

**Nokia Customer Care**

# ***Service Manual***

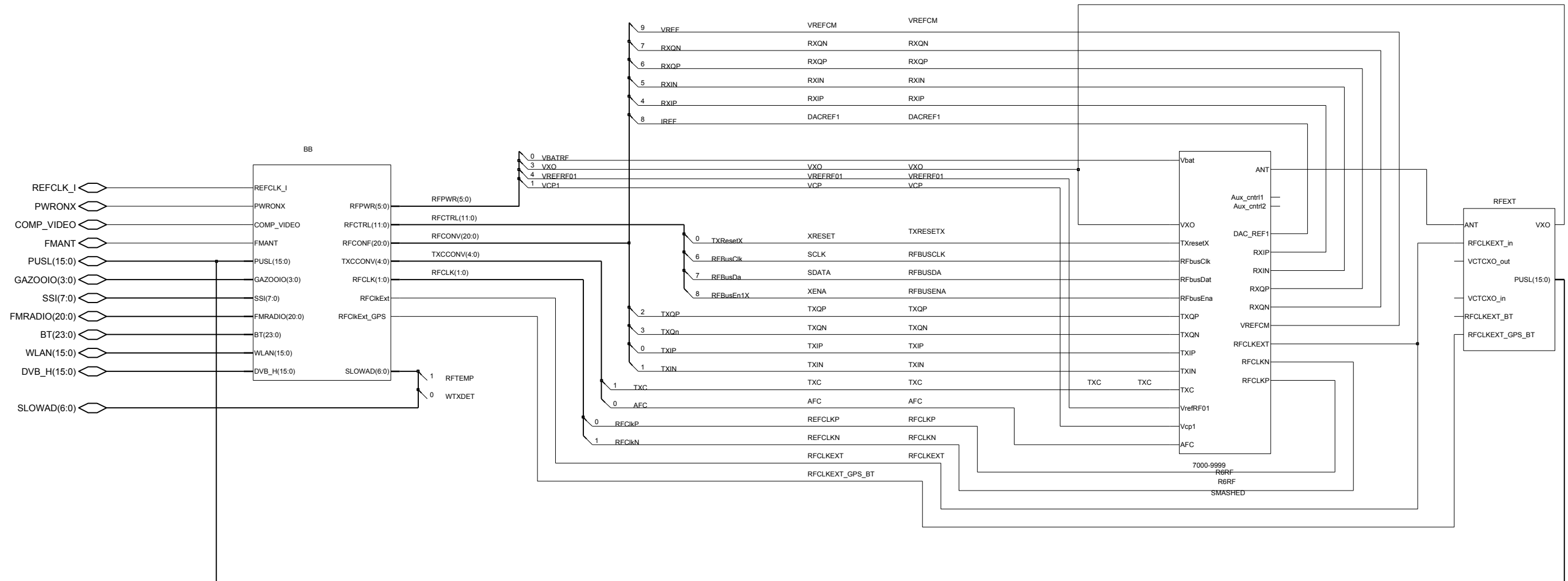
**RM-547; RM-566 (Nokia 6730 classic; L3&4)**

## **Schematics**

***Part No: (Issue 1)***

***COMPANY CONFIDENTIAL***

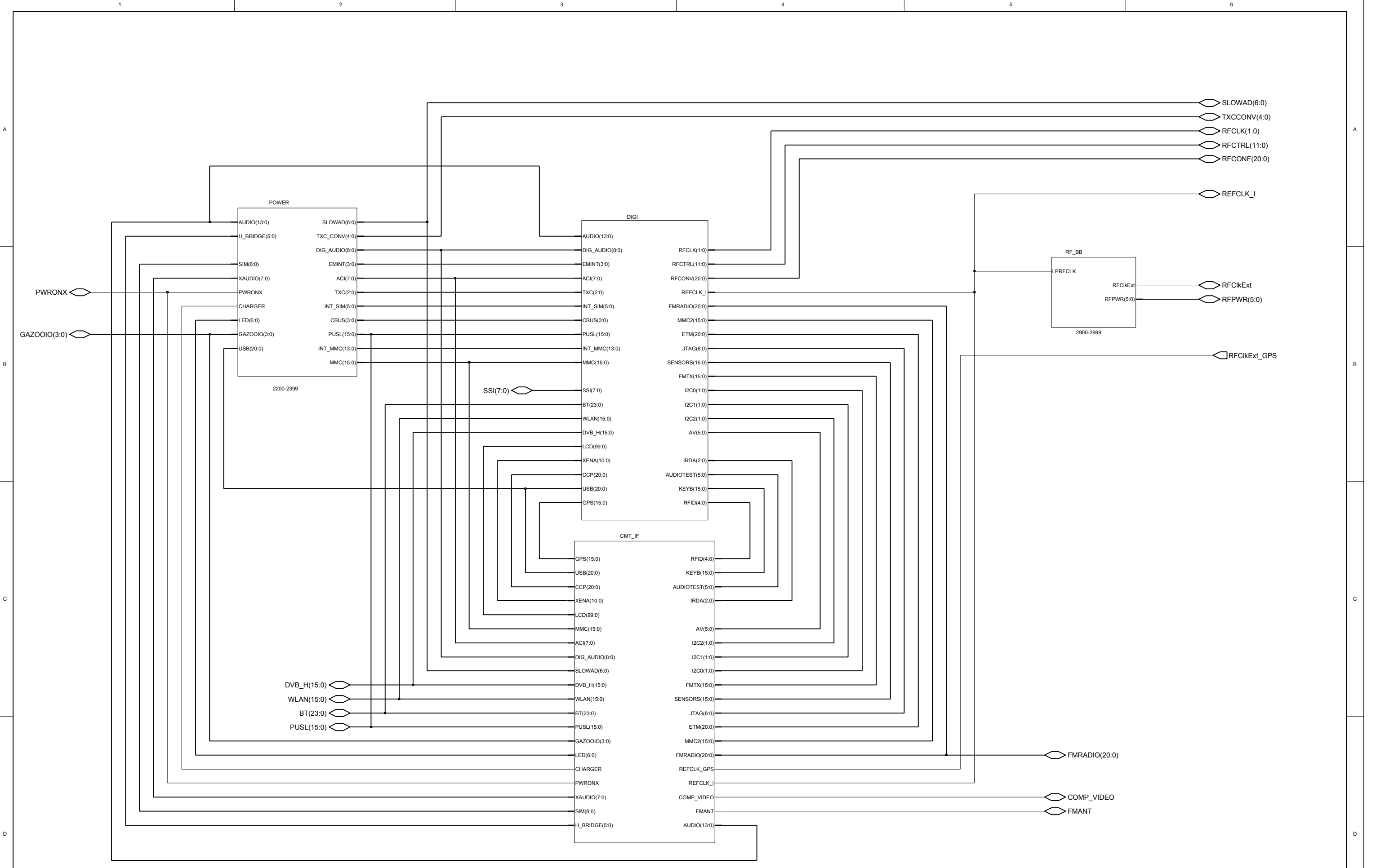




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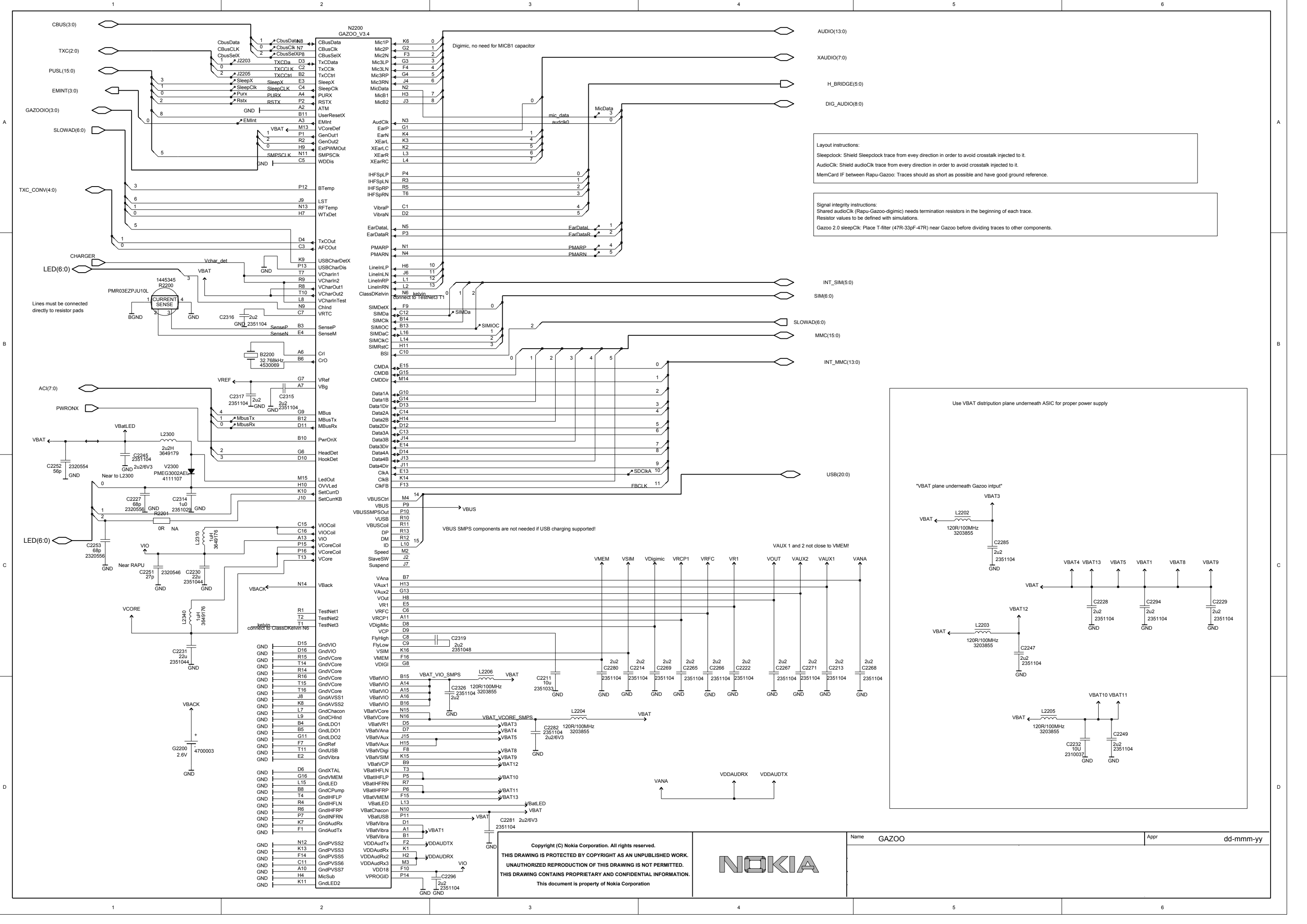
Name CMT ENGINE Appr dd-mmm-yy



