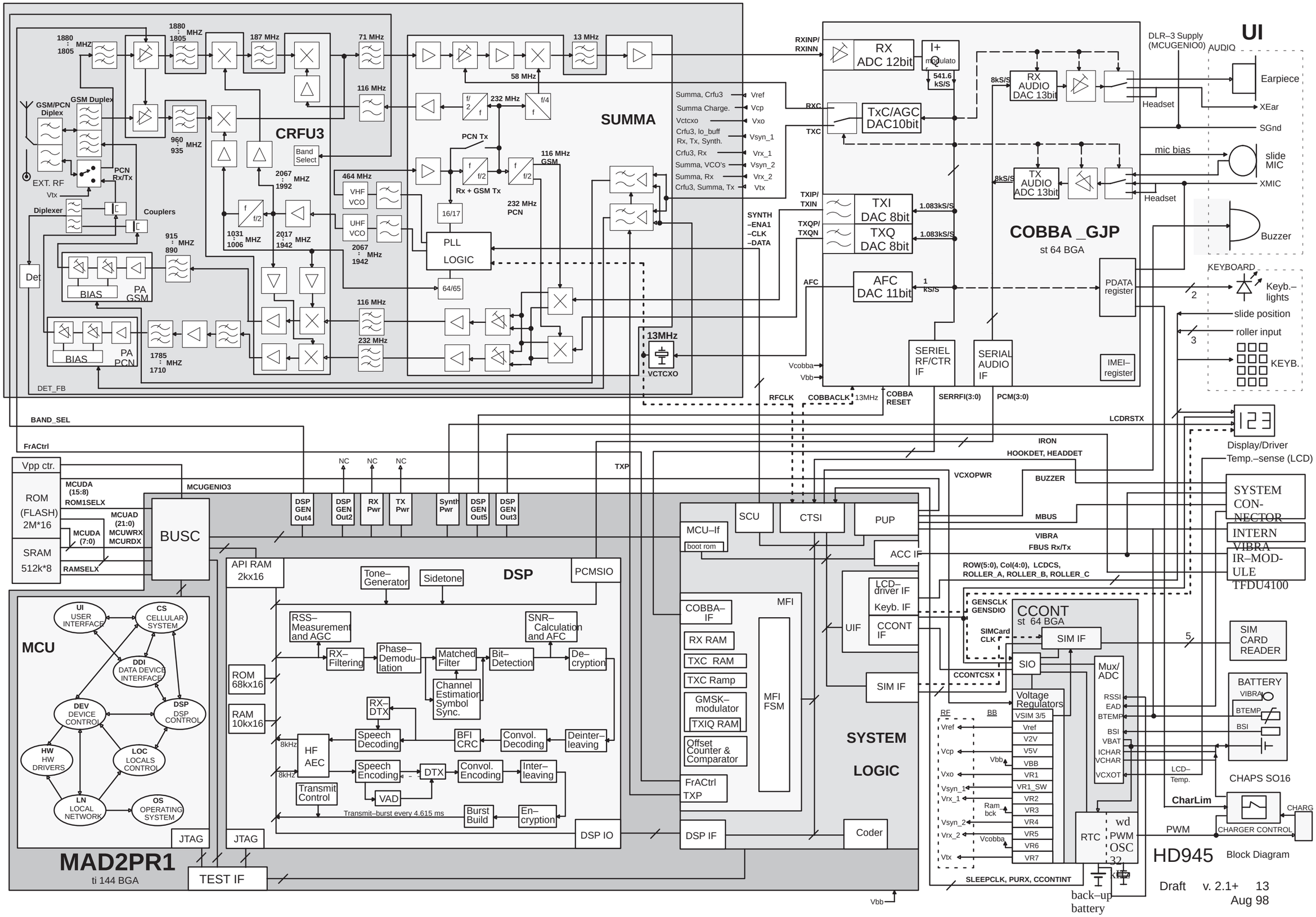
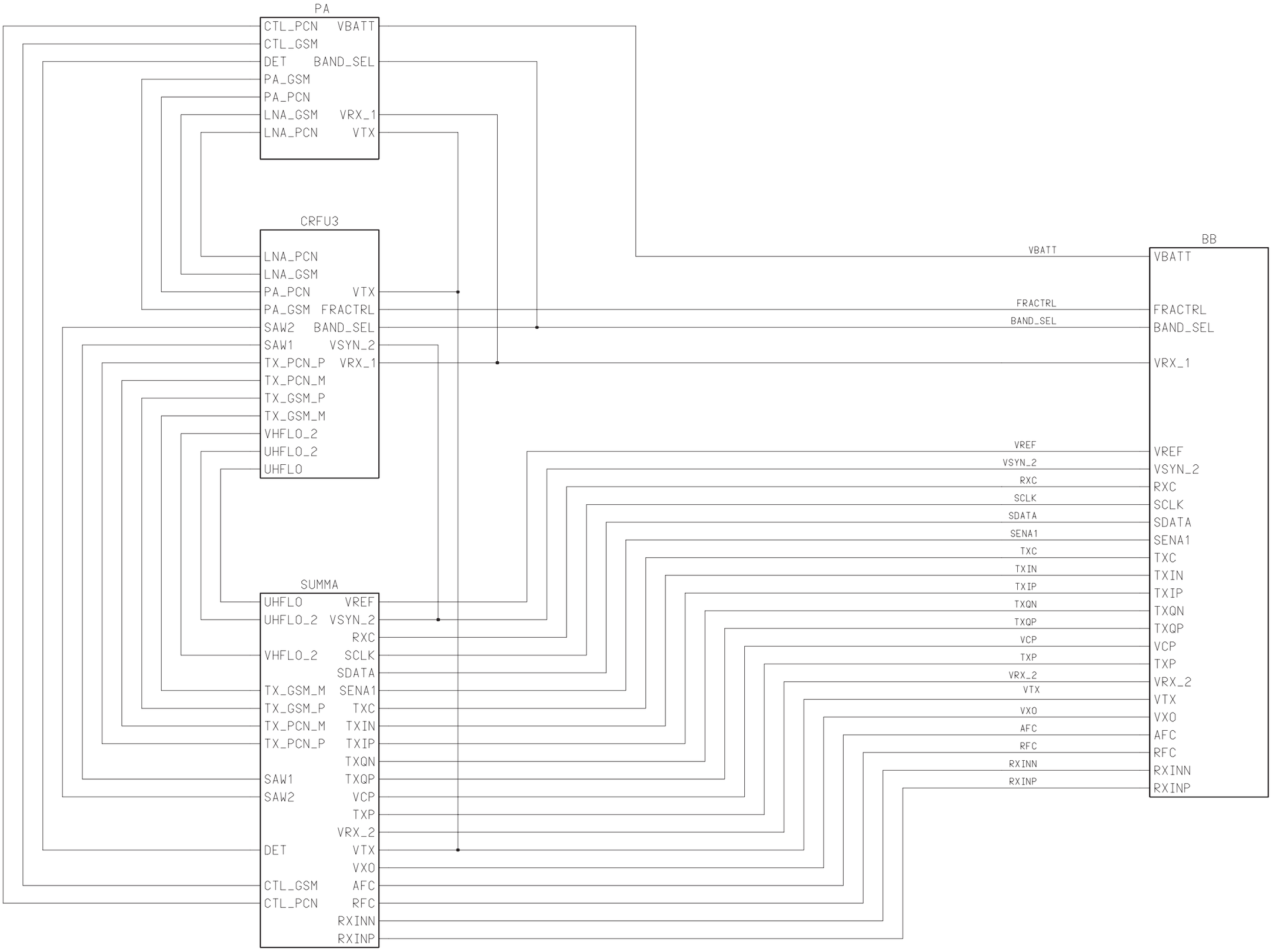
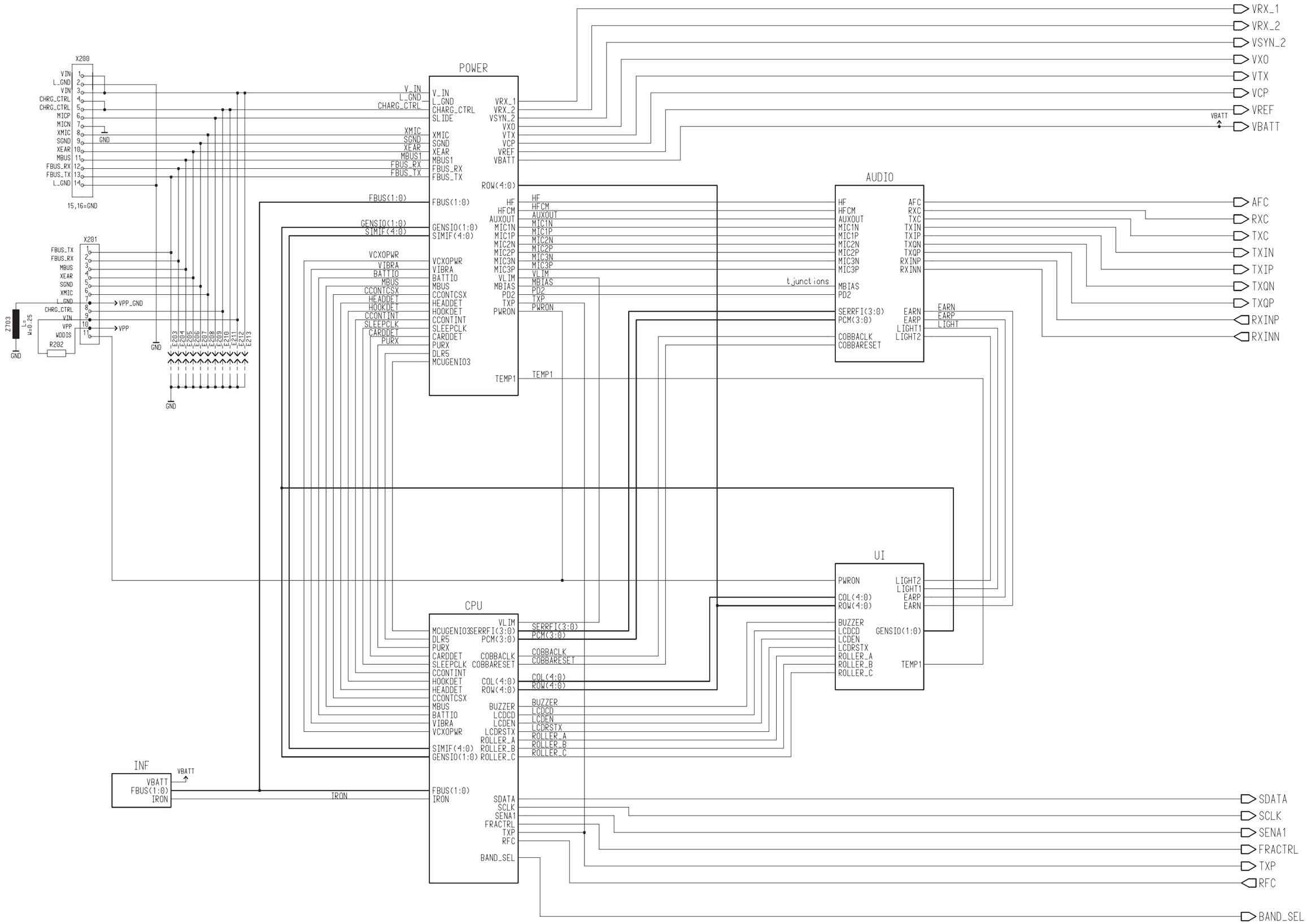
