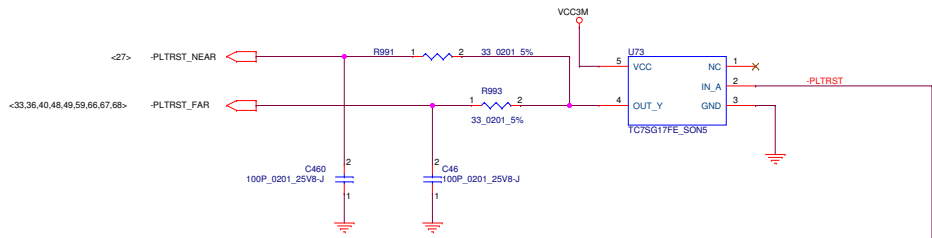
| TABLE of USB2.0 SW (U190) | | |
|---------------------------|---------------|-------------|
| Vendor | P/N | LCFC P/N |
| PERICOM | PI3USB102ZMEX | SA00005RH00 |
| NXP | NX3DV42GU | SA00005RI00 |



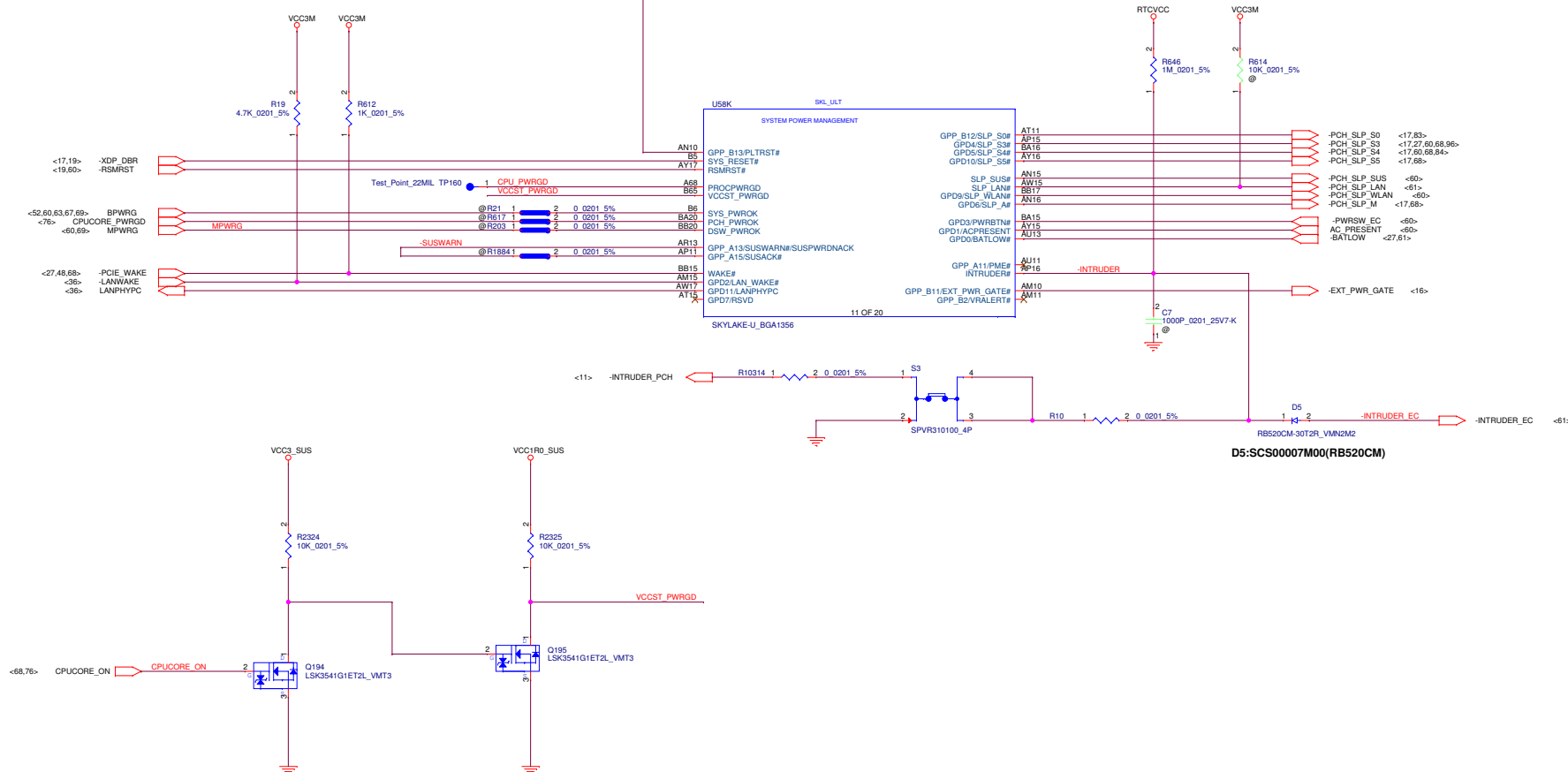
| Y5 CRYSTAL - 24MHZ 8PF +/-30PPM | | |
|---------------------------------|-----------------|-------------|
| Vendor | P/N | LCFC P/N |
| TXC | 8Y24080002 | SJ10000HI00 |
| KDS | 1ZZHAE24000CC0D | SJ10000P200 |

| Y6 CRYSTAL 32.768KHZ 9PF 20PPM | | |
|--------------------------------|-----------------|-------------|
| Vendor | P/N | LCFC P/N |
| TXC | 9H03280012 | SJ10000J900 |
| KDS | 1TJF090DJ1A000B | SJ100069400 |

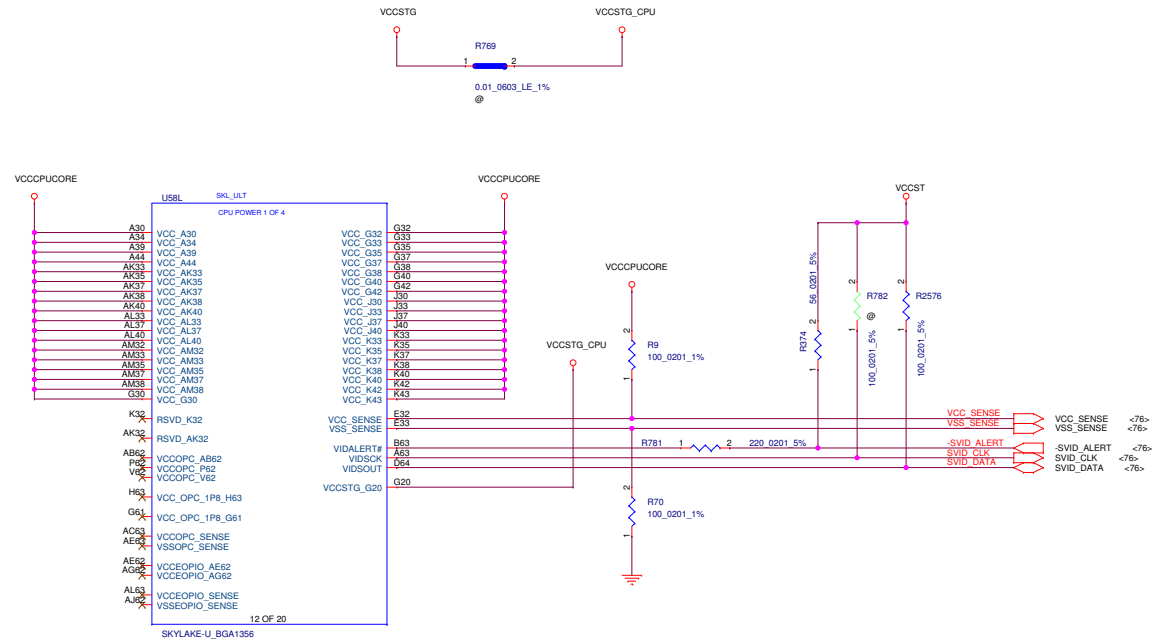





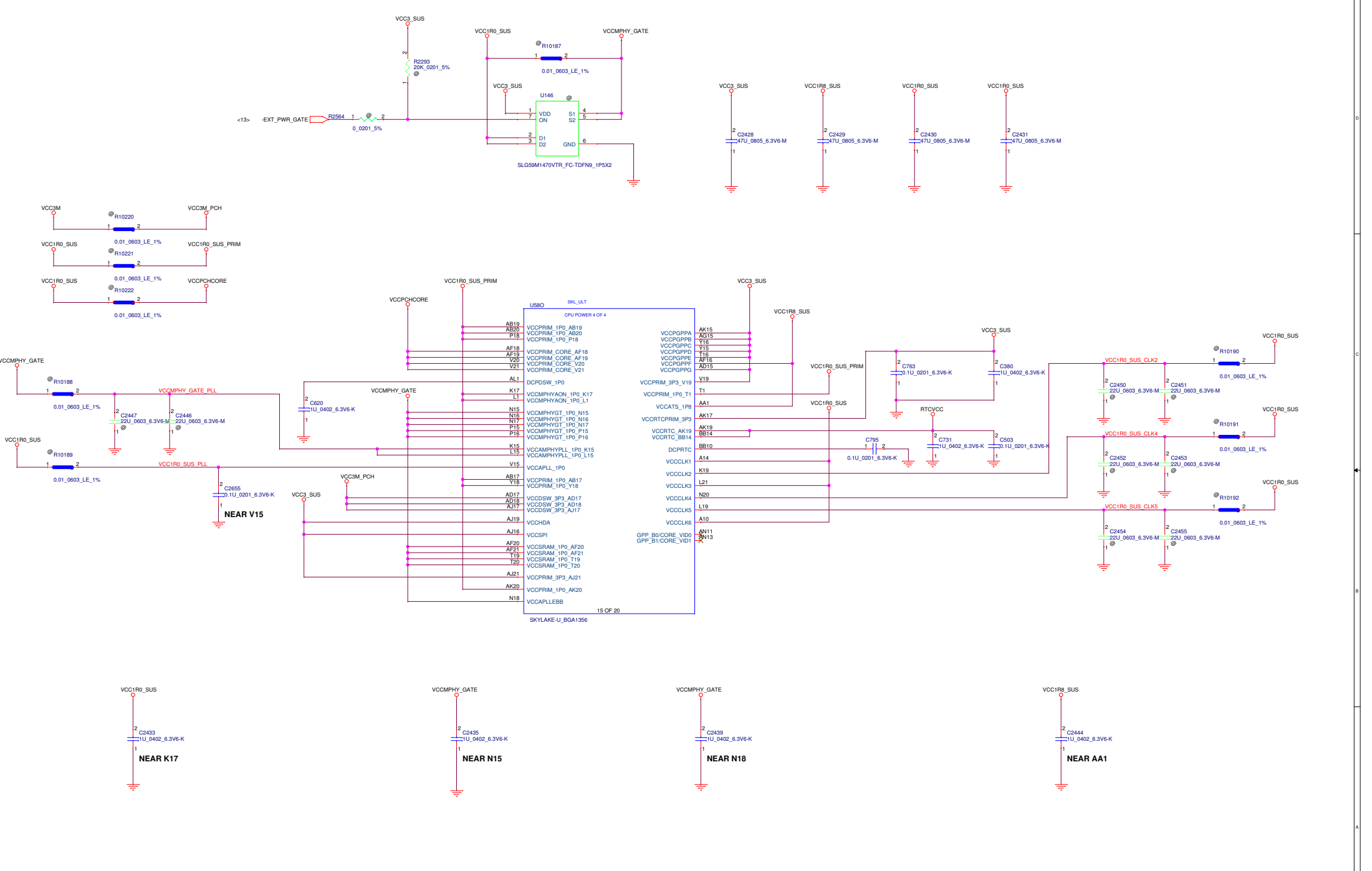
| TABLE of U73 | | |
|--------------|-----------------|-------------|
| Vendor | P/N | LCFC P/N |
| TOSHIBA | TC7SG17FE | SA00005T00J |
| ON | NL17SZ17XV5T2G | SA00005OU00 |
| TI | SN74LVC1G17DRLR | SA00005MG00 |




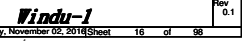
| | | | | |
|--|------------------------------|-----------------|-----------|---|
| Security Classification | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Document Number C Date: Wednesday, November 02, 2016 Sheet 13 of 98 |



| | | | |
|--|------------------------------|------------------------------|---|
| Security Classification | LC Future Center Secret Data | | Title |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | |  |
| Revision | Document Number | Date | Rev |
| C | Windu-1 | Wednesday, November 02, 2015 | 0.1 |
| | | | Page 14 of 98 |

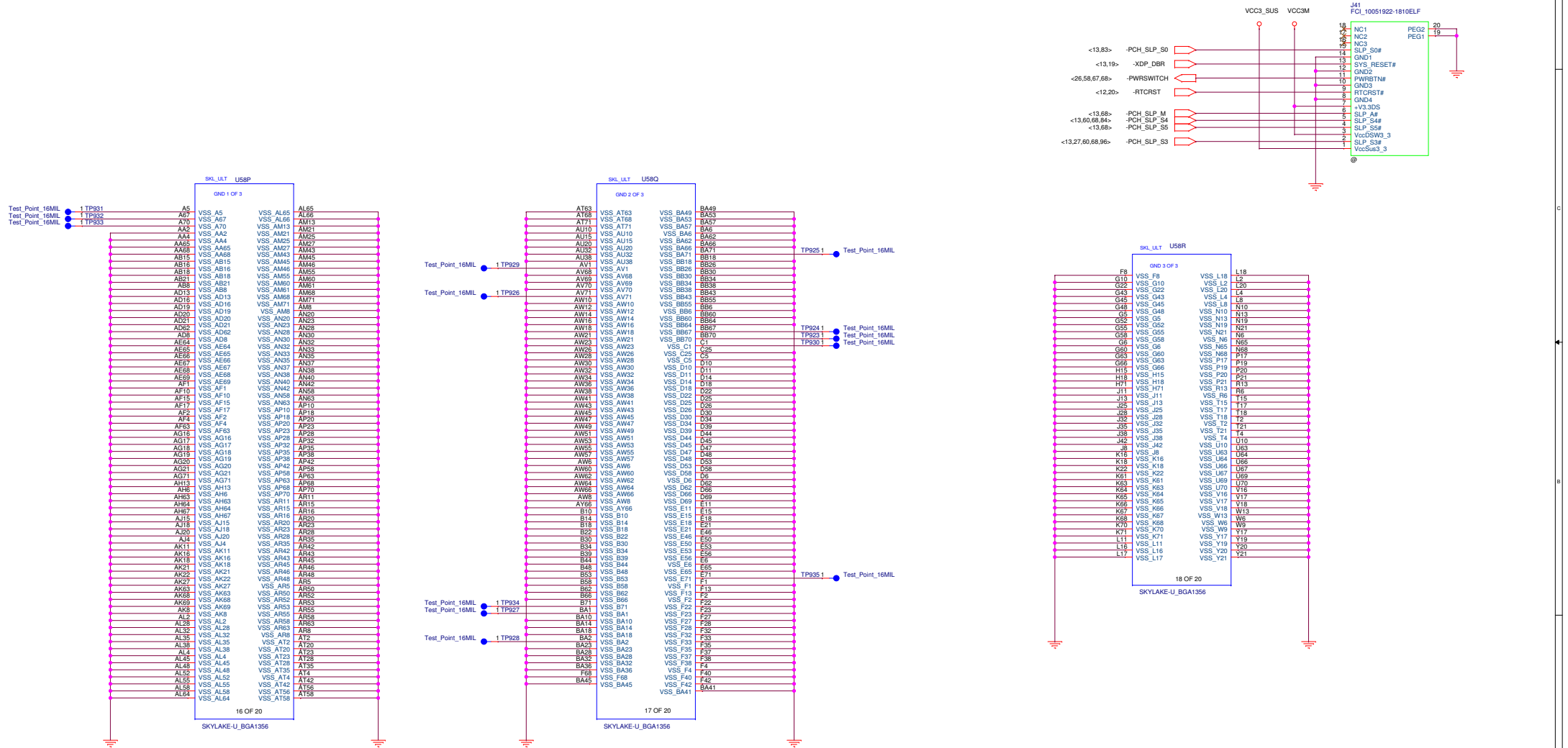


| | | | | |
|--|------------------------------|-----------------|-----------|--|
| Security Classification | LC Future Center Secret Data | | Title |  CPU(14/16) : PCH POWER |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Part No. 048701 Document Number C Date: Wednesday, November 02, 2015 Sheet 16 of 98 |

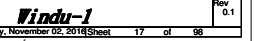


Rev 0.1

APS/PETS Interface

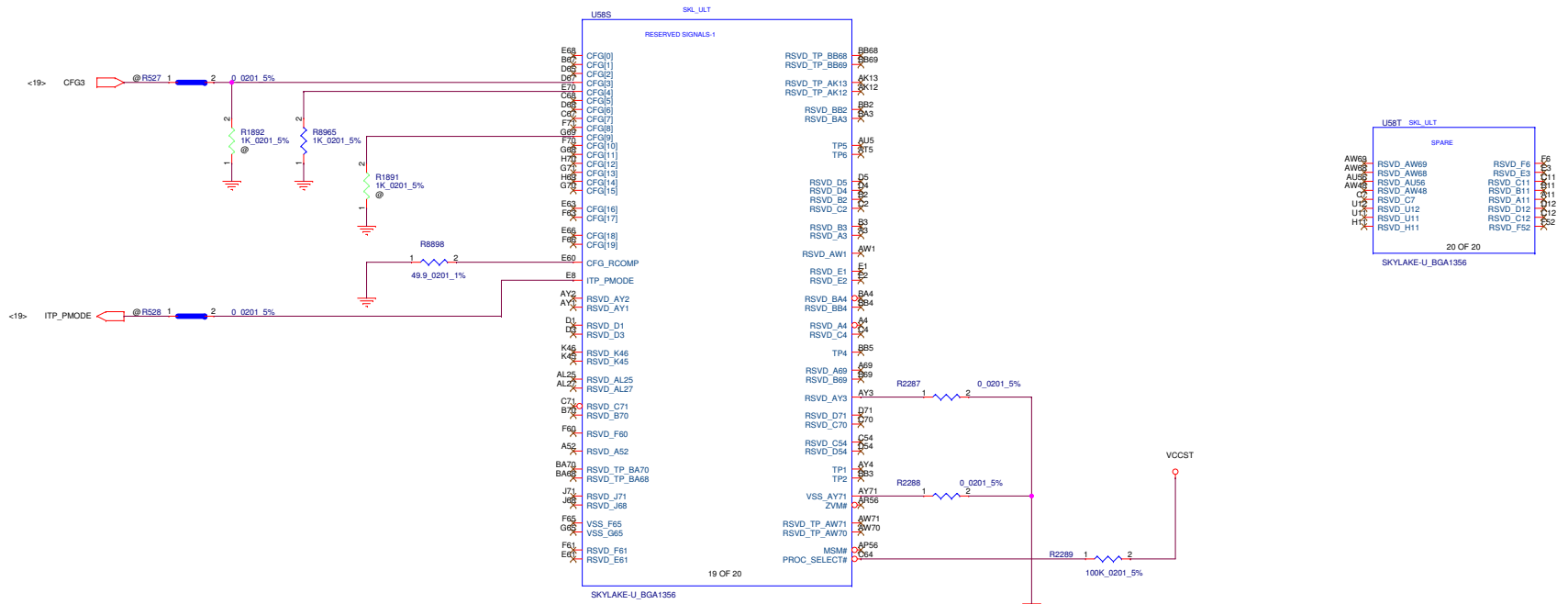


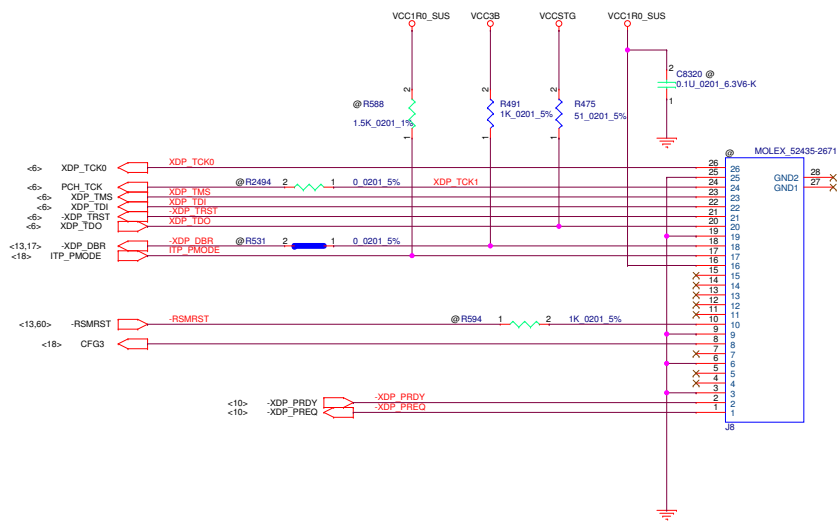
| Security Classification | | | | LC Future Center Secret Data | | Title | |
|--|------------|-----------------|-----------|------------------------------|--|------------------------------|----------------|
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | CPU(15/16) : GND | | | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | | | | |
| Doc# | 04900 | Document Number | C | Date | | Wednesday, November 02, 2016 | Sheet 17 of 98 |



TABLE

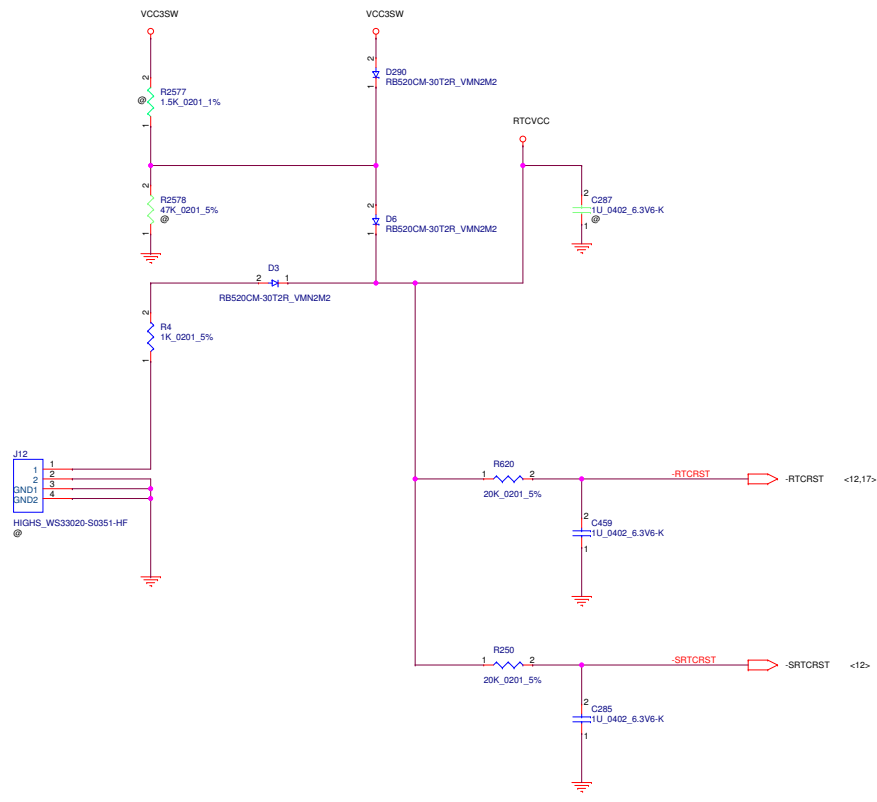
| |
|---|
| <p>CFG0 : Stall Reset Sequence after PCU PLL Lock until de-asserted 1 : No Stall 0 : Stall</p> |
| <p>CFG3 : MSR Privacy Bit Feature 1 : MSR (C80h) bit[0] setting 0 : MSR (C80h) bit[0] overridden</p> |
| <p>CFG4 : eDP Enable 1 : Disabled 0 : Enabled</p> |
| <p>CFG9 : SVID Bus Communication 1 : Enabled 0 : Disabled</p> |




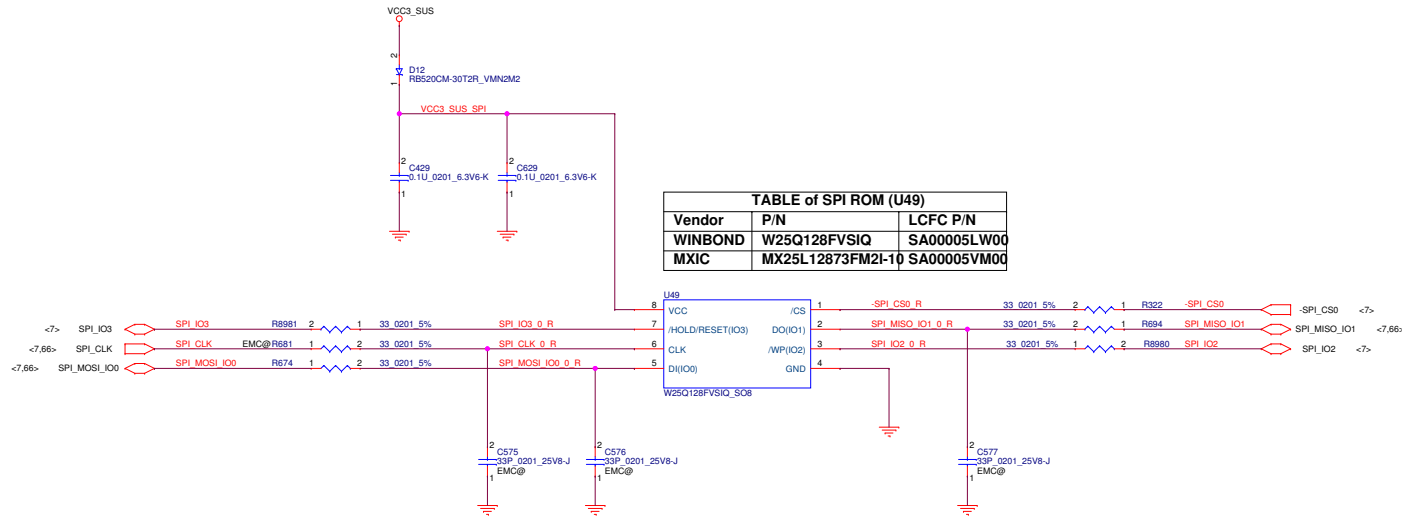


TABLE

| Logic | Ref Des | Merged | DCI 2.0 |
|---------|---------|--------|---------|
| Page 6 | R2 | ASM | ASM |
| Page 7 | R2559 | ASM | NO_ASM |
| Page 18 | R1892 | ASM | NO_ASM |
| Page 19 | J8 | ASM | NO_ASM |
| | C8320 | ASM | NO_ASM |
| | R475 | ASM | ASM |
| | R491 | ASM | ASM |
| | R588 | ASM | NO_ASM |
| | R594 | ASM | NO_ASM |
| | R2494 | ASM | NO_ASM |



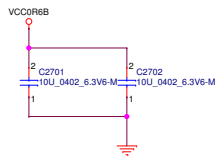
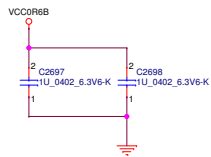
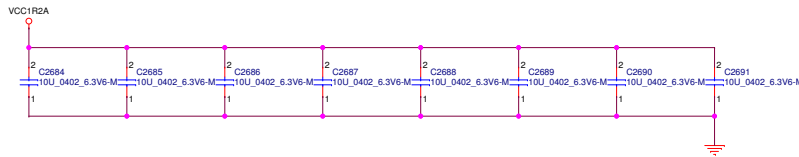
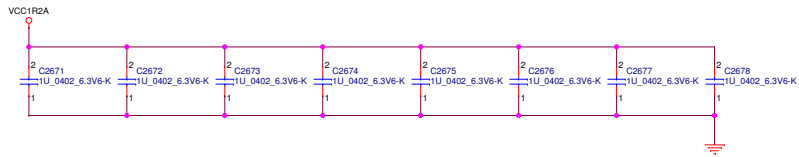
| | | | | |
|---|------------------------------|-----------------|------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  RTC BATTERY |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Revision 01 Date: Wednesday, November 02, 2016 Sheet 20 of 98 |



| TABLE of SPI ROM (U49) | | |
|------------------------|-------------------|-------------|
| Vendor | P/N | LCFC P/N |
| WINBOND | W25Q128FVSIQ | SA00005LW00 |
| MXIC | MX25L12873FM2L-10 | SA00005VM00 |

TABLE

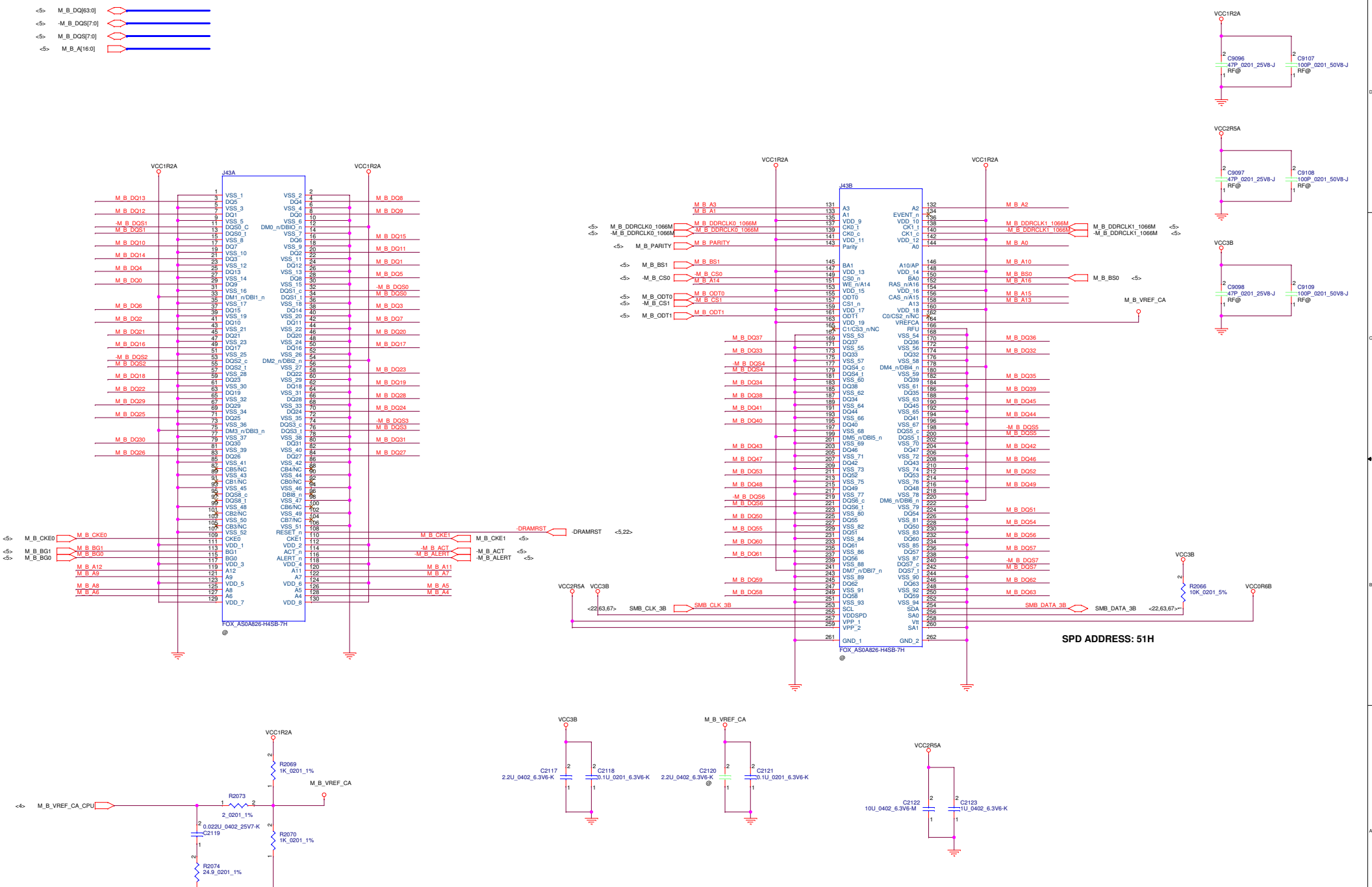
| SF100 PIN HEADER INTERFACE (TOP VIEW) | | | | | |
|---------------------------------------|-------|--------|--------|---------|---|
| 1 | VCC | D12.1 | GND | GND | 2 |
| 3 | CS# | R322.2 | R681.2 | CLK | 4 |
| 5 | MISO | R694.2 | R674.2 | MOSI | 6 |
| 7 | (KEY) | N/A | N/A | (RESET) | 8 |



