7. Schematic Diagrams

Note

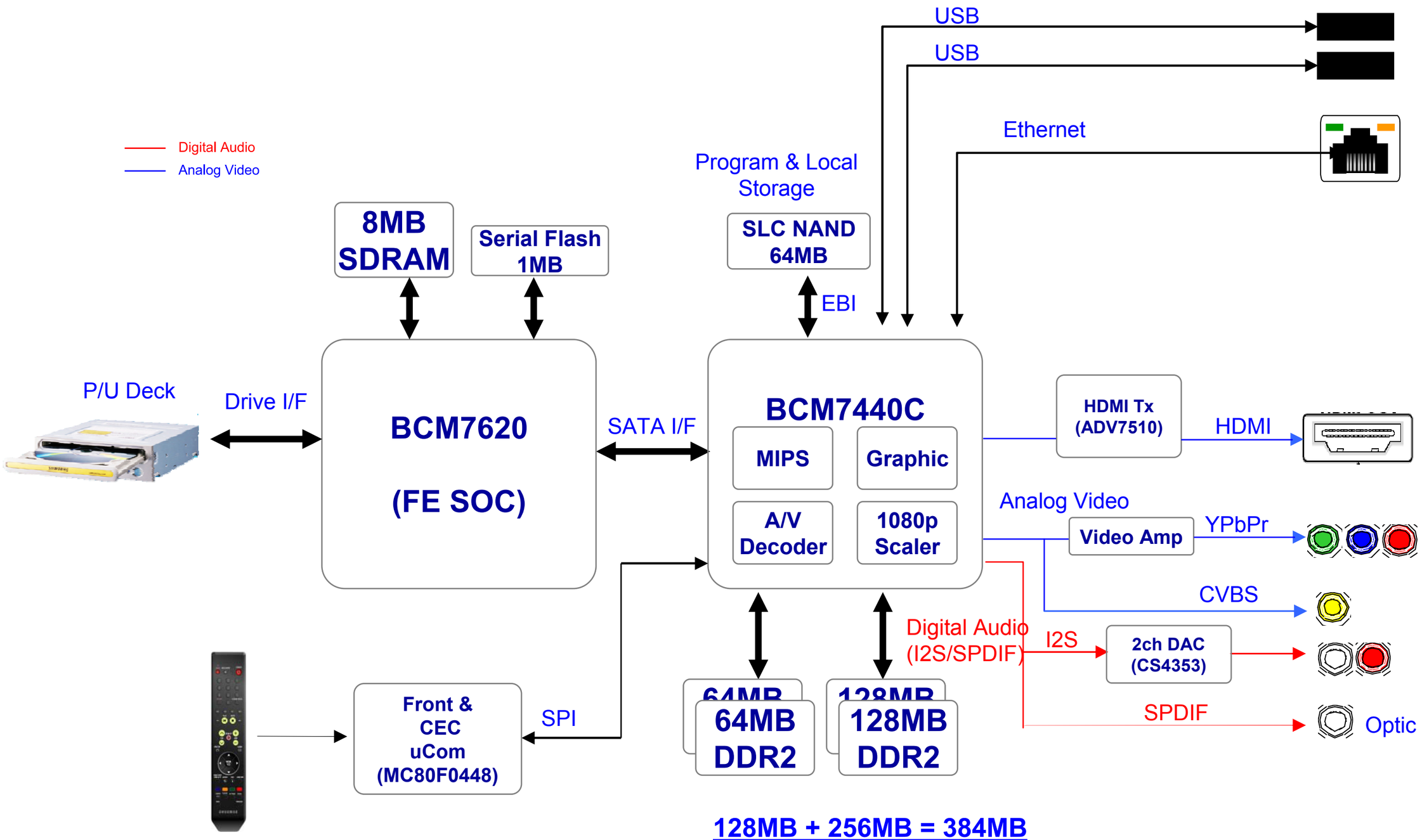
● For schematic Diagram
- Resistors are in ohms, 1/8W unless otherwise noted.

Special note :
Most semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the “electrostatically sensitive (ES) devices” section of this service manual.

Note :
Do not use the part number shown on this drawing for ordering. The correct part number is shown in the parts list (may be slightly different or amended since this drawing was prepared).

Important safety notices :
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components. Use only the same type.

7-1 All block Diagram



7-2 Power

7-2-1 About S.M.P.S (Ringing Choke Converter Method)

Terms
1) 1st : Common power input to 1st winding.
2) 2nd : Circuit followings output winding of transformer.
3) f (Frequency) : Switching frequency (T : Switching cycle)
4) Duty : (Ton/T) x 100

7-2-2 Circuit description [FLY-Back RCC(Ringing Choke Converter)] Control

(a) AC Power Rectification/Smoothing Terminal
1) A01~04 : Convert AC power to DC (Wave rectification).
2) CIS01 : Smooth the voltage converted to DC.
3) LIS01, LISO2, CIS04, CIS05 : Noise removal at power input/output.
4) RIS04 : Rush current limit resistance at the momemt of power cord insertion.
· Without PLRU1, the bridge diode might be damaged as the rush current increases.