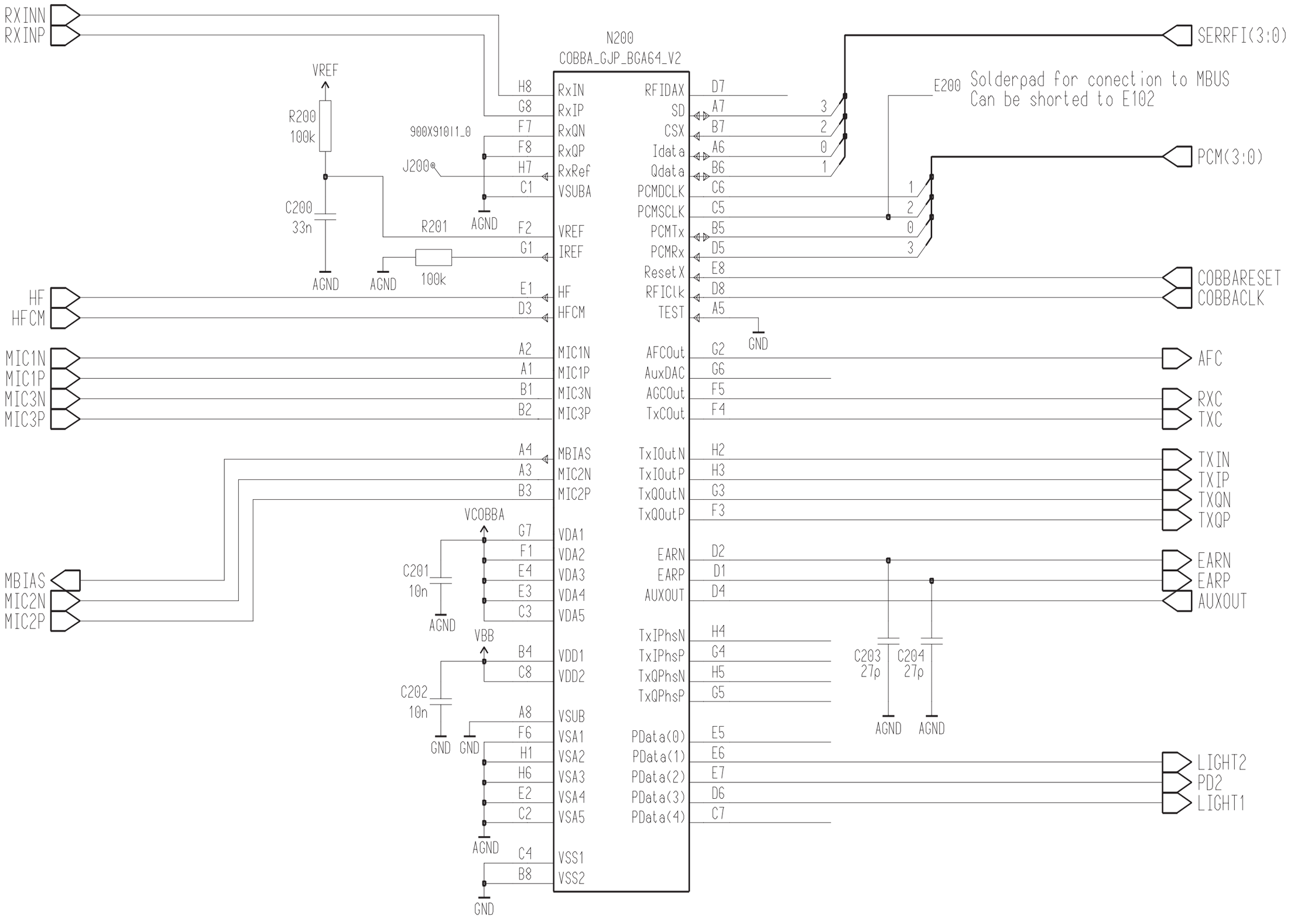
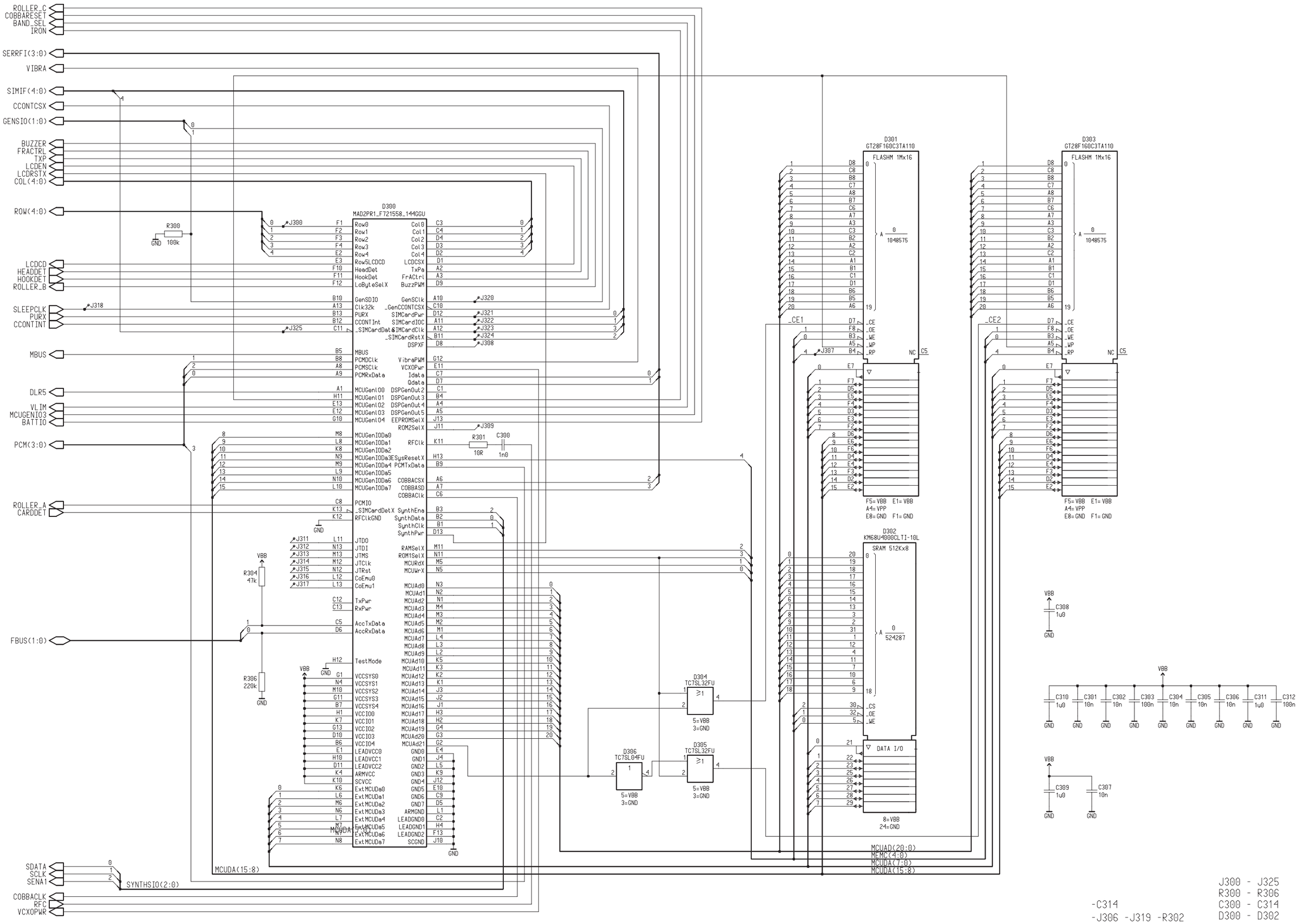