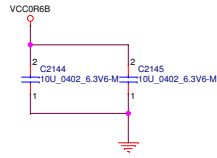
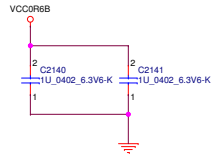
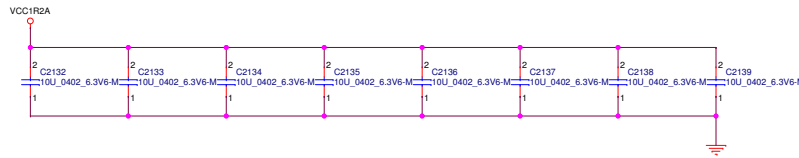
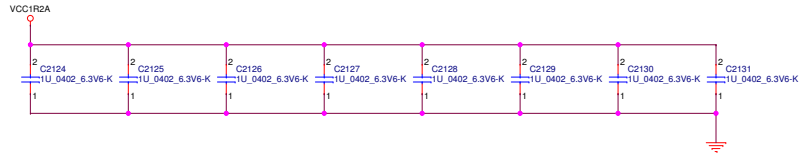
| | | | |
|--|------------------------------|-----------------|--|
| Security Classification | LC Future Center Secret Data | | Title |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | Document Number Windu-1 Date: Wednesday, November 02, 2016 Sheet 23 of 98 |



Rev 0.1



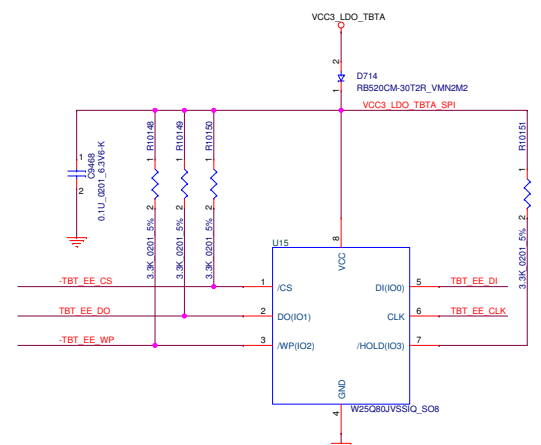
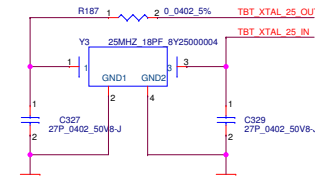
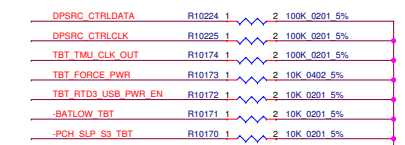
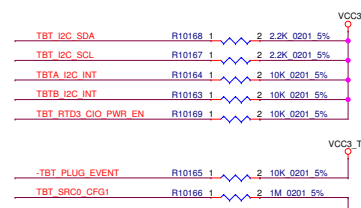
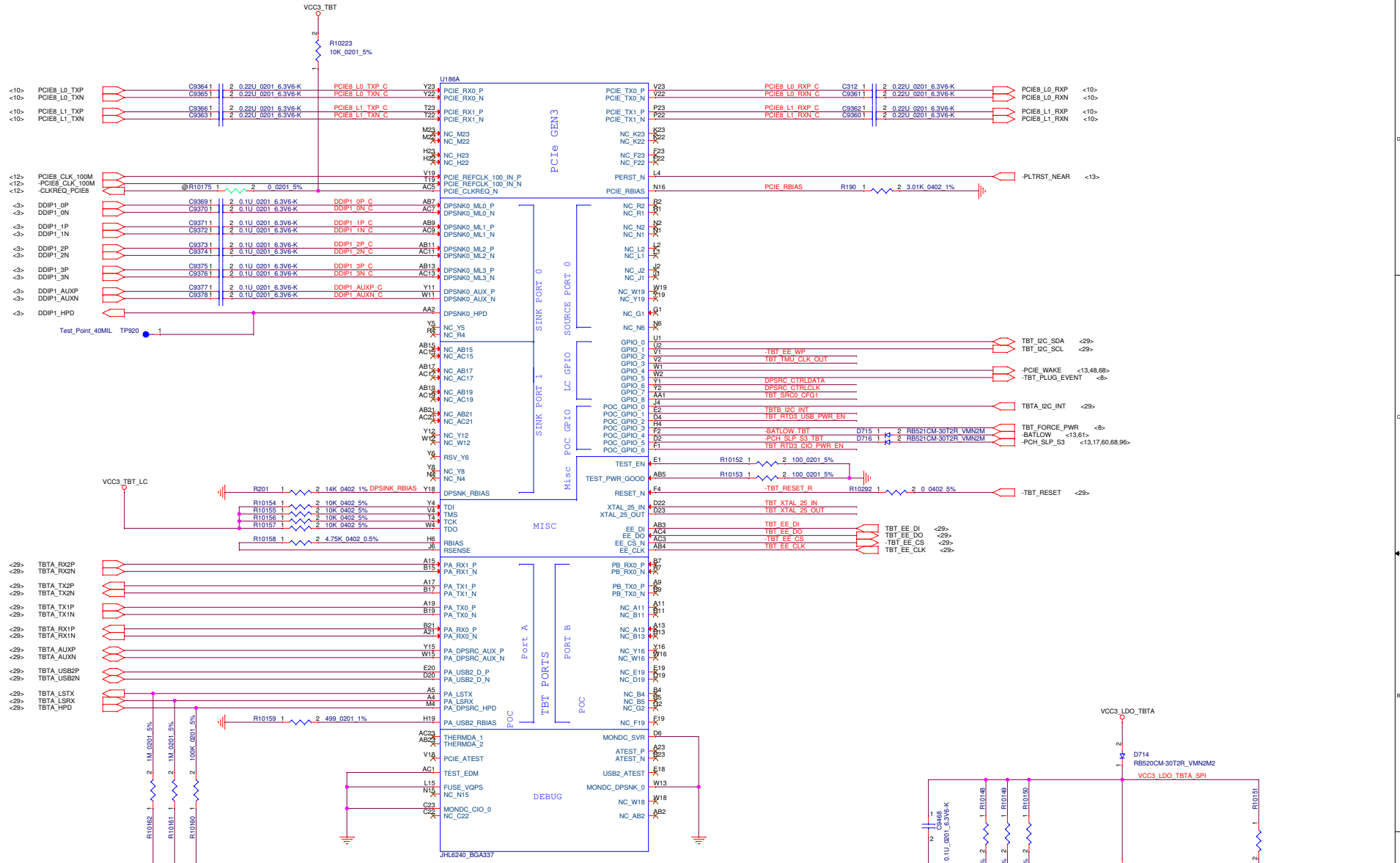
| | | | | | |
|--|------------|------------------------------|------------|---|--|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 | DDR4 SO DIMM CHANNEL-B (1/2) | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | | |
| Document Number | | | | Windu-1 | |
| Date | | | | Wednesday, November 02, 2015 Sheet 24 of 98 | |



| | | | |
|--|------------------------------|-----------------|--|
| Security Classification | LC Future Center Secret Data | | Title |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | Document Number Windu-1 Date: Wednesday, November 02, 2016 Sheet 25 of 98 |



Rev 0.1

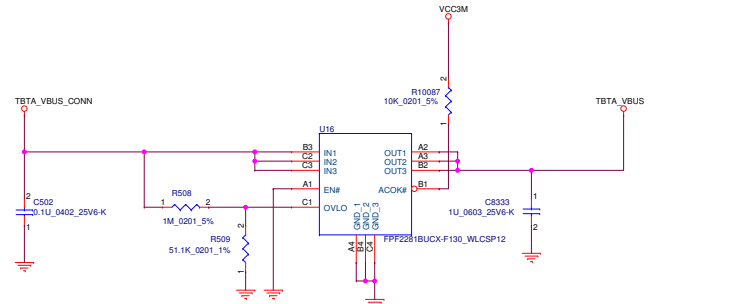


| Y3 CRYSTAL 25MHZ 18PF 30PPM | | | |
|-----------------------------|-----------------|-------------|--|
| Vendor | P/N | LCFC P/N | |
| TXC | 8Y25000004 | SJ10000H00J | |
| KDS | 1ZZHAE25000CC0F | SJ10000P300 | |

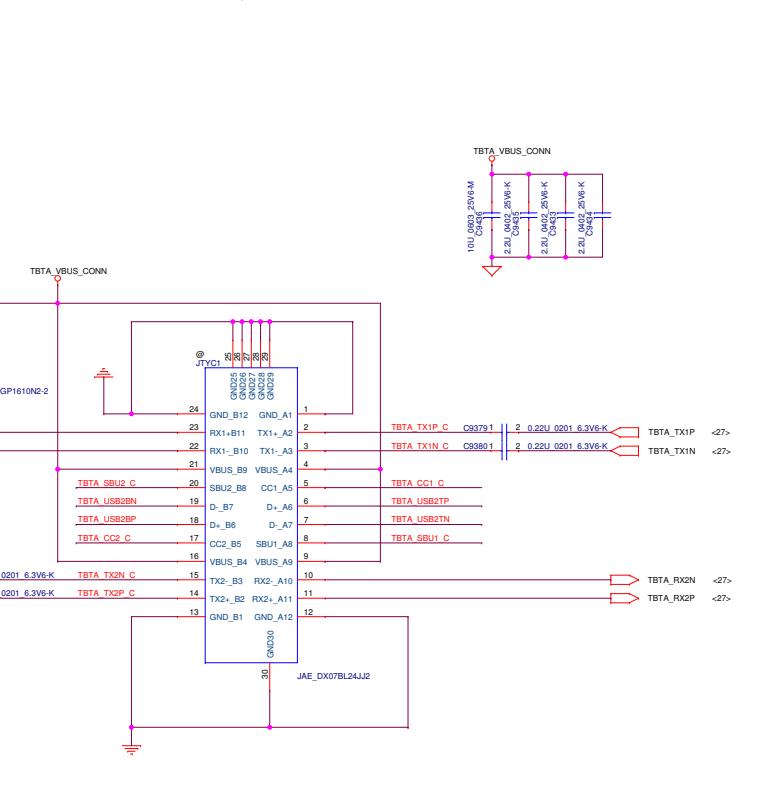
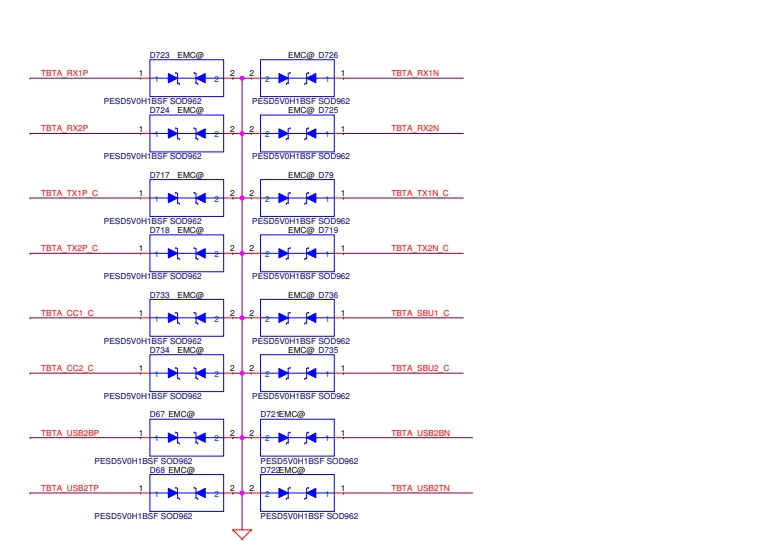
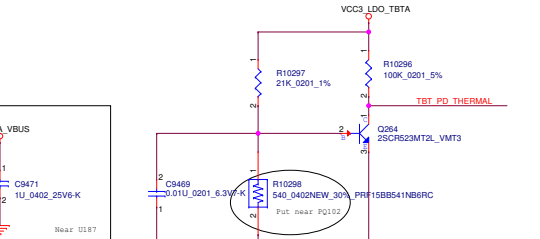
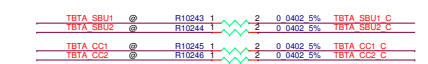
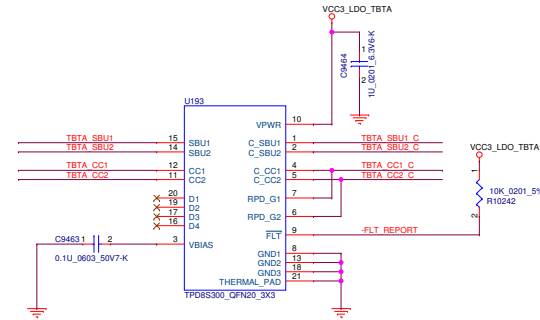
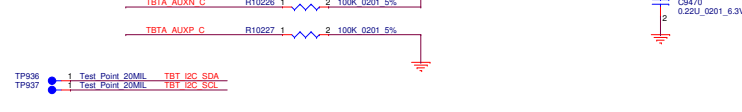
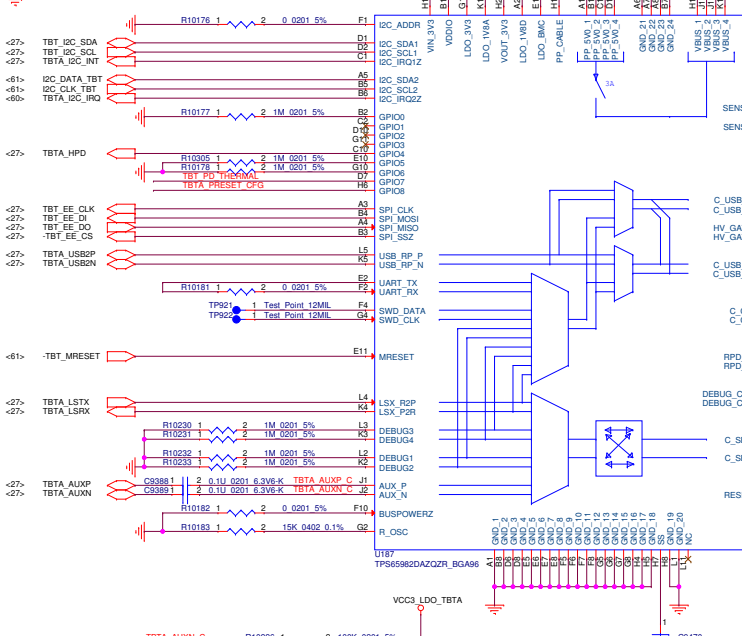
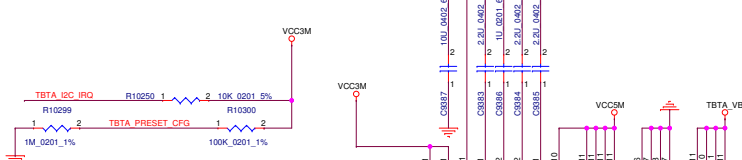
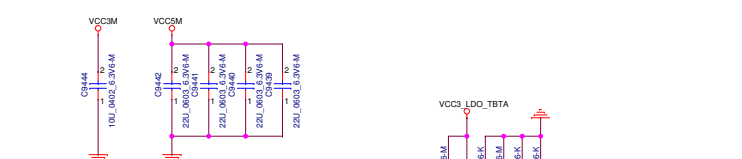
| Security Classification | LC Future Center Secret Data | |
|-------------------------|------------------------------|-----------------|
| Issued Date | 2015/11/02 | Deciphered Date |
| | | 2015/08/10 |

| Title | Document Number | Rev |
|--------------------|-----------------|-----|
| ALPINE RIDGE (1/2) | | 0.1 |

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

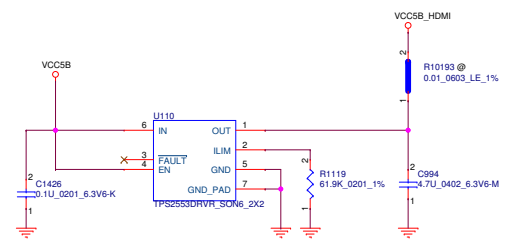
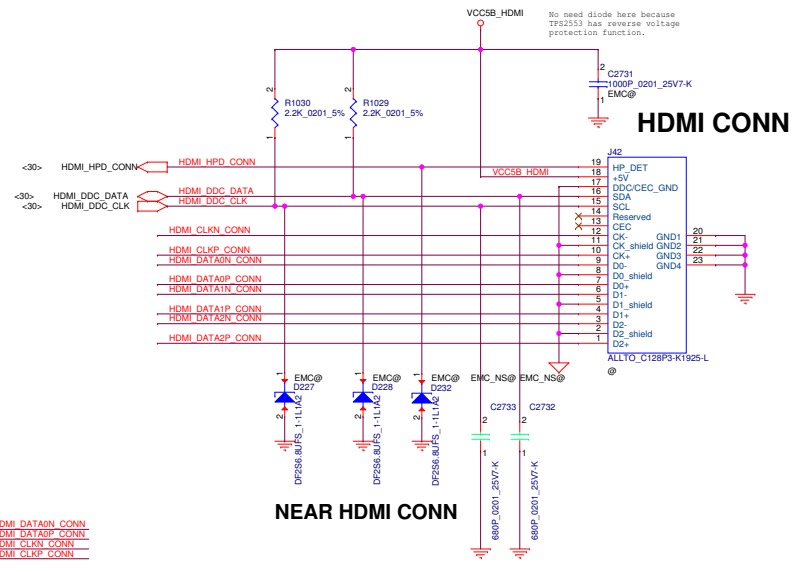
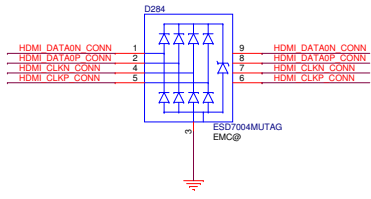
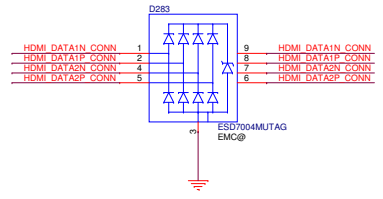
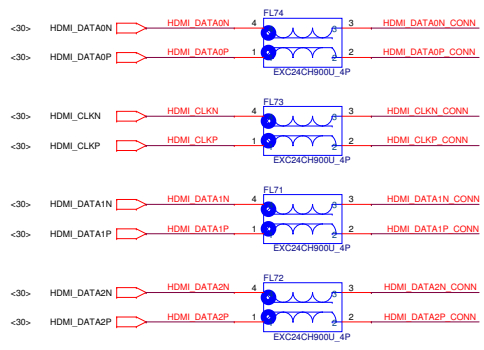


Over Voltage Lock Out Trip Threshold = 1.20 * (1 + R508/R509)



TP936 1 Test Point 20MIL TBT I2C_SDA
 TP937 1 Test Point 20MIL TBT I2C_SCL

| | | | |
|---|------------------------------|-----------------|---|
| Security Classification | LC Future Center Secret Data | | Title |
| Issued Date | 2015/1/02 | Deciphered Date | 2015/08/10 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | Document Number USBC-C/CONN Rev 1.1 Date Wednesday, November 02, 2016 Sheet 29 of 69 |



| | | | | | |
|--|------------|------------------------------|------------|-----------------|---|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2013/08/05 | HDMI CONNECTOR | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Document Number | Rev |
| | | | | 8276 | 0.1 |
| | | | | Date: | Wednesday, November 02, 2016 Sheet 31 of 98 |

TABLE: PI3EQX862 Input Equalization Setting (EQ_A & EQ_B)

| | @3GHz | @4GHz |
|------|----------------|----------------|
| GND | 7 dB | 8 dB |
| Open | 4 dB (Default) | 5 dB (Default) |
| VDD | 10 dB | 11 dB |

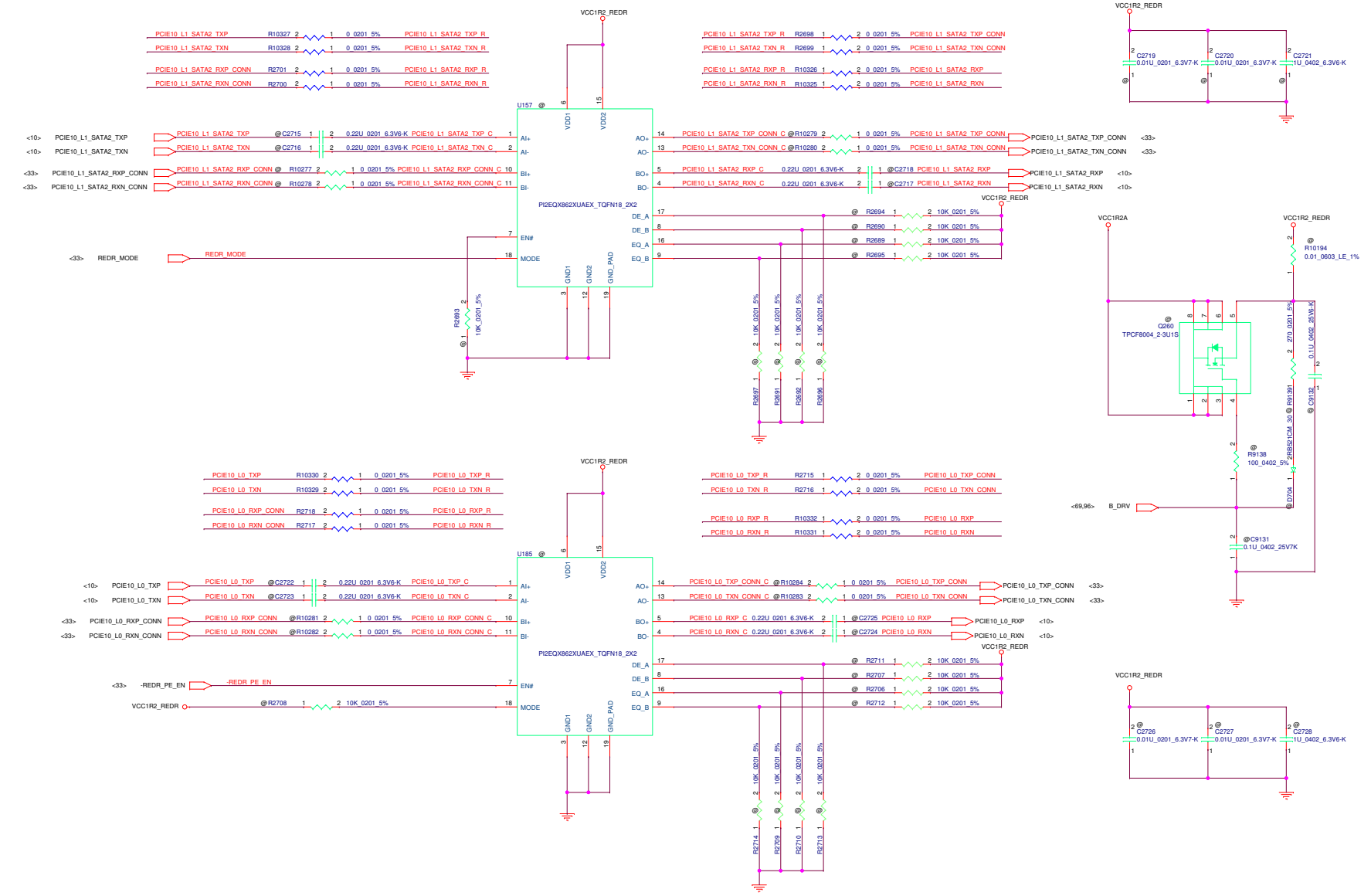
TABLE: PI3EQX862 Output De-emphasis Setting (DE_A & DE_B)

| | |
|------|----------------|
| GND | -2.5 dB |
| Open | 0 dB (Default) |
| VDD | -4 dB |

← LOGIC

TABLE: Mode Configuration Table

| EN# | MODE | Mode |
|------|------|------------------|
| Low | Low | SATA Application |
| Low | High | PCIe Application |
| High | X | Disable |



| | | |
|-------------------------|------------------------------|-----------------|
| Security Classification | LC Future Center Secret Data | |
| Issued Date | 2015/1/02 | Deciphered Date |
| | | 2015/08/10 |

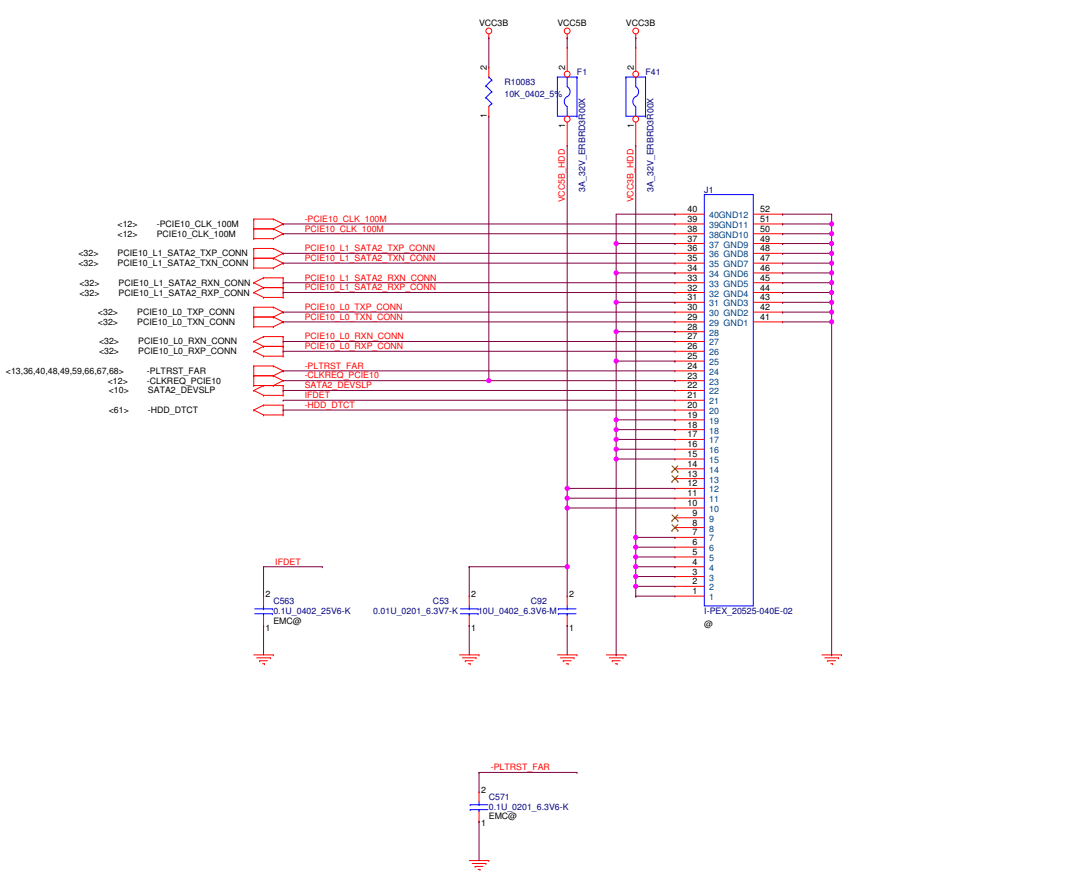
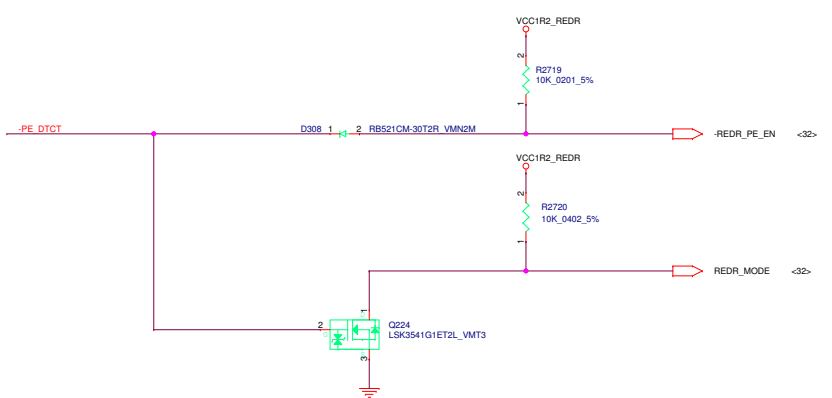
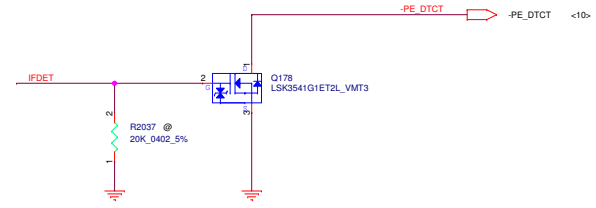
Title: **STORAGE I/F REDRIVER**