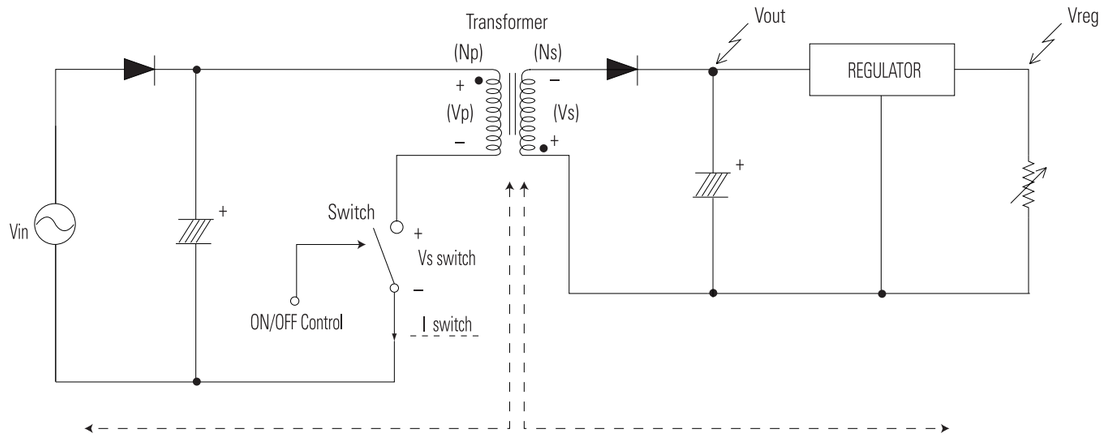
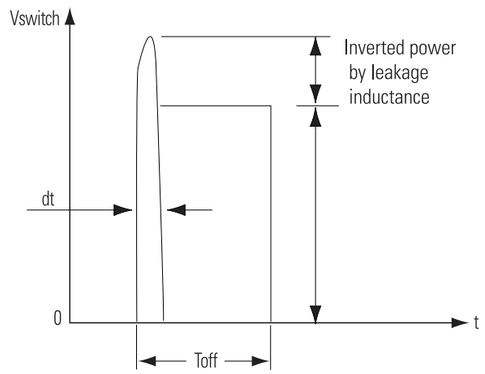


Fig. 7-1



(b) SNUBBER Circuit :
RIS02, RIS03, CIS08, CIS07, DIS05

1) Prevent residual high voltage at the terminals of switch during switch off/Suppress noise.
High inverted power occurs at switch off, because of the 1st winding of transformer :
(V=-L1 xdi/dt. L1 : Leakage Induction)
A very high residual voltage exist on both terminals of ICIS01 because dt is a very short.

2) SNUBBER circuit protects ICIS01 from damage through leakage voltage suppression by RC,
(Charges the leakage voltage to DIS05 and CIS08 and discharges to RIS03, RIS02).

3) CIS07 : For noise removal

Fig. 7-2

(c) IC1S01 Vcc circuit
1) ICIS01, RIS05, RIS07,RIS08 : ICIS01 driving resistance (ICIS01 works through driving resistance at power cord in)

2) ICIS01 Vcc : RIS05, RIS07, RIS08
❶ Use the output of transformer as Vcc,because the current starts to flow into transformer while ICIS01 is active
❷ Rectify to DIS07 and smooth to CIS09.
❸ Use the output of transformer as ICIS01 Vcc : The loads are different before and after ICIS01 driving. (Vcc of ICIS01 decreases below OFF voltage , using only the resistance dut to lode increase after ICIS01 driving.)

(d) Feedback Control Circuit

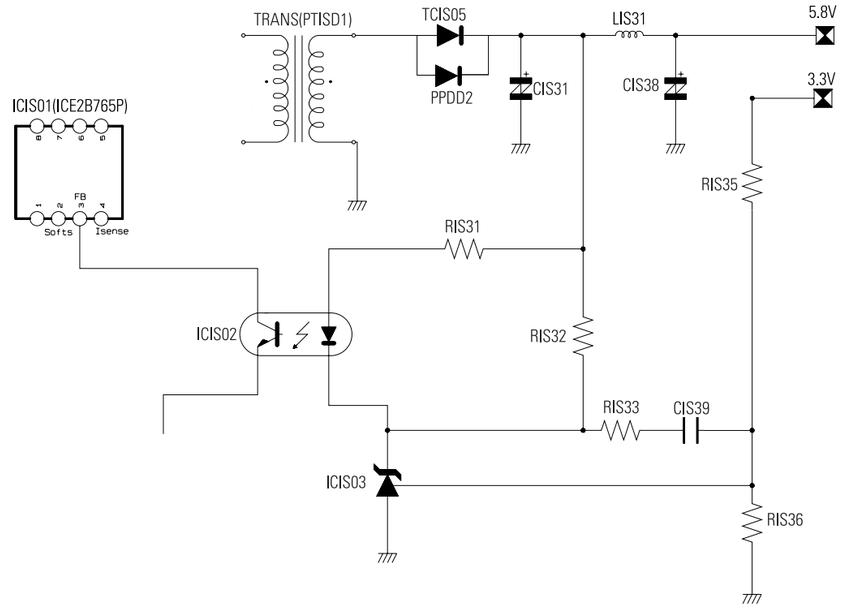


Fig. 7-3

1) F/B terminal of PQIZ1 determines output duty cyle.
2) C-E (Collector-Emitter) of PQIZ1 and F/B potential of PQIZ1 are same.

7-2-3 Internal Block Diagram (Internal Block Diagram of S.M.P.S Circuit)