CRFU3
SUMMA
1880 : 1805 MHZ
1880 : 1805 MHZ
187 MHz
71 MHz
13 MHz
58 MHz
116 MHz
232 MHz
PCN Tx
Rx + GSM Tx
116 MHz GSM
232 MHz PCN
GSM Duplex
GSM/PCN Diplex
EXT. RF
PCN Rx/Tx
Vtx
Diplexer
Couplers
960 : 935 MHZ
2067 : 1992 MHZ
1031 : 1006 MHZ
2017 : 1942 MHZ
464 MHz
VHF VCO
UHF VCO
2067 : 1942 MHz
915 : 890 MHZ
BIAS
PA GSM
BIAS
PA PCN
1785 : 1710 MHZ
Band Select
16/17
PLL LOGIC
64/65
Det
DET_FB
Summa, Crfu3
Summa Charge.
Vctcxo
Crfu3, lo_buff Rx, Tx, Synth.
Crfu3, Rx
Summa, VCO's
Summa, Rx
Crfu3, Summa, Tx
Vref
Vcp
Vxo
Vsyn_1
Vrx_1
Vsyn_2
Vrx_2
Vtx
SYNTH –ENA1 –CLK –DATA
13MHz
VCTCXO
RXINP/ RXINN
RXC
TXC
TXIP/ TXIN
TXQP/ TXQN
AFC
RX ADC 12bit
I+ Q modulator
541.6 kS/S
TxC/AGC DAC10bit
TXI DAC 8bit
TXQ DAC 8bit
AFC DAC 11bit
1.083kS/S
1.083kS/S
1 kS/S
8kS/S
RX AUDIO DAC 13bit
8kS/S
TX AUDIO ADC 13bit
COBBA _GJP
st 64 BGA
PDATA register
SERIEL RF/CTR IF
SERIAL AUDIO IF
IMEI– register
Vcobba
Vbb
RFCLK
COBBACLK
13MHz
COBBA RESET
SERRFI(3:0)
PCM(3:0)
LCDRSTX
DLR–3 Supply (MCUGENIO0)
UI
AUDIO
Earpiece
Headset
XEar
SGnd
mic bias
slide MIC
XMIC
Headset
Buzzer
KEYBOARD
Keyb.– lights
slide position
roller input
KEYB.
2
3
123
Display/Driver
Temp.–sense (LCD)
BAND_SEL
FrACtrl
Vpp ctr.
ROM (FLASH) 2M*16
SRAM 512k*8
MCUDA (15:8)
ROM1SELX
MCUAD (21:0)
MCUWRX
MCURDX
MCUDA (7:0)
RAMSELX
MCUGENIO3
BUSC
NC
NC
NC
TXP
DSP GEN Out4
DSP GEN Out2
RX Pwr
TX Pwr
Synth Pwr
DSP GEN Out5
DSP GEN Out3
IRON
HOOKDET, HEADDET
VCXOPWR
BUZZER
MBUS
VIBRA
FBUS Rx/Tx
ROW(5:0), Col(4:0), LCDCS, ROLLER_A, ROLLER_B, ROLLER_C
SCU
CTSI
PUP
MCU–If
boot rom
ACC IF
LCD– driver IF
Keyb. IF
UIF
CCONT IF
SIM IF
GENSCLK
GENSDIO
SIMCard CLK
CCONTCSX
CCONT
st 64 BGA
SIM IF
SIO
Mux/ ADC
RSSI
EAD
BTEMP
BSI
VBAT
ICHAR
VCHAR
VCXOT
Voltage Regulators
RF
BB
VSIM 3/5
Vref
V2V
V5V
VBB
VR1
VR1_SW
VR2
VR3
VR4
VR5
VR6
VR7
Ram bck
RTC
wd
PWM
OSC 32 kHz
SLEEPCLK, PURX, CCONTINT
back–up battery
SYSTEM CON- NECTOR
INTERN VIBRA
IR–MOD- ULE TFDU4100
SIM CARD READER
5
BATTERY
VIBRA
BTEMP
BSI
CHAPS SO16
CharLim
CHARG
CHARGER CONTROL
PWM
LCD– Temp.
HD945 Block Diagram
Draft v. 2.1+ 13 Aug 98
MFI
COBBA– IF
RX RAM
TXC RAM
TXC Ramp
GMSK– modulator
TXIQ RAM
Offset Counter & Comparator
FrACtrl
TXP
MFI FSM
DSP IF
Coder
SYSTEM LOGIC
DSP
PCMSIO
Tone– Generator
Sidetone
RSS– Measurement and AGC
SNR– Calculation and AFC
RX– Filtering
Phase– Demodu– lation
Matched Filter
Bit– Detection
De– cryption
Channel Estimation Symbol Sync.
RX– DTX
Speech Decoding
BFI CRC
Convol. Decoding
Deinter– leaving
8kHz
HF AEC
8kHz
Speech Encoding
DTX
Convol. Encoding
Inter– leaving
Transmit Control
VAD
Transmit–burst every 4.615 ms
Burst Build
En– cryption
DSP IO
API RAM 2kx16
ROM 68kx16
RAM 10kx16
JTAG
JTAG
TEST IF
MCU
UI USER INTERFACE
CS CELLULAR SYSTEM
DDI DATA DEVICE INTERFACE
DEV DEVICE CONTROL
DSP DSP CONTROL
HW HW DRIVERS
LOC LOCALS CONTROL
LN LOCAL NETWORK
OS OPERATING SYSTEM
MAD2PR1
ti 144 BGA