LCFC

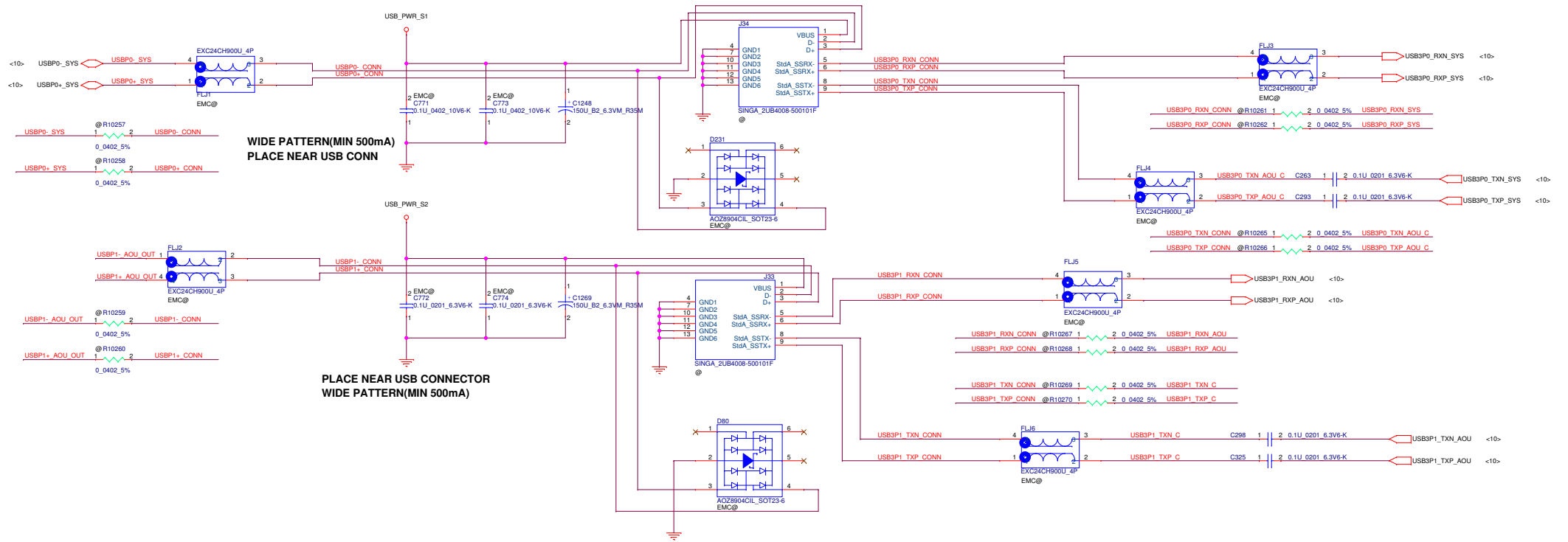
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

Size: **Wind-1** Rev: 0.1
 Date: Wednesday, November 02, 2015 Sheet 32 of 88

IFDET
SATA Device
PCIe Device

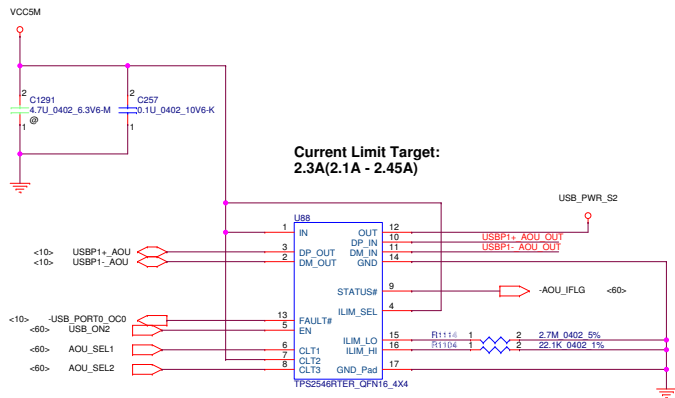


| | | | | | |
|--|------------|------------------------------|------------|------------------------|------------------------------|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 | SATA EXPRESS CONNECTOR | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Size | Document Number |
| | | | | Custom | Windu-1 |
| | | | | Date | Wednesday, November 02, 2016 |
| | | | | Sheet | 33 of 98 |
| | | | | Rev | 0.1 |



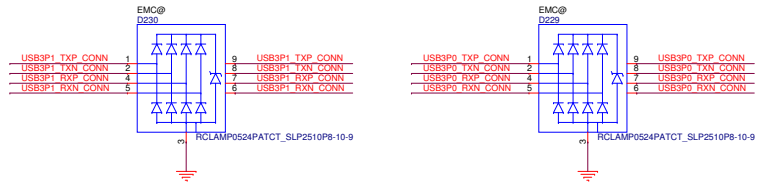
**WIDE PATTERN(MIN 500mA)
PLACE NEAR USB CONN**

**PLACE NEAR USB CONNECTOR
WIDE PATTERN(MIN 500mA)**



**Current Limit Target:
2.3A(2.1A - 2.45A)**

| TABLE of USB Charge IC (U88) | | |
|------------------------------|---------------|-------------|
| Vendor | P/N | LCFC P/N |
| TI | TPS2546RTER | SA00005TD00 |
| Pericom | PIUSB2546ZHEX | SA000066I00 |



| TABLE of USB3.0 Single (U53) | | |
|------------------------------|----------------|-------------|
| Vendor | P/N | LCFC P/N |
| TI | TPS2069CDGNNR | SA00005TE00 |
| Rohm | BD82032FVJ-GE2 | SA000084S00 |

| | | | | |
|--|------------------------------|-----------------|------------|---|
| Security Classification | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | 8291 Document Number 0101 Rev Date: Wednesday, November 02, 2016 Sheet 94 of 98 |

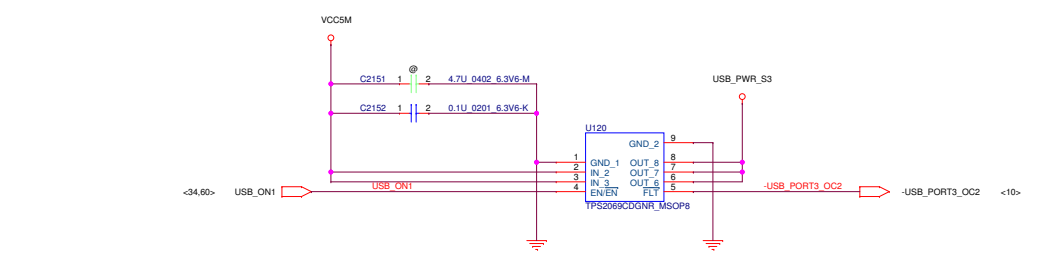
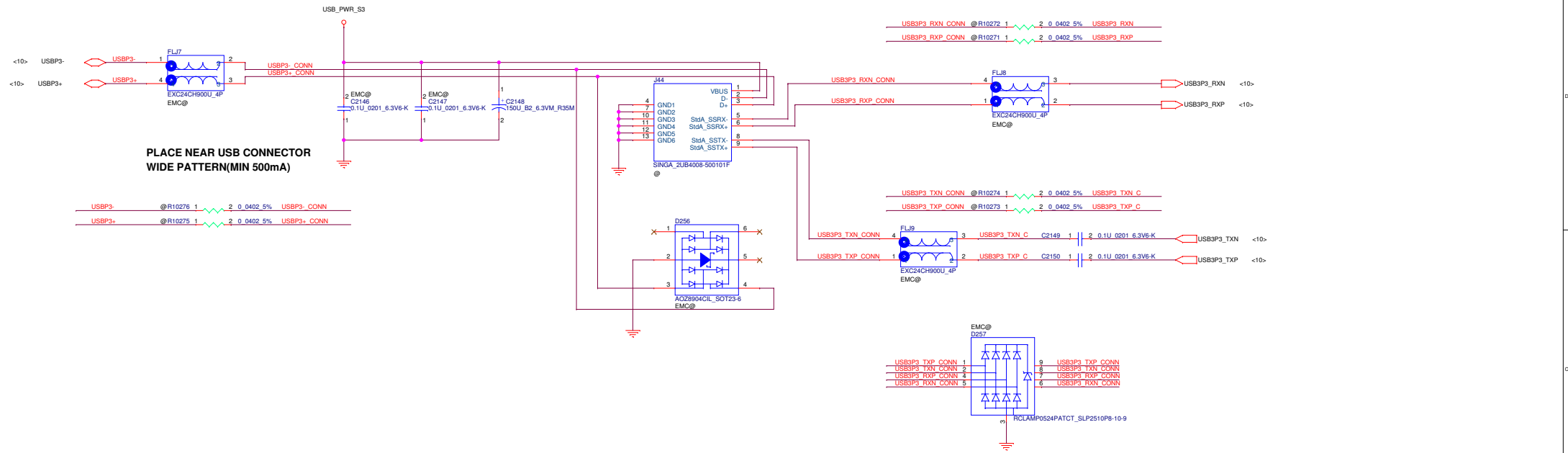


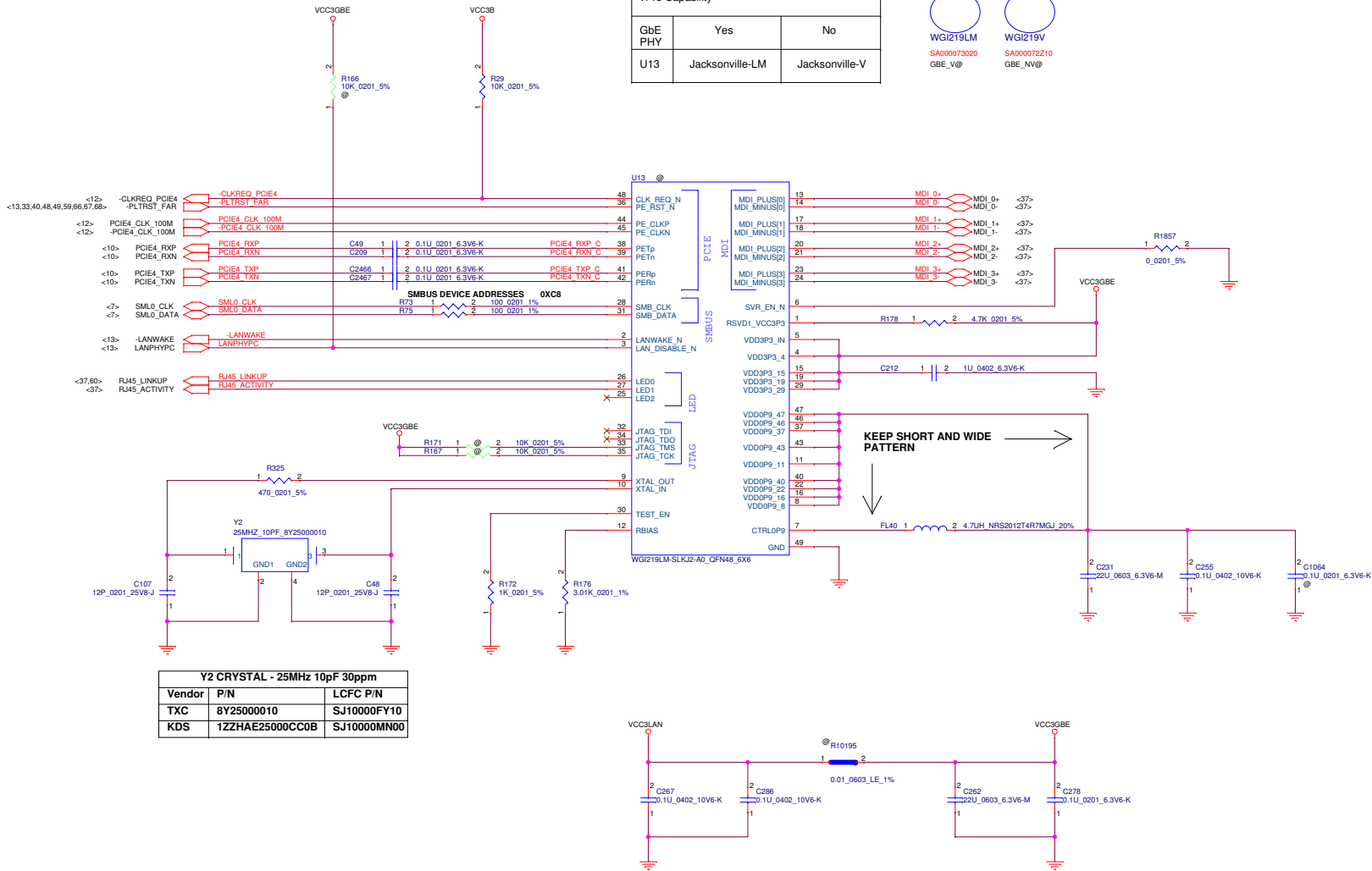
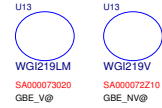
TABLE of USB3.0 Single (U120)

| Vendor | P/N | LCFC P/N |
|--------|----------------|-------------|
| TI | TPS2069CDGNR | SA00005TE00 |
| Rohm | BD82032FVJ-GE2 | SA000084S00 |

| | | | | |
|---|------------------------------|-----------------|------------|-----------------------------|
| Security Classification | LC Future Center Secret Data | | Title | USB POWER/CONN (2/2) |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Document Number |
| Date: Wednesday, November 02, 2016 | | | | Revision 0.1 |

TABLE

| vPro Capability | | |
|-----------------|-----------------|----------------|
| GbE PHY | Yes | No |
| U13 | Jacksonville-LM | Jacksonville-V |



| Y2 CRYSTAL - 25MHz 10pF 30ppm | | |
|-------------------------------|-----------------|-------------|
| Vendor | P/N | LCFC P/N |
| TXC | 8Y25000010 | SJ10000FY10 |
| KDS | 1ZZHAE25000CC0B | SJ10000MN00 |

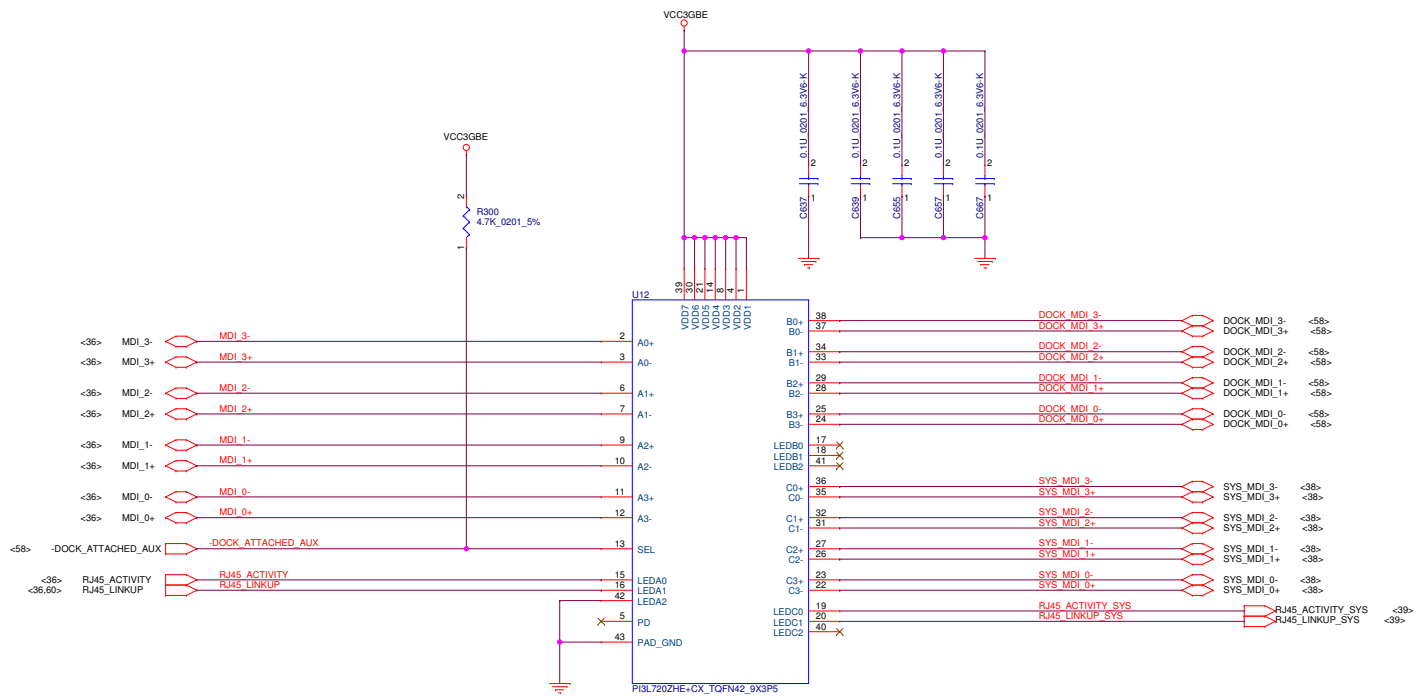
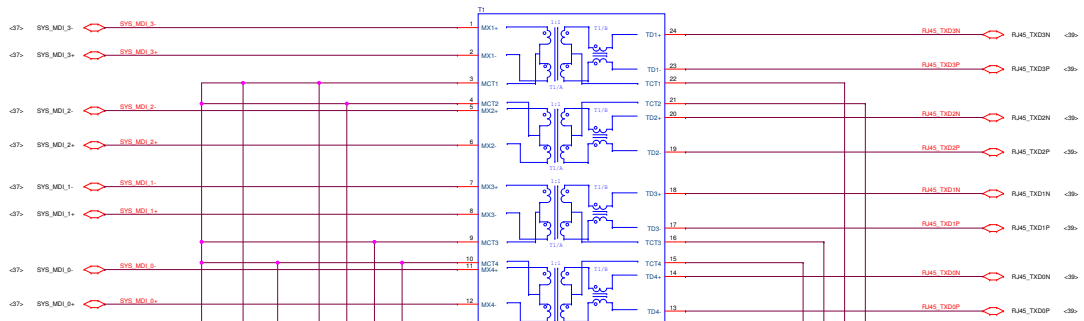


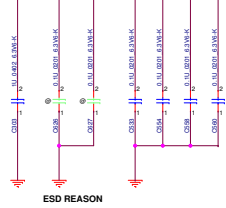
TABLE of LAN Switch (U12)

| Vendor | P/N | LCFC P/N |
|---------|---------------|-------------|
| PERICOM | PI3L720ZHE+CX | SA00007E900 |
| TI | TS3L501ERUAR | SA000072400 |



THE WIDTH OF THESE TRACE SHOULD BE WIDER THAN SIGNAL TO PREVENT VOLTAGE DROP.

C203 SHOULD BE PLACED AS CLOSE TO MAGNETICS AS POSSIBLE.

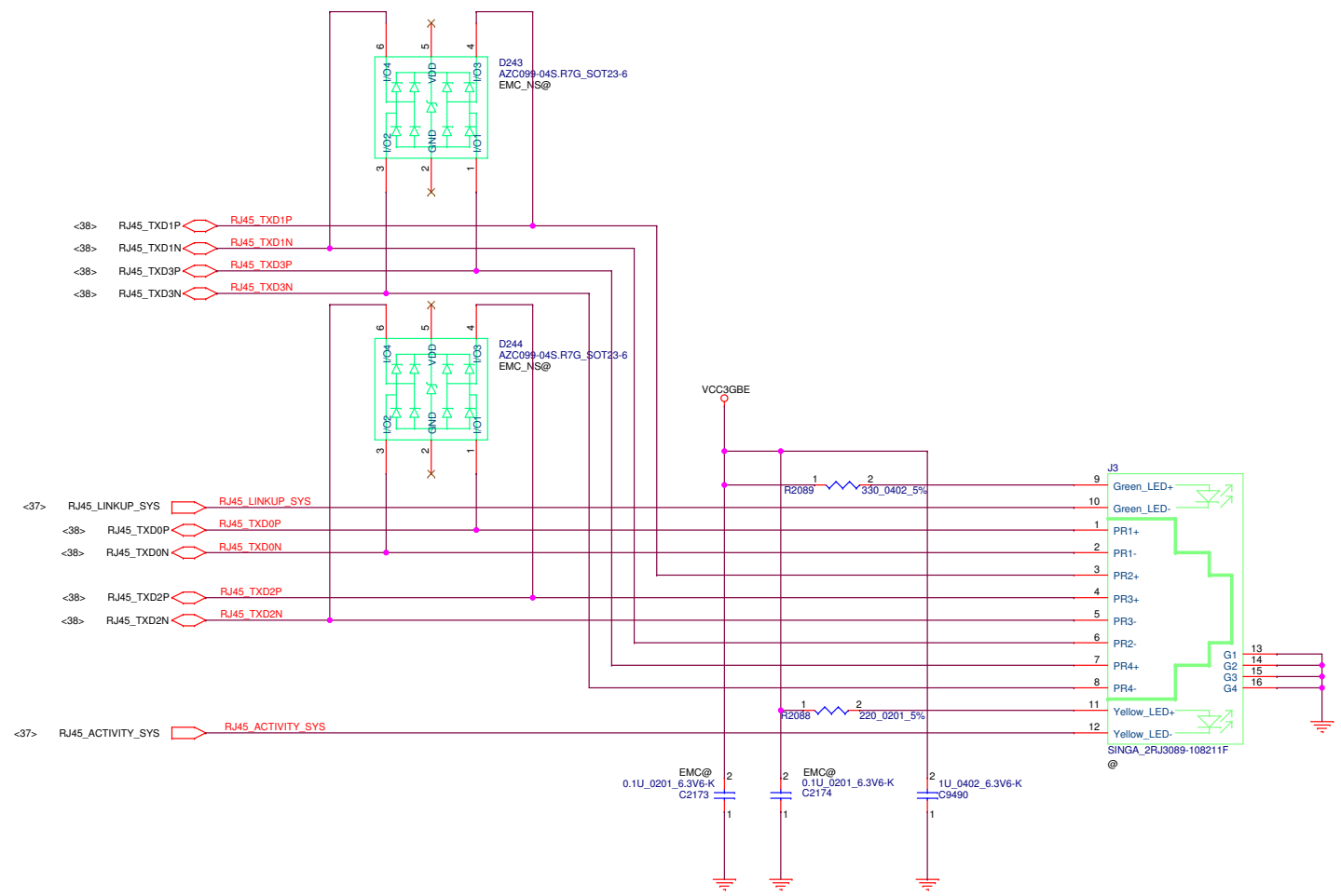


| TABLE of Transformer (T1) | | |
|---------------------------|----------|-------------|
| Vendor | P/N | LCFC P/N |
| BOTHHAND | NA69R-LF | SP050008B00 |
| TAIMAG | IH-189-A | SP050007V0J |

PATTERN MUST BE SHORT AND WIDE.



HIGH VOLTAGE 1500VPP CAP IS OPTIONAL.



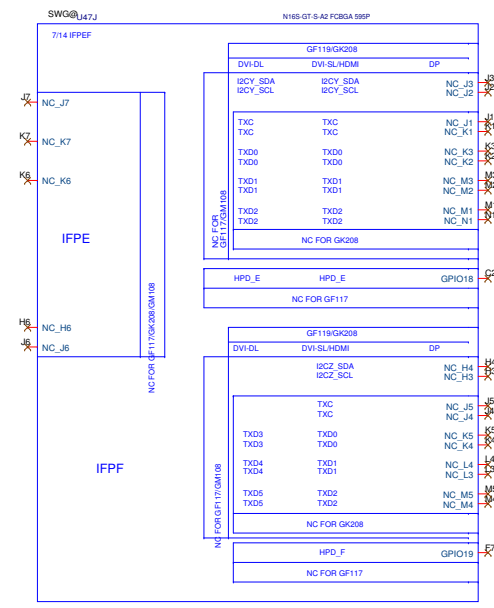
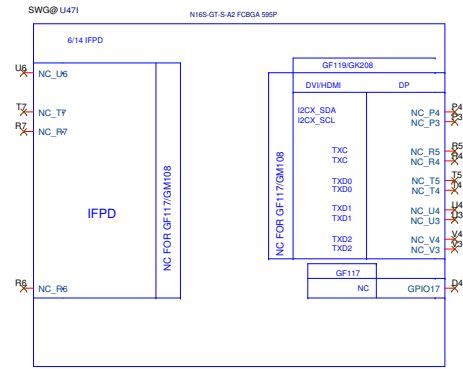
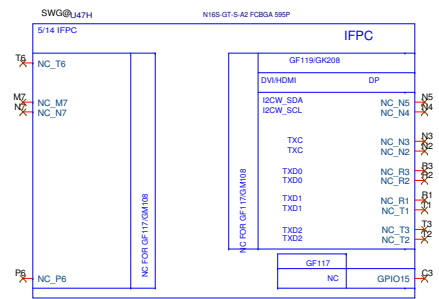
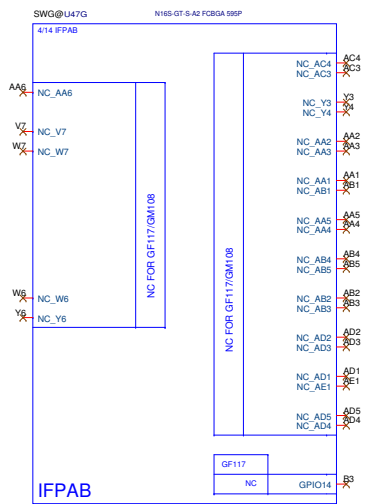
| | | | |
|-------------------------|------------------------------|-----------------|------------|
| Security Classification | LC Future Center Secret Data | | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 |

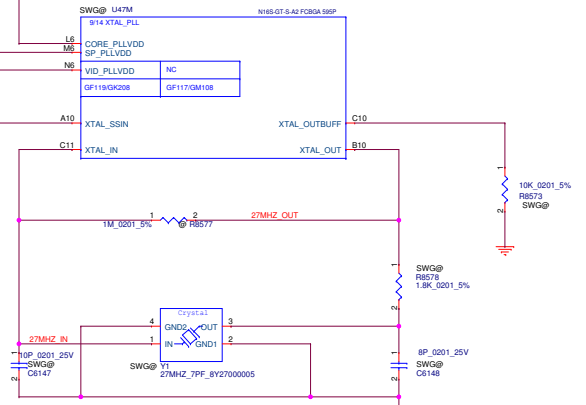
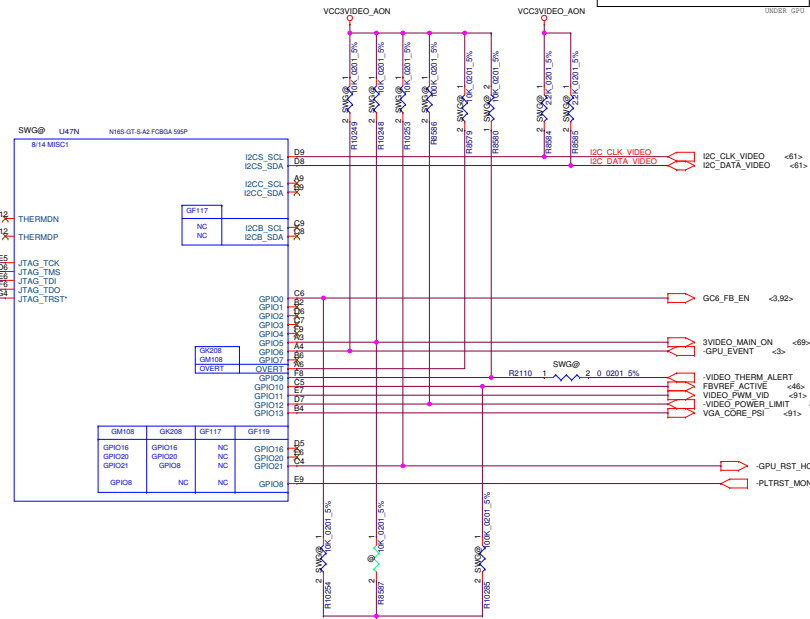
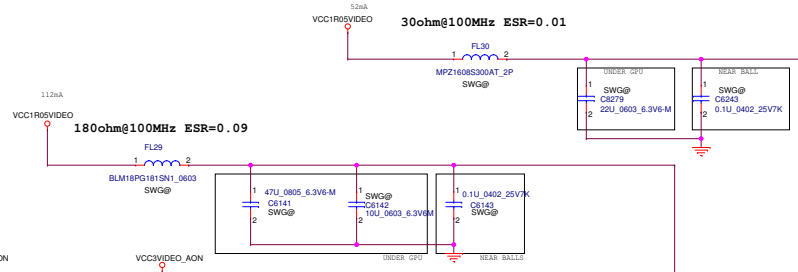
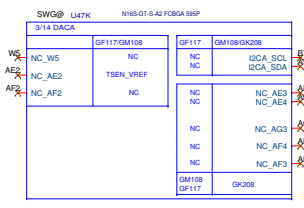
| | |
|-------|----------------|
| Title | RJ45 CONNECTOR |
|-------|----------------|

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.