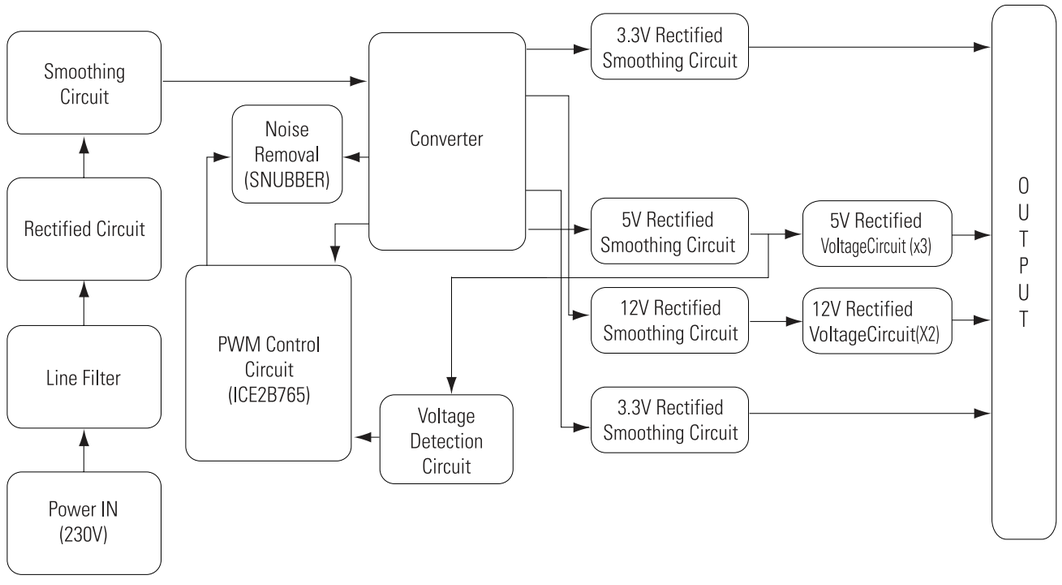
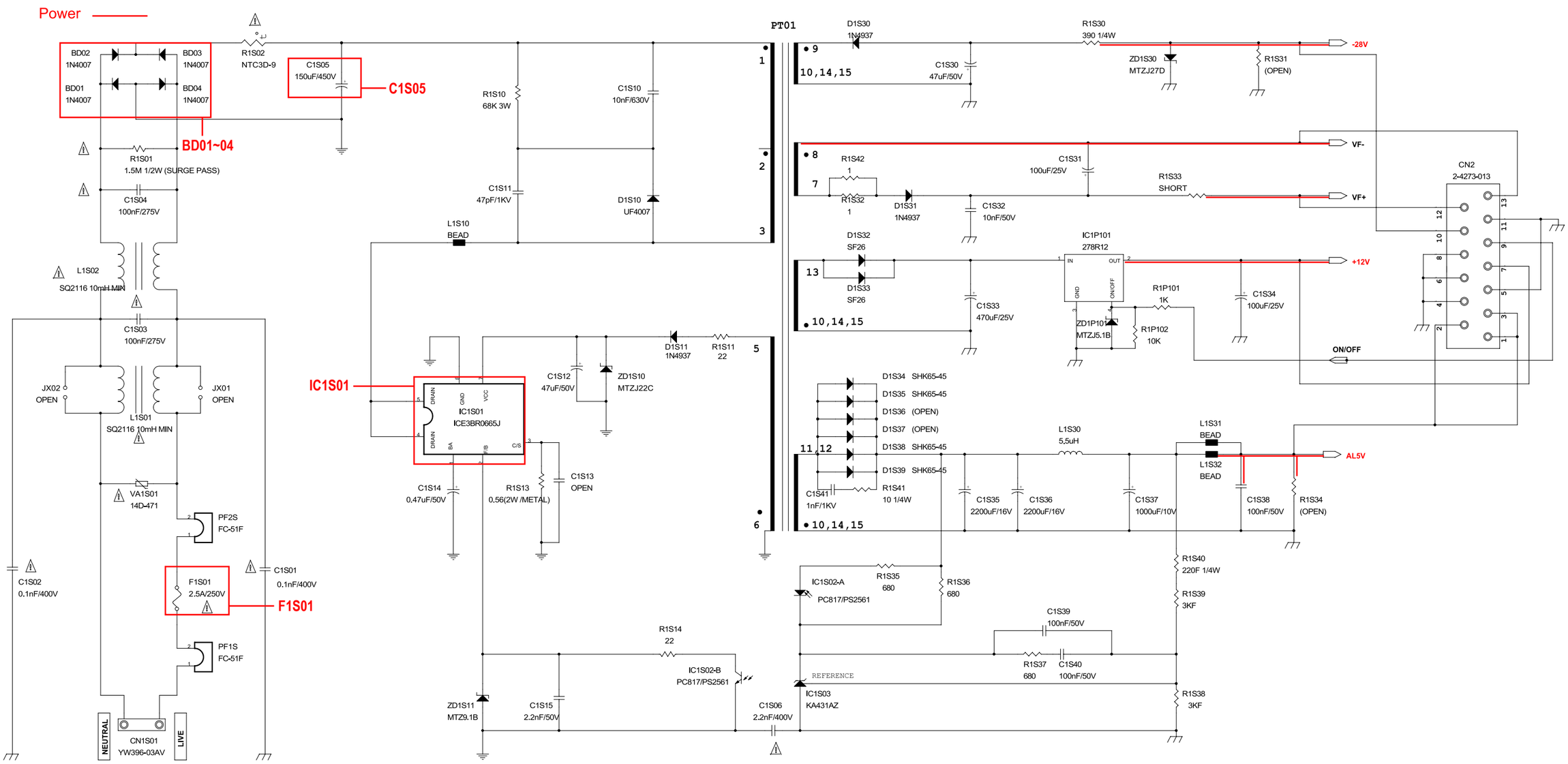
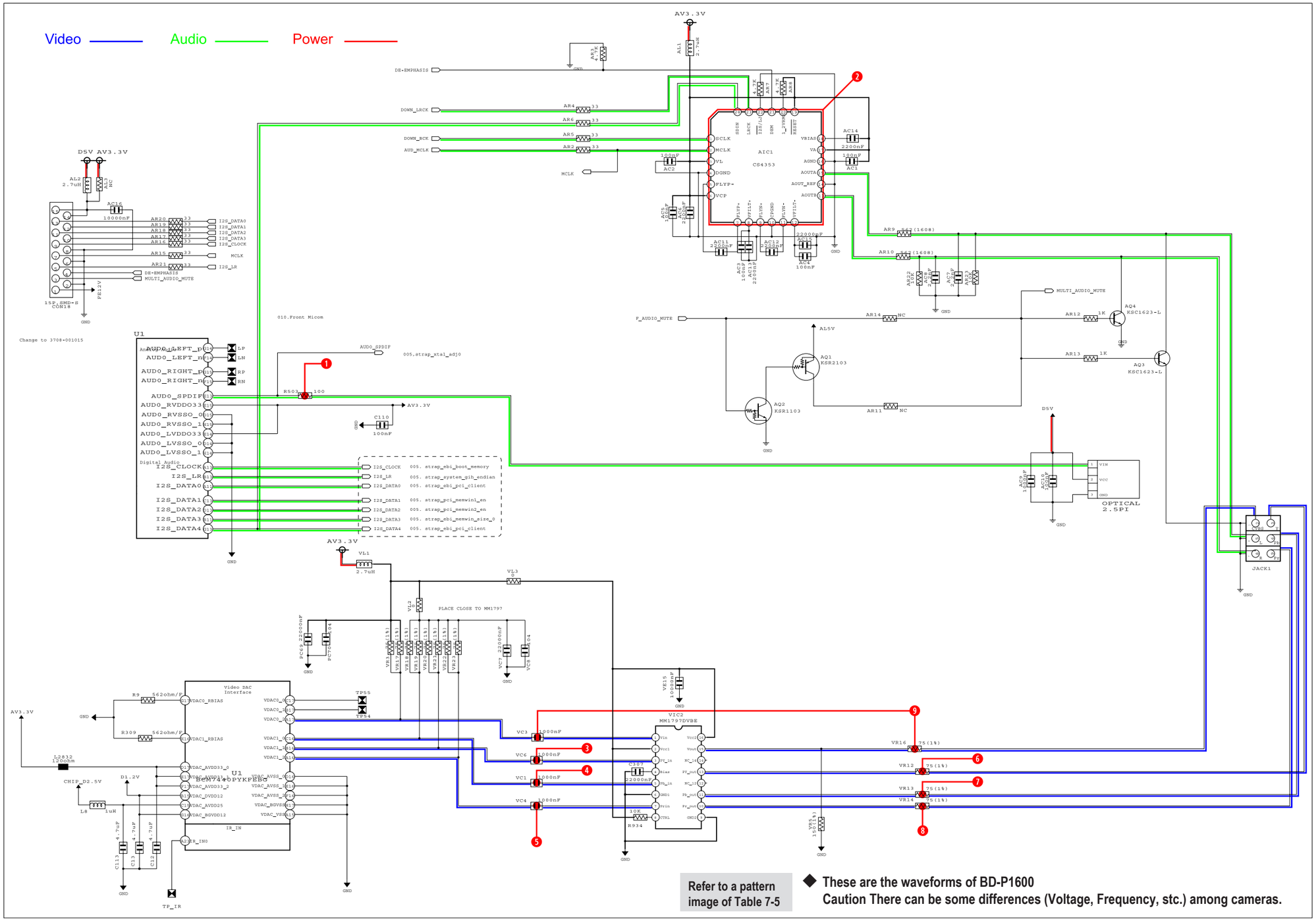