PA
CTL_PCN
CTL_GSM
DET
PA_GSM
PA_PCN
LNA_GSM
LNA_PCN
VBATT
BAND_SEL
VRX_1
VTX
CRFU3
LNA_PCN
LNA_GSM
PA_PCN
PA_GSM
SAW2
SAW1
TX_PCN_P
TX_PCN_M
TX_GSM_P
TX_GSM_M
VHFLO_2
UHFLO_2
UHFLO
VTX
FRACTRL
BAND_SEL
VSYN_2
VRX_1
SUMMA
UHFLO
UHFLO_2
VHFLO_2
TX_GSM_M
TX_GSM_P
TX_PCN_M
TX_PCN_P
SAW1
SAW2
DET
CTL_GSM
CTL_PCN
VREF
VSYN_2
RXC
SCLK
SDATA
SENA1
TXC
TXIN
TXIP
TXQN
TXQP
VCP
TXP
VRX_2
VTX
VXO
AFC
RFC
RXINN
RXINP
BB
VBATT
FRACTRL
BAND_SEL
VRX_1
VREF
VSYN_2
RXC
SCLK
SDATA
SENA1
TXC
TXIN
TXIP
TXQN
TXQP
VCP
TXP
VRX_2
VTX
VXO
AFC
RFC
RXINN
RXINP