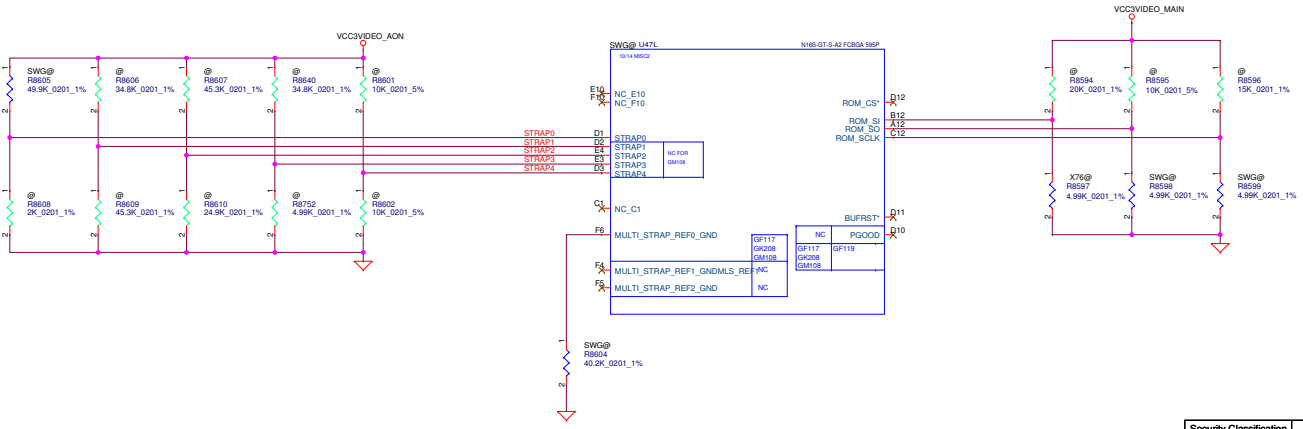
| | | |
|--------|------------------------------|----------------|
| Size | Document Number | Rev |
| Custom | Windu-1 | 0.1 |
| Date: | Wednesday, November 02, 2016 | Sheet 39 of 98 |







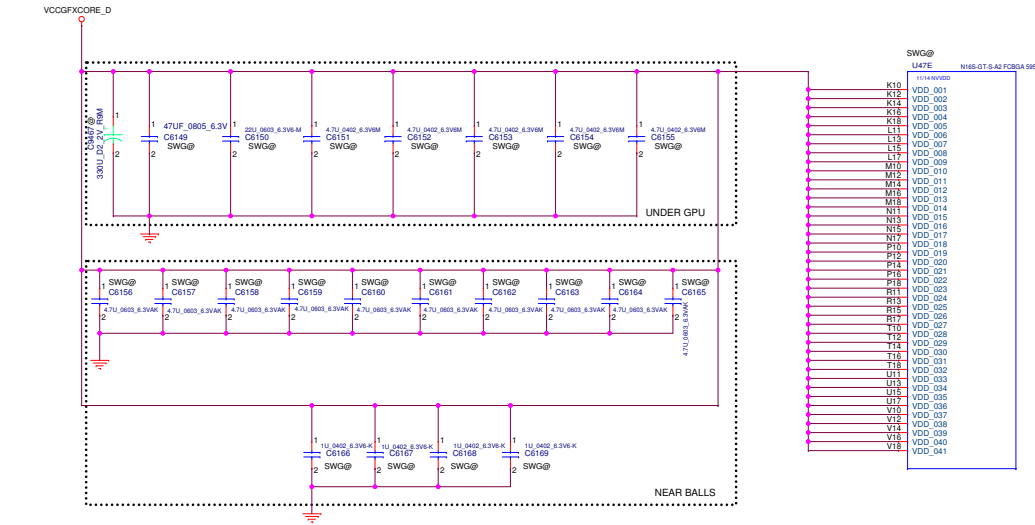
| Y1 CRYSTAL 27MHz- 7pF 20ppm | | | |
|-----------------------------|----------------|-------------|--|
| Vendor | P/N | LCFC P/N | |
| TXC | 8Y27000005 | SJ100001B00 | |
| KDS | 1ZZHAE2700CC0A | SJ100001800 | |



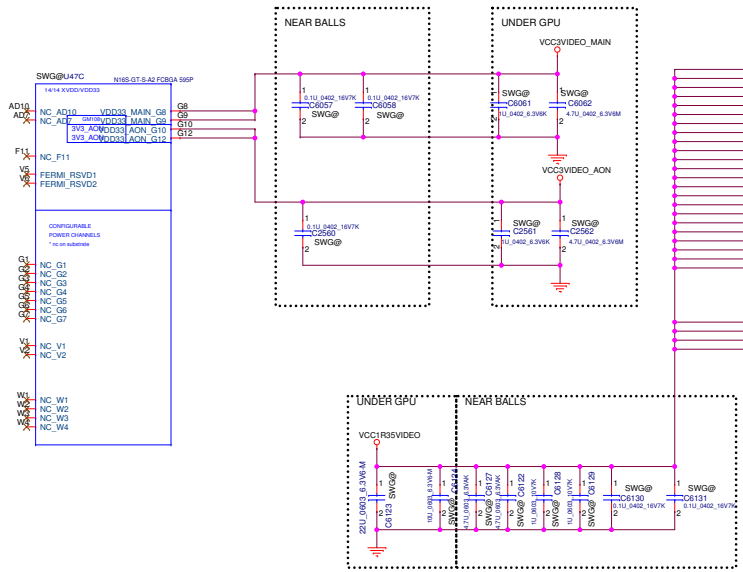
X76 Config (VRAM + Resistance)

| <p>X7613801001 M2G@</p> | | <p>X7613801002 S2G@</p> | | | |
|-----------------------------|--------------------|-----------------------------|----------|-----------------|-------------|
| Location | Depiction | LCFC P/N | Location | Depiction | LCFC P/N |
| R8597 | 10K +-1% 0201 | SD0411002YI | R8597 | 4.99K +-1% 0201 | SD000001WYT |
| U91,U93 | MT51J256M32HF-60:A | SA00007B00 | U91,U93 | K4G80325FB-HC03 | SA00007GW00 |

| | | | | | |
|--|------------------------------|-----------------|-----------|--------------------|----------|
| Security Classification | LC Future Center Secret Data | | Title | N165-GTR(4/8) GPIO | |
| Issued Date | 2012/05/02 | Deciphered Date | 2012/5/02 | Revision | 1.0 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | | |
| Date: Wednesday, November 02, 2016 | | | | Sheet | 43 of 98 |

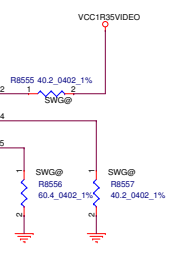
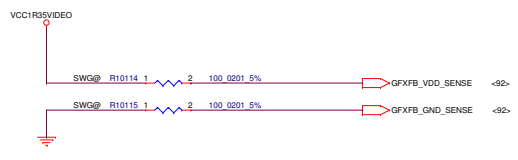


- SWG@
- U47E N16S-GT-5-A5 FCBGA 56P
 - K10 1014 NVDD0
 - VDD_001
 - VDD_002
 - K14 VDD_003
 - K16 VDD_004
 - K18 VDD_005
 - L11 VDD_006
 - L13 VDD_007
 - L15 VDD_008
 - L17 VDD_009
 - M22 VDD_010
 - M10 VDD_011
 - M16 VDD_012
 - M18 VDD_013
 - N11 VDD_014
 - N13 VDD_015
 - N15 VDD_016
 - N17 VDD_017
 - N19 VDD_018
 - P12 VDD_019
 - P14 VDD_020
 - P16 VDD_021
 - VDD_022
 - R11 VDD_023
 - R13 VDD_024
 - R15 VDD_025
 - R17 VDD_026
 - T10 VDD_027
 - T12 VDD_028
 - T14 VDD_029
 - T16 VDD_030
 - T18 VDD_031
 - U11 VDD_032
 - U13 VDD_033
 - U14 VDD_034
 - U19 VDD_035
 - VDD_036
 - V10 VDD_037
 - V12 VDD_038
 - V14 VDD_039
 - V16 VDD_040
 - V18 VDD_041



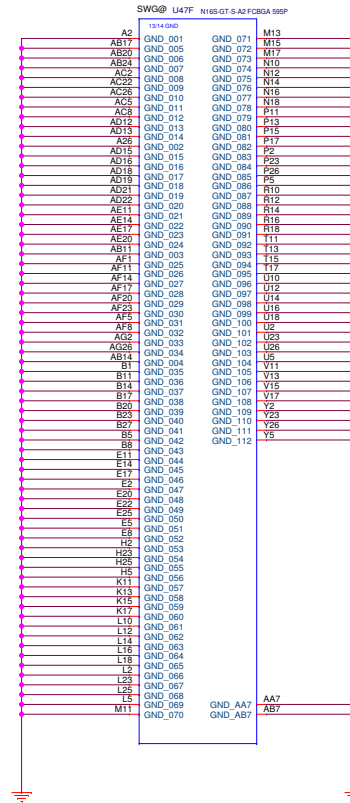
- SWG@U47D N16S-GT-5-A5 FCBGA 56P
- B26 FBVDDQ_01
 - C26 FBVDDQ_02
 - E26 FBVDDQ_03
 - F14 FBVDDQ_04
 - F21 FBVDDQ_05
 - G13 FBVDDQ_06
 - G14 FBVDDQ_07
 - G15 FBVDDQ_08
 - G16 FBVDDQ_09
 - G18 FBVDDQ_10
 - G19 FBVDDQ_11
 - G20 FBVDDQ_12
 - G21 FBVDDQ_13
 - L23 FBVDDQ_14
 - L24 FBVDDQ_15
 - L26 FBVDDQ_16
 - M21 FBVDDQ_17
 - M22 FBVDDQ_18
 - N21 FBVDDQ_19
 - N22 FBVDDQ_20
 - R21 FBVDDQ_21
 - R22 FBVDDQ_22
 - R23 FBVDDQ_23
 - V21 FBVDDQ_24
 - V22 FBVDDQ_25
 - V23 FBVDDQ_26
 - W21 FBVDDQ_27

- GF117 GF119 GK208
- H24 FBVDDQ_ACN_H24 FBVDDQ
 - J21 FBVDDQ_ACN_H26 FBVDDQ
 - K21 FBVDDQ_ACN_K21 FBVDDQ



| Security Classification | | LC Future Center Secret Data | |
|--|------------|------------------------------|------------|
| Issued Date | 2012/06/21 | Deciphered Date | 2012/06/21 |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | |

| Title | |
|---------------------|------------------------------|
| N16S-GTR(5/6) POWER | |
| Document Number | Indu-1 |
| Date: | Wednesday, November 02, 2011 |
| Sheet | 44 of 98 |



| | | | | | |
|--|------------|------------------------------|------------|-------------------|---|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2012/06/21 | Deciphered Date | 2012/06/21 | N16S-GTR(6/6) GND | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Revision | 0.1 |
| | | | | Date: | Wednesday, November 02, 2011 Sheet 45 of 98 |



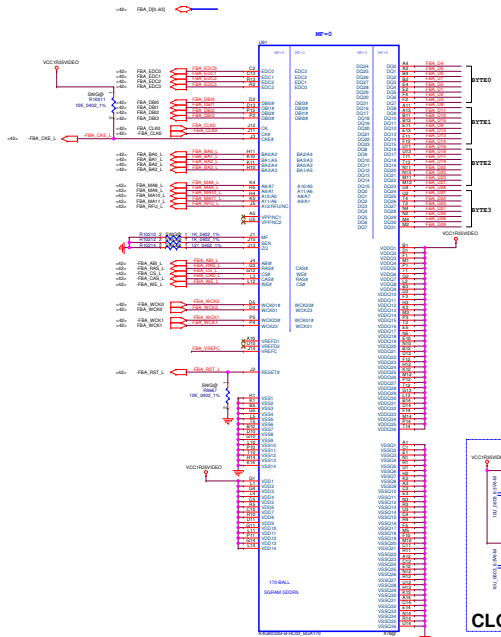
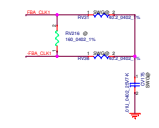
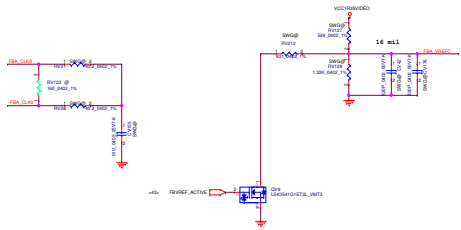
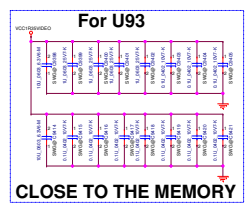
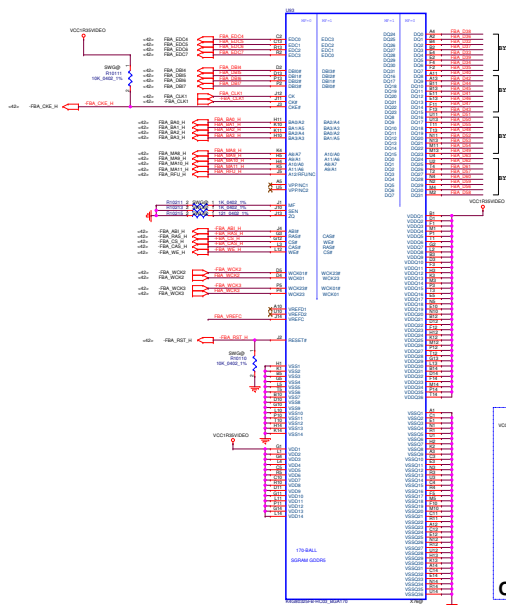
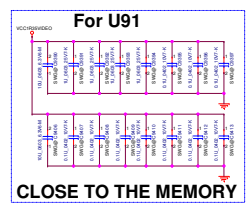



TABLE
QDMS VIDEO MEMORY

| | | |
|-----|-----------------|--------------------|
| | SAMSUNG 8GBITS | MICRON 8GBITS |
| U91 | K4G80325FB-BC03 | M75L1256M32RP-601A |

↑
LOGIC



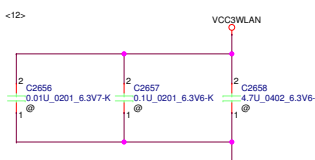
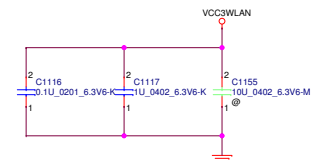
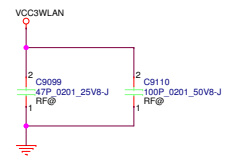
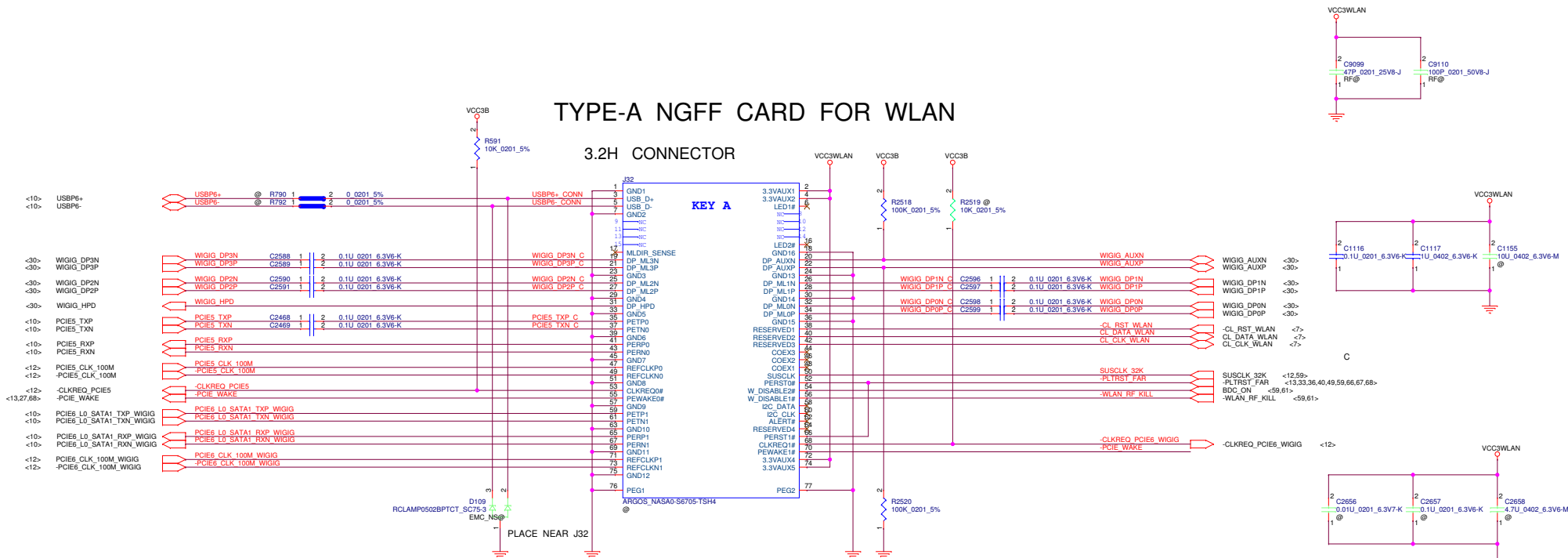


| | | | | |
|---|------------------------------|-----------------|-----------|--|
| Security Classification | LC Future Center Secret Data | | Title |  |
| Issued Date | 2012/05/02 | Deciphered Date | 2012/5/02 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | <small>Revision</small> <small>Document Number</small> Indu-1 <small>Date:</small> Wednesday, November 02, 2011 (Sheet 47 of 98) |
| | | | | <small>Rev</small> 0.1 |

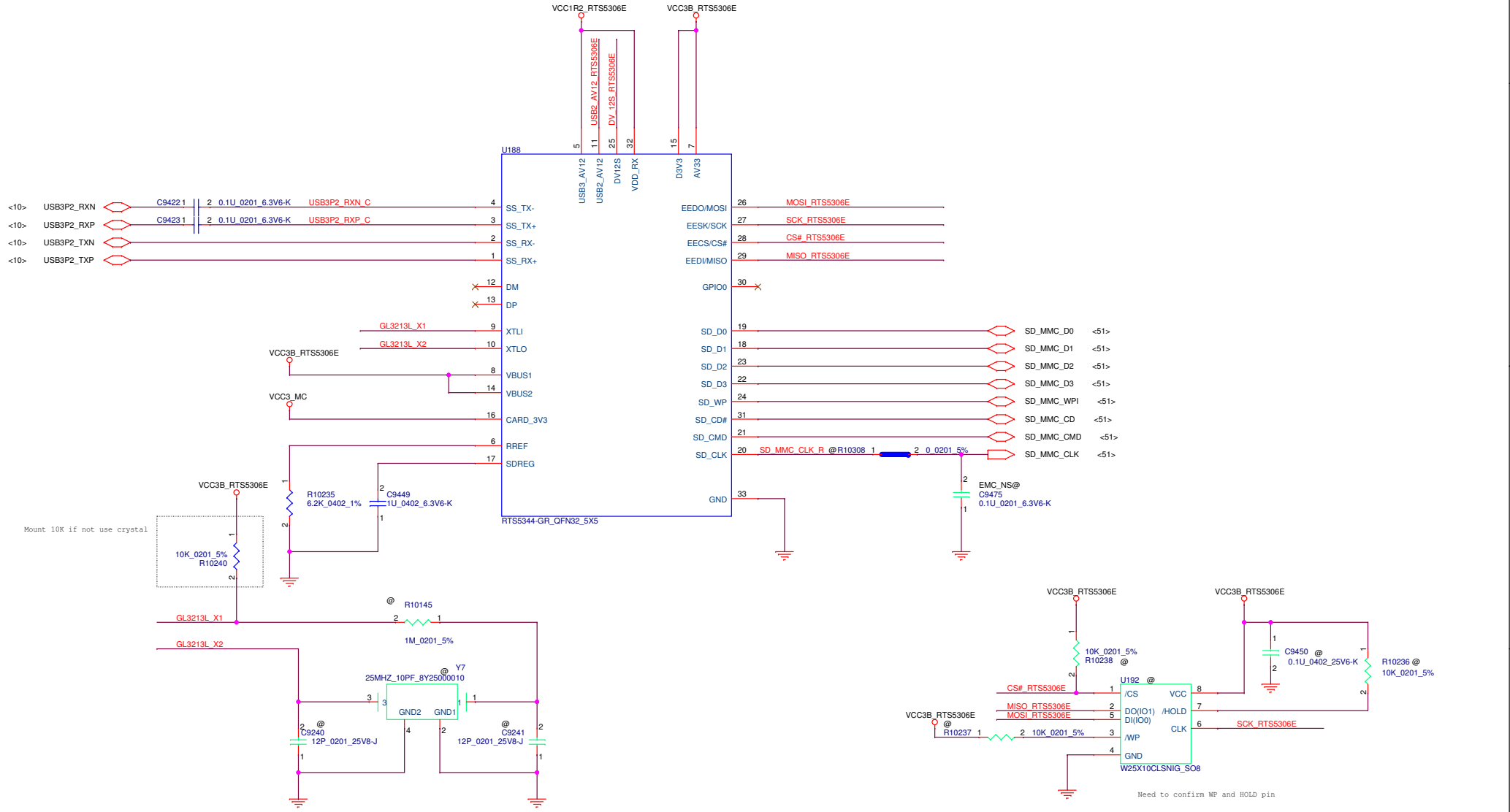
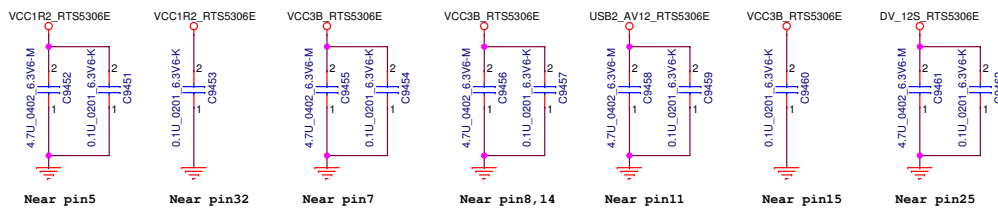
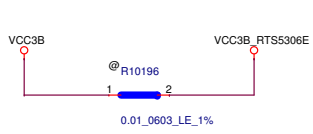
TYPE-A NGFF CARD FOR WLAN

3.2H CONNECTOR

KEY A



| | | | | |
|--|------------------------------|-----------------|------------|---------------------|
| Security Classification | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/08/10 | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Document Number |
| Date: Wednesday, November 02, 2016 02:28:10 | | | | Rev 0.1 |

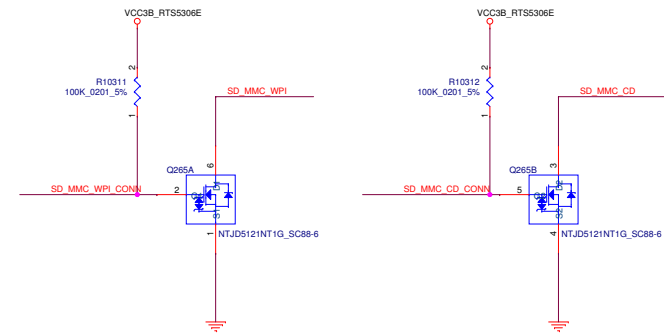
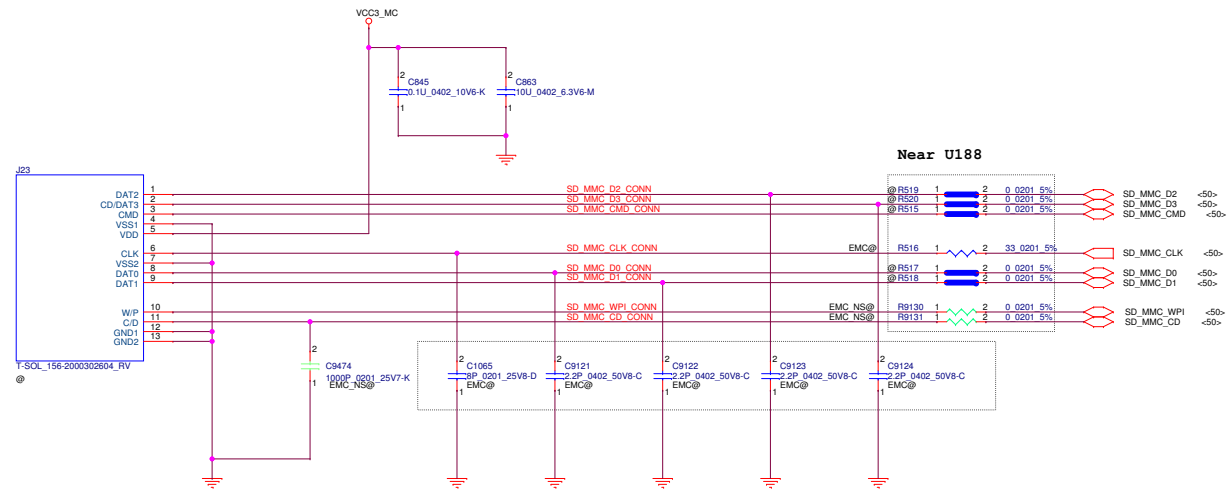



Mount 10K if not use crystal

Need to confirm WP and HOLD pin

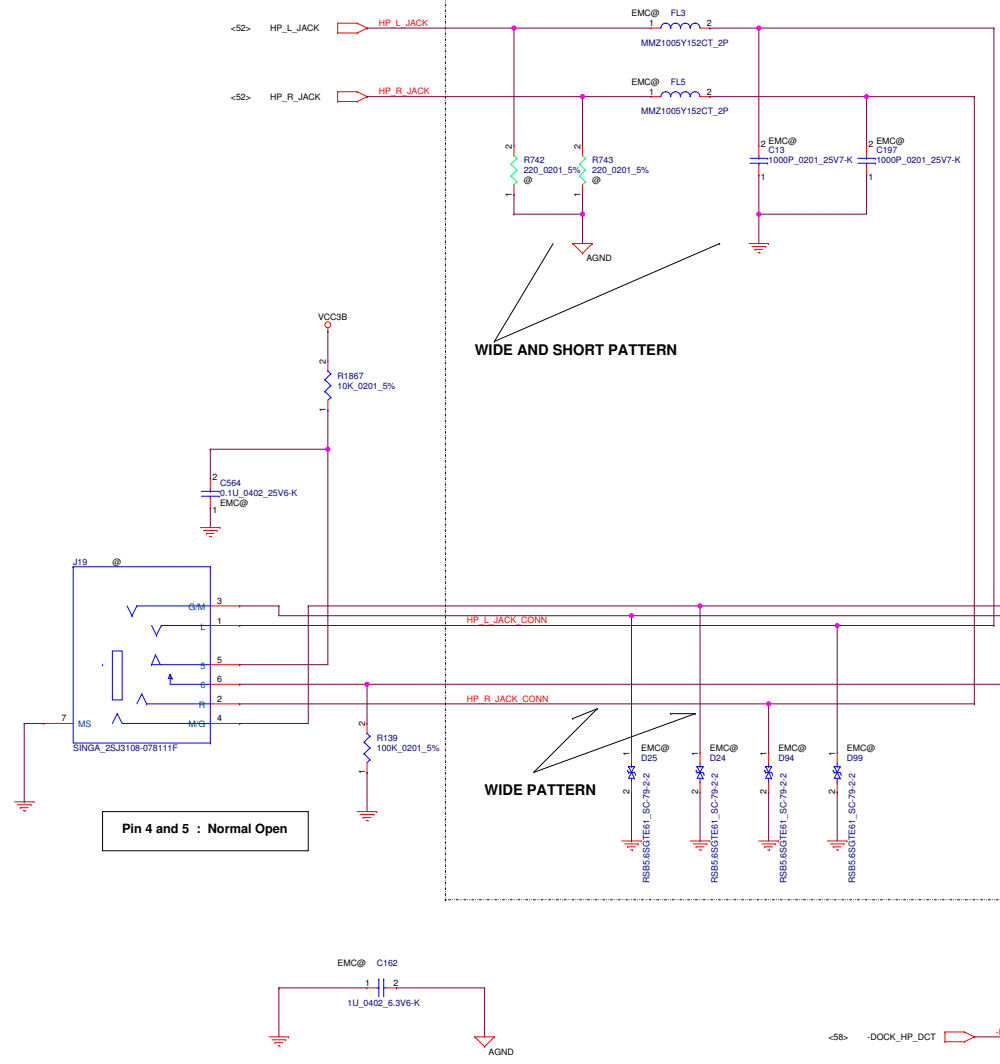
| | | | | | |
|--|------------|------------------------------|-----------|-----------------------|---|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | MEDIA CARD CONTROLLER | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF P&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Size | Document Number |
| | | | | Custom | Windu-1 |
| | | | | Date: | Wednesday, November 02, 2015 Sheet 50 of 98 |
| | | | | Rev | 0.1 |





| | | | | |
|---|------------------------------|-----------------|-----------|--|
| Security Classification | LC Future Center Secret Data | | Title |  MEDIA CARD INTERFACE |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Revision: 01 Date: Wednesday, November 02, 2016 Sheet 51 of 98 |

NEAR AUDIO CONN



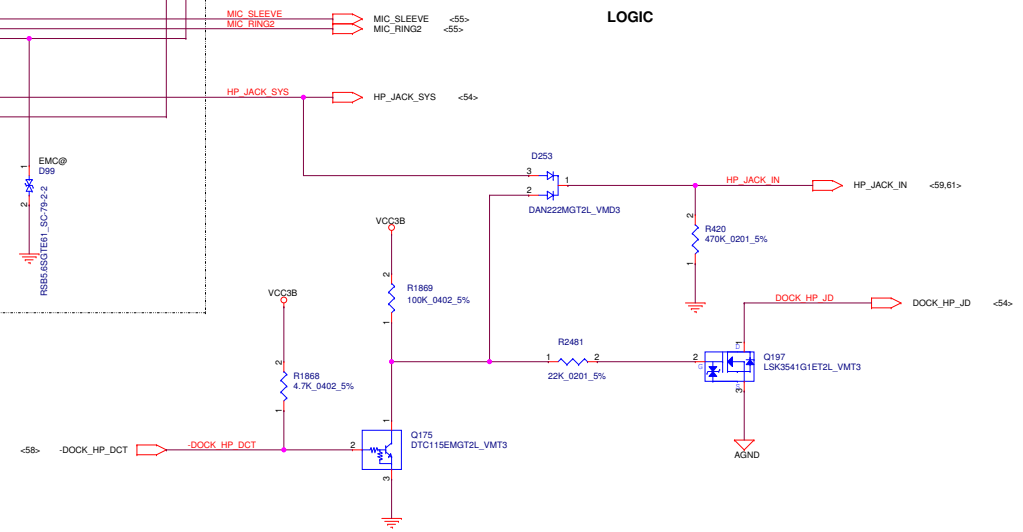
WIDE AND SHORT PATTERN

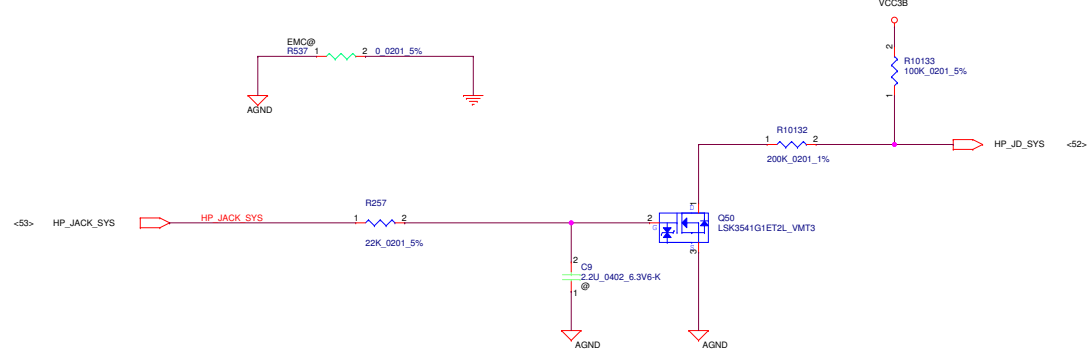
WIDE PATTERN

TABLE

| DOCKING | SUPPORT | NON-SUPPORT |
|---------|---------|-------------|
| R1869 | ASM | NO ASM |
| Q175 | ASM | NO ASM |
| R2481 | ASM | NO ASM |
| Q197 | ASM | NO ASM |