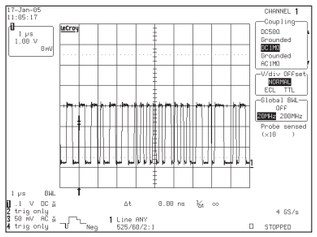
Fig. 7-4

7-3 S.M.P.S (S.M.P.S PCB)

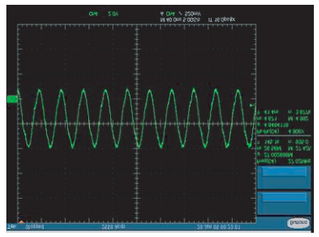


7-4 Anlog Audio (2ch)/Video (CVBS, Component)(Main PCB)

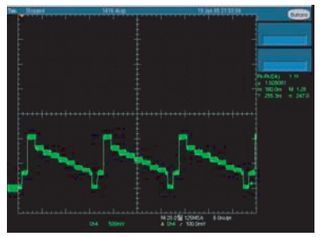




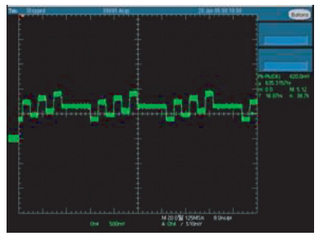
❶ DIGITAL AUDIO DATA
AR160



❷ ANALOG AUDIO DATA
AIC1

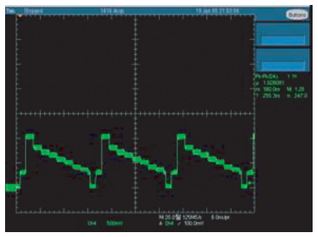


❸ Y(Color-bar)