X200
VIN 1
L_GND 2
VIN 3
CHRG_CTRL 4
CHRG_CTRL 5
MICP 6
MICN 7
XMIC 8
SGND 9
XEAR 10
MBUS 11
FBUS_RX 12
FBUS_TX 13
L_GND 14
15,16=GND
GND
X201
FBUS_TX 1
FBUS_RX 2
MBUS 3
XEAR 4
SGND 5
XMIC 6
L_GND 7
CHRG_CTRL 8
VIN 9
VPP 10
WDDIS 11
VPP_GND
VPP
Z703
L=
W=0.25
R202
GND
E203 E204 E205 E206 E207 E208 E209 E210 E211 E212 E213
GND
POWER
V_IN
L_GND
CHARG_CTRL
SLIDE
XMIC
SGND
XEAR
MBUS1
FBUS_RX
FBUS_TX
ROW(4:0)
FBUS(1:0)
GENSIO(1:0)
SIMIF(4:0)
VCXOPWR
VIBRA
BATTIO
MBUS
CCONTCSX
HEADDET
HOOKDET
CCONTINT
SLEEPCLK
CARDDET
PURX
DLR5
MCUGENIO3
VRX_1
VRX_2
VSYN_2
VXO
VTX
VCP
VREF
VBATT
HF
HFCM
AUXOUT
MIC1N
MIC1P
MIC2N
MIC2P
MIC3N
MIC3P
VLIM
MBIAS
PD2
TXP
PWRON
TEMP1
AUDIO
HF
HFCM
AUXOUT
MIC1N
MIC1P
MIC2N
MIC2P
MIC3N
MIC3P
MBIAS
PD2
SERRFI(3:0)
PCM(3:0)
COBBACLK
COBBARESET
AFC
RXC
TXC
TXIN
TXIP
TXQN
TXQP
RXINP
RXINN
EARN
EARP
LIGHT1
LIGHT2
t_junctions
UI
PWRON
COL(4:0)
ROW(4:0)
BUZZER
LCDCD
LCDEN
LCDRSTX
ROLLER_A
ROLLER_B
ROLLER_C
LIGHT2
LIGHT1
EARP
EARN
GENSIO(1:0)
TEMP1
CPU
VLIM
MCUGENIO3
DLR5
PURX
CARDDET
SLEEPCLK
CCONTINT
HOOKDET
HEADDET
CCONTCSX
MBUS
BATTIO
VIBRA
VCXOPWR
SIMIF(4:0)
GENSIO(1:0)
SERRFI(3:0)
PCM(3:0)
COBBACLK
COBBARESET
COL(4:0)
ROW(4:0)
BUZZER
LCDCD
LCDEN
LCDRSTX
ROLLER_A
ROLLER_B
ROLLER_C
FBUS(1:0)
IRON
SDATA
SCLK
SENA1
FRACTRL
TXP
RFC
BAND_SEL
INF
VBATT
FBUS(1:0)
IRON
VBATT
IRON
VRX_1
VRX_2
VSYN_2
VXO
VTX
VCP
VREF
VBATT
AFC
RXC
TXC
TXIN
TXIP
TXQN
TXQP
RXINP
RXINN
SDATA
SCLK
SENA1
FRACTRL
TXP
RFC
BAND_SEL