↑
LOGIC

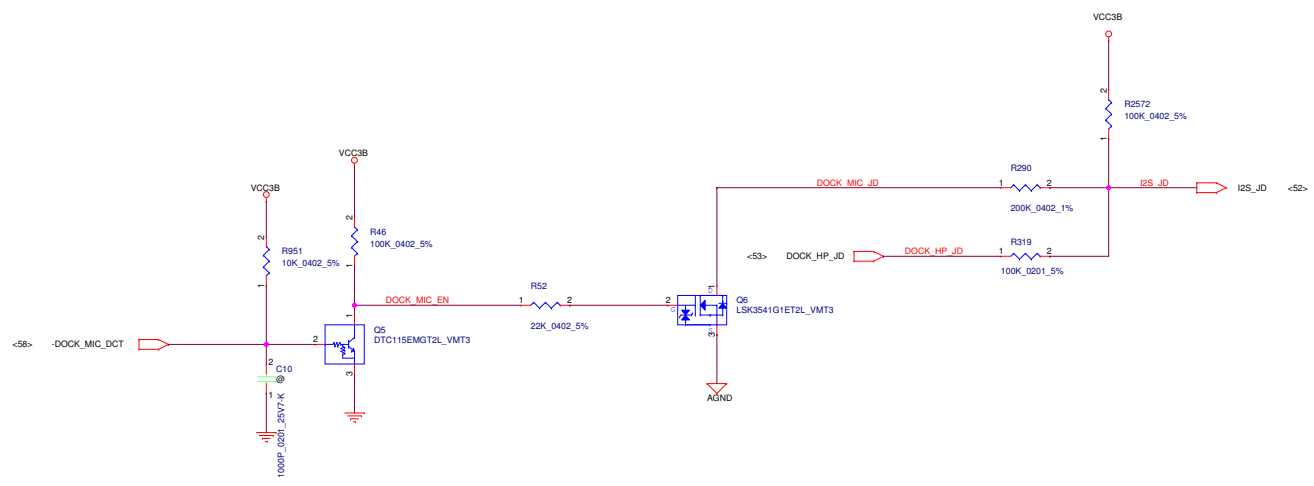




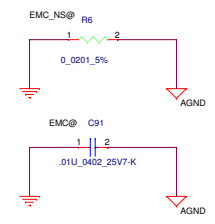
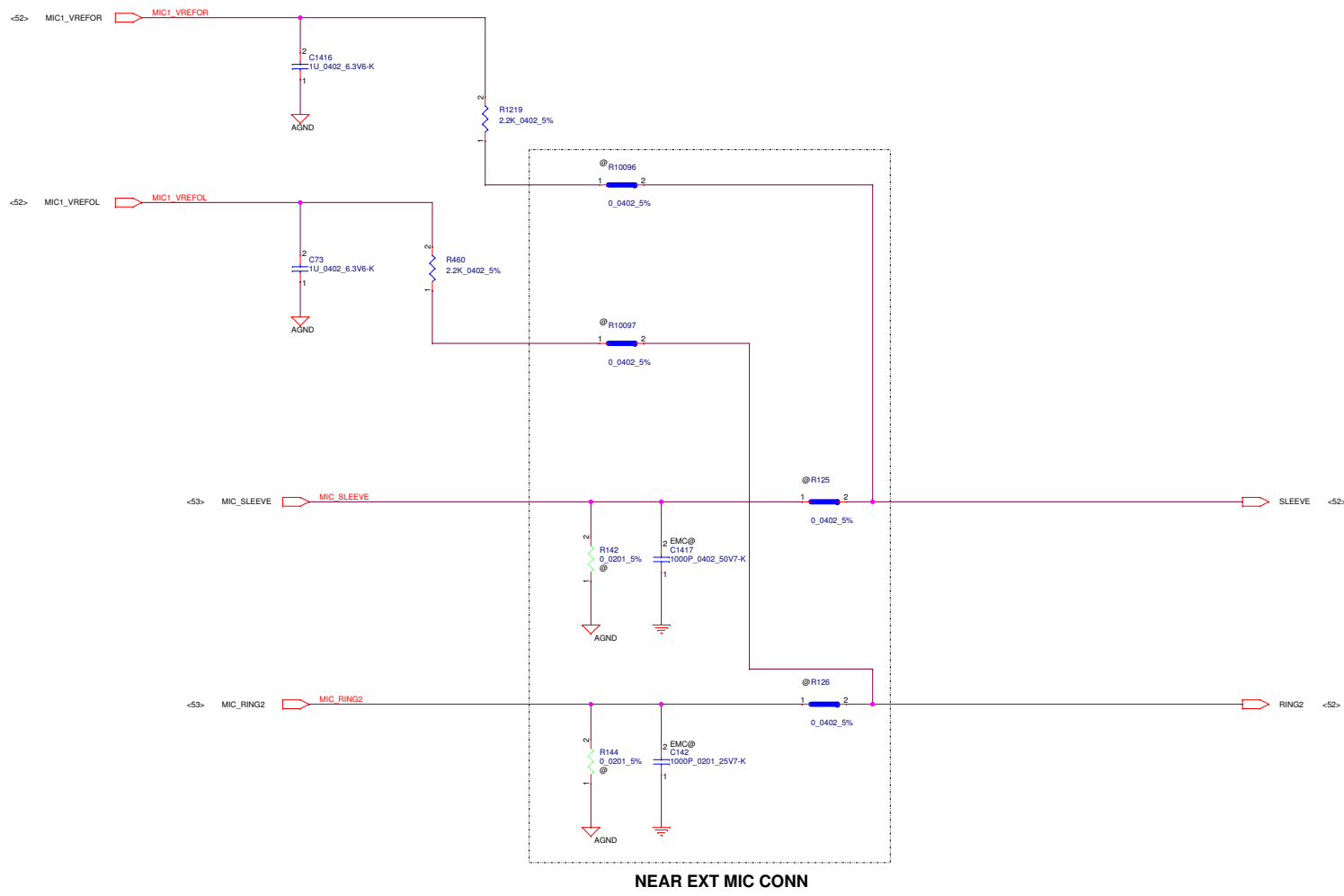
TABLE

| DOCKING | SUPPORT | | NON SUPPORT |
|---------|---------|--------|-------------|
| | MIC HW | ENABLE | |
| R951 | ASM | NO ASM | NO ASM |
| R290 | ASM | NO ASM | NO ASM |
| R46 | ASM | NO ASM | NO ASM |
| Q5 | ASM | NO ASM | NO ASM |
| R52 | ASM | NO ASM | NO ASM |
| Q6 | ASM | NO ASM | NO ASM |
| R319 | ASM | ASM | NO ASM |
| R2572 | ASM | ASM | NO ASM |


↑
LOGIC

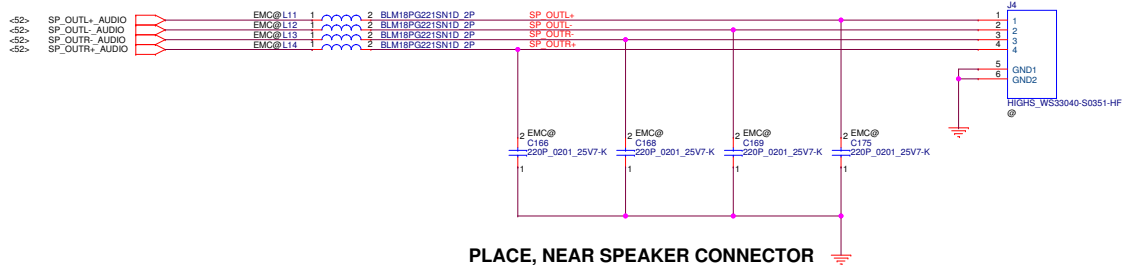



| | | | | |
|---|------------------------------|-----------------|-----------|--|
| Security Classification | LC Future Center Secret Data | | Title | AUDIO JACK SENSE |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | <small>Revision</small> 01 <small>Document Number</small> C |
| Date: Wednesday, November 02, 2016 | | | | Sheet 54 of 98 |

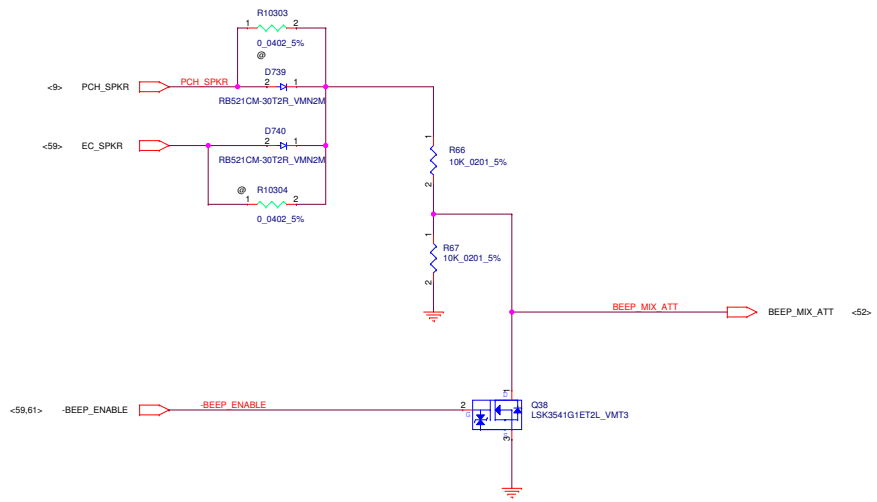


NEAR EXT MIC CONN

| | | | | |
|---|------------------------------|-----------------|-----------|---|
| Security Classification | LC Future Center Secret Data | | Title |  AUDIO EXT MIC I/F |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Revision C |
| Date: Wednesday, November 02, 2016 | | | | Sheet 55 of 98 Rev 0.1 |



| | | | | |
|---|------------------------------|-----------------|-----------|--|
| Security Classification | LC Future Center Secret Data | | Title |  AUDIO SPEAKER |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | <small>Revision</small> C <small>Document Number</small> Windu-1 <small>Date</small> Wednesday, November 02, 2016 <small>Sheet</small> 56 <small>of</small> 98 <small>Rev</small> 0.1 |

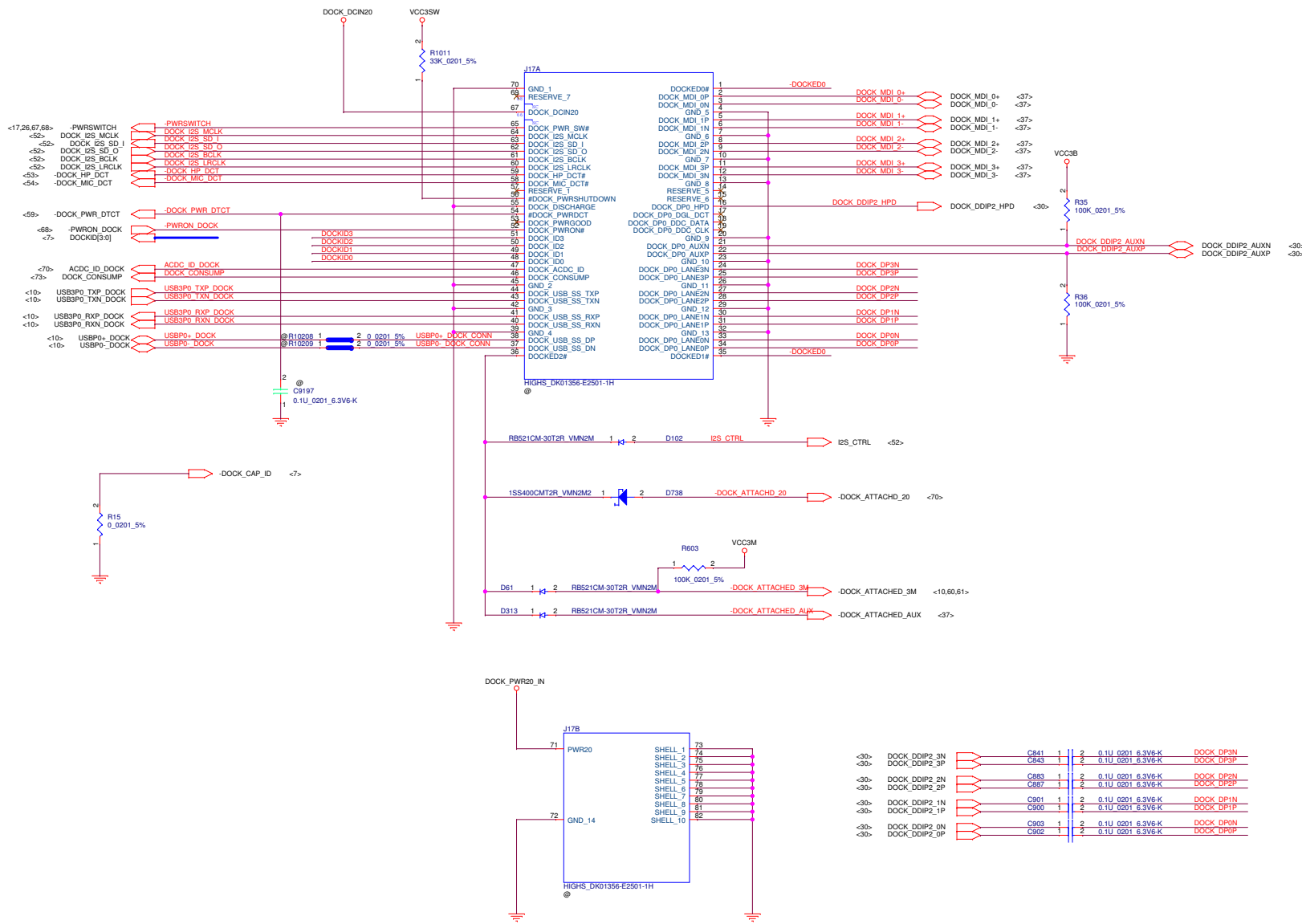


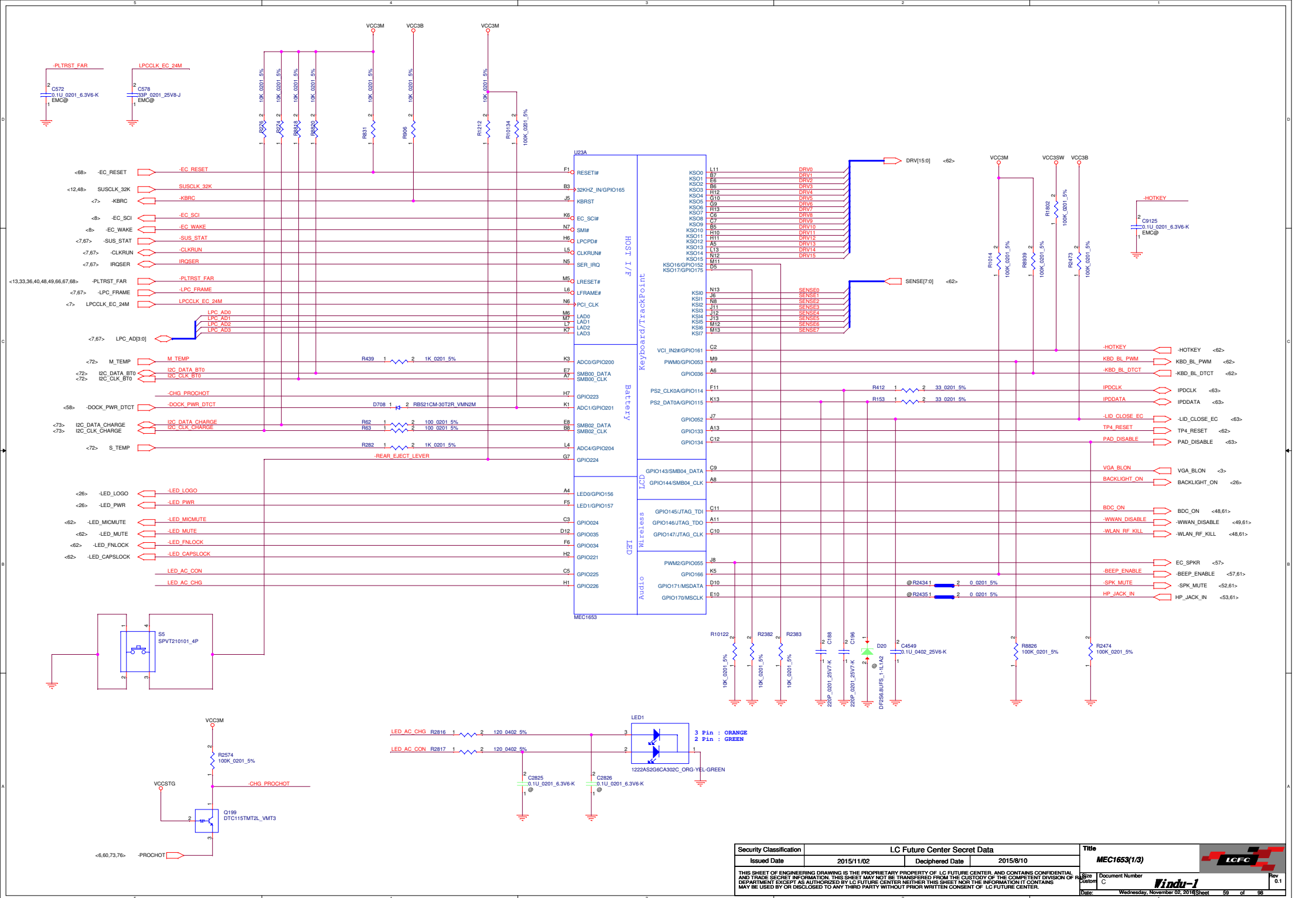
| | | | | | |
|--|------------|------------------------------|-----------|------------|------------------------------|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | AUDIO BEEP | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Revision | 0.1 |
| | | | | Date: | Wednesday, November 02, 2016 |
| | | | | Sheet | 57 of 98 |



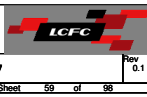
LOGIC
↓

| ID | DOCKING SUPPORT | NON-SUPPORT |
|-------|-----------------|-------------|
| J17 | ASM | NO ASM |
| R1011 | ASM | NO ASM |
| D2 | ASM | NO ASM |
| R603 | ASM | ASM |
| D61 | ASM | NO ASM |
| D102 | ASM | NO ASM |
| C24 | ASM | NO ASM |
| Q85 | ASM | NO ASM |
| R95 | ASM | NO ASM |
| R731 | ASM | NO ASM |
| R657 | ASM | NO ASM |
| C841 | ASM | NO ASM |
| C843 | ASM | NO ASM |
| C883 | ASM | NO ASM |
| C887 | ASM | NO ASM |
| C901 | ASM | NO ASM |
| C900 | ASM | NO ASM |
| C903 | ASM | NO ASM |
| C902 | ASM | NO ASM |
| R35 | ASM | NO ASM |
| R36 | ASM | NO ASM |
| R15 | ASM | NO_ASM |





| | | | | | |
|--|-----------------|------------------------------|-----------|------------------------------|--|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | MEC1653(1/3) | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | | |
| Doc# | Document Number | Date | | Wednesday, November 02, 2015 | |
| C | | Page | | 99 of 98 | |



Trace FIFO Debug Port

| | Enable | Disable |
|-------|--------|---------|
| R2434 | 22_5% | 0_5% |
| R2435 | 22_5% | 0_5% |
| R420 | NO_ASM | ASM |

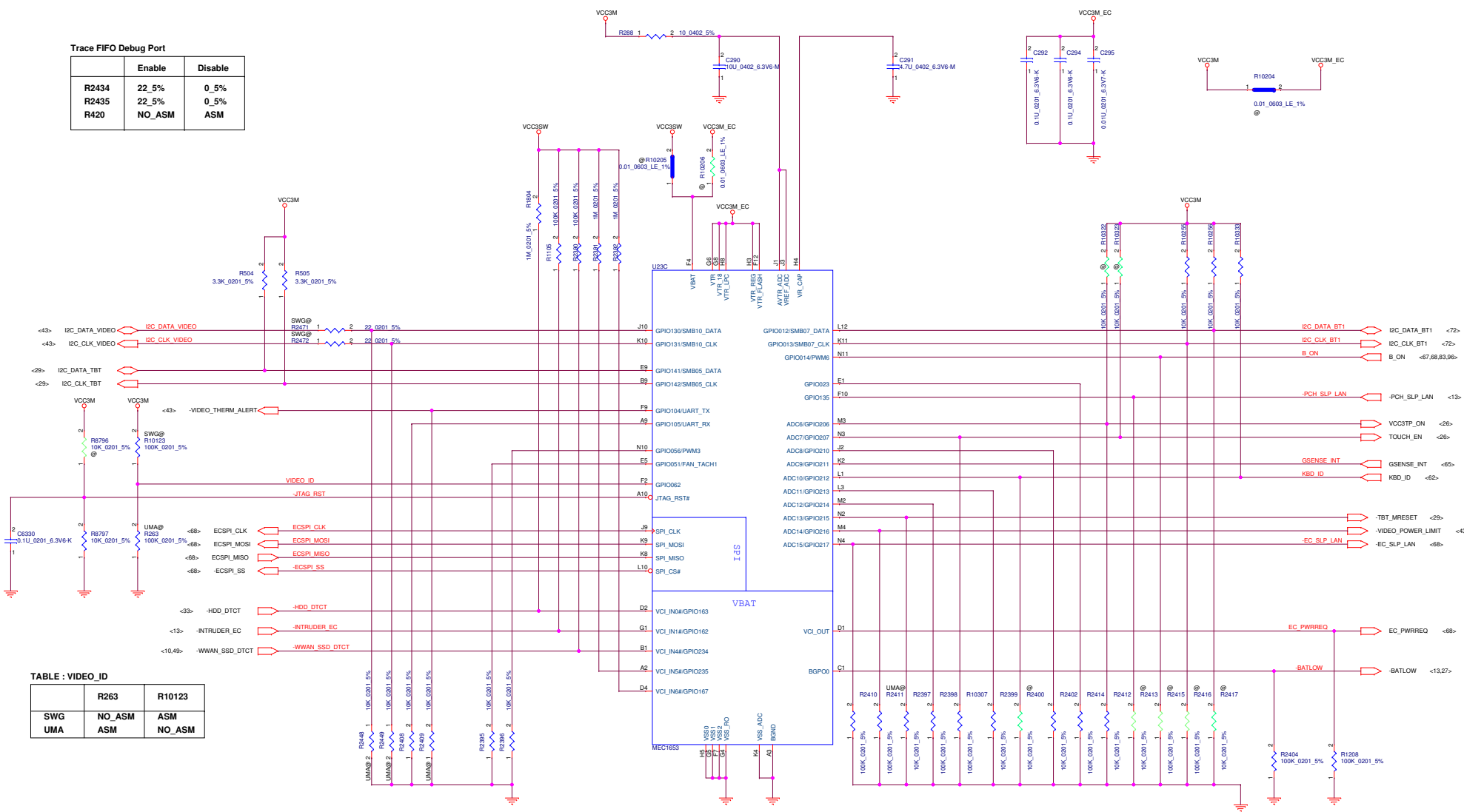


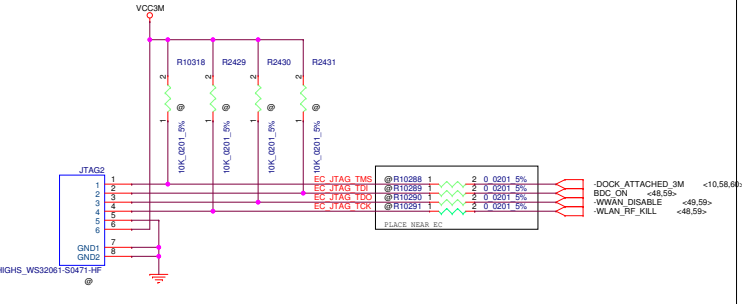
TABLE : VIDEO_ID

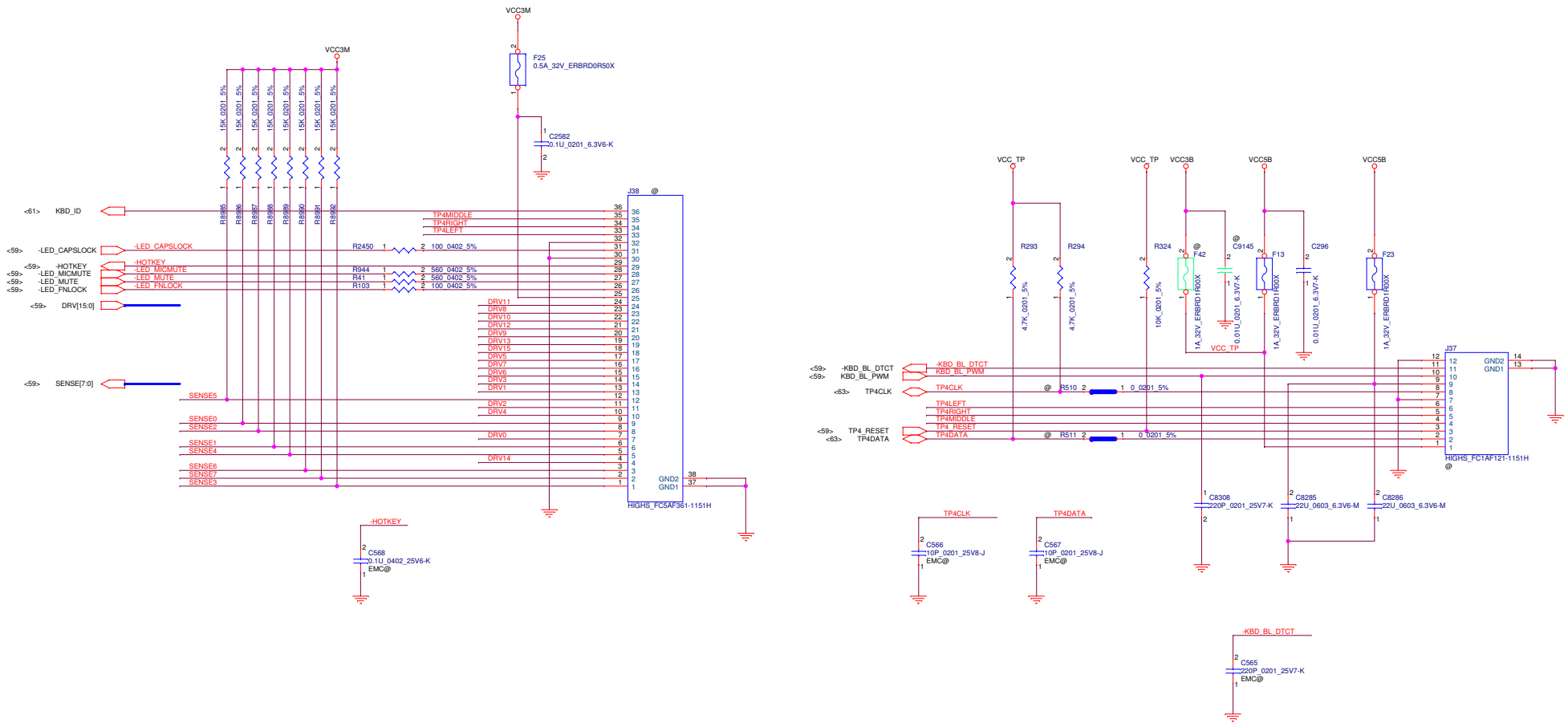
| | R263 | R10123 |
|-----|--------|--------|
| SWG | NO_ASM | ASM |
| UMA | ASM | NO_ASM |


JTAG Debug Port

| | Enable | Disable |
|--------|--------|---------|
| R8796 | ASM | NO_ASM |
| R8797 | NO_ASM | ASM |
| R2429 | ASM | NO_ASM |
| R2430 | ASM | NO_ASM |
| R2431 | ASM | NO_ASM |
| R10318 | ASM | NO_ASM |
| R10288 | ASM | NO_ASM |
| R10289 | ASM | NO_ASM |
| R10290 | ASM | NO_ASM |
| R10291 | ASM | NO_ASM |

Cover with green paint in SVT





| | | | | |
|---|------------------------------|-----------------|-----------|--|
| Security Classification | LC Future Center Secret Data | | Title |  KEYBOARD/TRACK POINT |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Document Number Indu-1 Date: Wednesday, November 02, 2016 Sheet 62 of 98 |