Pin VC6

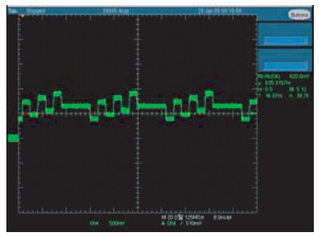


❹ Pb(Color-bar)
Pin VC1

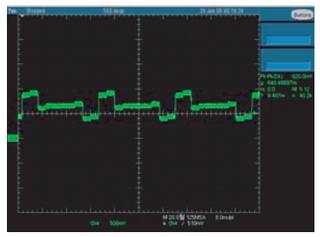
❺ Pr(Color-bar)
Pin VC4



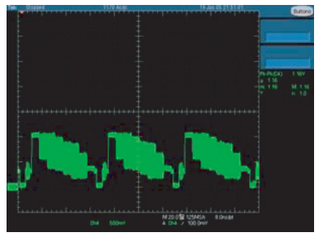
❻ Y(Color-bar)
Pin-VR12



❼ Pb(Color-bar)
Pin-VR13



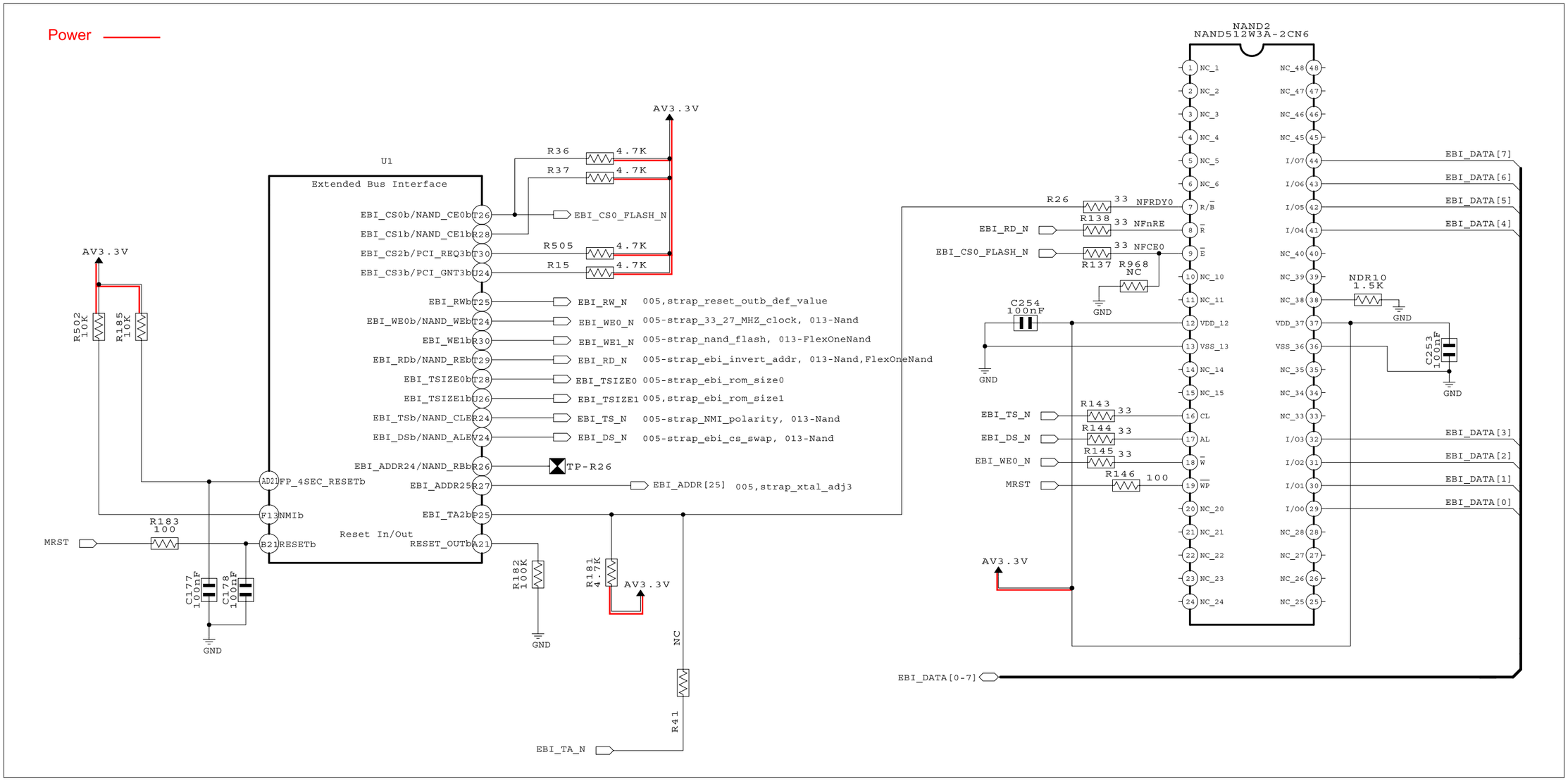
❽ Pr(Color-bar)
Pin-VR14



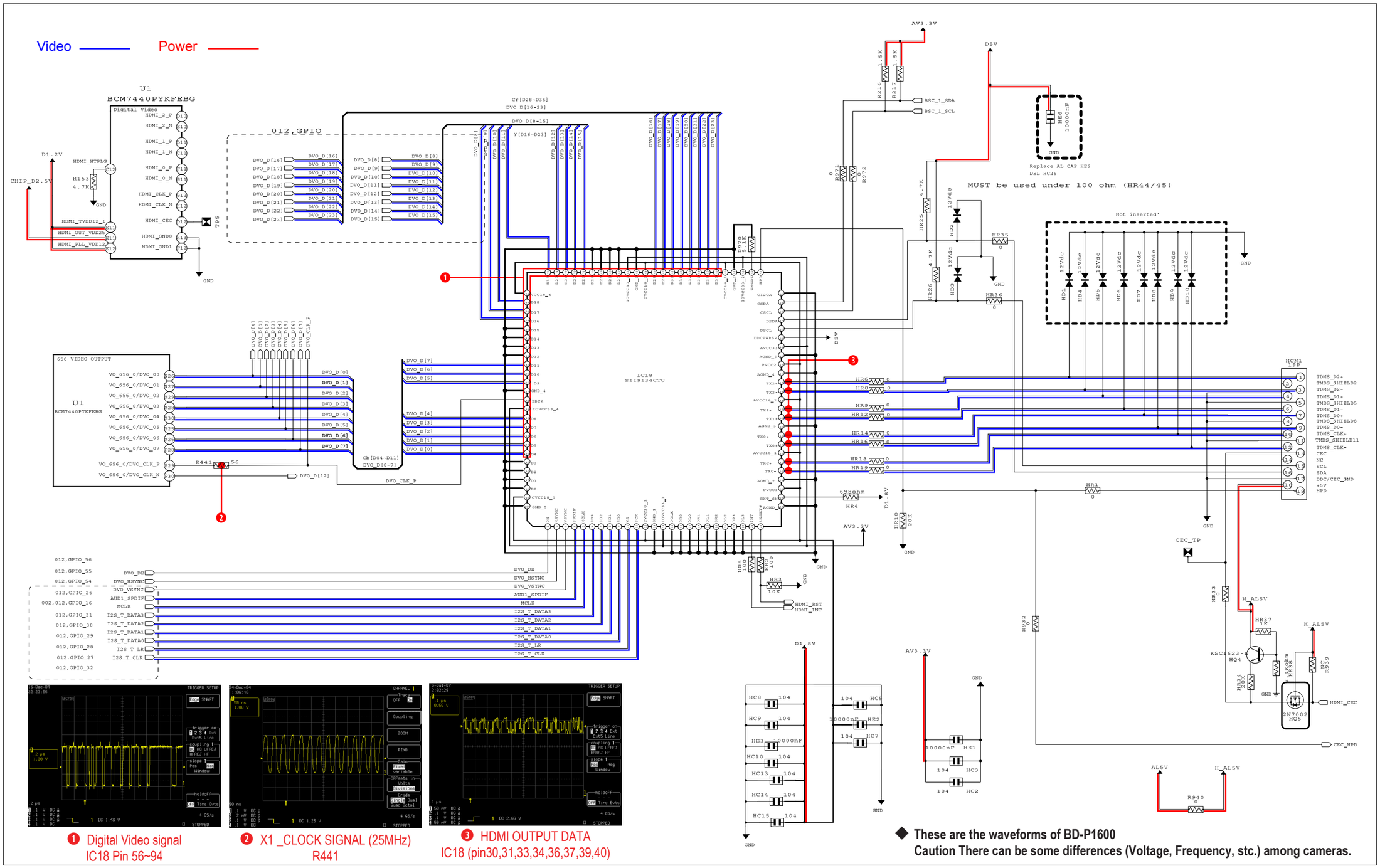
❾ CVBS(Color-bar)
Pin (VC 3, VR16)