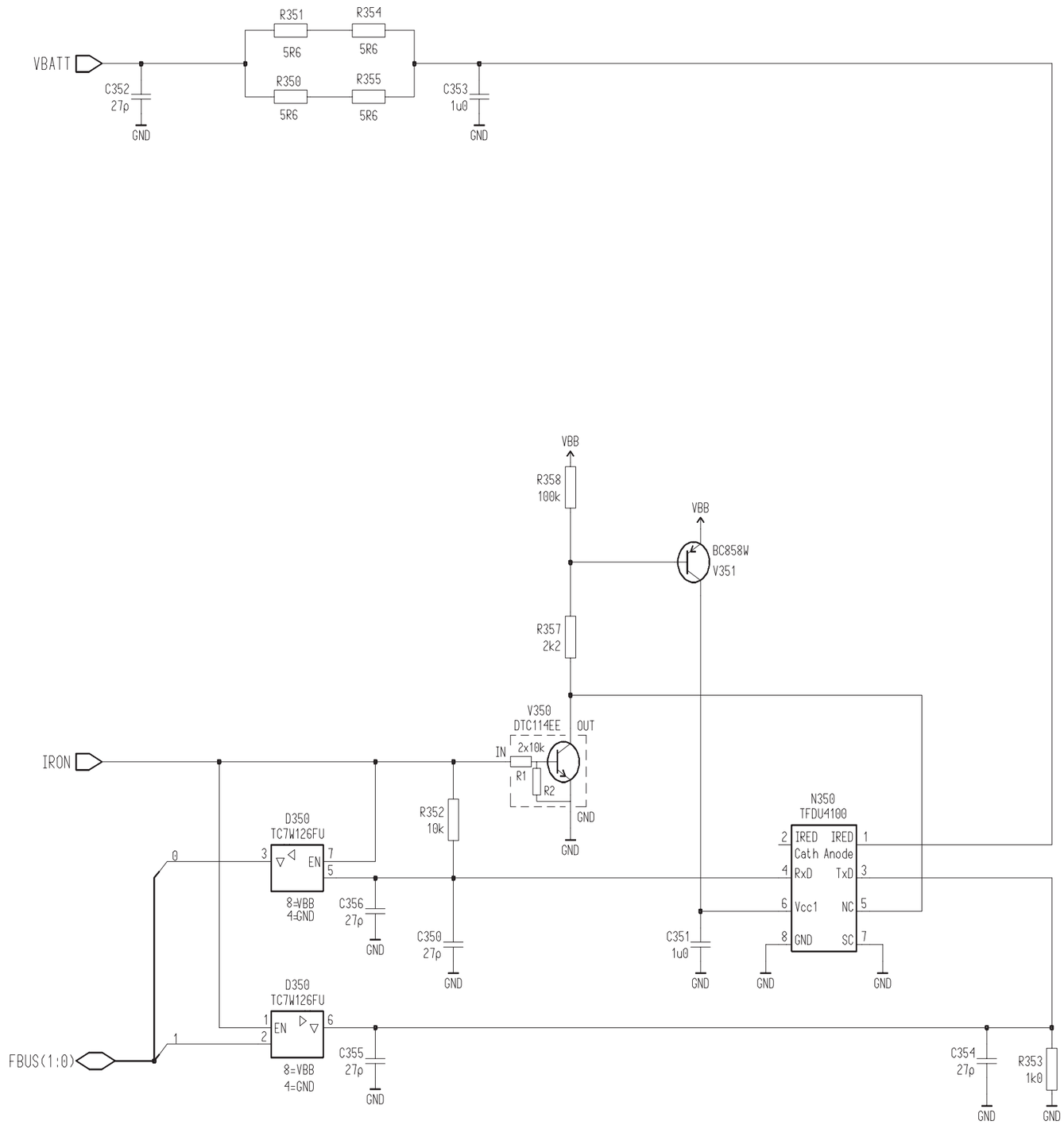

RXINN
RXINP
N200
COBBA_GJP_BGA64_V2
VREF
R200
100k
C200
33n
AGND
900X91011_0
J200
AGND
R201
100k
AGND
H8 RxIN
G8 RxIP
F7 RxQN
F8 RxQP
H7 RxRef
C1 VSUBA
F2 VREF
G1 IREF
HF
HFCM
E1 HF
D3 HFCM
MIC1N
MIC1P
MIC3N
MIC3P
A2 MIC1N
A1 MIC1P
B1 MIC3N
B2 MIC3P
MBIAS
MIC2N
MIC2P
A4 MBIAS
A3 MIC2N
B3 MIC2P
VCOBBA
C201
10n
AGND
G7 VDA1
F1 VDA2
E4 VDA3
E3 VDA4
C3 VDA5
VBB
C202
10n
GND
B4 VDD1
C8 VDD2
A8 VSUB
F6 VSA1
H1 VSA2
H6 VSA3
E2 VSA4
C2 VSA5
AGND
C4 VSS1
B8 VSS2
GND
RFIDAX D7
SD A7
CSX B7
Idata A6
Qdata B6
PCMDCLK C6
PCMSCLK C5
PCMTx B5
PCMRx D5
ResetX E8
RFIClk D8
TEST A5
GND
AFCOut G2
AuxDAC G6
AGCOut F5
TxCOut F4
TxIOutN H2
TxIOutP H3
TxQOutN G3
TxQOutP F3
EARN D2
EARP D1
AUXOUT D4
TxIPhsN H4
TxIPhsP G4
TxQPhsN H5
TxQPhsP G5
PData(0) E5
PData(1) E6
PData(2) E7
PData(3) D6
PData(4) C7
C203
27p
C204
27p
AGND
AGND
3
2
0
1
1
2
0
3
SERRFI(3:0)
E200 Solderpad for conection to MBUS
Can be shorted to E102
PCM(3:0)
COBBARESET
COBBACLK
AFC
RXC
TXC
TXIN
TXIP
TXQN
TXQP
EARN
EARP
AUXOUT
LIGHT2
PD2
LIGHT1

CPU



-C314
-J306 -J319 -R302

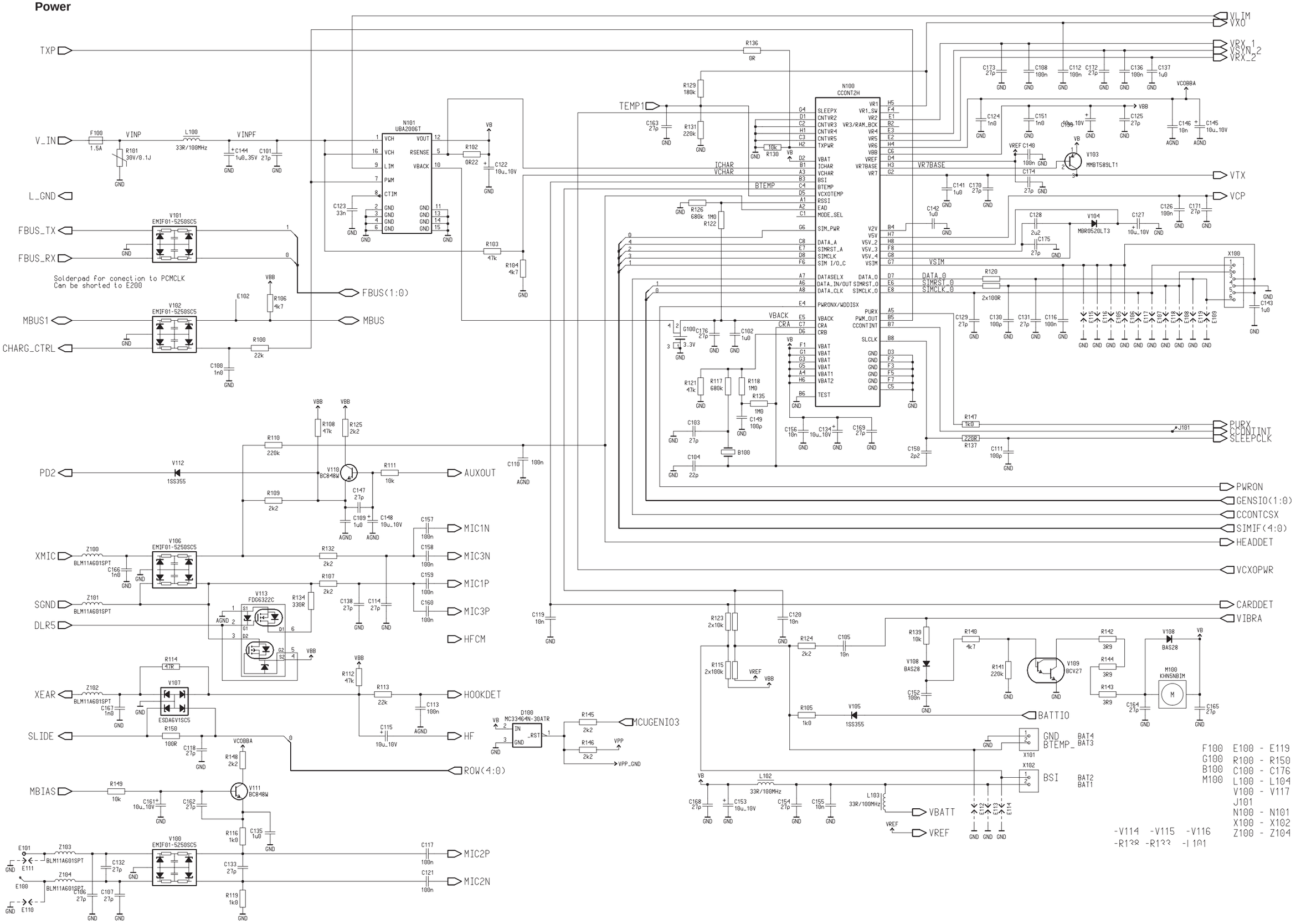
J300 - J325
R300 - R306
C300 - C314
D300 - D302