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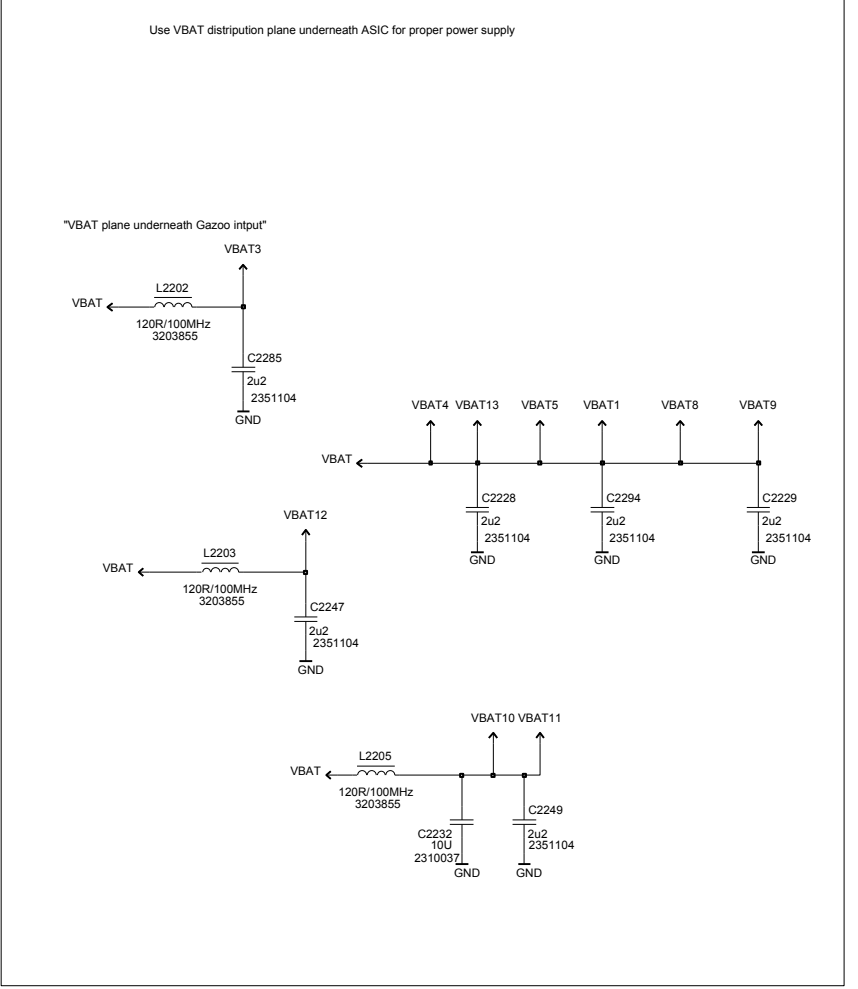


Name BB TOP LEVEL Appr dd-mmm-yy



Layout instructions:  
 Sleepclock: Shield Sleepclock trace from every direction in order to avoid crosstalk injected to it.  
 AudioClk: Shield audioClk trace from every direction in order to avoid crosstalk injected to it.  
 MemCard IF between Rapu-Gazoo: Traces should as short as possible and have good ground reference.

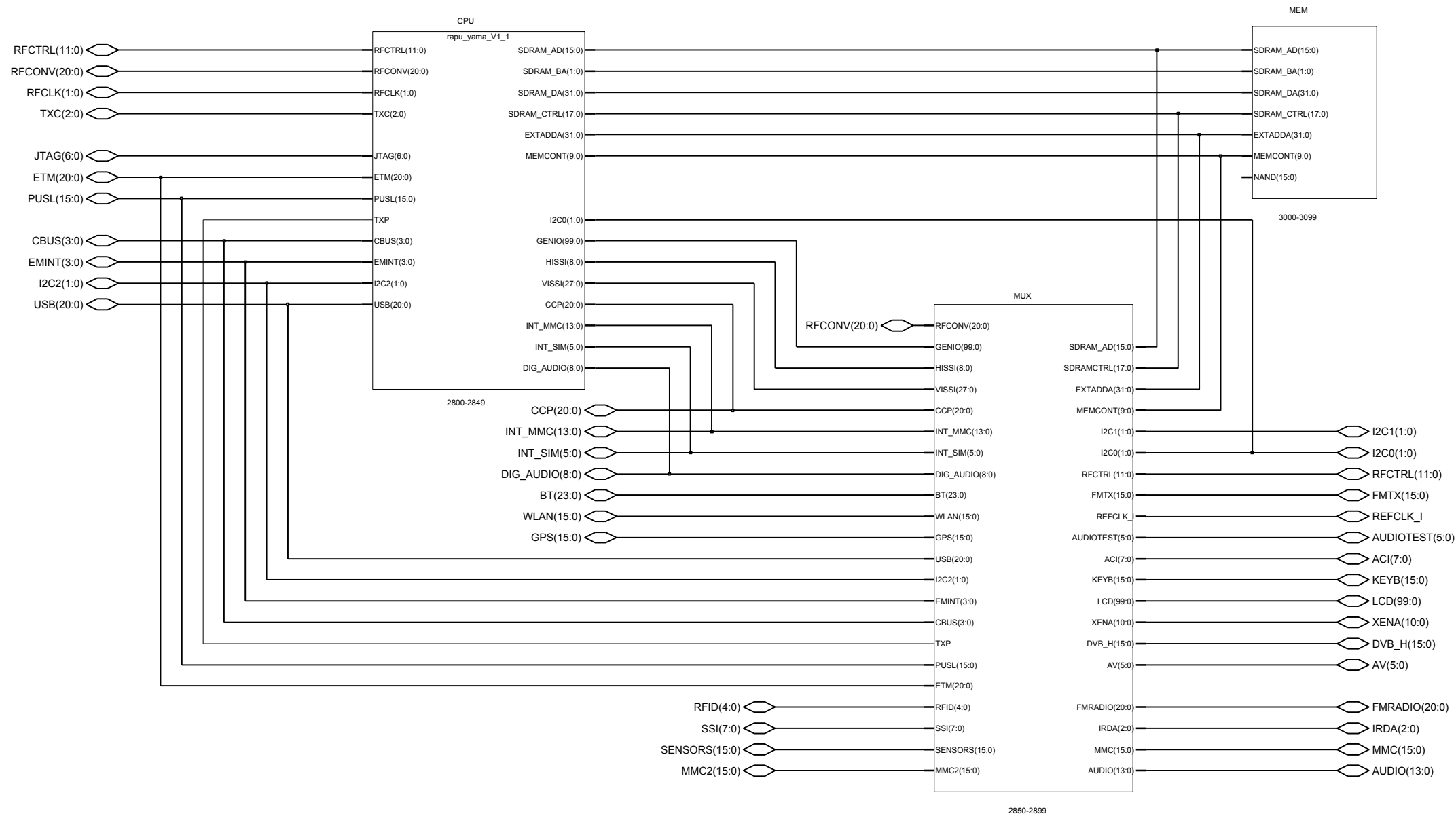
Signal integrity instructions:  
 Shared audioClk (Rapu-Gazoo-digimic) needs termination resistors in the beginning of each trace.  
 Resistor values to be defined with simulations.  
 Gazoo 2.0 sleepClk: Place T-filter (47R-33pF-47R) near Gazoo before dividing traces to other components.



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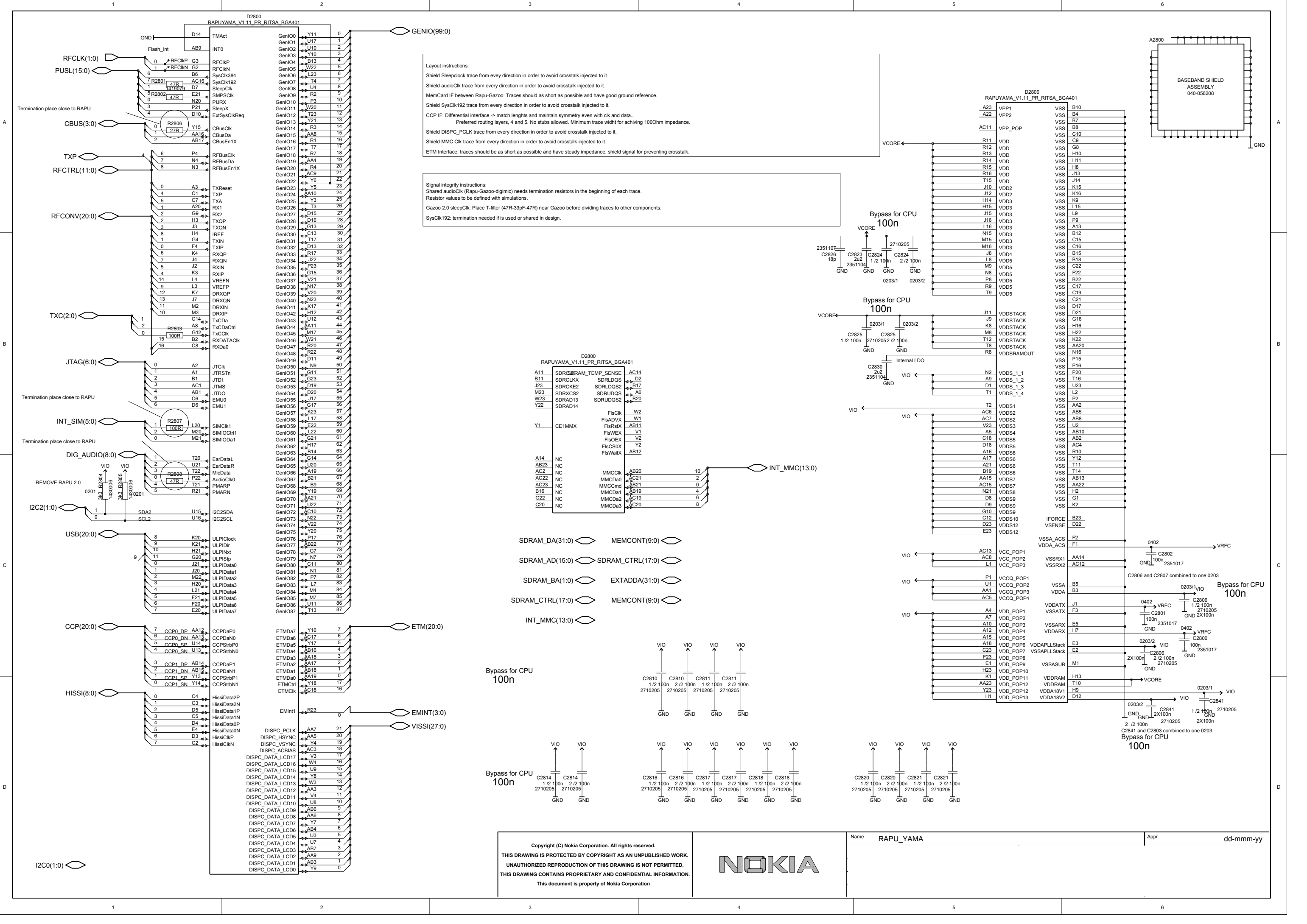
|      |           |
|------|-----------|
| Name | GAZOO     |
| Appr | dd-mmm-yy |



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Name DIGI Appr dd-mmm-yy



Layout instructions:  
 Shield Sleepclock trace from every direction in order to avoid crosstalk injected to it.  
 Shield audioCk trace from every direction in order to avoid crosstalk injected to it.  
 MemCard IF between Rapu-Gazoo: Traces should be as short as possible and have good ground reference.  
 Shield SysCk192 trace from every direction in order to avoid crosstalk injected to it.  
 CCP IF: Differential interface -> match lengths and maintain symmetry even with clk and data.  
 Preferred routing layers, 4 and 5. No stubs allowed. Minimum trace width for achieving 100Ohm impedance.  
 Shield DISPC\_PCLK trace from every direction in order to avoid crosstalk injected to it.  
 Shield MMC Ck trace from every direction in order to avoid crosstalk injected to it.  
 ETM Interface: traces should be as short as possible and have steady impedance, shield signal for preventing crosstalk.