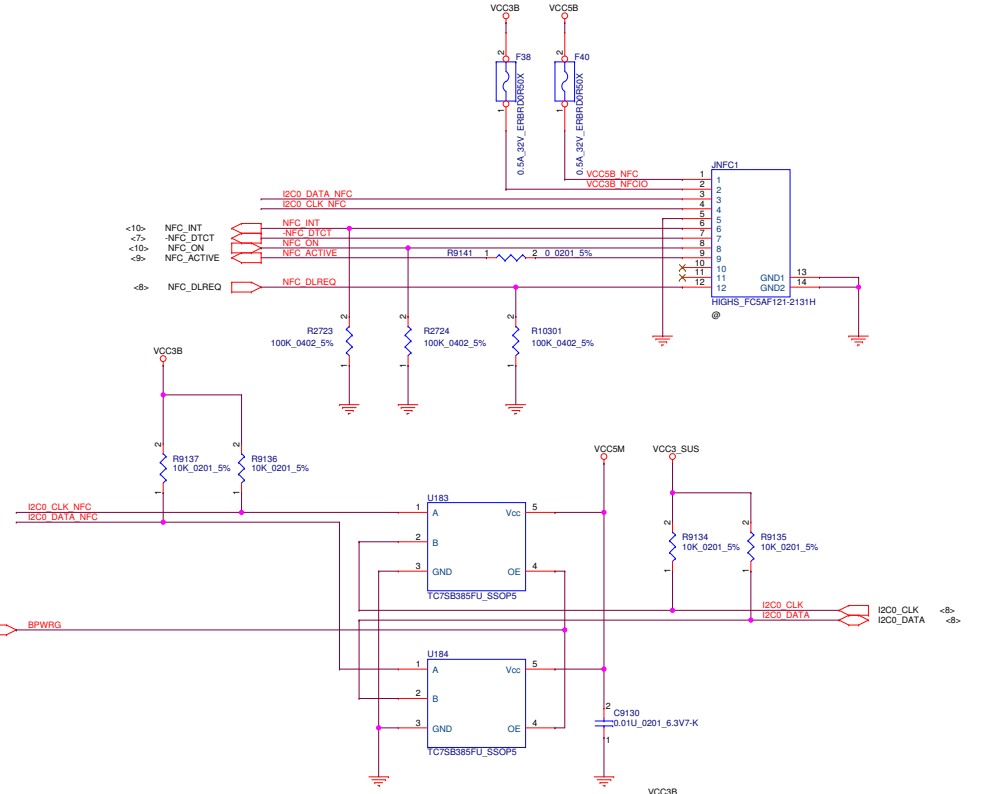
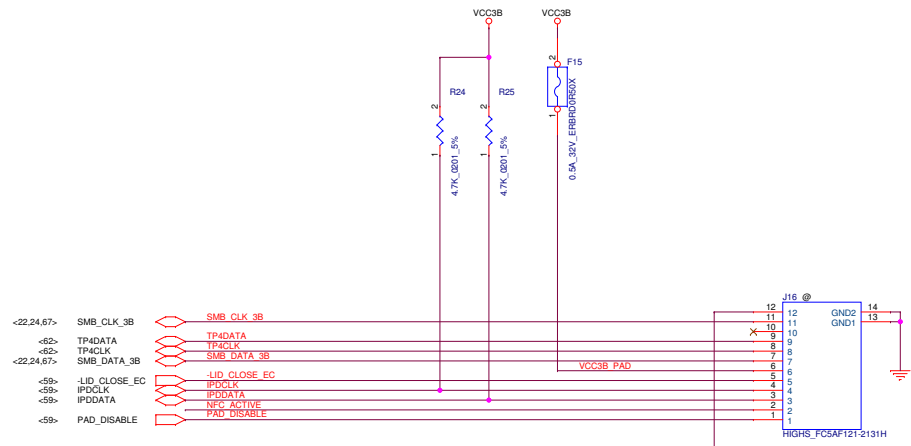
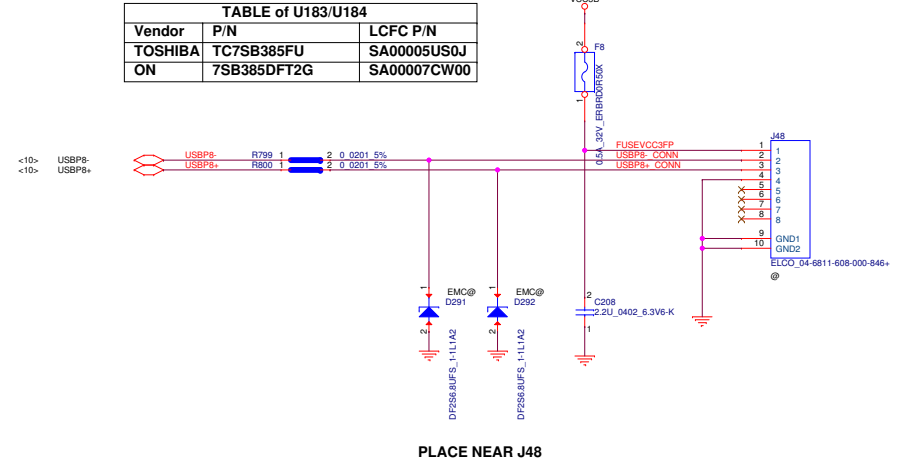
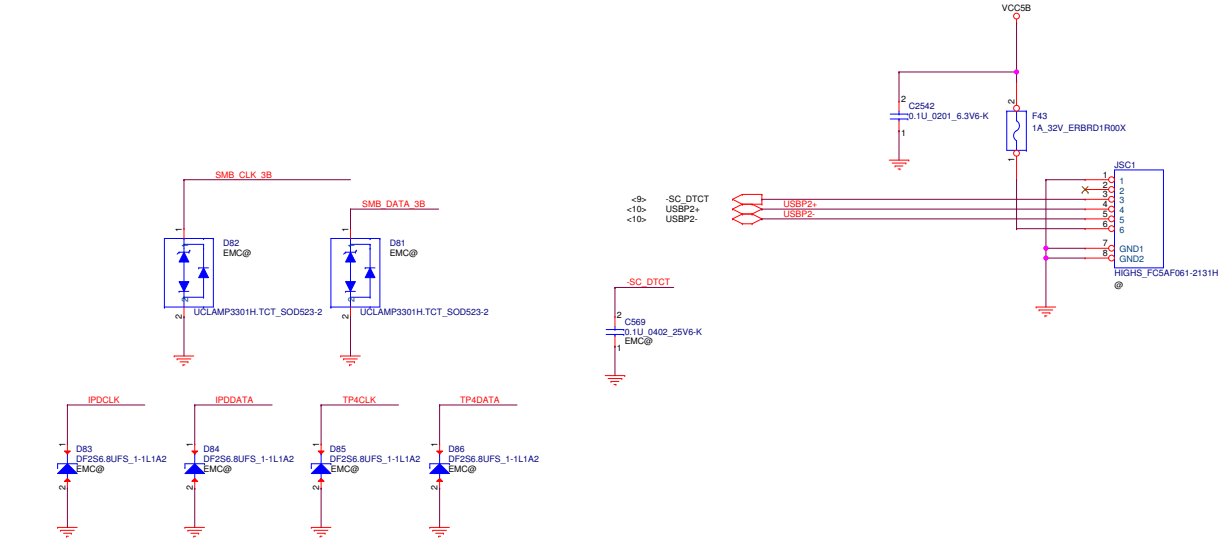
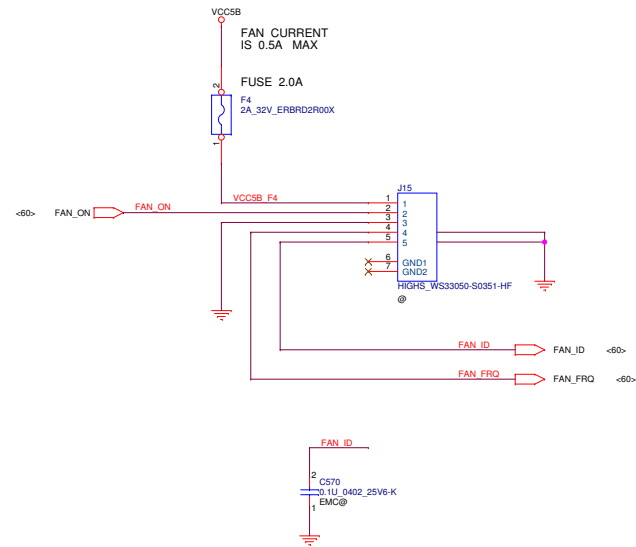



TABLE of U183/U184

| Vendor | P/N | LCFC P/N |
|---------|-------------|-------------|
| TOSHIBA | TC7SB385FU | SA00005US0J |
| ON | 7SB385DFT2G | SA00007CW00 |



PLACE NEAR J48



| | | | | |
|---|------------------------------|-----------------|-----------|---|
| Security Classification | LC Future Center Secret Data | | Title |  FAN CONNECTOR |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Revision: C Document Number: Windu-1 Date: Wednesday, November 02, 2016 Sheet 64 of 98 Rev: 0.1 |

TABLE

| P/N | ADDR_SEL | Address |
|------------|----------|-------------------|
| BMA255 | H | 30h (W) & 31h (R) |
| | L | 32h (W) & 33h (R) |
| KX022-1020 | H | 3Eh (W) & 3Fh (R) |
| | L | 3Ch (W) & 3Dh (R) |

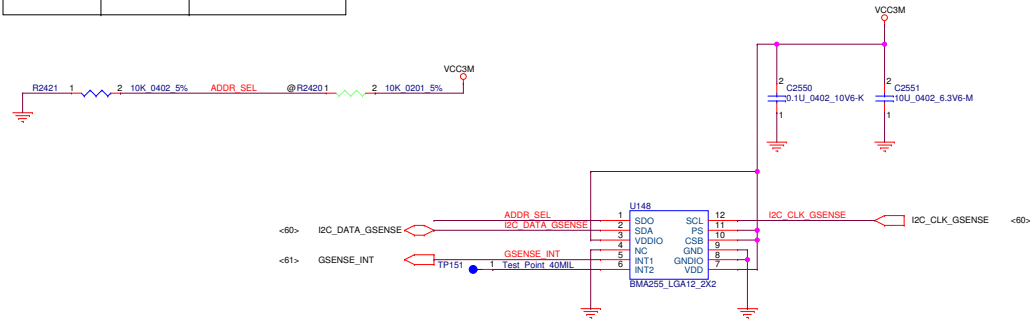
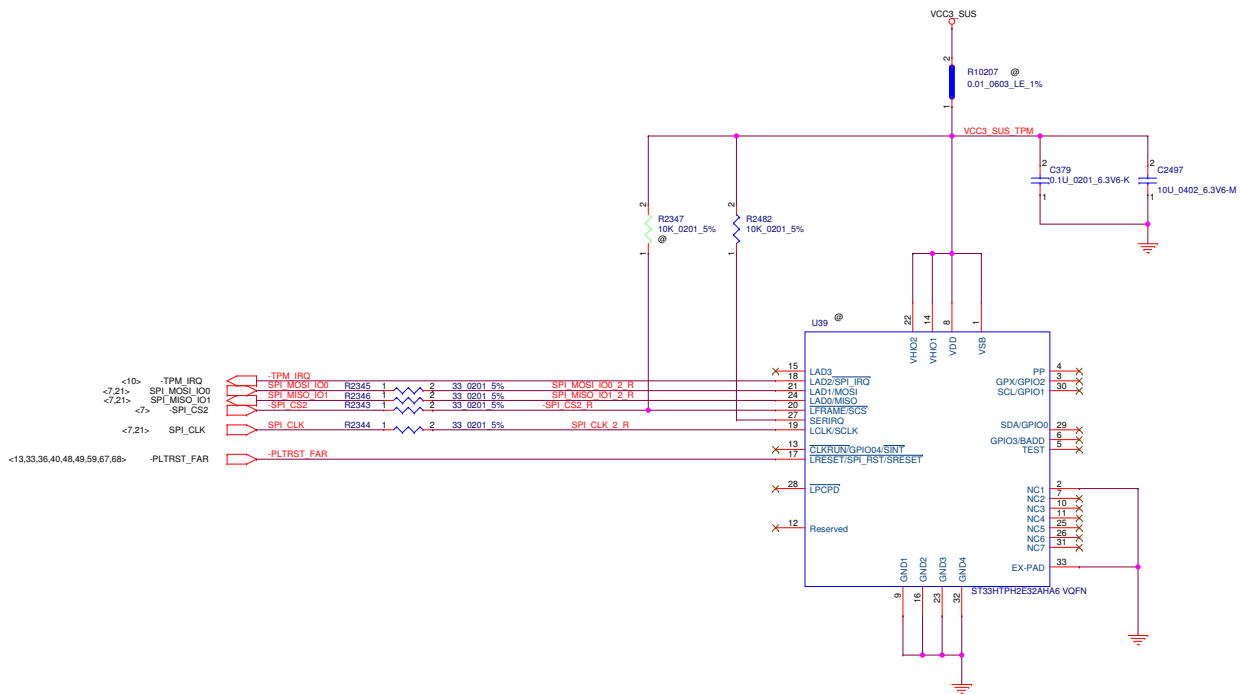


TABLE of G-Sensor (U148)

| Vendor | P/N | LCFC P/N |
|--------|------------|-------------|
| BOSCH | BMA255 | SA00005VJ00 |
| Kionix | KX022-1020 | SA000081E00 |



TABLE

| Pin No | TCG PTP Spec (v38) | Infineon SLB9670VQ2.0 FW 7.60 SA000075L20 | ST Micro ST33HTPH2E32AH46 SA000081F00 |
|--------|--------------------|---|---------------------------------------|
| 1 | VDD | VDD | NC |
| 2 | GND | GND | NC |
| 3 | GPIO | NC | NC |
| 4 | GPIO | NC | PP |
| 5 | NC | NC | NC |
| 6 | VNC/GPIO | GPIO | NC |
| 7 | GPIO/VDD | PP | GPIO |
| 8 | VDD | VDD | NC |
| 9 | GND | GND | NC |
| 10 | VNC | NC | NC |
| 11 | NC | NC | NC |
| 12 | NC | NC | NC |
| 13 | VNC/GPIO | NC | NC |
| 14 | VDD | NC | NC |
| 15 | NC | NC | NC |
| 16 | GND | NC | NC |
| 17 | SPI_RST# | RST# | SPI_RST# |
| 18 | SPI_PIRQ# | PIRQ# | SPI_PIRQ# |
| 19 | SPI_CLK | SCLK | SPI_CLK |
| 20 | SPI_CS# | CS# | SPI_CS# |
| 21 | MOSI | MOSI | MOSI |
| 22 | VDD | VDD | VPS |
| 23 | GND | GND | NC |
| 24 | MISO | MISO | MISO |
| 25 | NC | NC | NC |
| 26 | NC | NC | NC |
| 27 | NC | NC | NC |
| 28 | NC | NC | NC |
| 29 | VNC/GPIO | NC | NC |
| 30 | VNC/GPIO | NC | NC |
| 31 | VNC | NC | NC |
| 32 | GND | GND | NC |

TPM2.0



TPM1.2



TABLE

| REF DES | ENABLE | DISABLE |
|---------|--------|---------|
| J5 | ASM | NO_ASM |
| R220 | ASM | NO_ASM |

↑
LOGIC

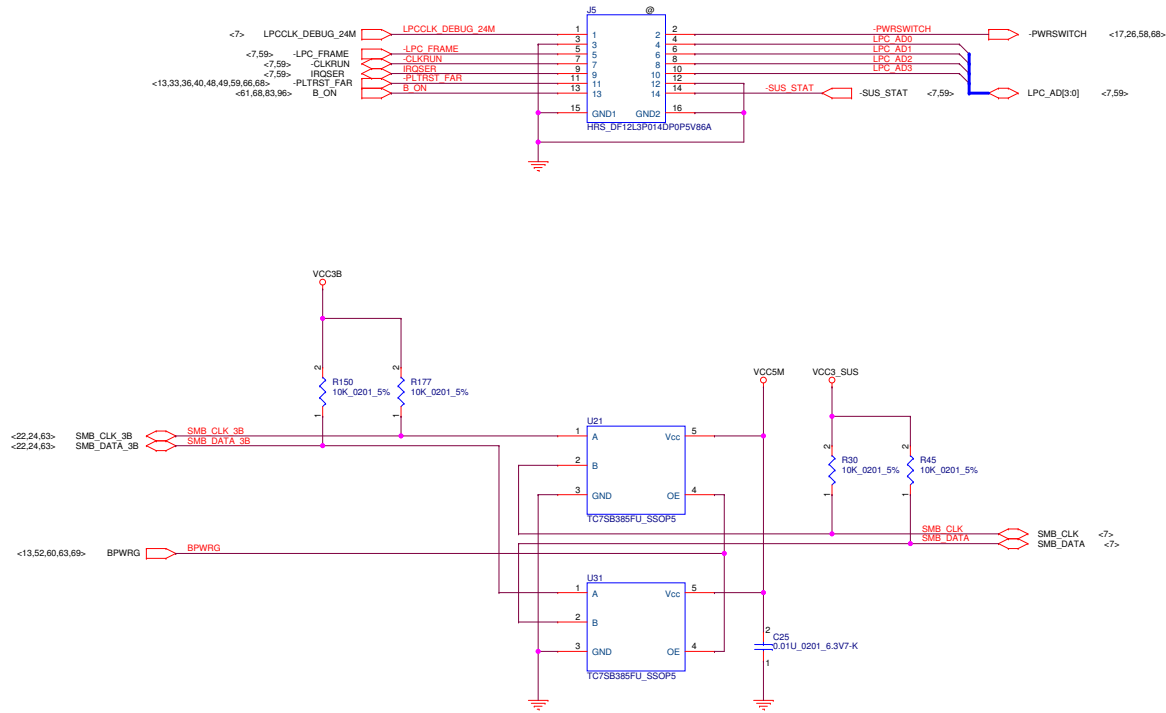
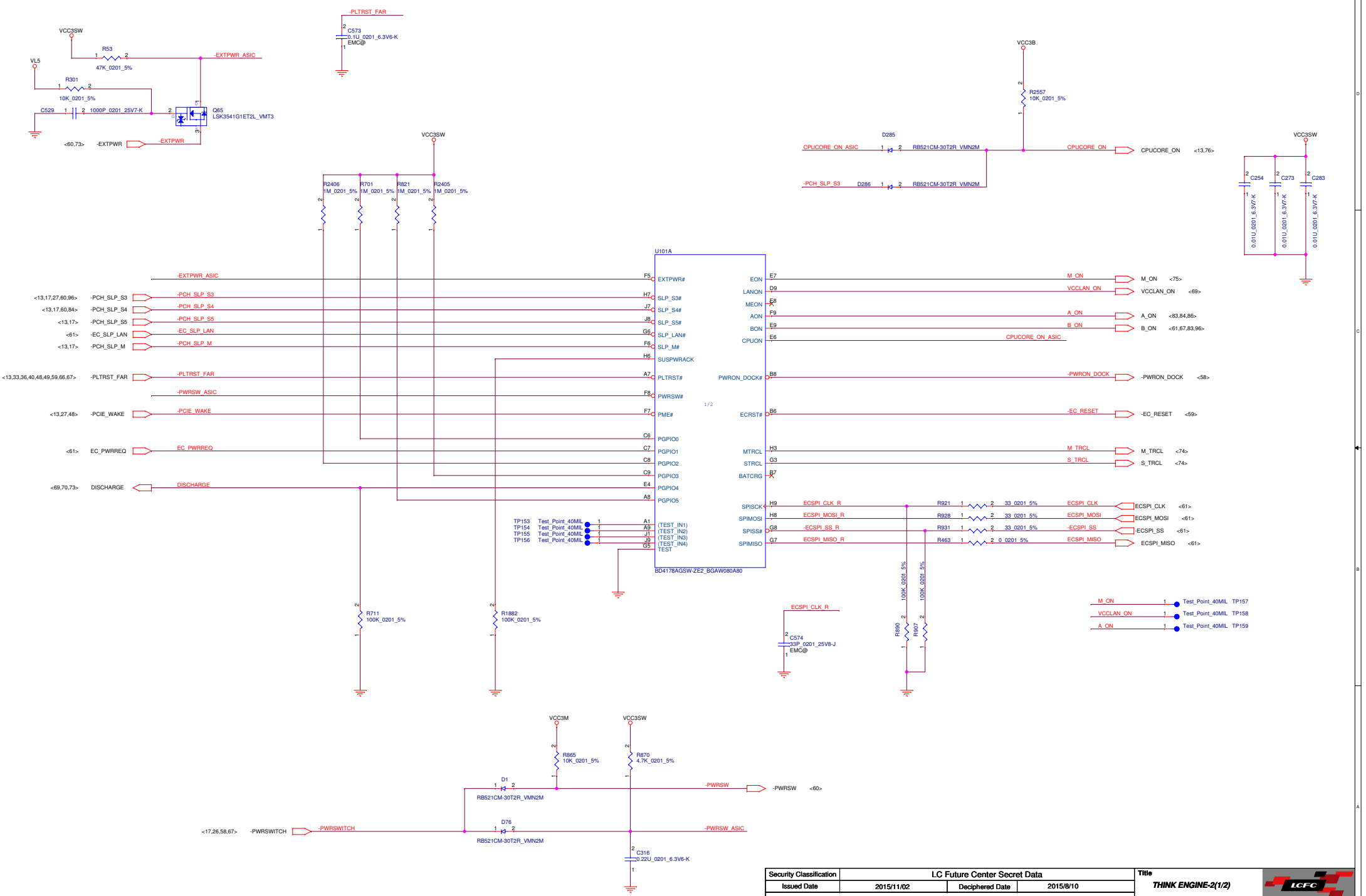


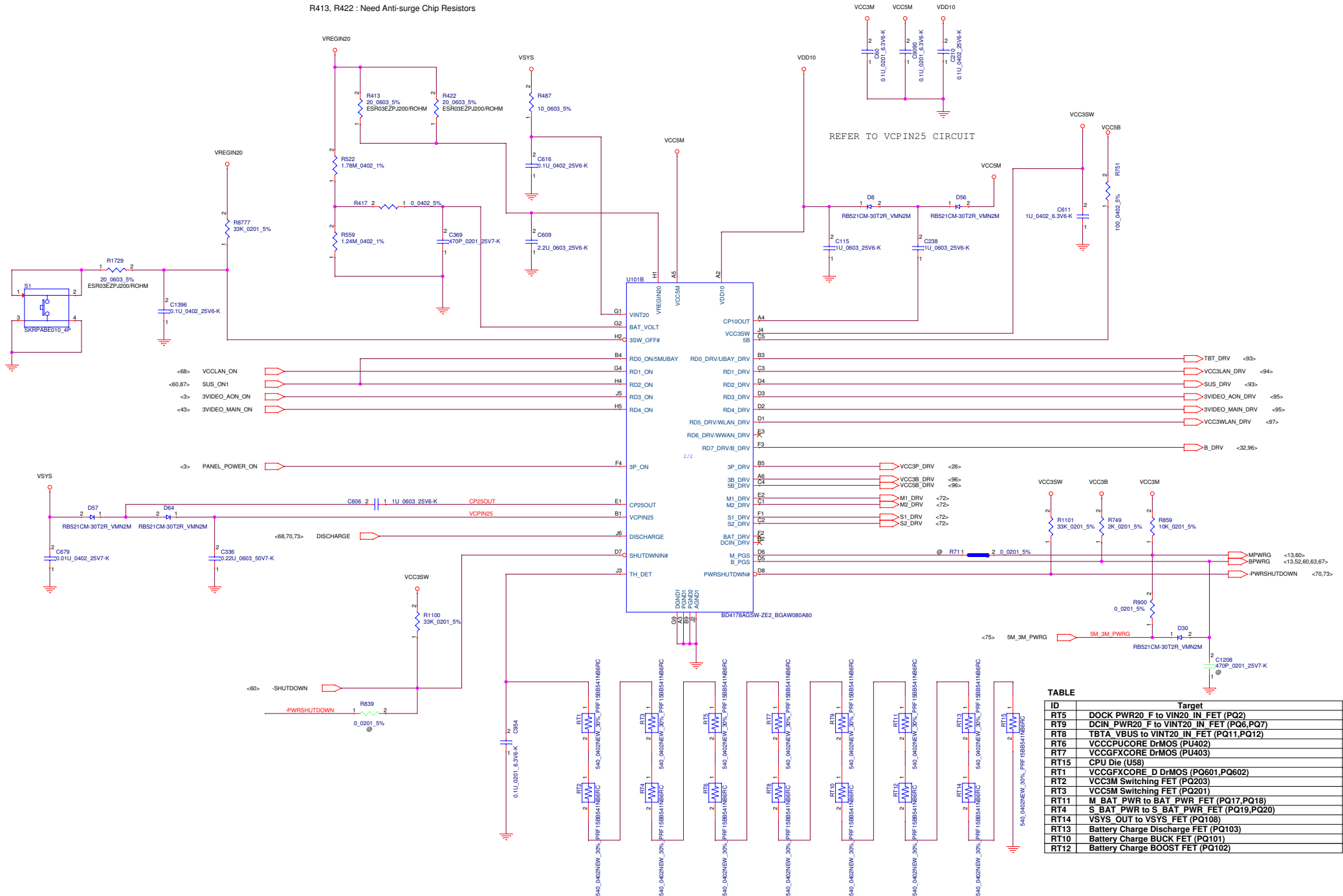
TABLE of U21/U31

| Vendor | P/N | LCFC P/N |
|---------|-------------|-------------|
| TOSHIBA | TC7SB385FU | SA00005US0J |
| ON | 7SB385DFT2G | SA00007CW00 |



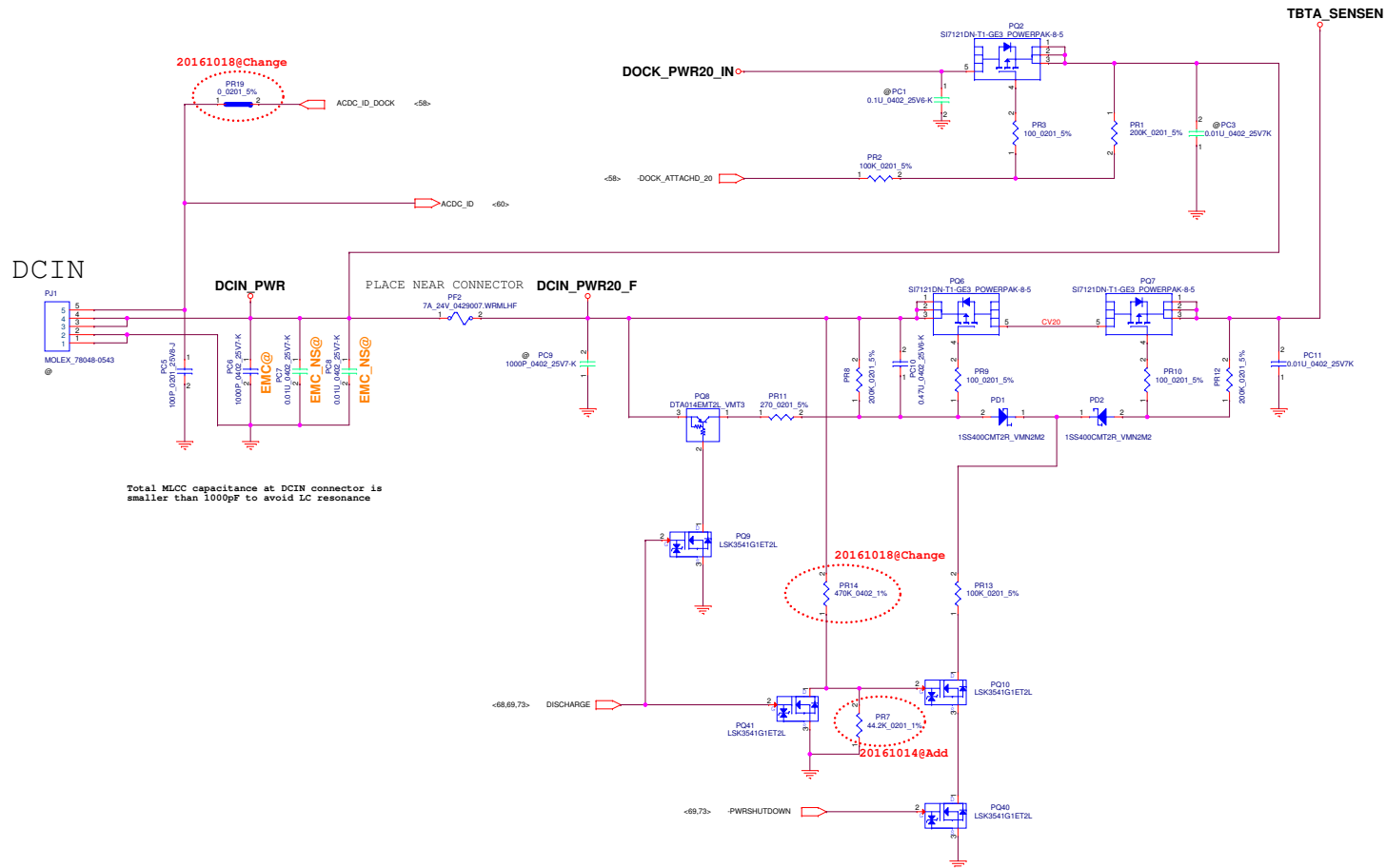
| | | | | | |
|--|------------------------------|------------------------------|-----------|---------------------|--|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | THINK ENGINE-2(1/2) | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | | |
| Revision | 049001 | Document Number | 049001 | | |
| Date | Wednesday, November 02, 2015 | Sheet | 68 | of 98 | |

R413, R422 : Need Anti-surge Chip Resistors



| ID | Target |
|------|---|
| RT5 | DOCK PWR20 F to VIN20 IN FET (PQ2) |
| RT9 | DCIN PWR20 F to VINT20 IN FET (PQ6,PQ7) |
| RT8 | TBTA VBUS to VINT20 IN FET (PQ11,PQ12) |
| RT6 | VCC3PUCORE DnMOS (PU402) |
| RT7 | VCC3FCORE DnMOS (PU403) |
| RT15 | CPU Die (U50) |
| RT1 | VCC3FCORE D DnMOS (PQ601,PQ602) |
| RT2 | VCC3M Switching FET (PQ203) |
| RT3 | VCC3M Switching FET (PQ201) |
| RT11 | M BAT PWR to BAT PWR FET (PQ17,PQ18) |
| RT4 | S BAT PWR to S BAT PWR FET (PQ19,PQ20) |
| RT14 | VSYS_OUT to VSYS FET (PQ108) |
| RT13 | Battery Charge Discharge FET (PQ103) |
| RT10 | Battery Charge BUCK FET (PQ101) |
| RT12 | Battery Charge BOOST FET (PQ102) |

| | | | | | |
|--|------------|------------------------------|-----------|--|--|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | 2015/11/02 | Deciphered Date | 2015/8/10 | THINK ENGINE-2(2/2) | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | | |
| | | | | Page 01 Date: Wednesday, November 02, 2016 Sheet 69 of 98 | |

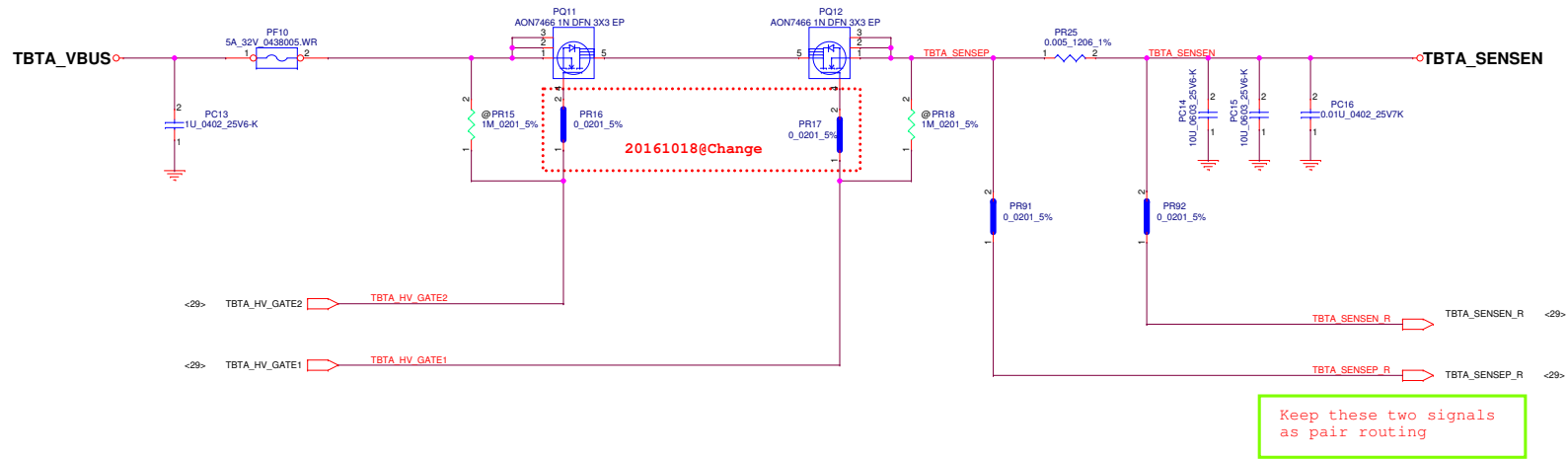


Total MLCC capacitance at DCIN connector is smaller than 1000pF to avoid LC resonance