- R356

R350 - R358
C350 - C356
V350 - V351
N350
D350

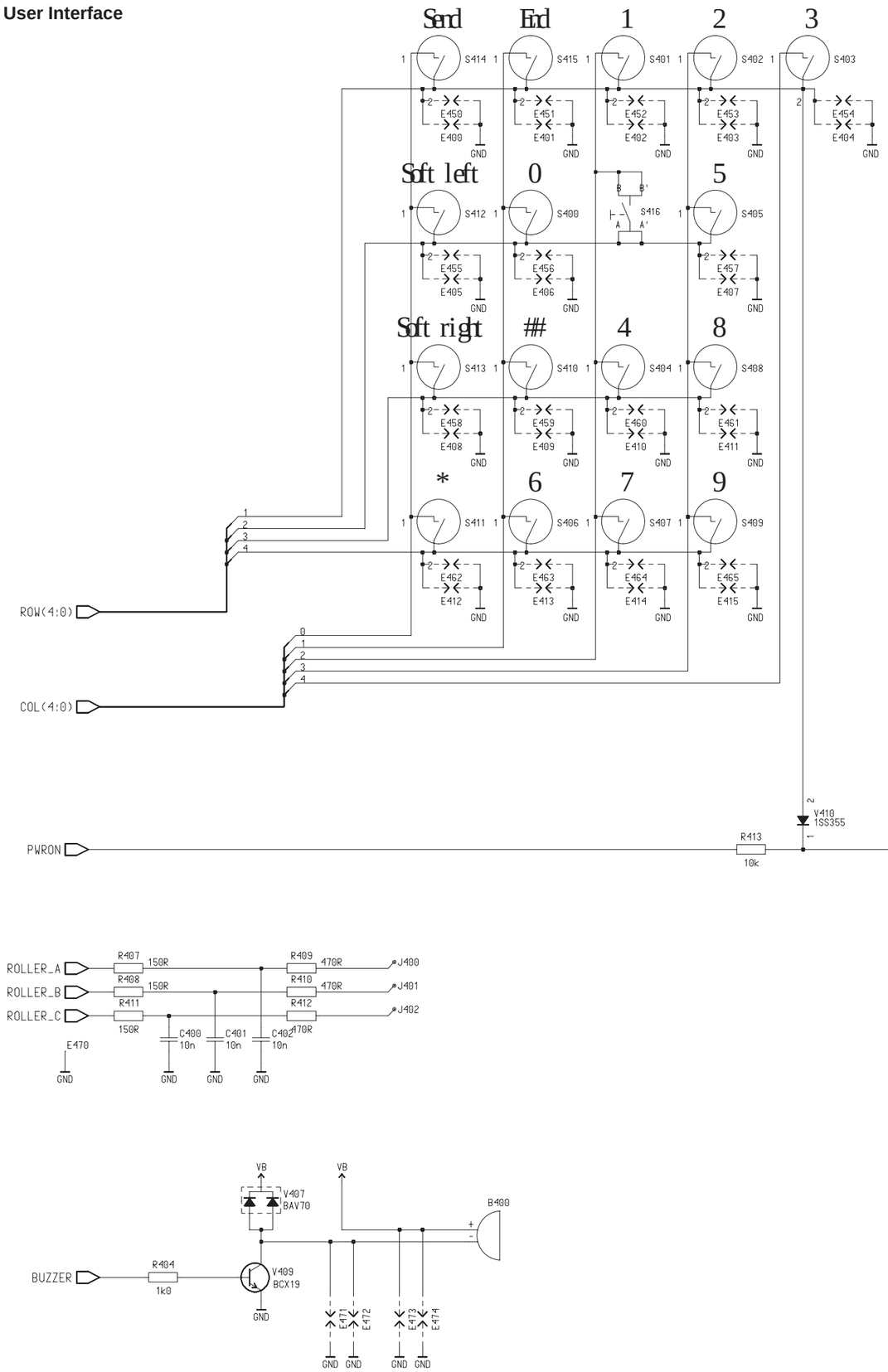
Power

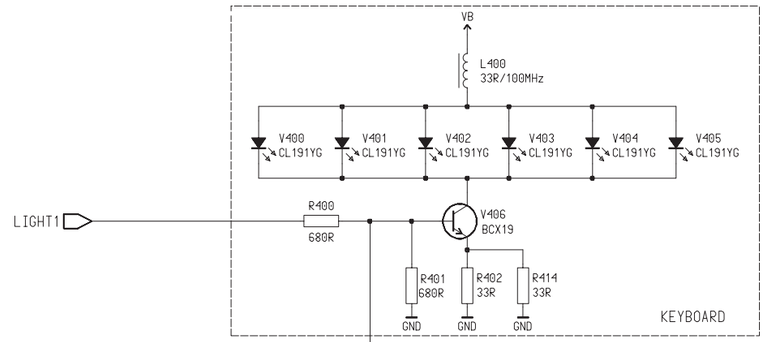


F100 E100 - E119
G100 R100 - R150
B100 C100 - C176
M100 L100 - L104
V100 - V117
J101
N100 - N101
X100 - X102
Z100 - Z104

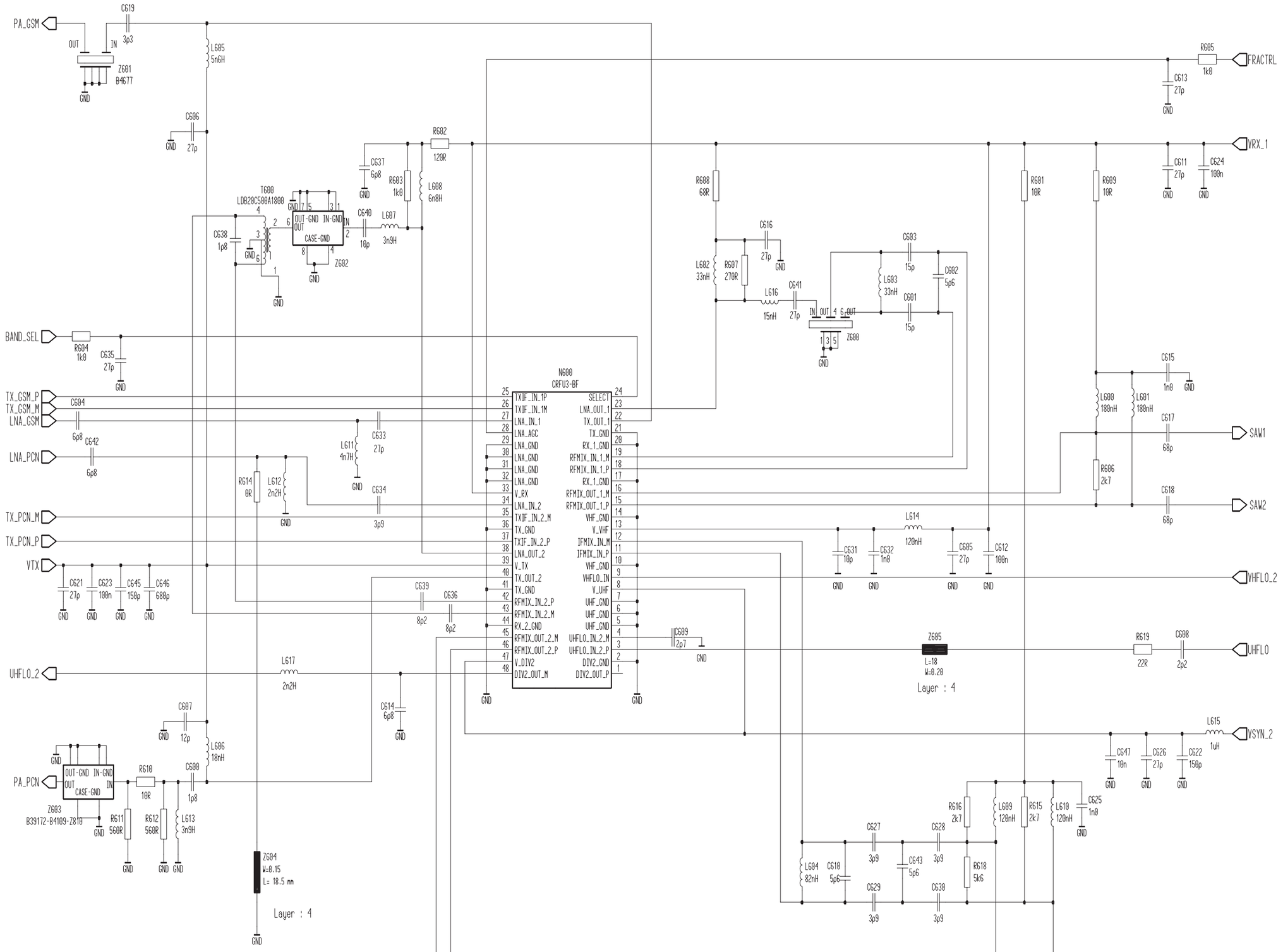
-V114 -V115 -V116
-R138 -R133 -L101

PlotDate: Dec 22 12:27:02



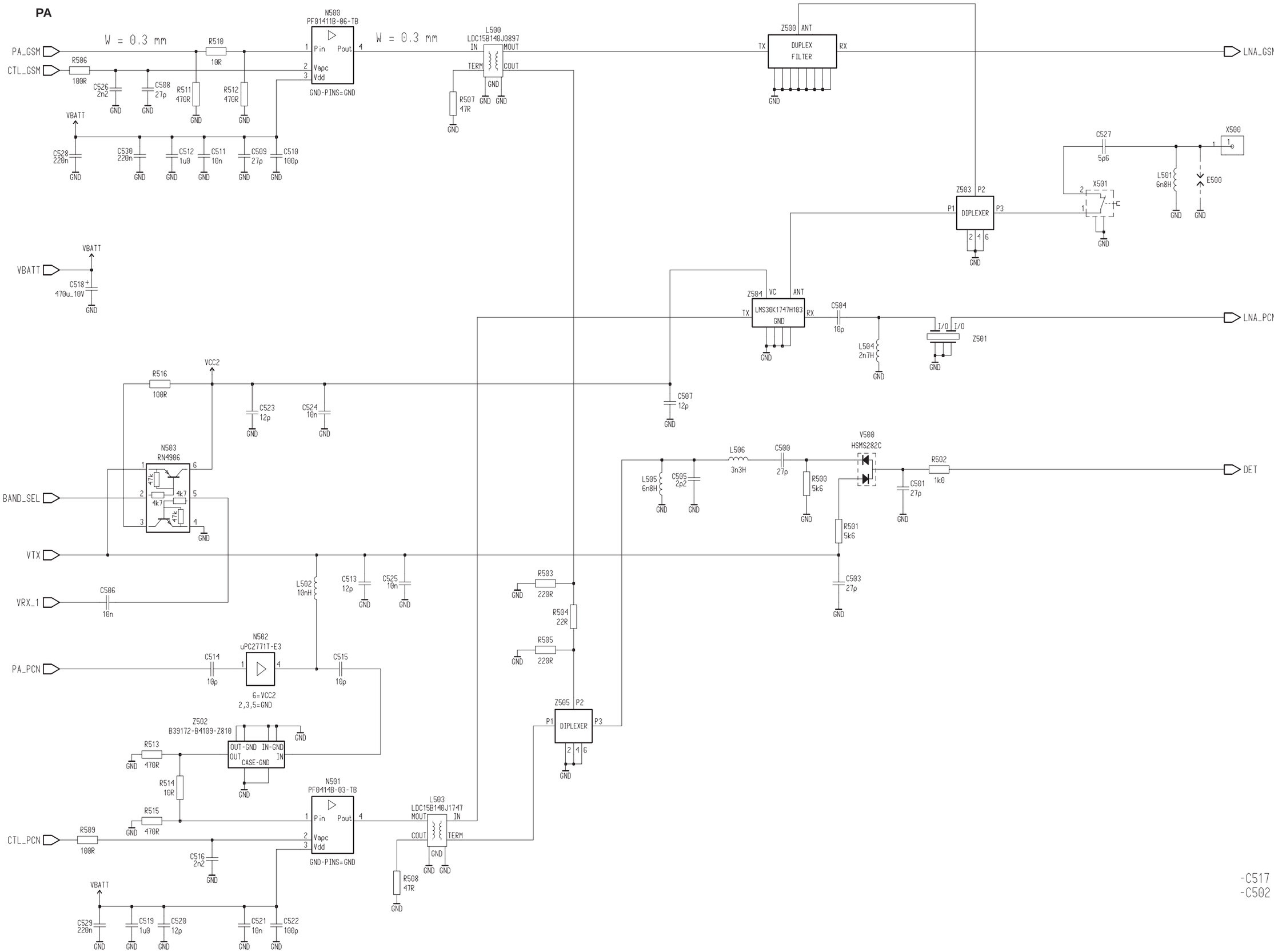


E470 - E474
E450 - E465
E400 - E427
C400 - C405
J400 - J402
S400 - S416
R400 - R414
V400 - V410
B400 - B401
L400
X400



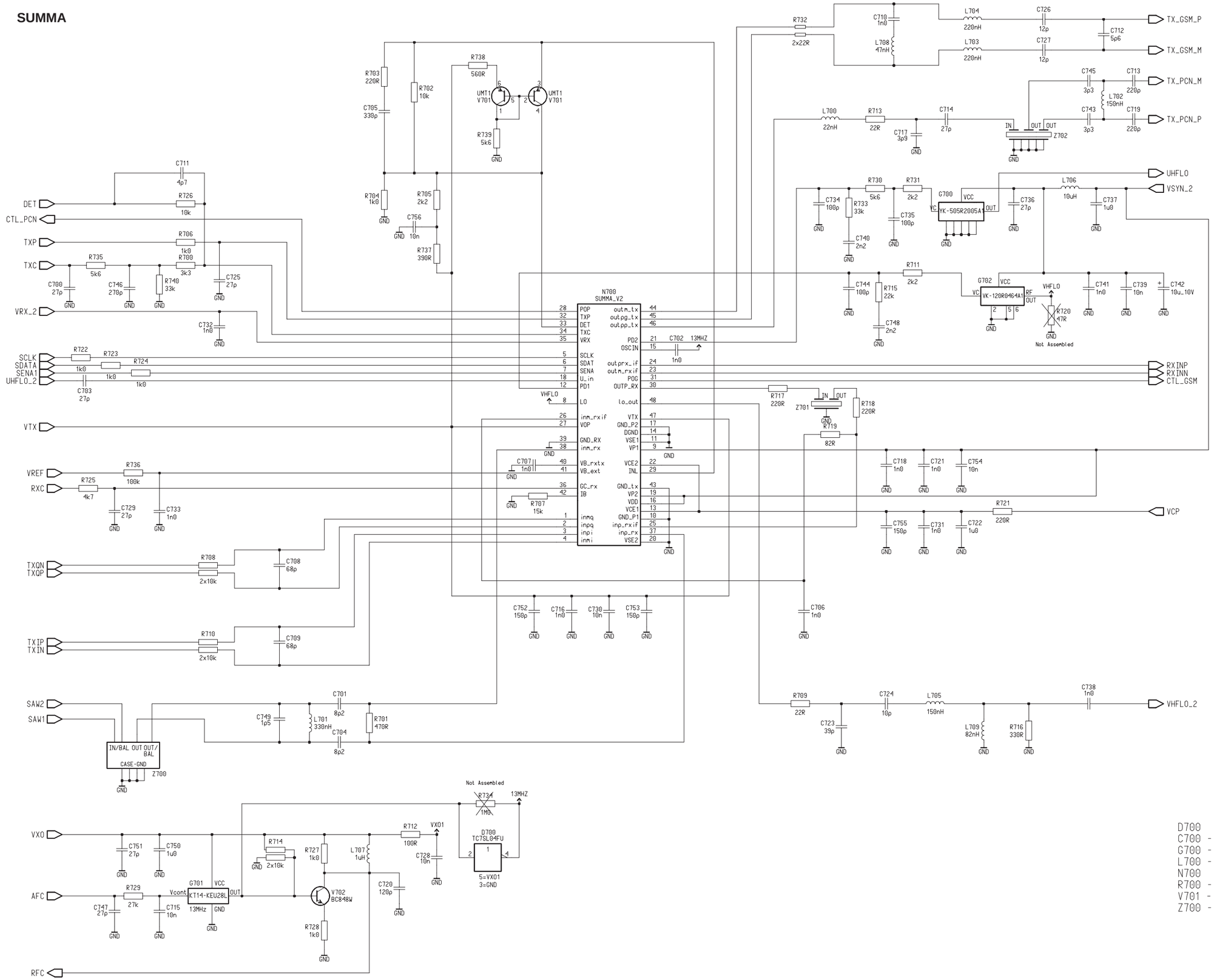
-C644 -C620 C600 - C647
L600 - L617
N600
-R617 -R613 R601 - R619
Z600 - Z605
T600
(A600 - A602)