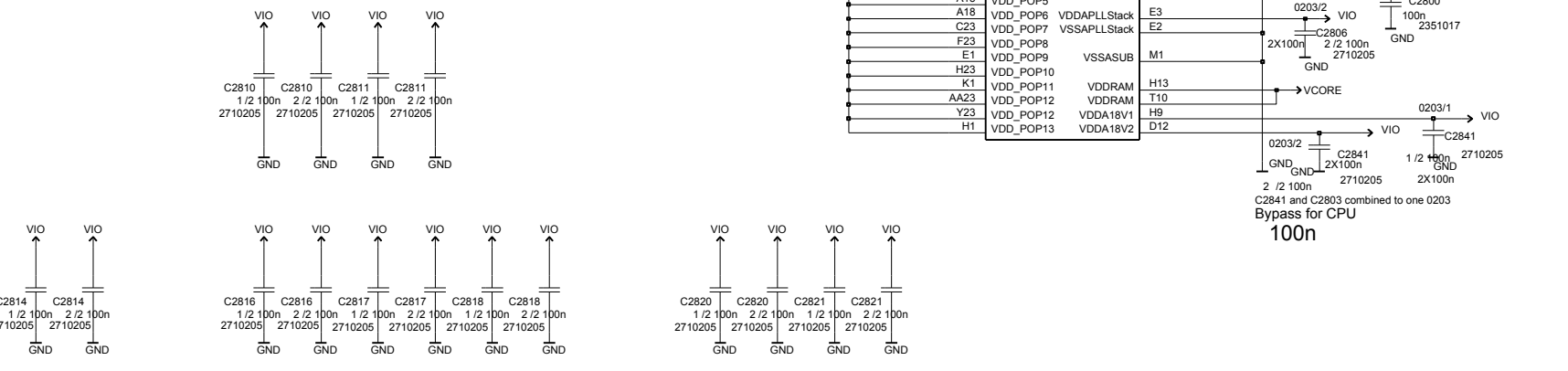
Signal integrity instructions:  
 Shared audioCk (Rapu-Gazoo-digimic) needs termination resistors in the beginning of each trace.  
 Resistor values to be defined with simulations.  
 Gazoo 2.0 sleepCk: Place T-filter (47R-33pF-47R) near Gazoo before dividing traces to other components.  
 SysCk192: termination needed if is used or shared in design.

| RAPUYAMA_V1.11_PR_RITSA_BGA401 |         |                  |      |
|--------------------------------|---------|------------------|------|
| A11                            | SDRC1   | SDRAM_TEMP_SENSE | AC14 |
| B11                            | SDRCLKX | SDRLDQS          | D2   |
| J23                            | SDRCKE2 | SDRLDQS2         | B17  |
| M23                            | SDRXC2  | SDRUDQS          | A6   |
| W23                            | SDRAD13 | SDRUDQS2         | B20  |
| Y22                            | SDRAD14 |                  |      |
|                                |         |                  |      |
| FisCk                          |         | W2               |      |
| FisADVX                        |         | W1               |      |
| FisRbX                         |         | AB11             |      |
| FisWEX                         |         | V1               |      |
| FisOEX                         |         | V2               |      |
| FisCS0X                        |         | Y2               |      |
| FisWaitX                       |         | AB12             |      |
|                                |         |                  |      |
| MMCCK                          |         | AB20             | 10   |
| MMCDa0                         |         | AC21             | 2    |
| MMCCmd                         |         | AB21             | 0    |
| MMCDa1                         |         | AB19             | 4    |
| MMCDa2                         |         | AC19             | 6    |
| MMCDa3                         |         | AC20             | 8    |

SDRAM\_DA(31:0) MEMCONT(9:0)  
 SDRAM\_AD(15:0) SDRAM\_CTRL(17:0)  
 SDRAM\_BA(1:0) EXTADDA(31:0)  
 SDRAM\_CTRL(17:0) MEMCONT(9:0)  
 INT\_MMC(13:0)

Bypass for CPU  
100n

Bypass for CPU  
100n



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Name RAPU\_YAMA Appr dd-mmm-yy

Memory on the top of the Rapu\_yama

SDRAM\_AD(15:0) ◊

SDRAM\_CTRL(17:0) ◊

SDRAM\_DA(31:0) ◊

SDRAM\_BA(1:0) ◊

MEMCONT(9:0) ◊

EXTADDA(31:0) ◊

NAND(15:0) ◊

NAND(15:0) ◊

SDRAM\_AD(15:0) ◊

SDRAM\_CTRL(17:0) ◊

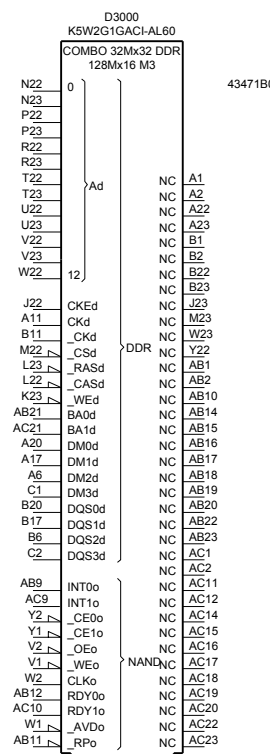
SDRAM\_DA(31:0) ◊

SDRAM\_BA(1:0) ◊

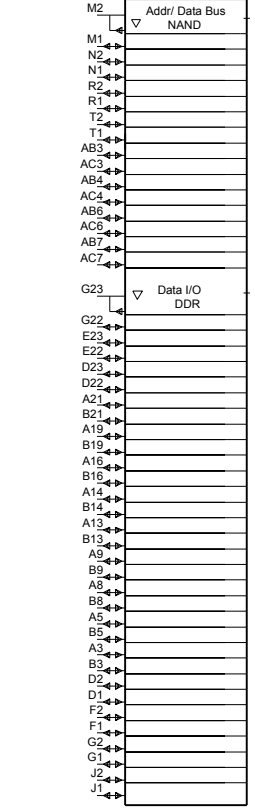
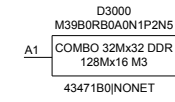
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EXTADDA(31:0) ◊

NAND(15:0) ◊

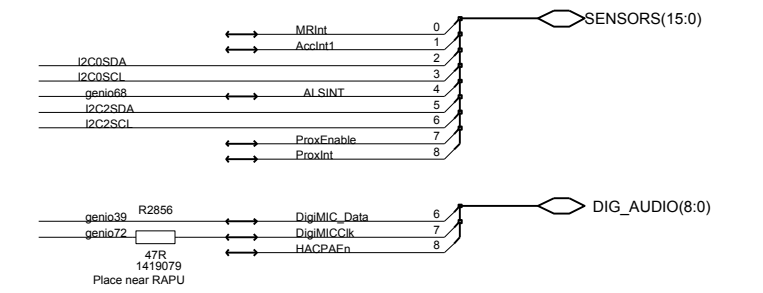
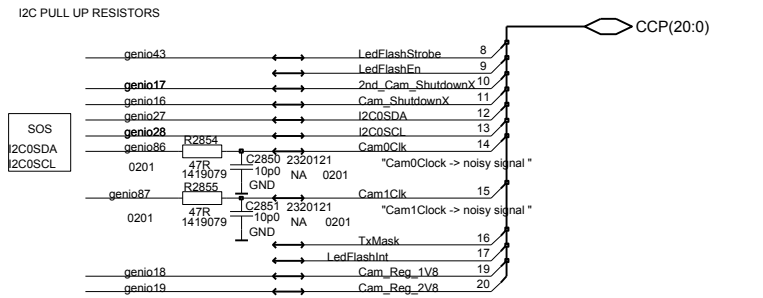
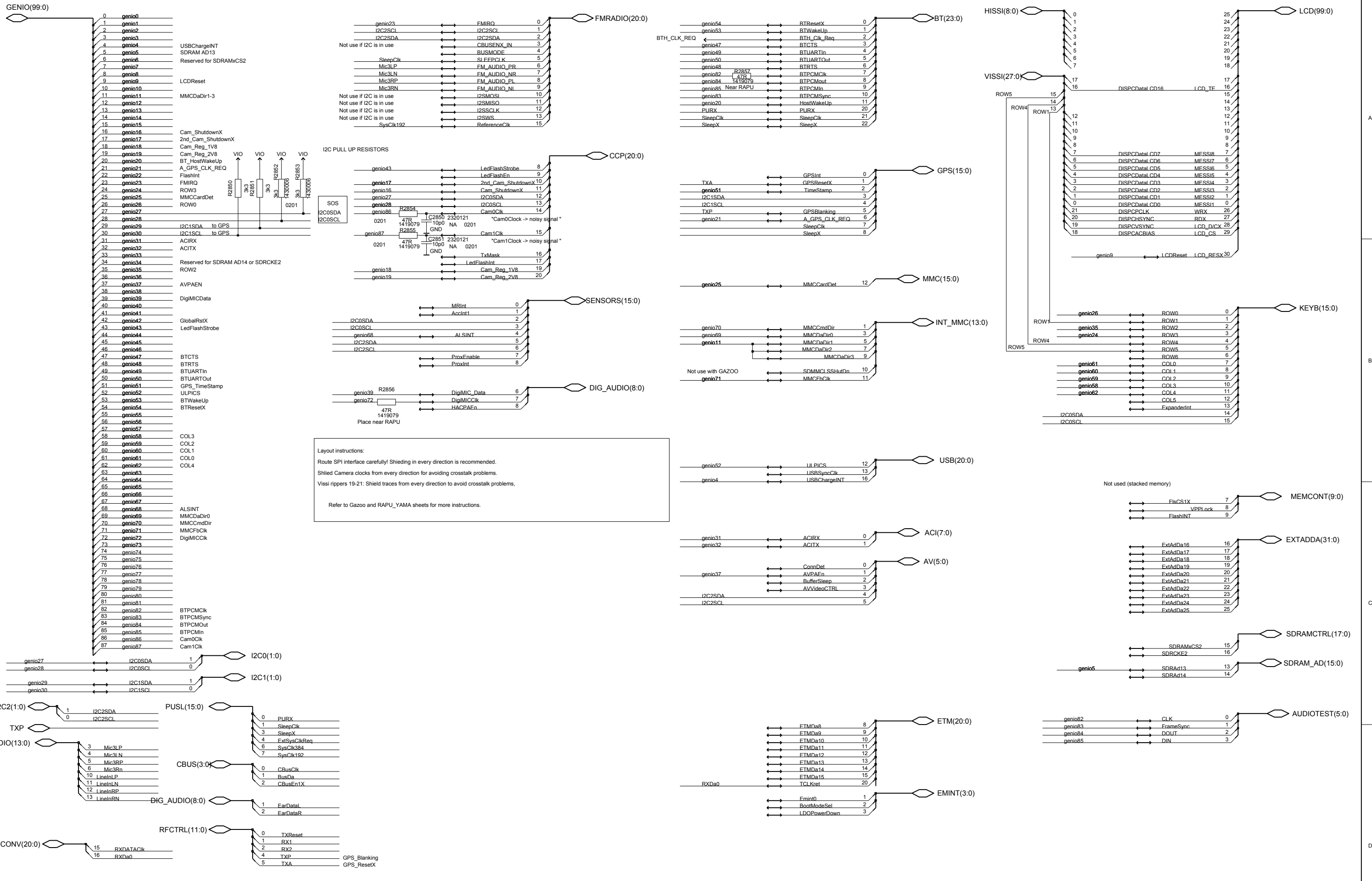


43471B0



A12,H23,K1,Y23,AA23= VCC  
 A4,A7,A10,A15,A18,C23,E1,F23,H1= VCC1  
 L1,AC8,AC13= VCC2  
 P1,U1,AA1,AC5= VCC3  
 B12,H22,K2,K22,AA22= GND  
 B4,B7,B10,B15,B18,C22,E2,F22,H2= GND1  
 L2,P2,U2,AA2,AB5,AB8,AB13= GND2

|  |  |                    |                       |
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|--|--|--------------------|-----------------------|



**Layout instructions:**

- Route SPI interface carefully! Shielding in every direction is recommended.
- Shield Camera clocks from every direction for avoiding crosstalk problems.
- Vissi rippers 19-21: Shield traces from every direction to avoid crosstalk problems.
- Refer to Gazoo and RAPU\_YAMA sheets for more instructions.