Fig. 7-5

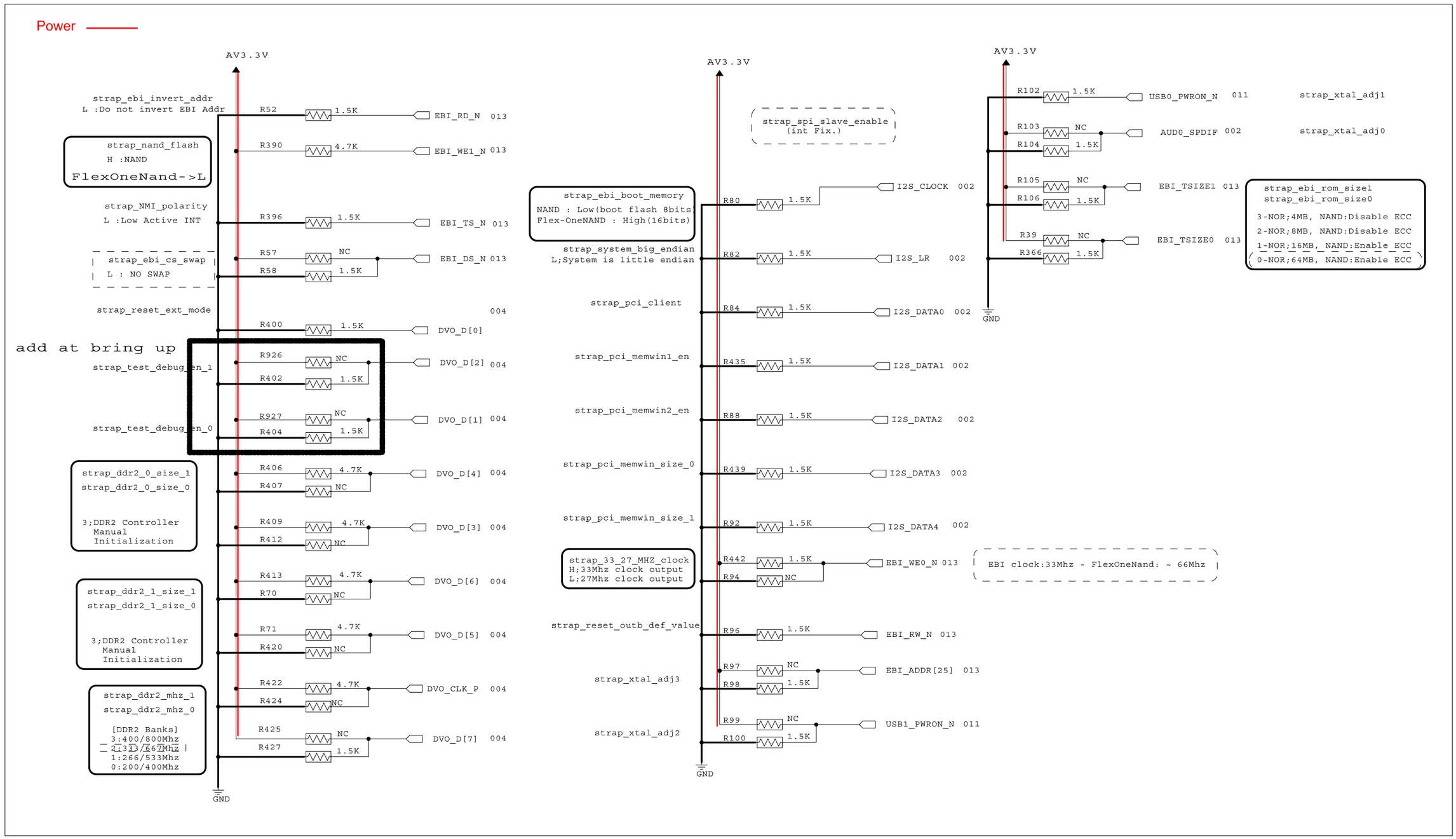
7-5 NAND Flash, FlexOneNand (Main PCB)