PA



E500
N500 - N503
-C517 C500 - C530
-C502 L500 - L506
R500 - R517
V500
X500 - X501
Z500 - Z504

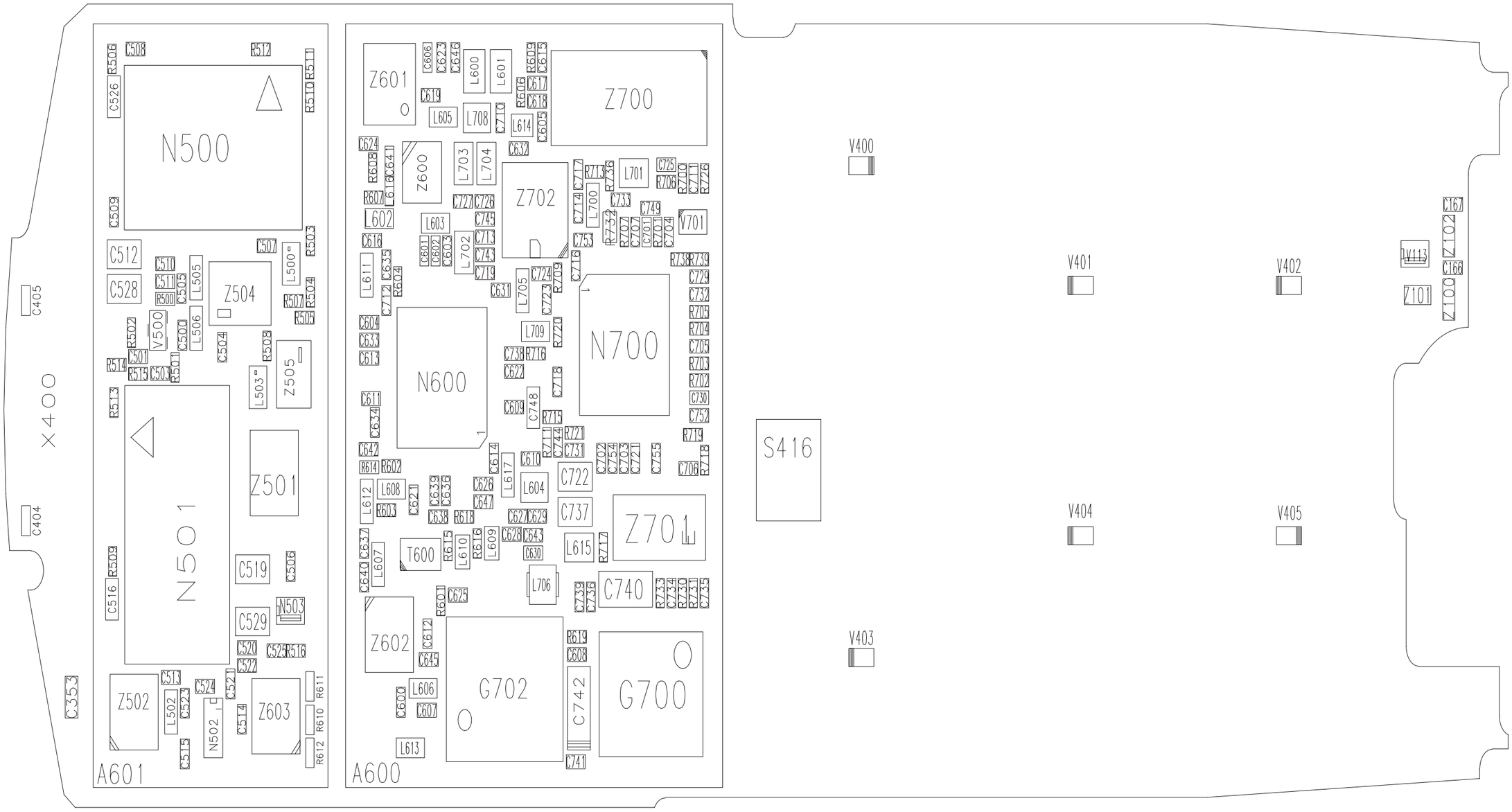
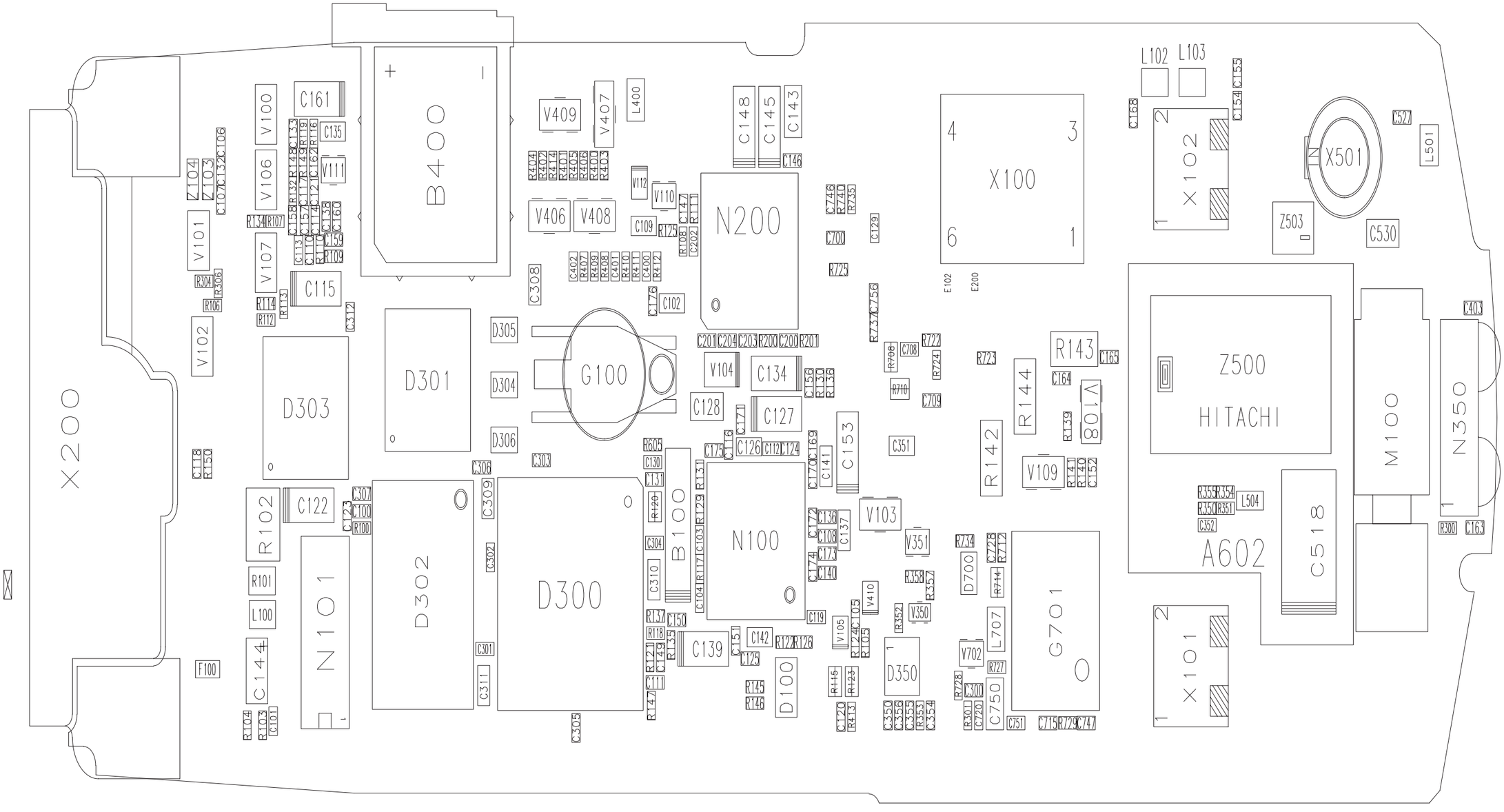
SUMMA



D700
C700 - C756
G700 - G702
L700 - L709
N700
R700 - R740
V701 - V702
Z700 - Z702

PlotDate: Dec 22 12:27:08

Component Layout – Top



Component Layout – Bottom