- RFID(4:0)
- IRDA(2:0)
- MMC2(15:0)
- GPS(15:0)
- FMTX(15:0)
- INT\_SIM(5:0)
- REFCLK\_I
- XENA(10:0)
- WLAN(15:0)
- SSI(7:0)
- DVB\_H(15:0)

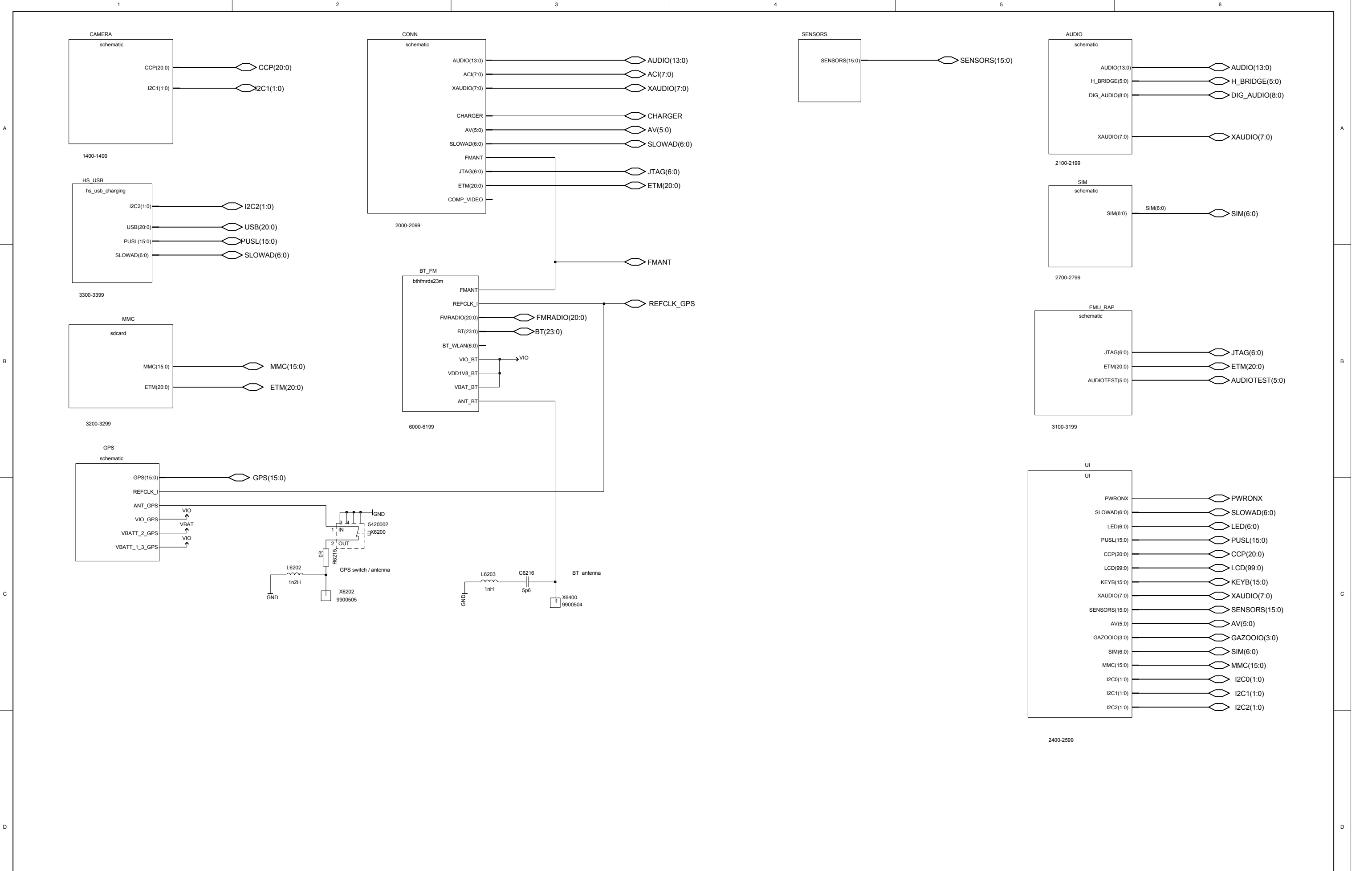
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|      |     |      |           |
|------|-----|------|-----------|
| Name | MUX | Appr | dd-mmm-yy |
|------|-----|------|-----------|

Clock request on RF-ext sheet!





REFCLK\_I    WLAN(15:0)    MMC2(15:0)    COMP\_VIDEO    DVB\_H(15:0)    GPS(15:0)  
 IRDA(2:0)    RFID(4:0)    XENA(10:0)    FMTX(15:0)    FMRADIO(20:0)    REFCLK\_GPS

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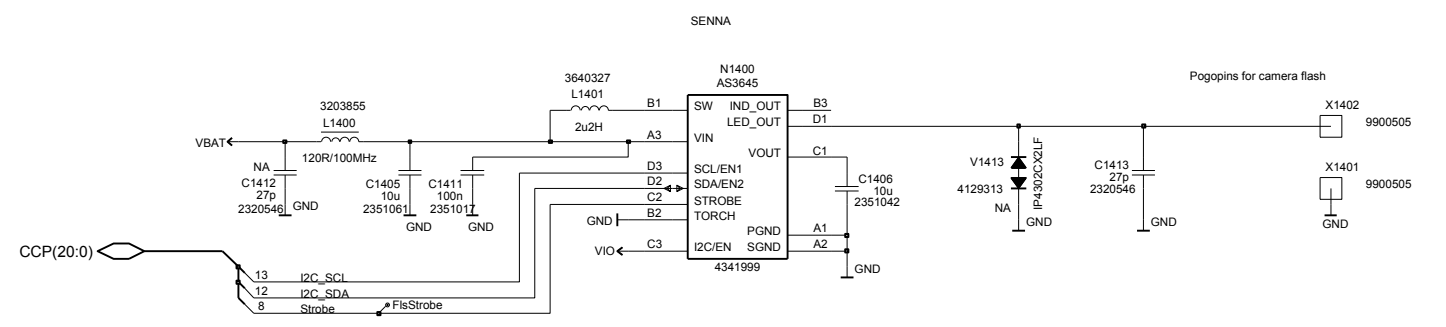
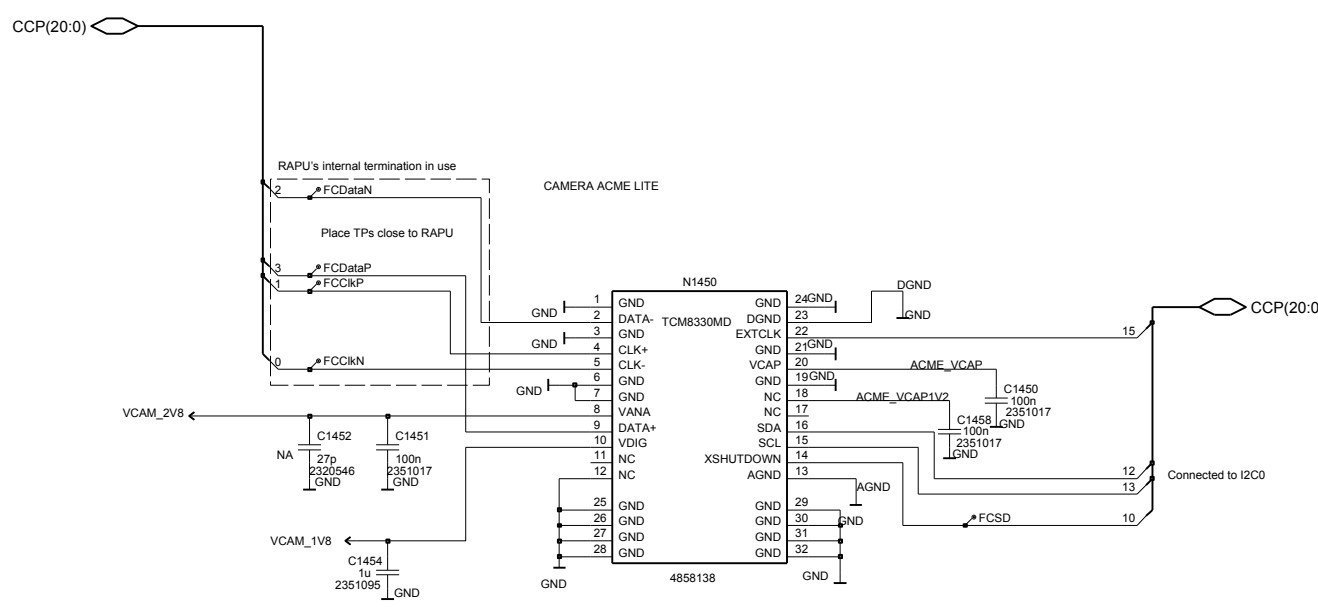
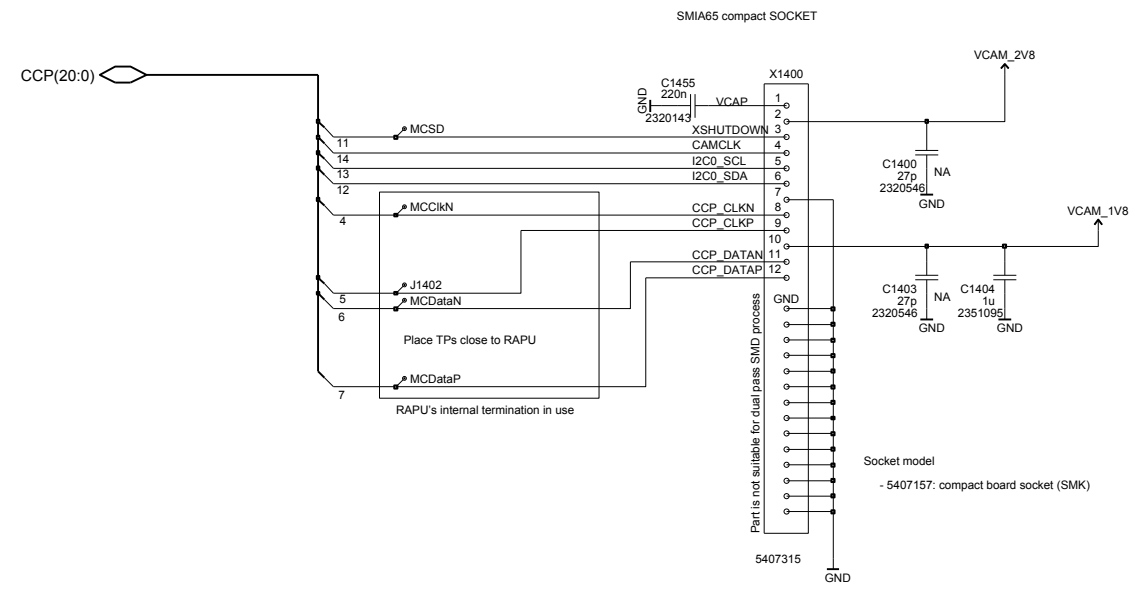
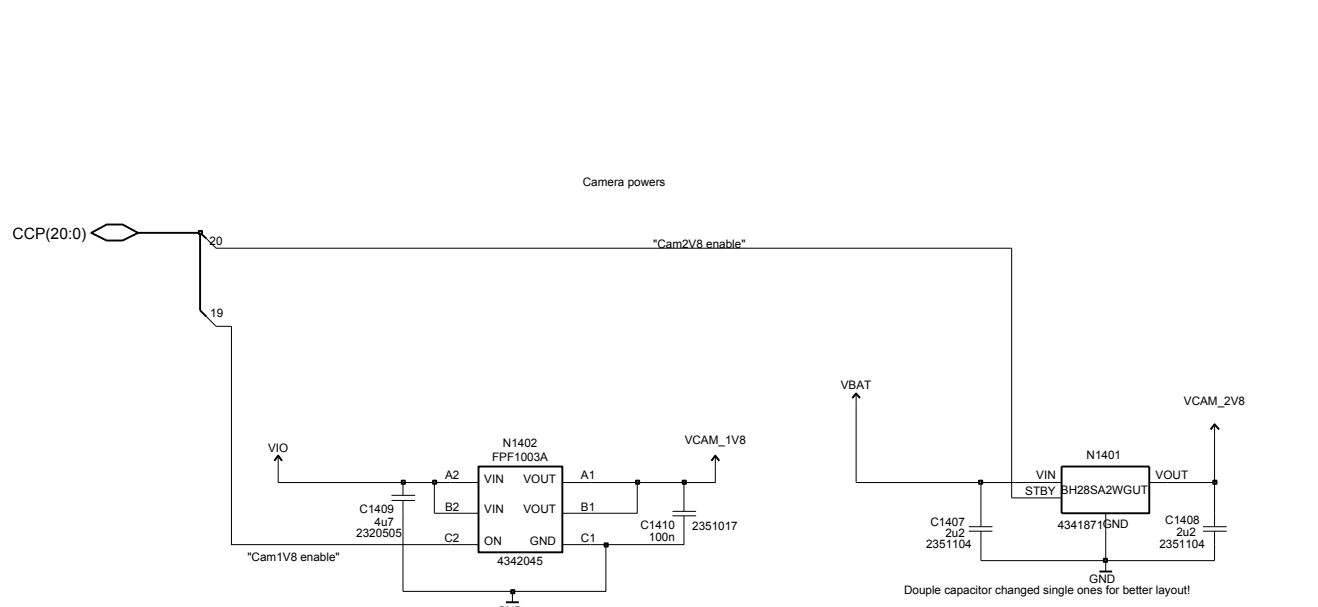