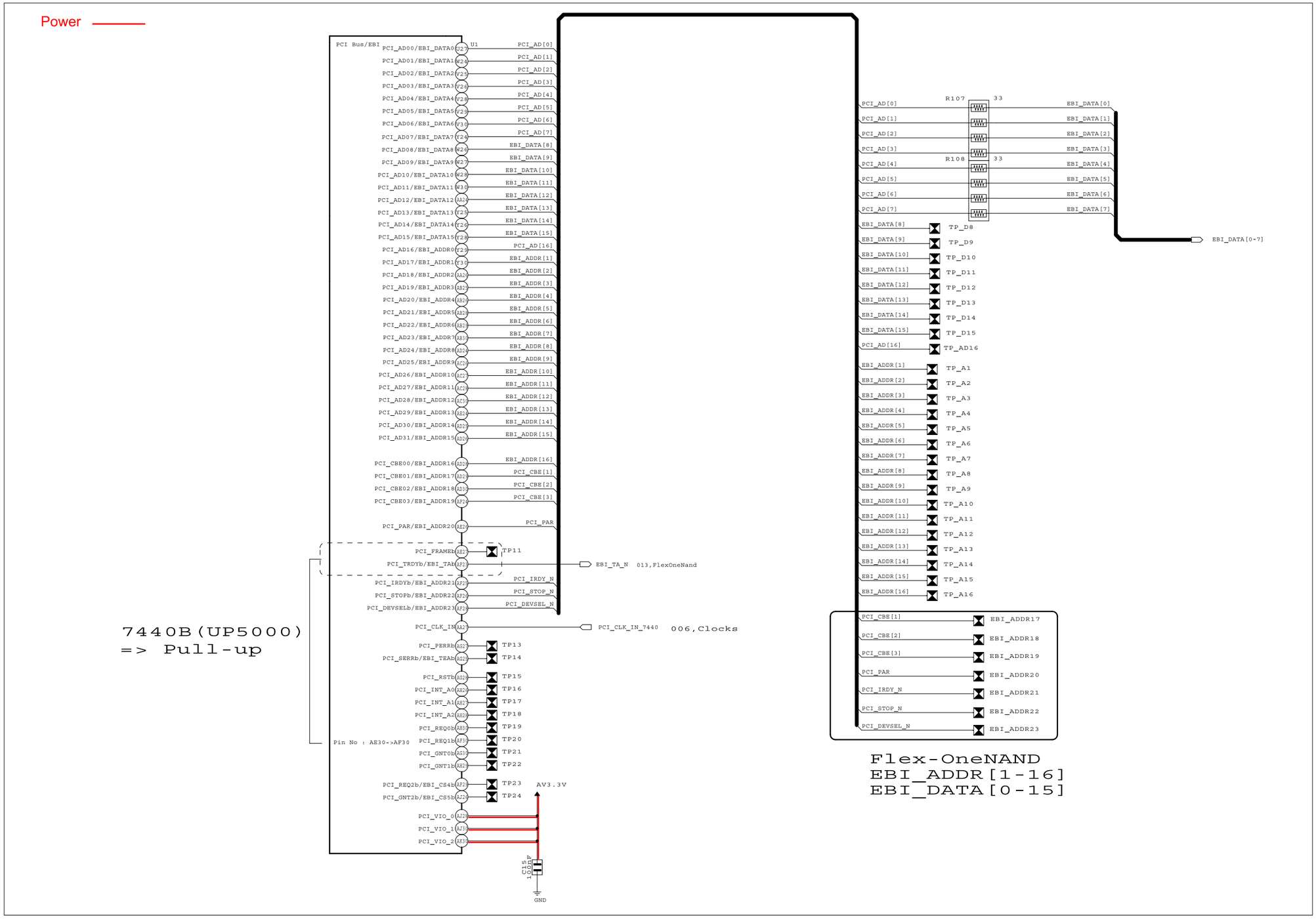
7-6 HDMI Transmitter (SIL9134)(Main PCB)



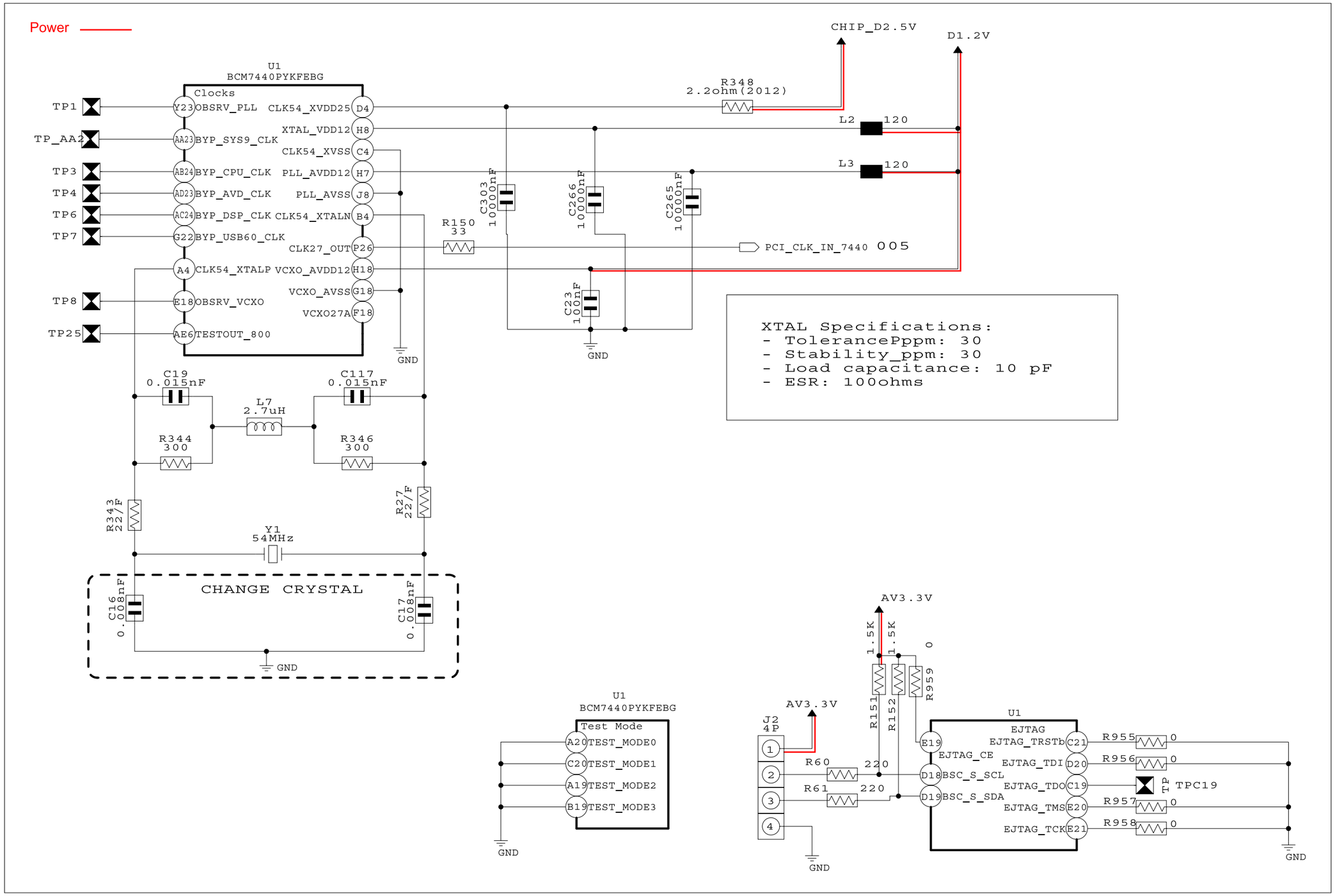
7-7 7440 Boot Strap Option (Main PCB)