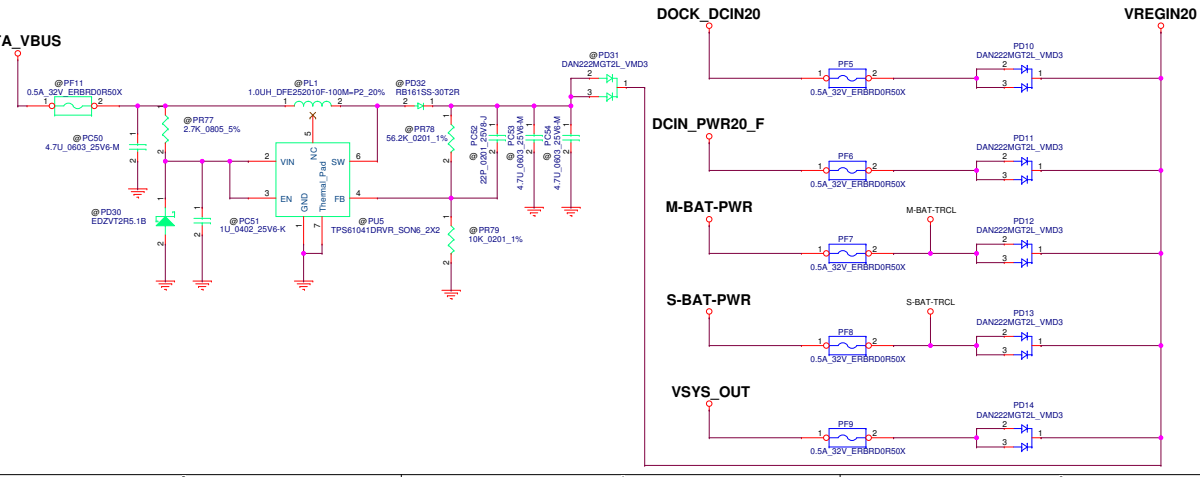
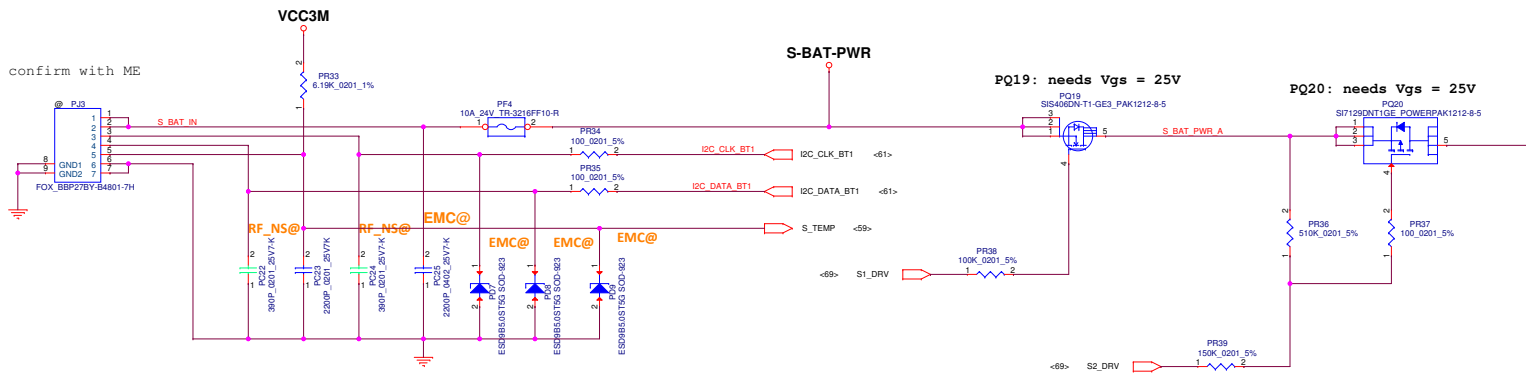
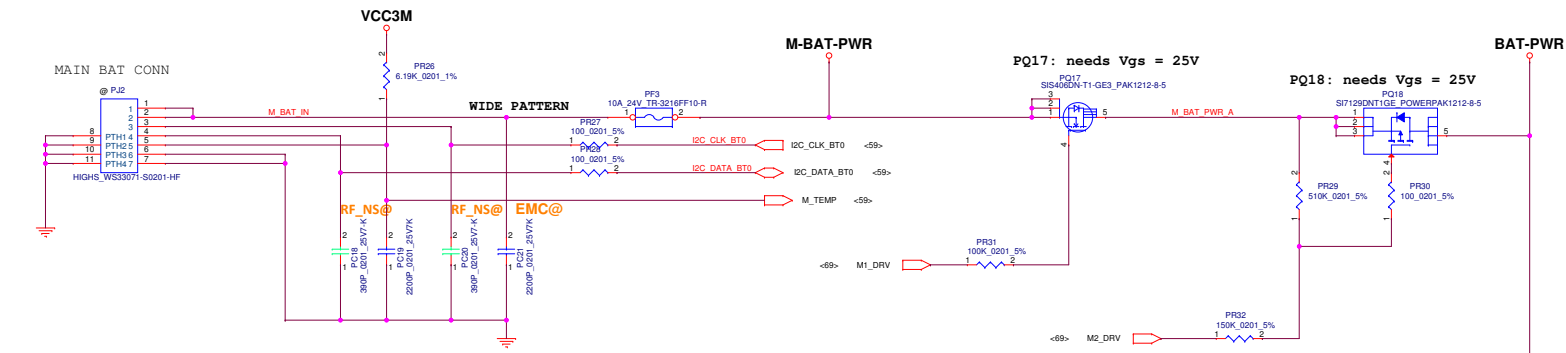
| | | | |
|---|------------------------------|-----------------|---|
| Security Classification | LC Future Center Secret Data | Title | DC-IN |
| Issued Date | Deciphered Date | Document Number | Windu Intel |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | Date: | Wednesday, November 02, 2016 Sheet 70 of 98 |


Table PQ11 \ PQ12

1st : AON7466 AOS
 2nd : SIS406DN VISHAY



Keep these two signals
 as pair routing



| | | | |
|---|------------------------------|--|---|
| Security Classification | LC Future Center Secret Data | Title |  |
| Issued Date | Deciphered Date | BATTERY INPUT | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | <small>Document Number</small> Windu Intel | <small>Rev</small> 0.1 |
| <small>Date</small> Wednesday, November 06, 2013 | | <small>Sheet</small> 72 of 98 | |

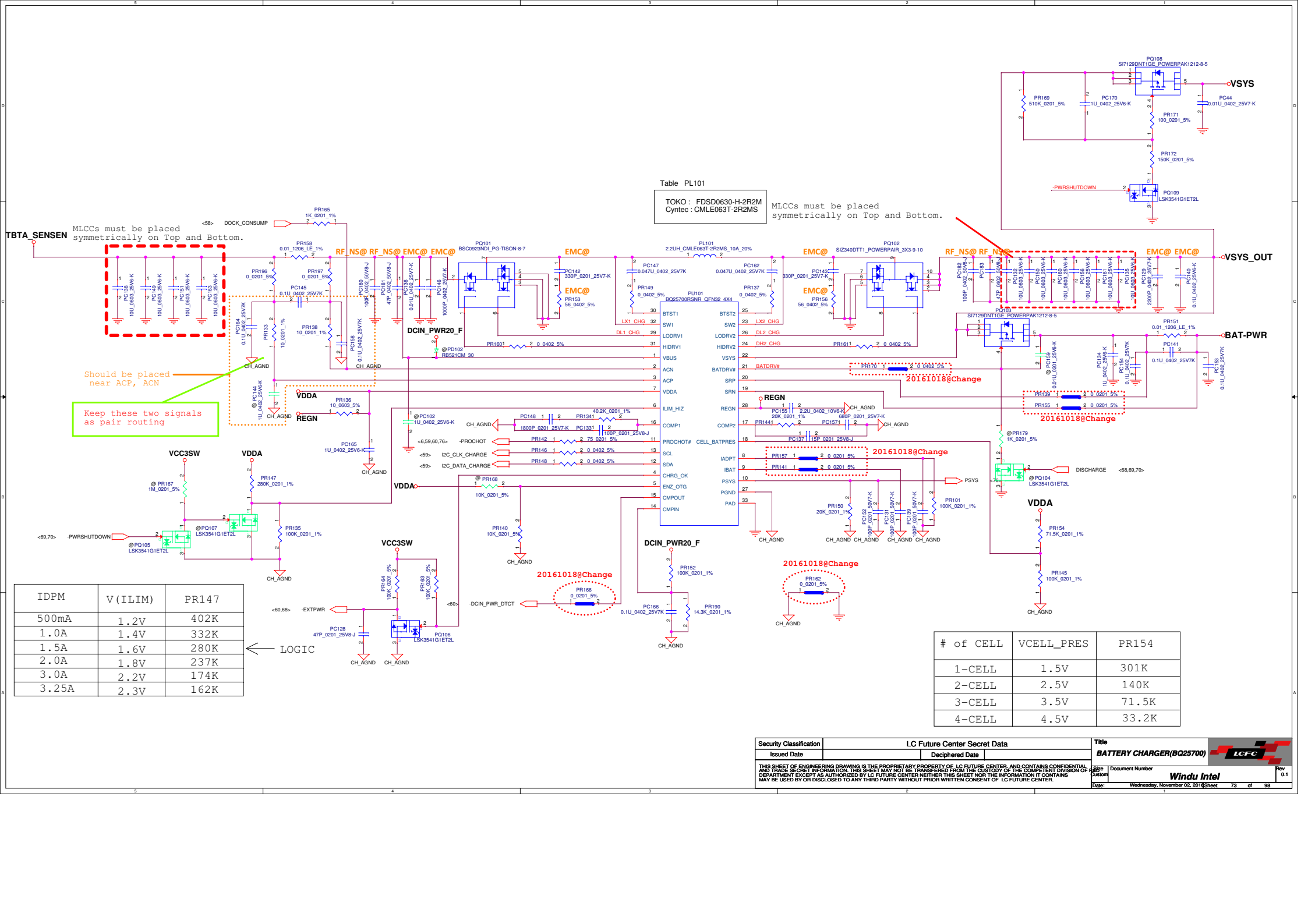


Table PL101
 TOKO: FSD0630-H-2R2M
 Cyntec: CMLE063T-2R2MS

MLCCs must be placed symmetrically on Top and Bottom.

MLCCs must be placed symmetrically on Top and Bottom.

Should be placed near ACP, ACN

Keep these two signals as pair routing

| IDPM | V (ILIM) | PR147 |
|-------|----------|-------|
| 500mA | 1.2V | 402K |
| 1.0A | 1.4V | 332K |
| 1.5A | 1.6V | 280K |
| 2.0A | 1.8V | 237K |
| 3.0A | 2.2V | 174K |
| 3.25A | 2.3V | 162K |

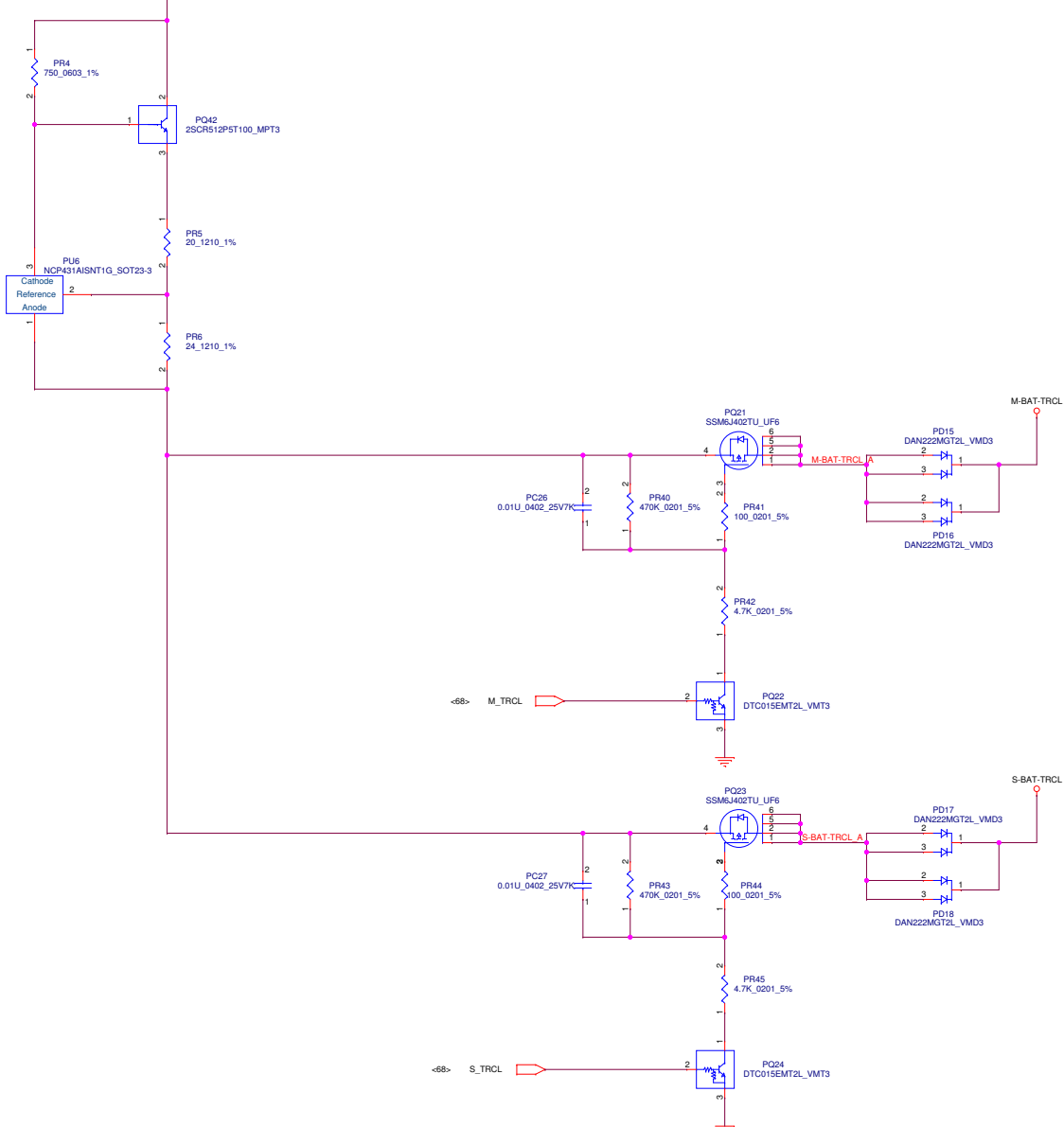
← LOGIC

| # of CELL | VCELL_PRES | PR154 |
|-----------|------------|-------|
| 1-CELL | 1.5V | 301K |
| 2-CELL | 2.5V | 140K |
| 3-CELL | 3.5V | 71.5K |
| 4-CELL | 4.5V | 33.2K |

| | | | |
|--|-------------------------------------|-----------------|--------------------------|
| Security Classification | LC Future Center Secret Data | Title | BATTERY CHARGER(BQ25700) |
| Issued Date | Deciphered Date | Document Number | Revision |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | |
| Date: | Wednesday, November 02, 2011 5:00pm | 73 | of 98 |



VSYS_OUT



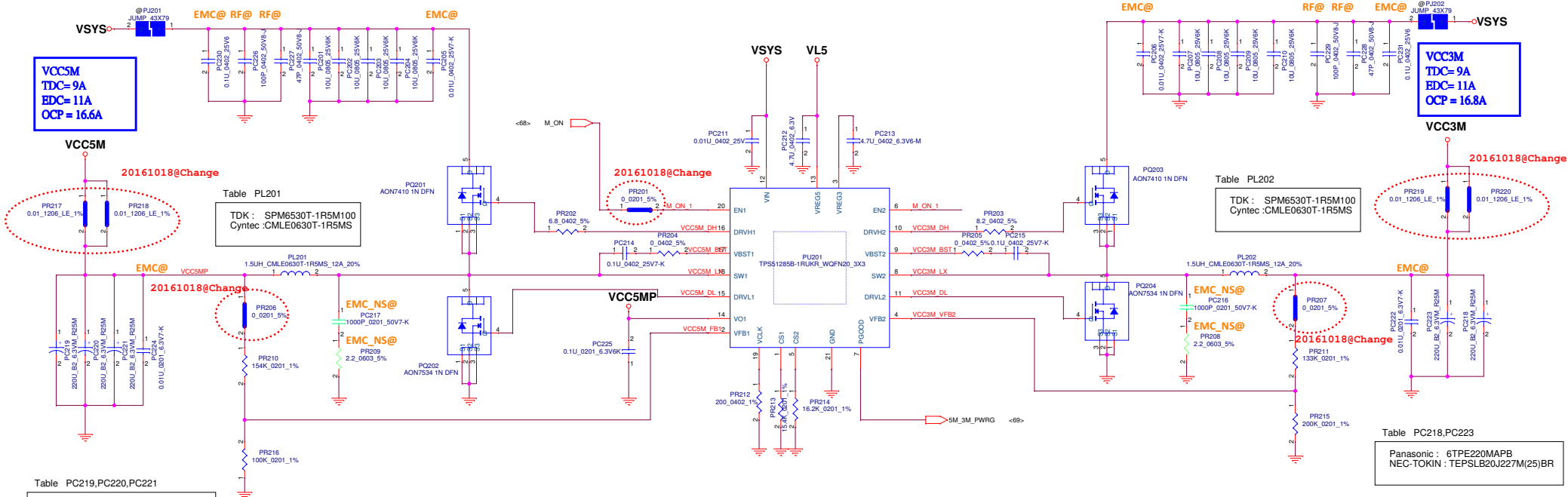
| | | | | | |
|--|--|------------------------------|--|------------------------------|-------|
| Security Classification | | LC Future Center Secret Data | | Title | |
| Issued Date | | Deciphered Date | | CHARGER SELECTOR | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Document Number | Rev |
| | | | | 74 | 0.24 |
| Date: | | | | Wednesday, November 02, 2011 | Sheet |
| | | | | 74 | of 98 |



Windu Intel

All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.

All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.



VCC5M
TDC= 9A
EDC= 11A
OCP = 16.6A

VCC3M
TDC= 9A
EDC= 11A
OCP = 16.8A

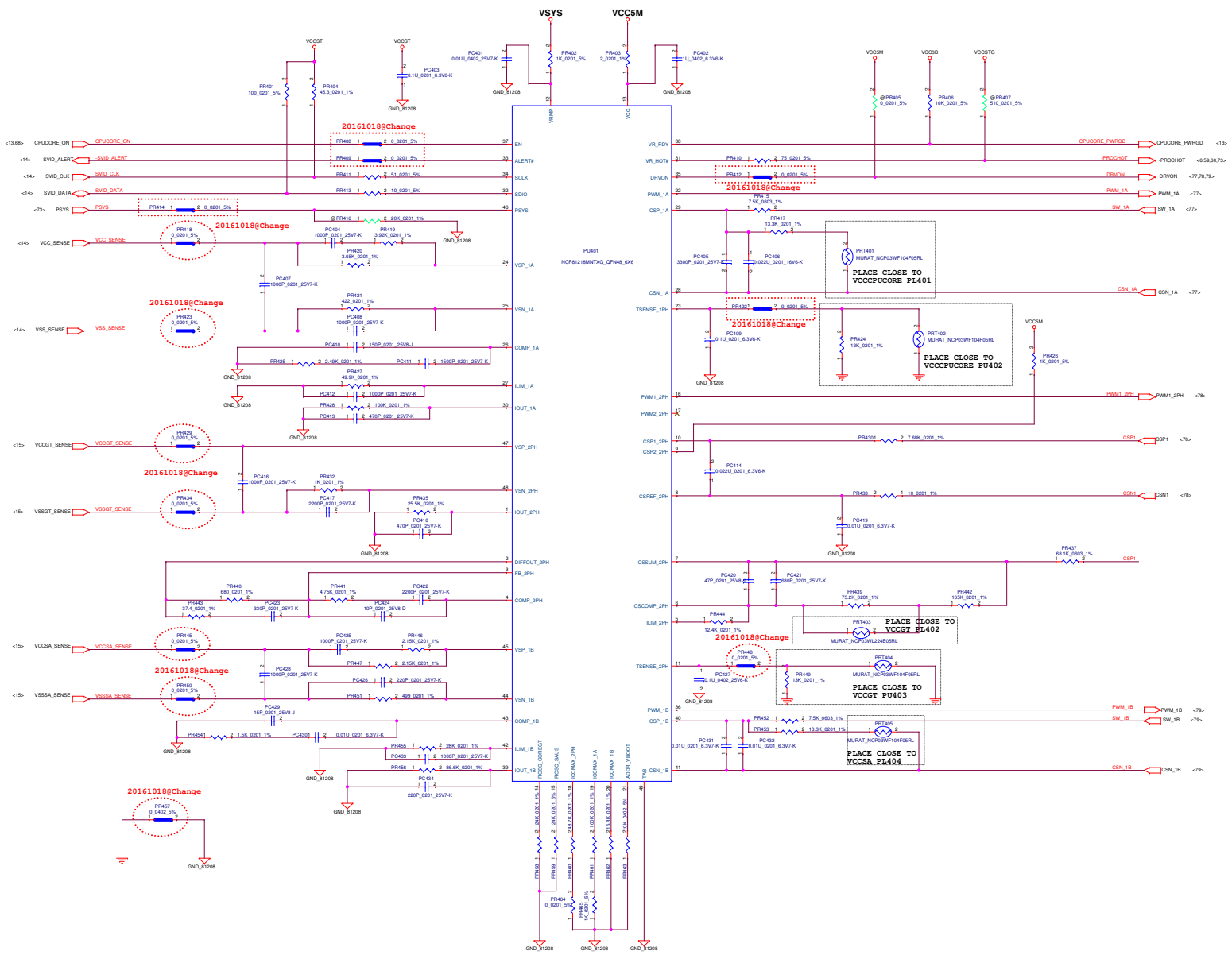
Table PL201
TDK : SPM6530T-1R5M100
Cyntec : CMLE0630T-1R5MS

Table PL202
TDK : SPM6530T-1R5M100
Cyntec : CMLE0630T-1R5MS

Table PC219,PC220,PC221
Panasonic : 6TPE220MAPB
NEC-TOKIN : TEPSLB20J227M(25)BR

Table PC218,PC223
Panasonic : 6TPE220MAPB
NEC-TOKIN : TEPSLB20J227M(25)BR

| | | | |
|---|-------------------------------------|-----------------|------------------------------|
| Security Classification | LC Future Center Secret Data | Title | DC/DC VCC5M/VCC3M(TPS51285B) |
| Issued Date | Deciphered Date | Document Number | Windu Intel |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | |
| Date: | Wednesday, November 02, 2011 5:35pm | 76 of 98 | Rev 0.1 |



| | | | |
|---|------------------------------|-----------------|-------------------------------------|
| Security Classification | LC Future Center Secret Data | Title | DC/DC (MVP8/NCP81208) |
| Issued Date | Disciplined Date | Document Number | Windu Intel |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION OF LC FUTURE CENTER. | | Date | Wednesday, November 22, 2016 2:08pm |



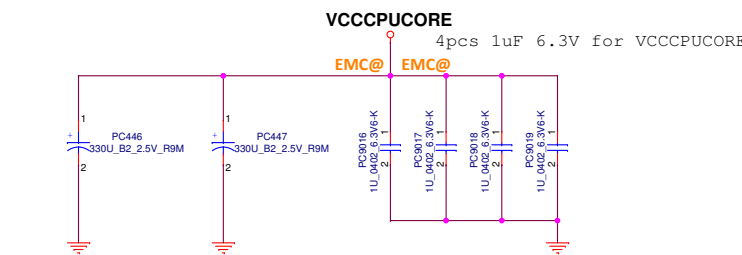
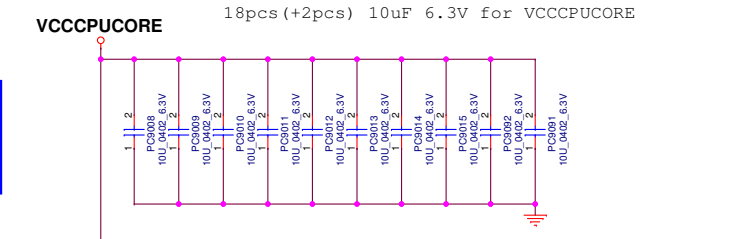
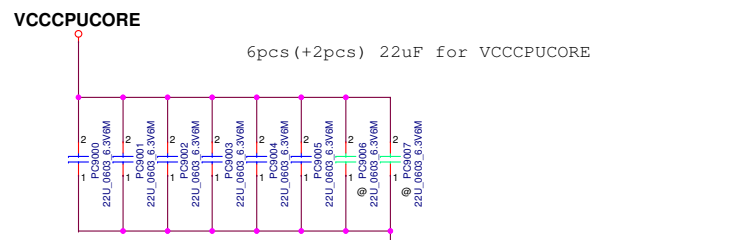
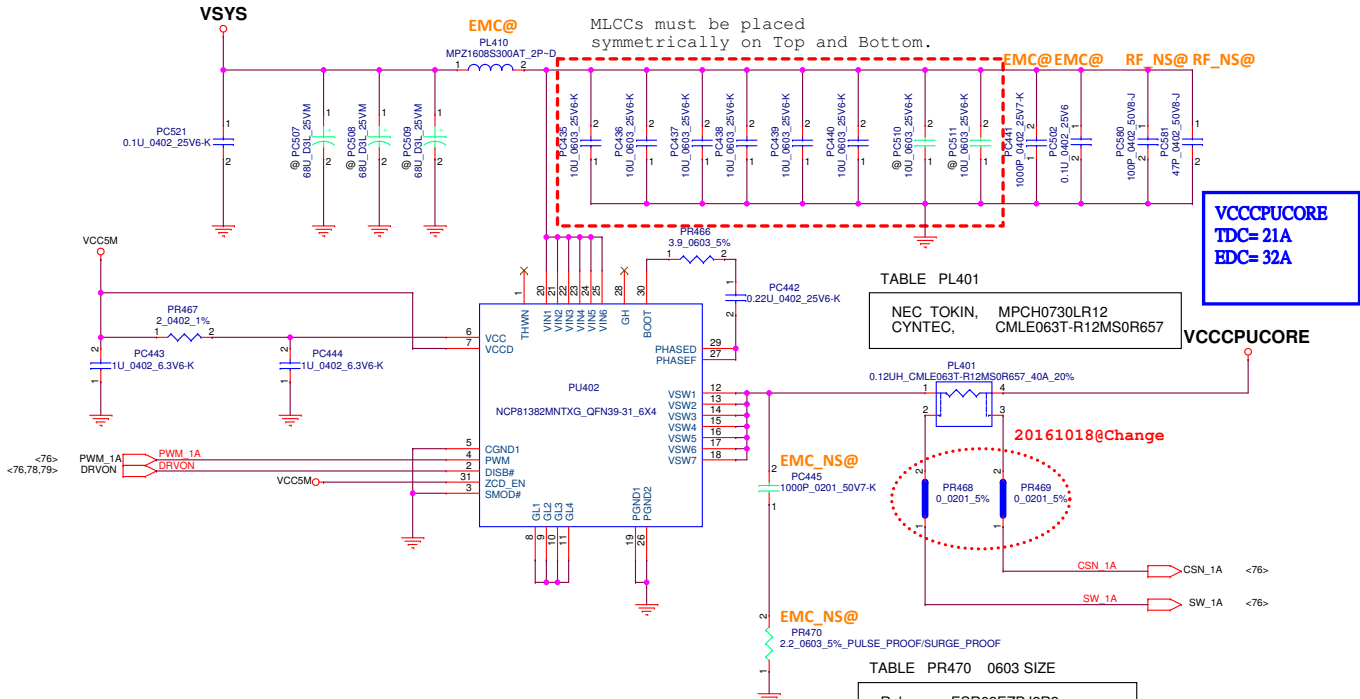


TABLE PL401

| | |
|------------|---------------------|
| NEC TOKIN, | MPCH0730LR12 |
| CYNTEC, | CMLE063T-R12MS0R657 |

TABLE PR470 0603 SIZE

| | |
|-------|-----------------|
| Rohm, | ESR03EZPJ2R2 |
| Pana, | ERJPA3J2R2V |
| YDS, | RN73S2CL-2R20-F |

<76-
<76,78,79>

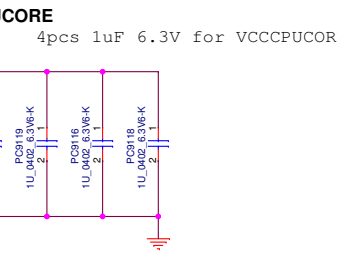
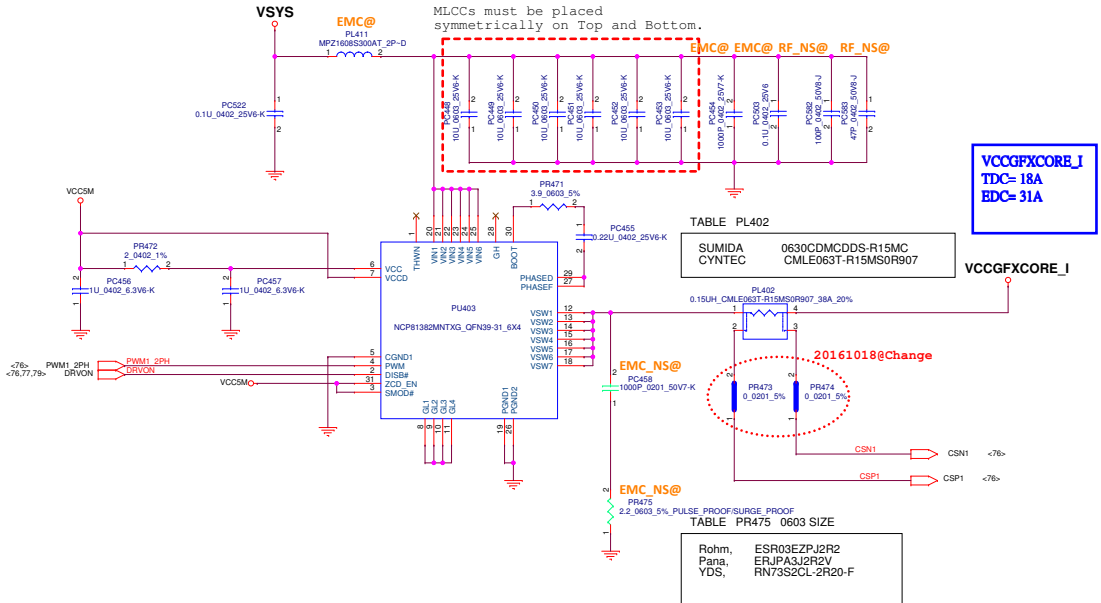


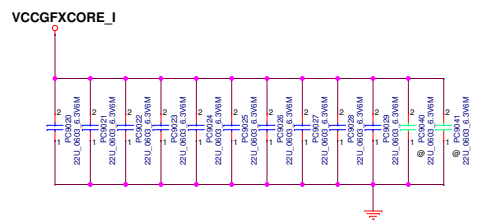
Table for PC446,PC447

| | |
|-----------|--------------------|
| Panasonic | ETPE330MA9L |
| NEC TOKIN | TEPSGB20E337M9-8R |
| KEMET | T520B337M2R5ATE009 |



MLCCs must be placed symmetrically on Top and Bottom.