Name IF Top Level      Appr dd-mmm-yy

Layout instructions:

CCP IF: Differential interface -> match lengths and maintain symmetry even with clk and data.  
 Preferred routing layers, 4 and 5. No stubs allowed. Minimum trace width for achieving 100Ohm impedance.  
 Shielded Camera clocks from every direction for avoiding crosstalk problems.

3MPIX SMIA65 CAMERA + DRIPSTONE FLASH

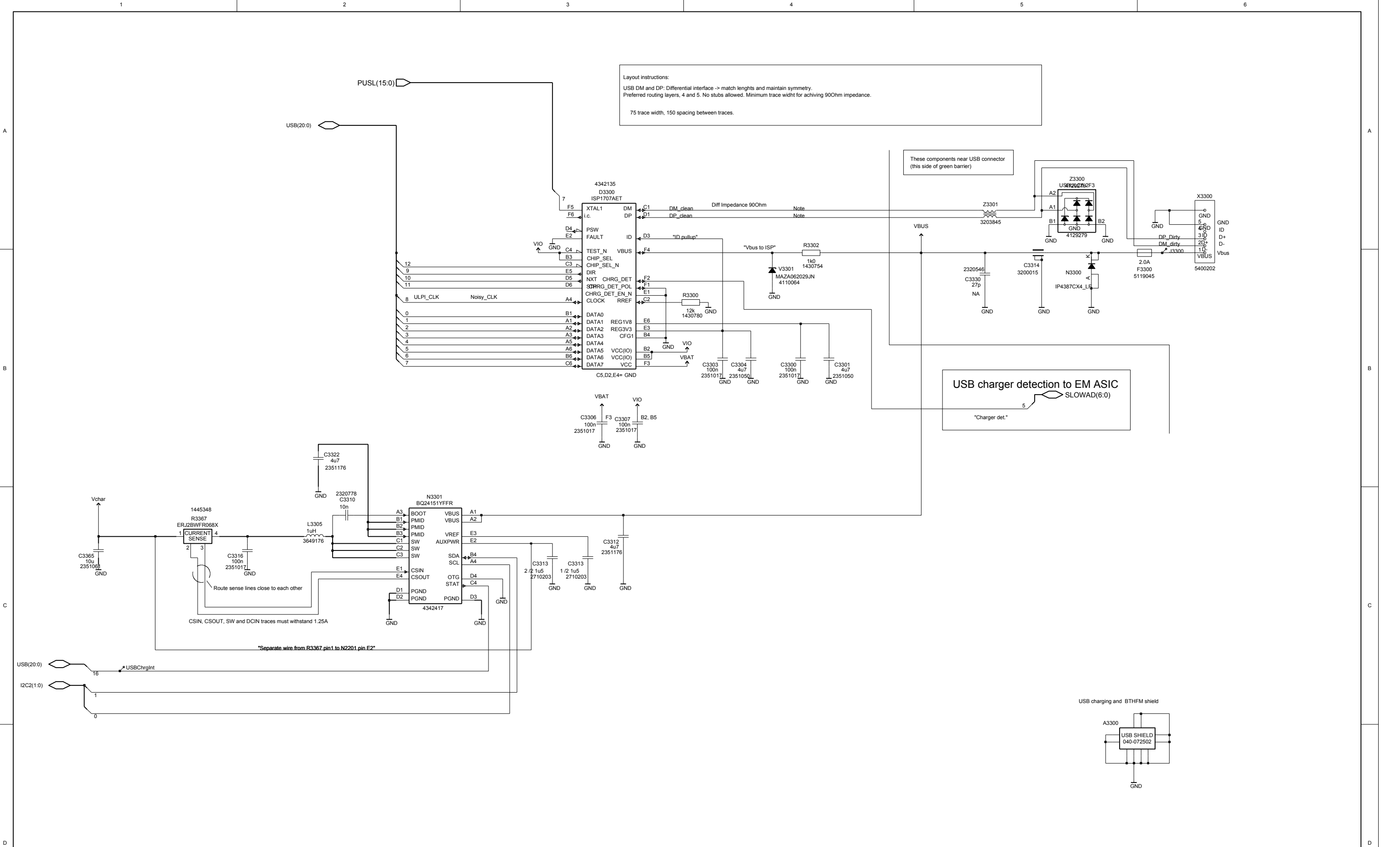


I2C1(1:0)

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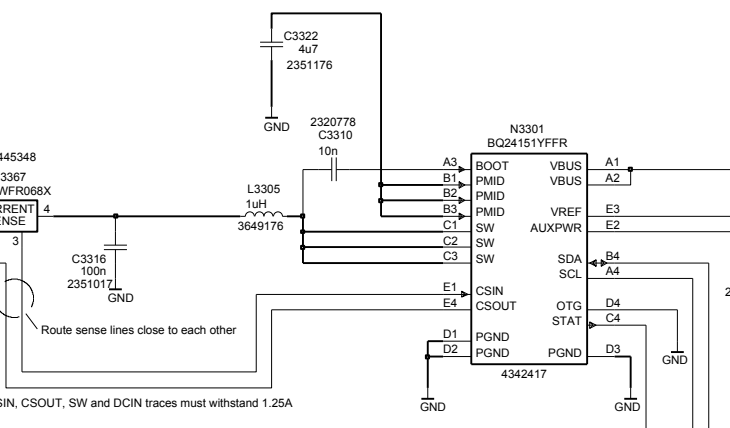
Name Schematic for Cameras Appr dd-mmm-yy



Layout instructions:  
 USB DM and DP: Differential interface -> match lengths and maintain symmetry.  
 Preferred routing layers, 4 and 5. No stubs allowed. Minimum trace width for achieving 90Ohm impedance.  
 75 trace width, 150 spacing between traces.

These components near USB connector  
 (this side of green barrier)

USB charger detection to EM ASIC  
 SLOWAD(6.0)  
 "Charger del."



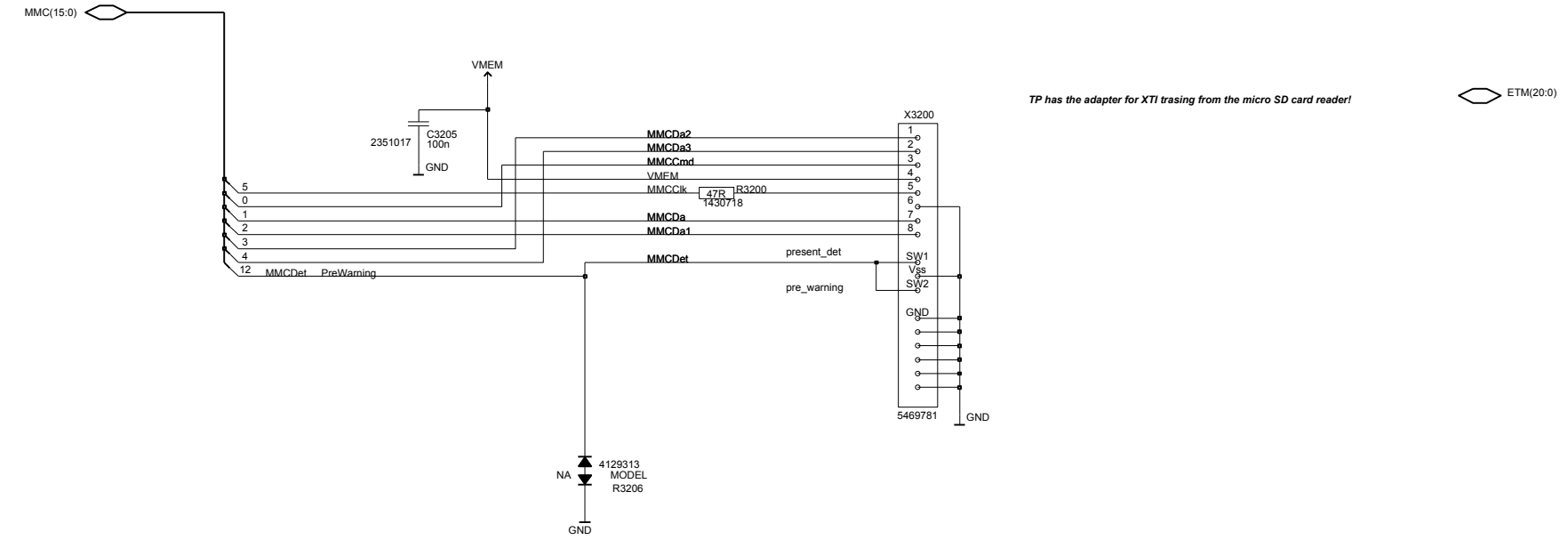
\*Separate wire from R3367 pin1 to N2201 pin E2\*

- Texas Instruments BQ24151
- C3322 ASSEMBLED, 2351050
  - R3367 ASSEMBLED
  - C3365 10uF, 2351061
  - C3311 NOT ASSEMBLED
  - C3312 1uF, 2320129

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Name HS USB & USB charging only Appr dd-mmm-yy

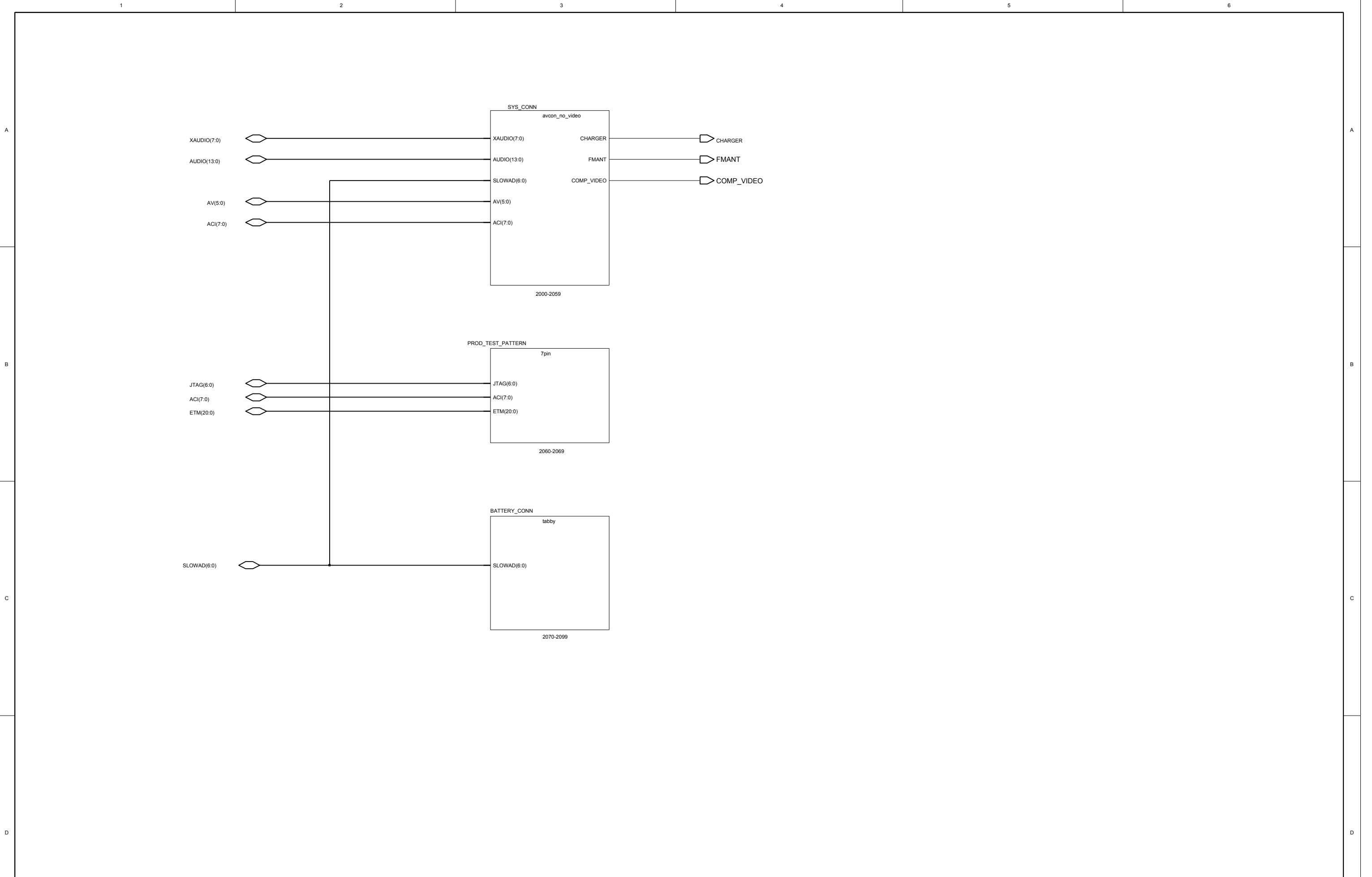


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Name SD card

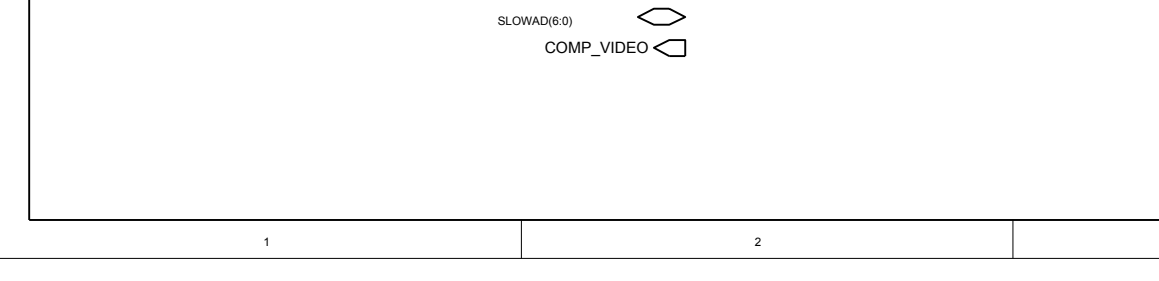
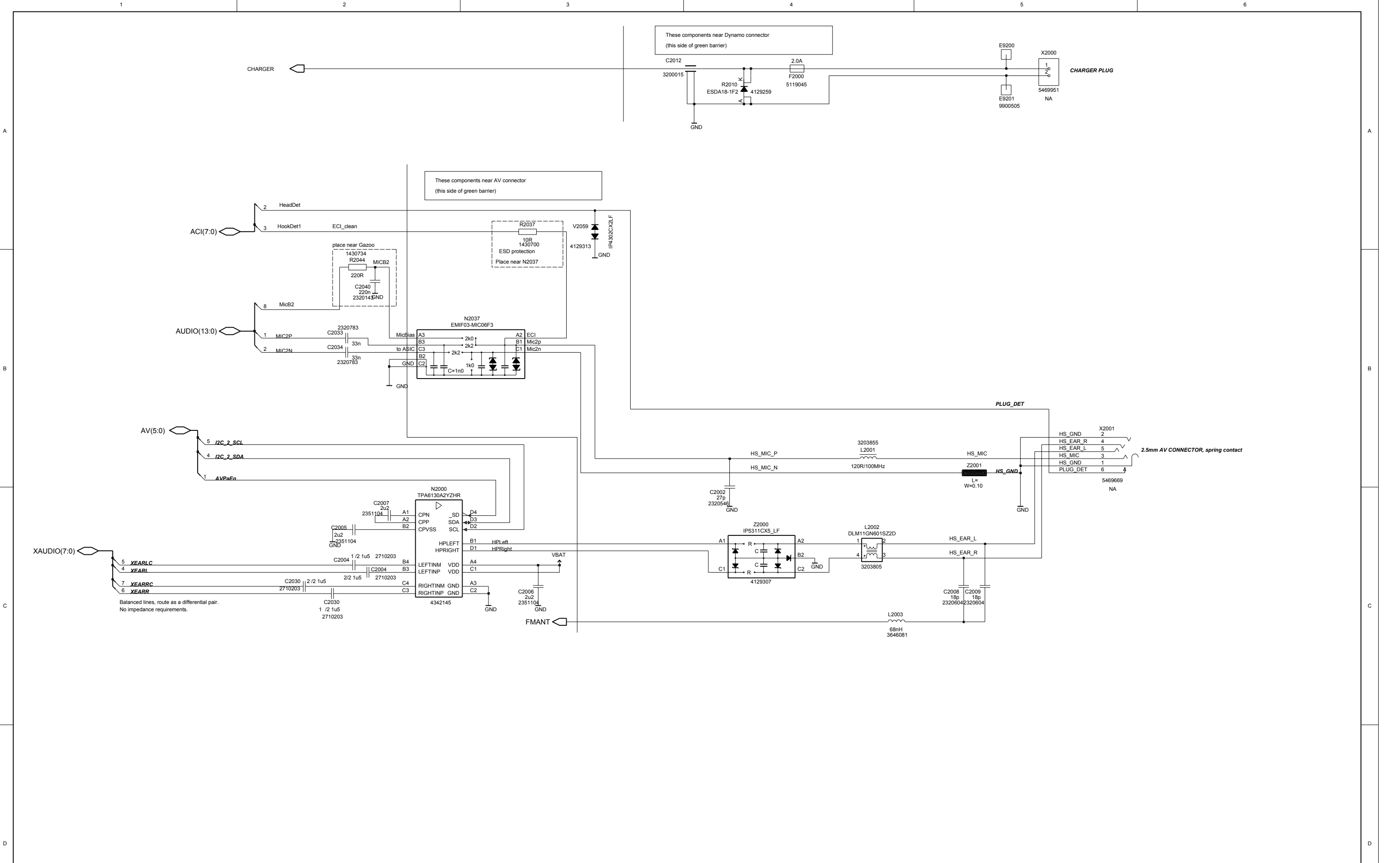
Appr dd-mmm-yy



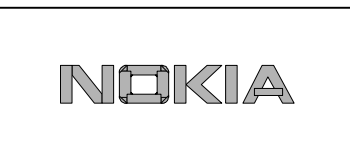
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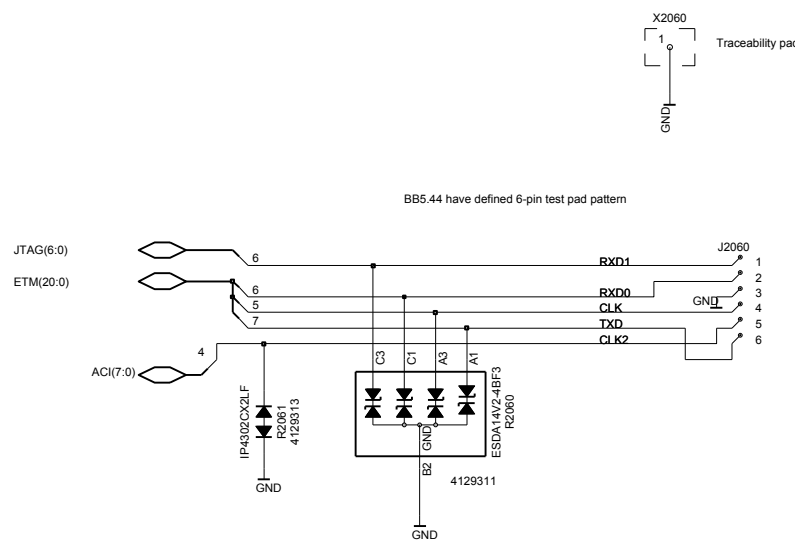
Name System and battery connector Appr



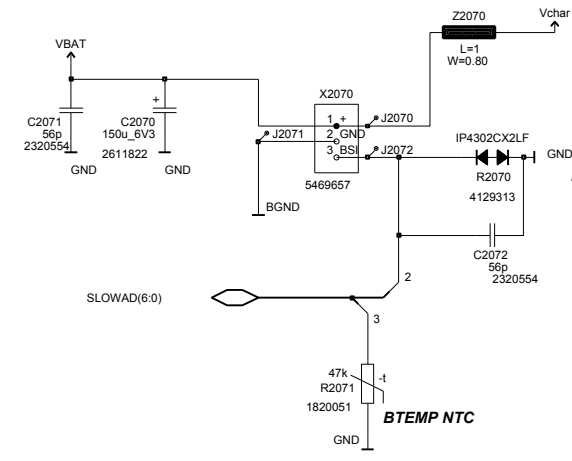
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|      |                       |      |           |
|------|-----------------------|------|-----------|
| Name | AV CONNECTOR NO VIDEO | Appr | dd-mmm-yy |
|------|-----------------------|------|-----------|