VCCGFXCORE_I
TDC= 18A
EDC= 31A



14pcs(+8pcs) 22uF for VCCGFXCORE_I

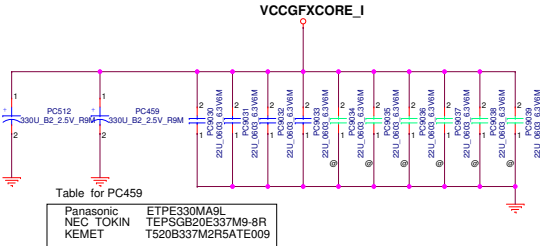
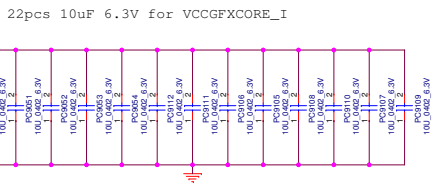
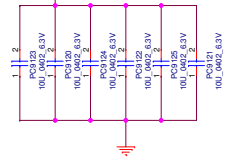


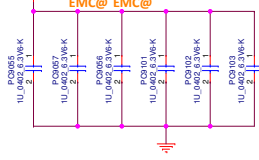
Table for PC459
Panasonic ETPE330MA9L
NEO TOKIN TEPSC820E337M9-8R
KEMET TS20B37M2R5ATE009




22pcs 10uF 6.3V for VCCGFXCORE_I




6pcs 1uF 6.3V for VCCGFXCORE_I

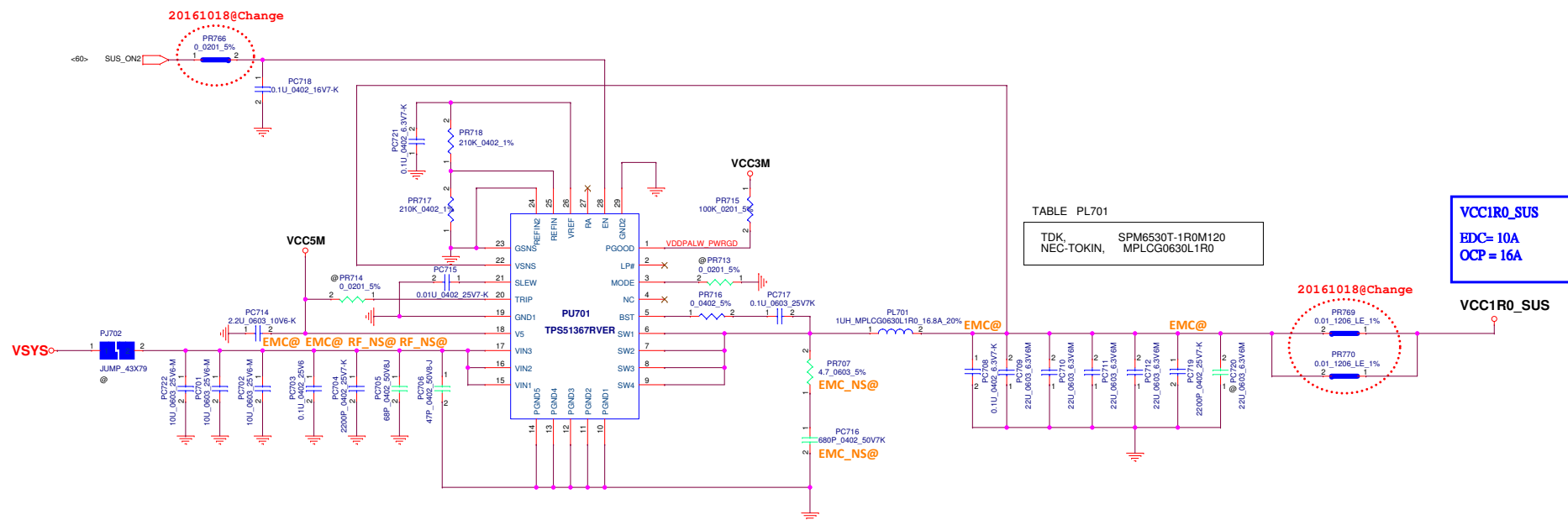


BLANK

| | | | | |
|---|------------------------------|-----------------|-----------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  |
| Issued Date | | Deciphered Date | BLANK | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Size: Custom |
| | | | Document Number | Windu Intel |
| | | | Date: | Wednesday, November 06, 2014 8:00 AM |
| | | | Page | 0.1 |
| | | | 80 | of 88 |

BLANK

| | | | | | | |
|---|------------------------------|-----------------|--------------|---|------------------------------|----------------|
| Security Classification | LC Future Center Secret Data | | Title |  | | |
| Issued Date | | Deciphered Date | BLANK | | | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Size | Document Number | Rev |
| | | | | Custom | | 0.1 |
| | | | | Date: | Wednesday, November 04, 2014 | Sheet 81 of 99 |



20161018@Change


20161018@Change

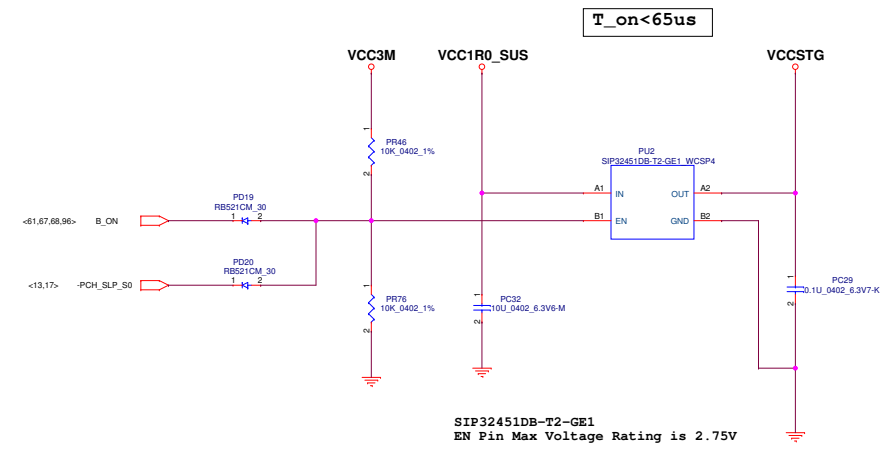
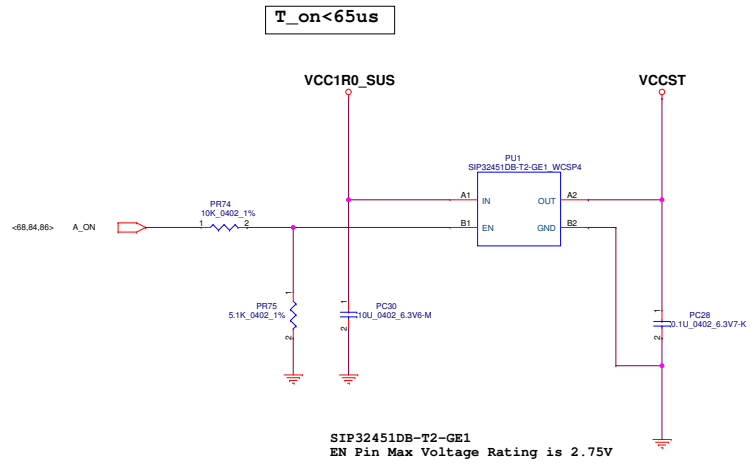
TABLE PL701

| | |
|-----------------|-----------------------------------|
| TDK, NEC-TOKIN, | SPM6530T-1R0M120 MPLCG0630L1R0 |
|-----------------|-----------------------------------|

VCC1R0_SUS
EDC= 10A
OCP = 16A


| Mode | Frequency |
|-------|-----------|
| GND | 400KHz |
| Float | 800KHz |

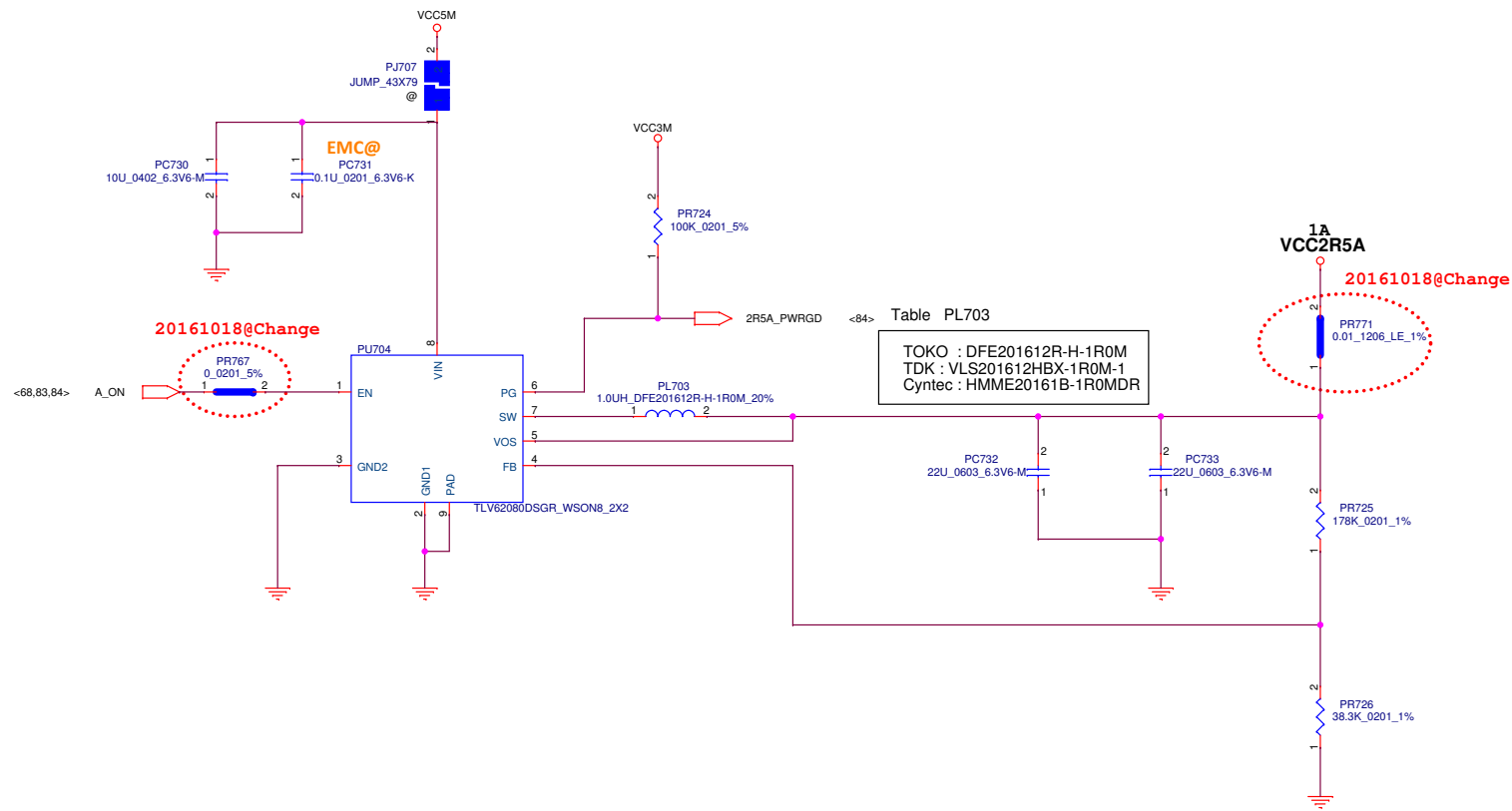
| | | | | |
|---|------------------------------|--|-----------------|--|
| Security Classification | LC Future Center Secret Data | | Title |  DC/DC VCC1R0_SUS(TPS51367RVER) |
| Issued Date | Deciphered Date | | Document Number | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Windu Intel Date: Wednesday, November 02, 2018 Sheet 82 of 98 |




| | | | | |
|--|------------------------------|-------|---|--|
| Security Classification | LC Future Center Secret Data | | Title | |
| Issued Date | Deciphered Date | | LOAD SW VCCST & VCCSTG | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | |
| Size | Document Number | Rev | 0.1 | |
| Custom | Windu Intel | Date: | Wednesday, November 04, 2014 Sheet 83 of 99 | |

BLANK

| | | | | | |
|--|------------------------------|-----------------|-----------------|---|-----|
| Security Classification | LC Future Center Secret Data | | Title |  | |
| Issued Date | | Deciphered Date | BLANK | | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSMITTED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Rev | 0.1 |
| | | | Document Number | Windu Intel | |
| | | | Date: | Wednesday, November 02, 2011 | |
| | | | Sheet | 85 of 88 | |



| | | | | |
|---|------------------------------|-----------------|---|---|
| Security Classification | LC Future Center Secret Data | | Title |  |
| Issued Date | | Deciphered Date | DC/DC VCC2R5A(TLV62080) | |
| THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER. | | | | Size Custom |
| | | | Document Number Windu Intel | Rev 0.1 |
| | | | Date: Wednesday, November 02, 2014 Sheet 86 of 98 | |

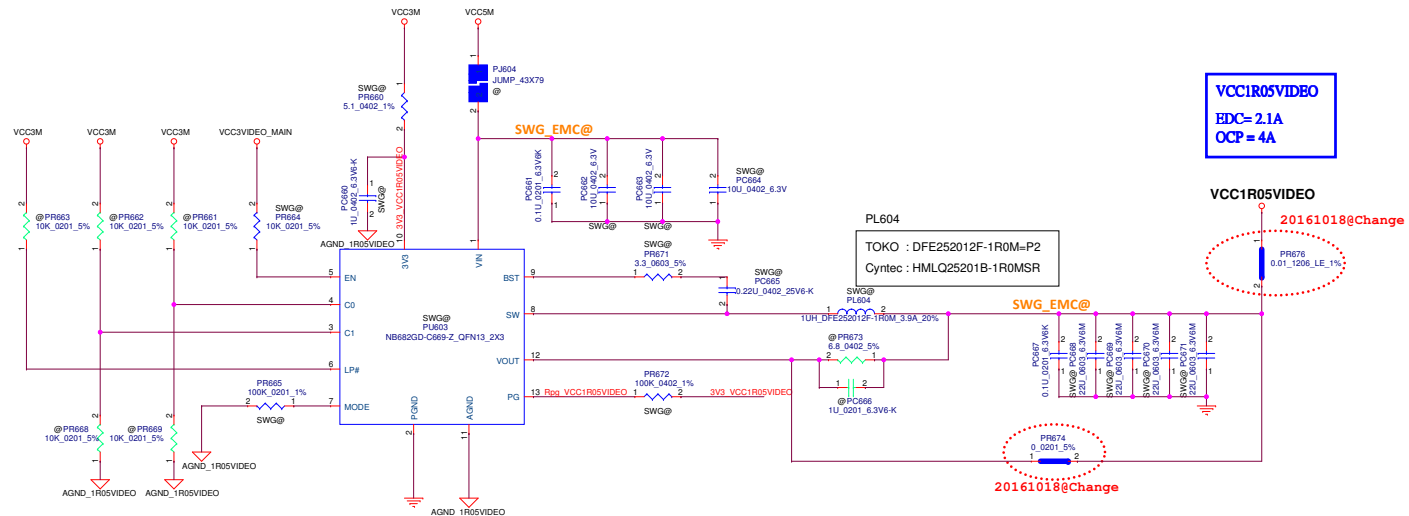
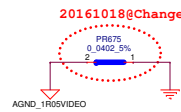



TABLE : NB682 MODE M3 (100K)

| LP# | C1 | C0 | VOUT |
|-----|----|----|-------|
| 0 | X | X | 0V |
| 1 | 0 | 0 | 0.8V |
| 1 | 0 | 1 | 0.95V |
| 1 | 1 | 0 | 1V |
| 1 | 1 | 1 | 1.05V |


← Logic



BLANK

| | | | | |
|---|------------------------------|--|-----------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  |
| Issued Date | Deciphered Date | | BLANK | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | Document Number | Rev |
| | | | Subpart | Windu Intel |
| | | | Date: | Wednesday, November 02, 2011 08:58:58 AM |
| | | | | 89 of 99 |

BLANK

| | | | | | |
|---|------------------------------|-----------------|------------|---|---|
| Security Classification | LC Future Center Secret Data | | Title | BLANK |  |
| Issued Date | 2012/11/01 | Deciphered Date | 2013/12/31 | | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | | <small>Rev</small> 0.24 |
| <small>Document Number</small> Windu Intel | | | | <small>Date</small> Wednesday, November 02, 2011 | |
| <small>Sheet</small> 90 of 98 | | | | | |

VCC1R35VIDEO
EDC = 6.8A
OCP = 12A

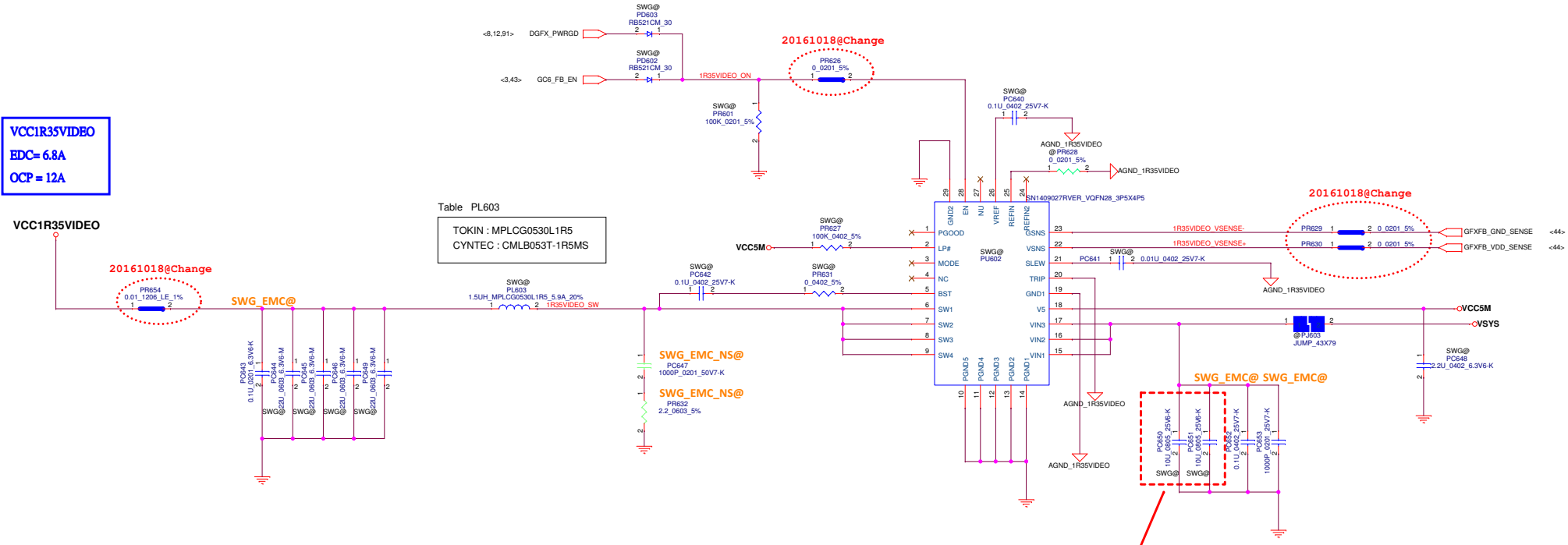


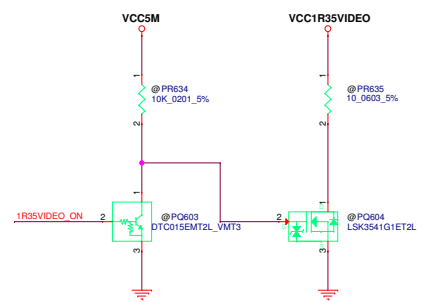
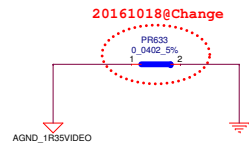
Table PL603
TOKIN : MPLCG0530L1R5
CYNTEC : CMLB053T-1R5MS

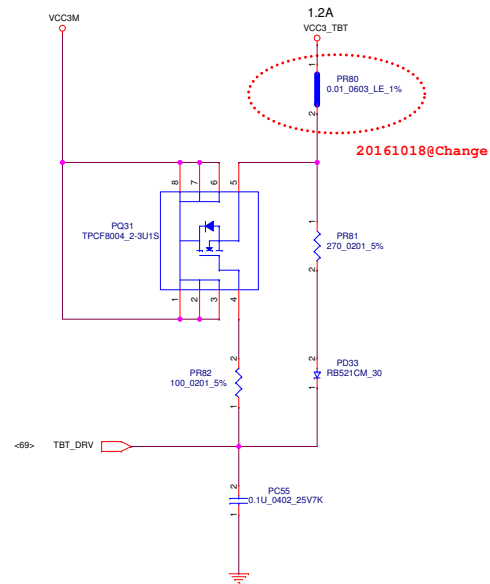
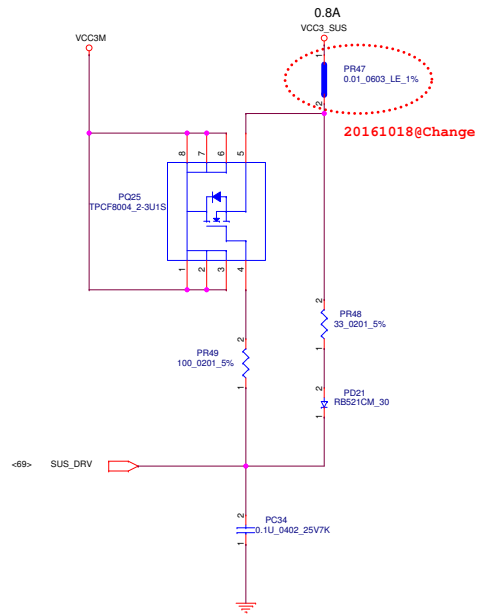
TABLE SN1409027


| REFIN | REFIN2 | VOUT (V) |
|-------|--------|----------|
| GND | GND | 1.05V |
| Float | GND | 1.20V |
| GND | Float | 1.50V |
| Float | Float | 1.35V |

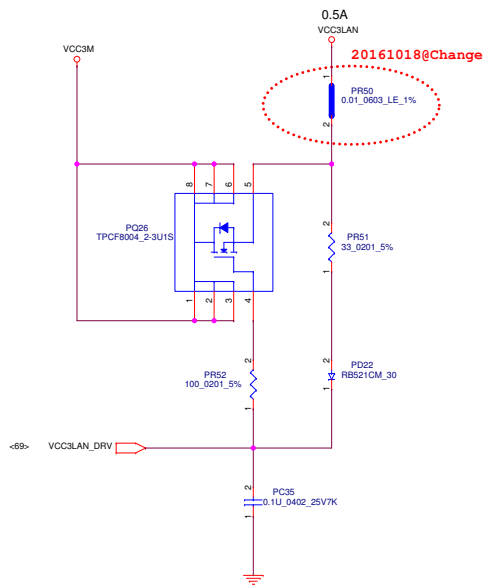
← LOGIC


MLCCs must be placed the same side with PU602 on Bottom.

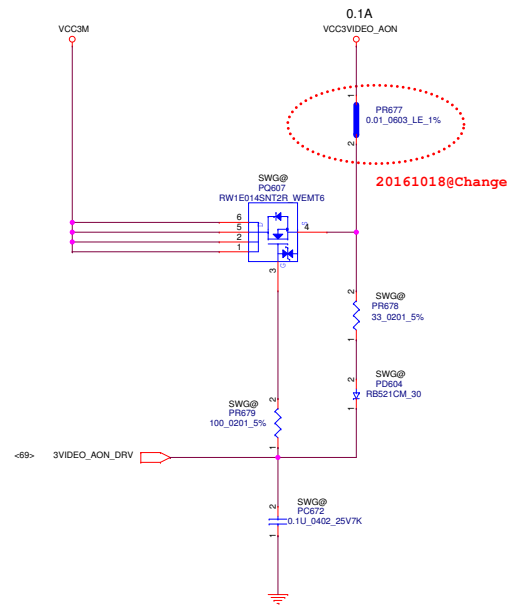
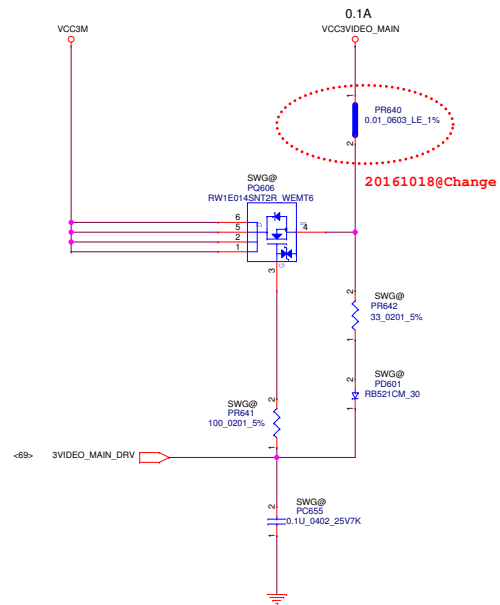




| | | | | |
|---|------------------------------|-----------------|------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  LOAD SW PCH SUS |
| Issued Date | 2012/11/01 | Deciphered Date | 2013/12/31 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Document Number Windu Intel Date: Wednesday, November 22, 2012 Sheet 93 of 98 |



| | | | | |
|---|------------------------------|-----------------|------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  LOAD SW LAN |
| Issued Date | 2012/11/01 | Deciphered Date | 2013/12/31 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Document Number Windu Intel Date: Wednesday, November 22, 2012 (Sheet 94 of 98) |




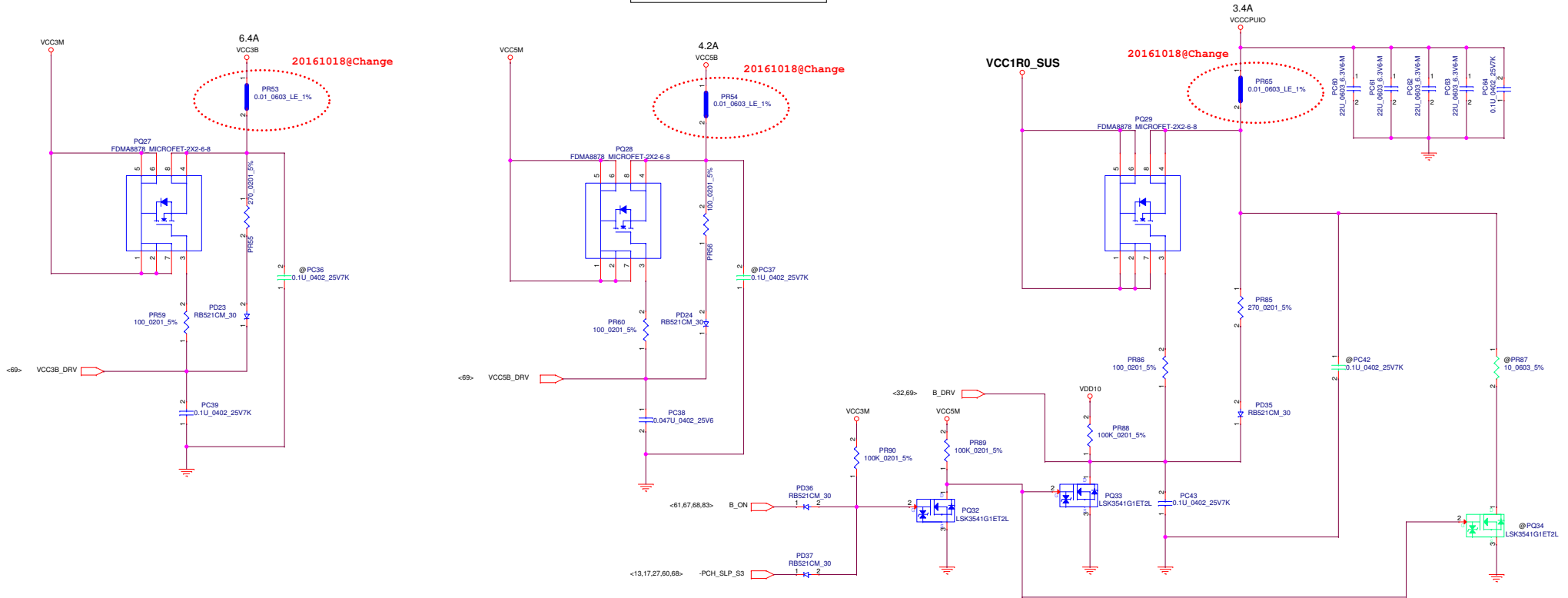

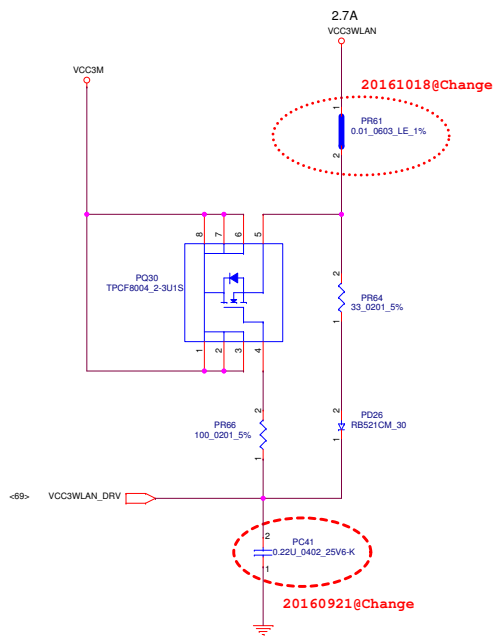
| | | | | |
|---|------------------------------|-----------------|------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  LOAD SW VIDEO |
| Issued Date | 2012/11/01 | Deciphered Date | 2013/12/31 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | <small>Document Number</small> Windu Intel <small>Date: Wednesday, November 02, 2011</small> |
| | | | | <small>Rev</small> 0.24 <small>of</small> 98 |

Table for PQ27 - PQ28 - PQ29

| | |
|-----------|----------|
| FAIRCHILD | FDMA8878 |
| VISHAY | SIA462DJ |



| | | | | |
|---|------------------------------|-----------------|------------|---|
| Security Classification | LC Future Center Secret Data | | Title |  LOAD SW B |
| Issued Date | 2012/11/01 | Deciphered Date | 2013/12/31 | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Document Number Windu Intel Date: Wednesday, November 22, 2012 |
| | | | | Revision 0.24 of 98 |



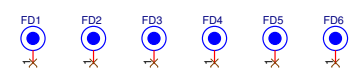
TABLE


| AOAC | YES | NO |
|------|--------|--------|
| PR70 | NO-ASM | ASM |
| PQ35 | ASM | NO-ASM |
| PR72 | ASM | NO-ASM |
| PR74 | ASM | NO-ASM |
| PC40 | ASM | NO-ASM |
| PD23 | ASM | NO-ASM |

↑
LOGIC



PCB Federal Mark PAD



| | | | | | | |
|---|------------|------------------------------|------------|--------|------------------------------|---|
| Security Classification | | LC Future Center Secret Data | | Title | |  |
| Issued Date | 2014/07/01 | Deciphered Date | 2015/12/31 | SCREW | | |
| <small>THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF LC FUTURE CENTER, AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF THE DEPARTMENT EXCEPT AS AUTHORIZED BY LC FUTURE CENTER. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF LC FUTURE CENTER.</small> | | | | Size | Document Number | Rev |
| | | | | Custom | Windu-1 | 0.1 |
| | | | | Date: | Wednesday, November 02, 2014 | Sheet 98 of 98 |