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|--|--|---------------------------------|-------------|

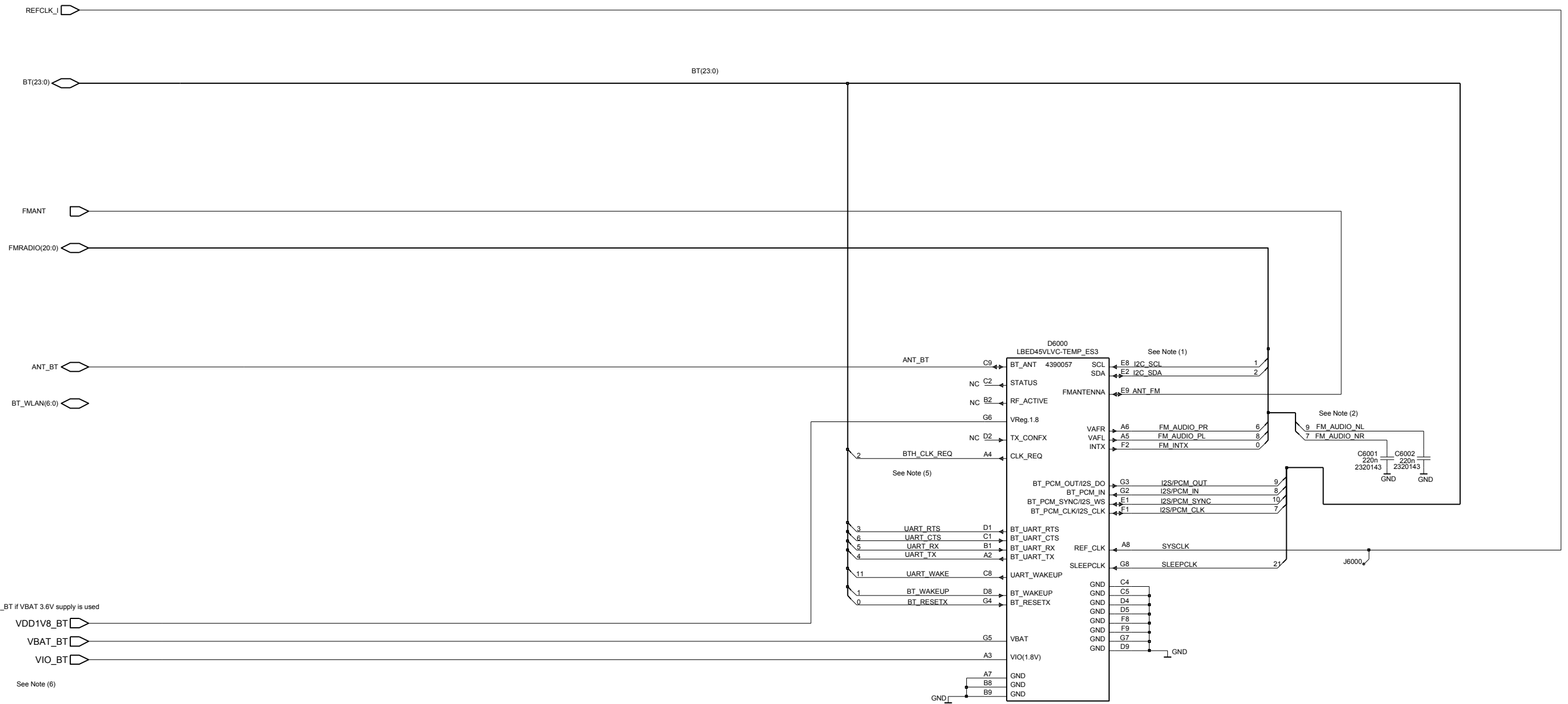


**NOTE !! R2070 IS NEEDED IF GAZOO IS FAR FROM BATTERY CONNECTOR !!!  
PLACE R2070 NEAR BATTERY CONNECTOR !!!**

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|--|--|-------------------------------|-------------|



BLUETOOTH & FM RADIO MODULE WITH RF FILTER



Do not connect VDD1V8\_BT if VBAT 3.6V supply is used

VDD1V8\_BT  
VBAT\_BT  
VIO\_BT

See Note (6)

Notes

- (1) 3k3 Pull-up Resistors are required on I2C\_SCL, I2C\_SDA.
- (2) C6001 and C6002 should be placed in the Bluetooth area, so that the differential audio lines to Retu ASIC are equal length.
- (3) Pins marked NC should be Not Connected.
- (4) Additional components for phone wing boards are given in BTHFMRDS2.1\_TEST release
- (5) Pull-down is required on BTH\_CLK\_REQ signal (see release note)
- (6) For 3.6V supply voltage connect VBAT\_BT input to VBAT 3.6V supply, VDD1V8\_BT input must be Not Connected  
For 1.8V supply voltage connect VDD1V8\_BT and VBAT\_BT inputs to 1.8V supply

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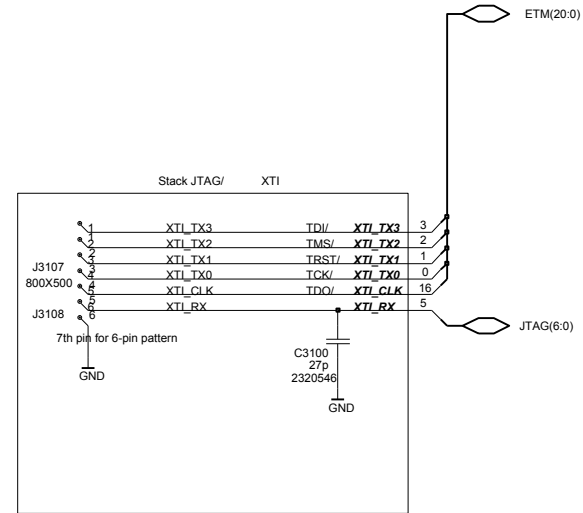
Name Bluetooth - FM Appr dd-mmm-yy





JTAG(6.0)

AUDIOTEST(5.0)



ETM(20.0)

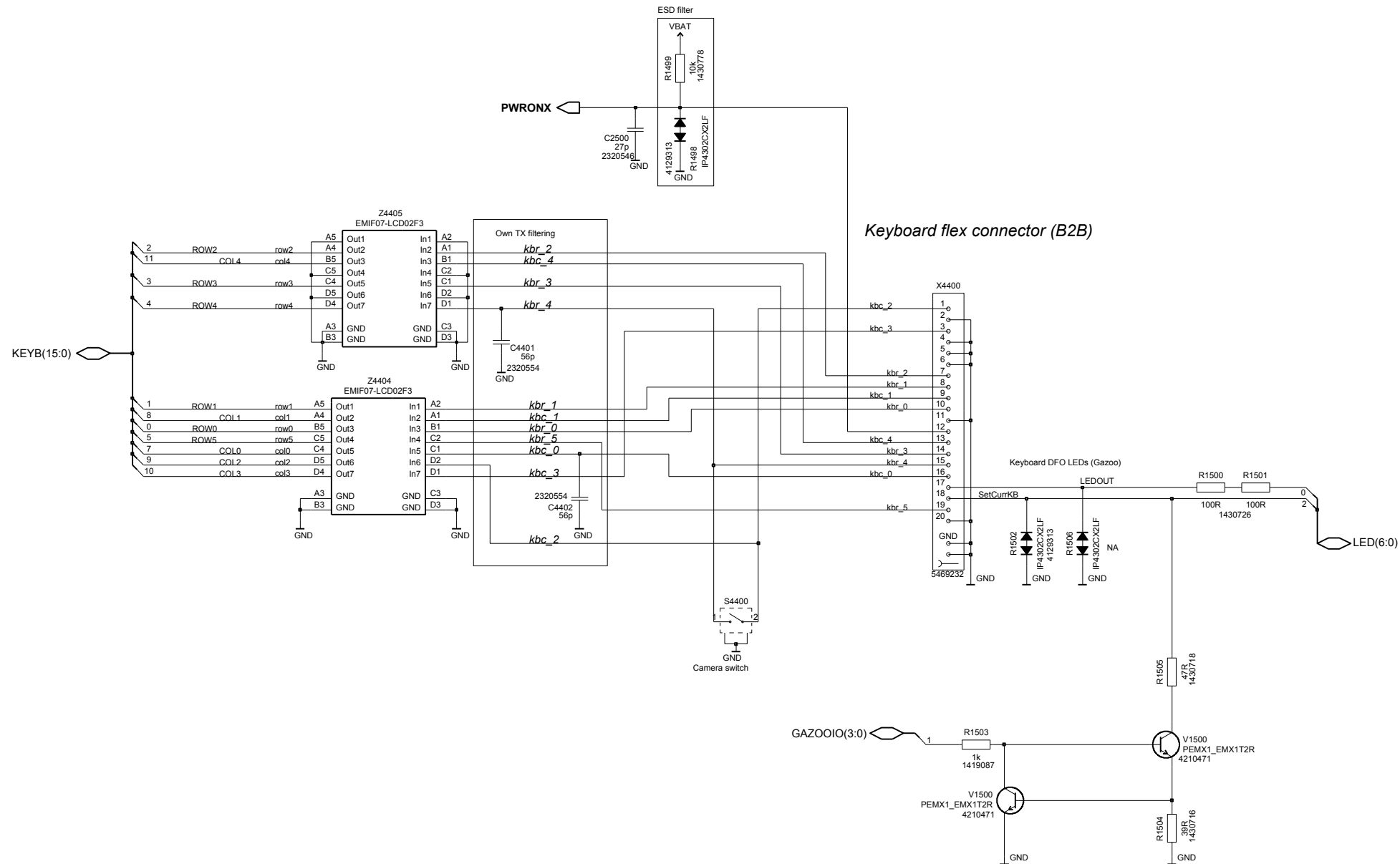
JTAG(6.0)

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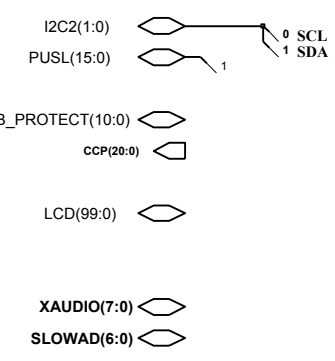
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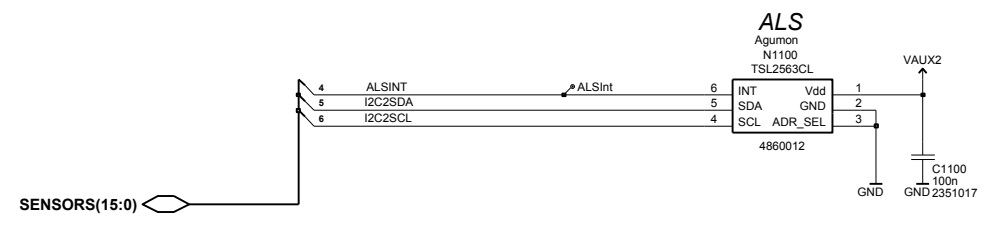




**Key matrix**

|      | COL0             | COL1       | COL2         | COL3     | COL4           |
|------|------------------|------------|--------------|----------|----------------|
| ROW0 | Vol Up<br>SK     | 1          | 2            | 3        | RightSK<br>UI  |
| ROW1 | Vol Down<br>SK   | 4          | 5            | 6        | LeftSK<br>UI   |
| ROW2 | NOT USED         | 7          | 8            | 9        | CLEAR<br>UI    |
| ROW3 | NaviSELECT<br>UI | *          | 0            | #        | APPS<br>UI     |
| ROW4 | NaviUP<br>UI     | SEND<br>UI | Camera<br>SK | NOT USED | NaviDOWN<br>UI |
| ROW5 | NaviRIGHT<br>UI  | GPS<br>SK  | NOT USED     | NOT USED | NaviLEFT<br>UI |





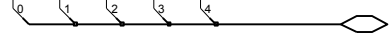
CBB5X

TOP SHEET

LPRFCLK

RFClkExt

VBAT VRCP1 VRCP2 VR1 VREF



RFPWR(5.0)

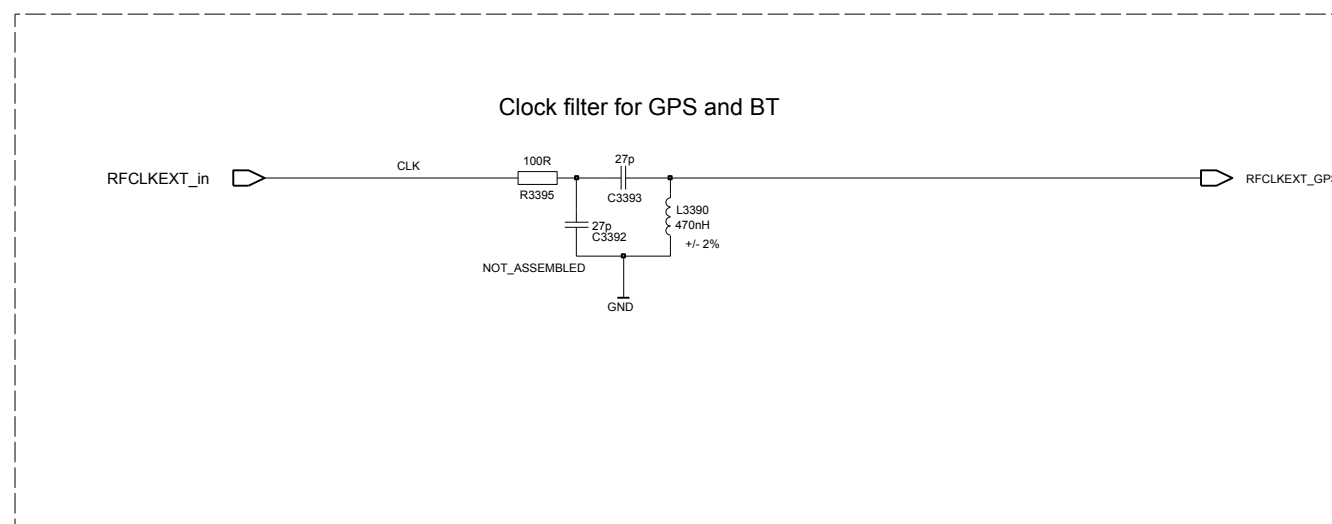
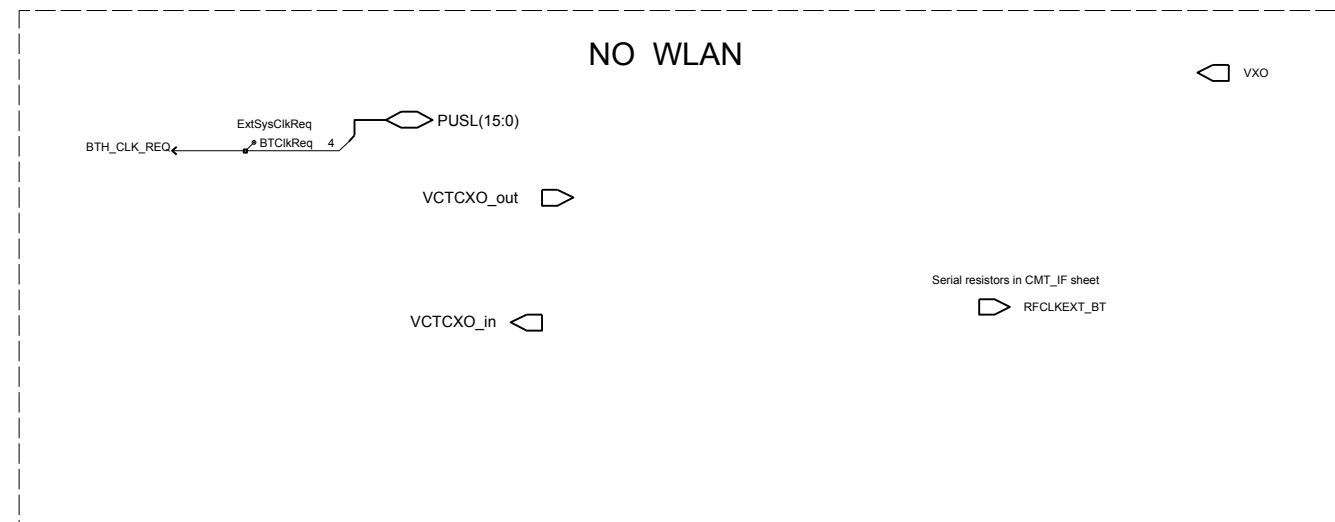
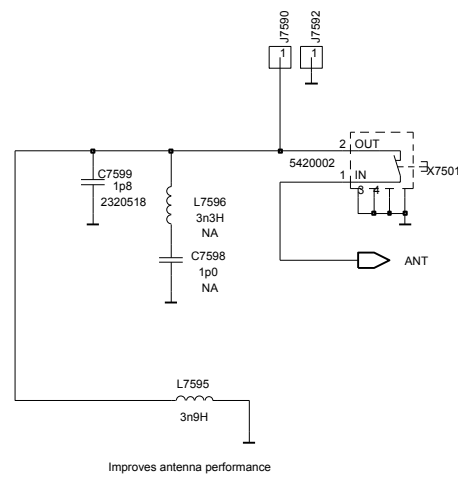
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Name RF\_BB

Appr dd-mmm-yy

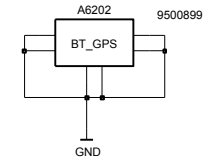
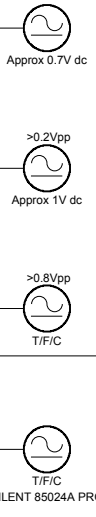
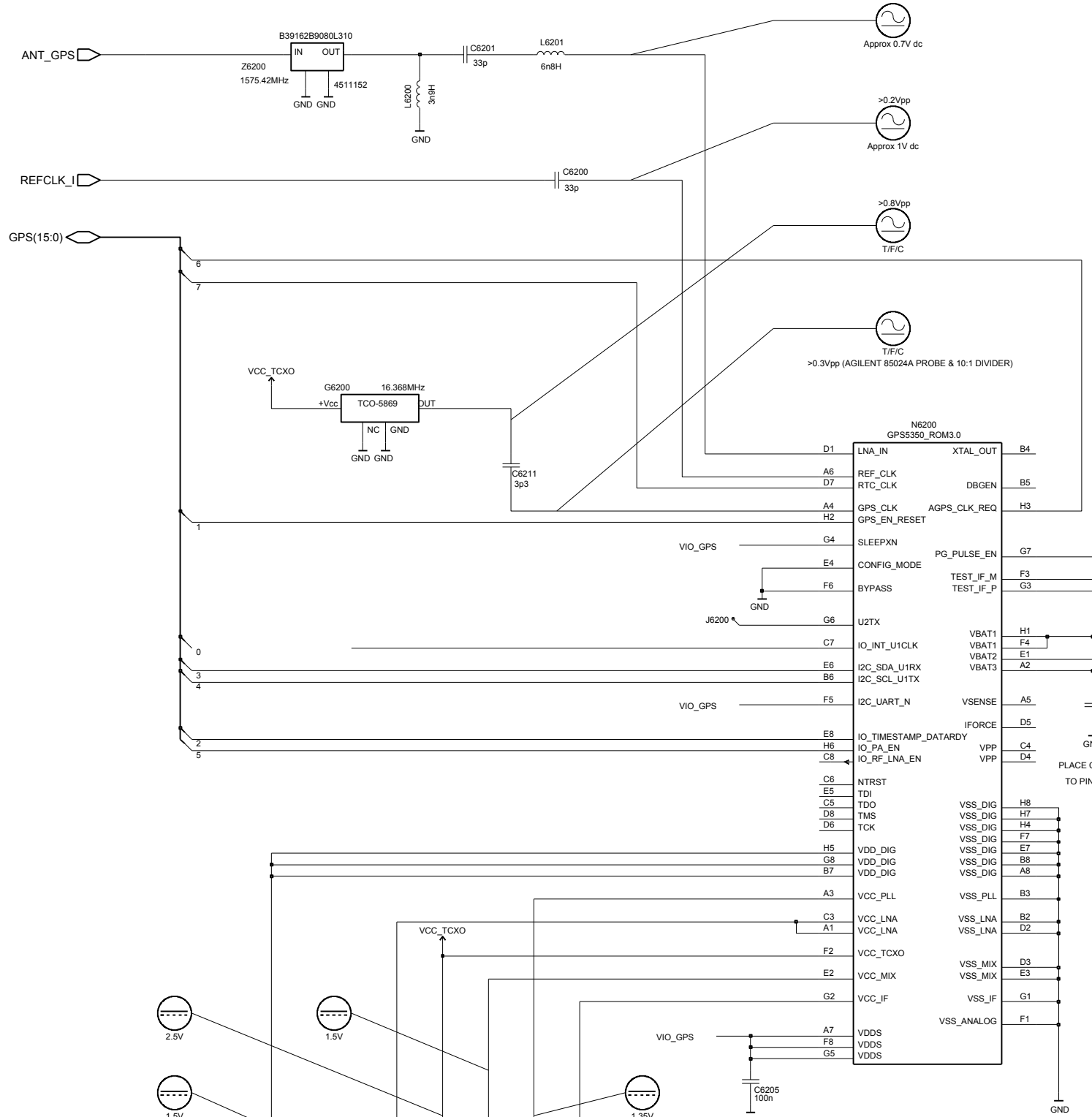




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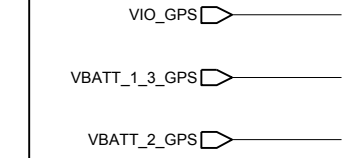


Name RF EXT      Appr dd-mmm-yy



NOTES  
 1) TRACK INDUCTANCE FROM VDD\_DIG, N6200-H5 TO C6212 MUST BE 1nH MAX.  
 2) TRACK INDUCTANCE FROM VDD\_XXX, N6200 TO DECOUPLING CAPS MUST BE 1nH MAX.

| MODE                            | CONNECT N6200 (PIN) | TO                               |
|---------------------------------|---------------------|----------------------------------|
| CUSTOMERS NOT USING PA BLANKING | IO_PA_EN            | GND<br>(PREVENTS FLOATING INPUT) |
| MODE                            |                     |                                  |



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Name Empty sheet for GPS Appr dd-mmm-yy

REF RANGE = 6200-6299