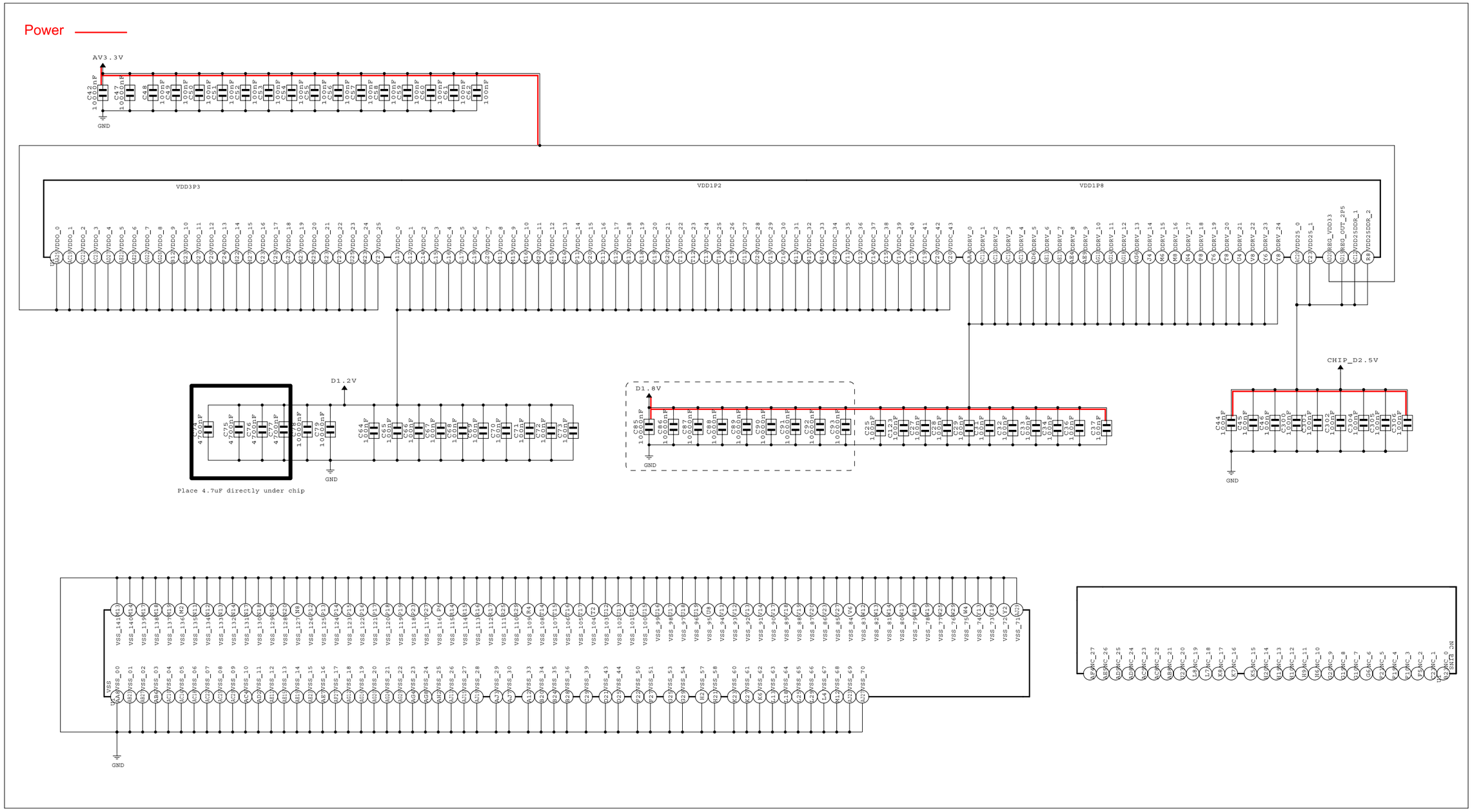
7-8 7440 EBI_ADDR, EBI_DATA (Main PCB)



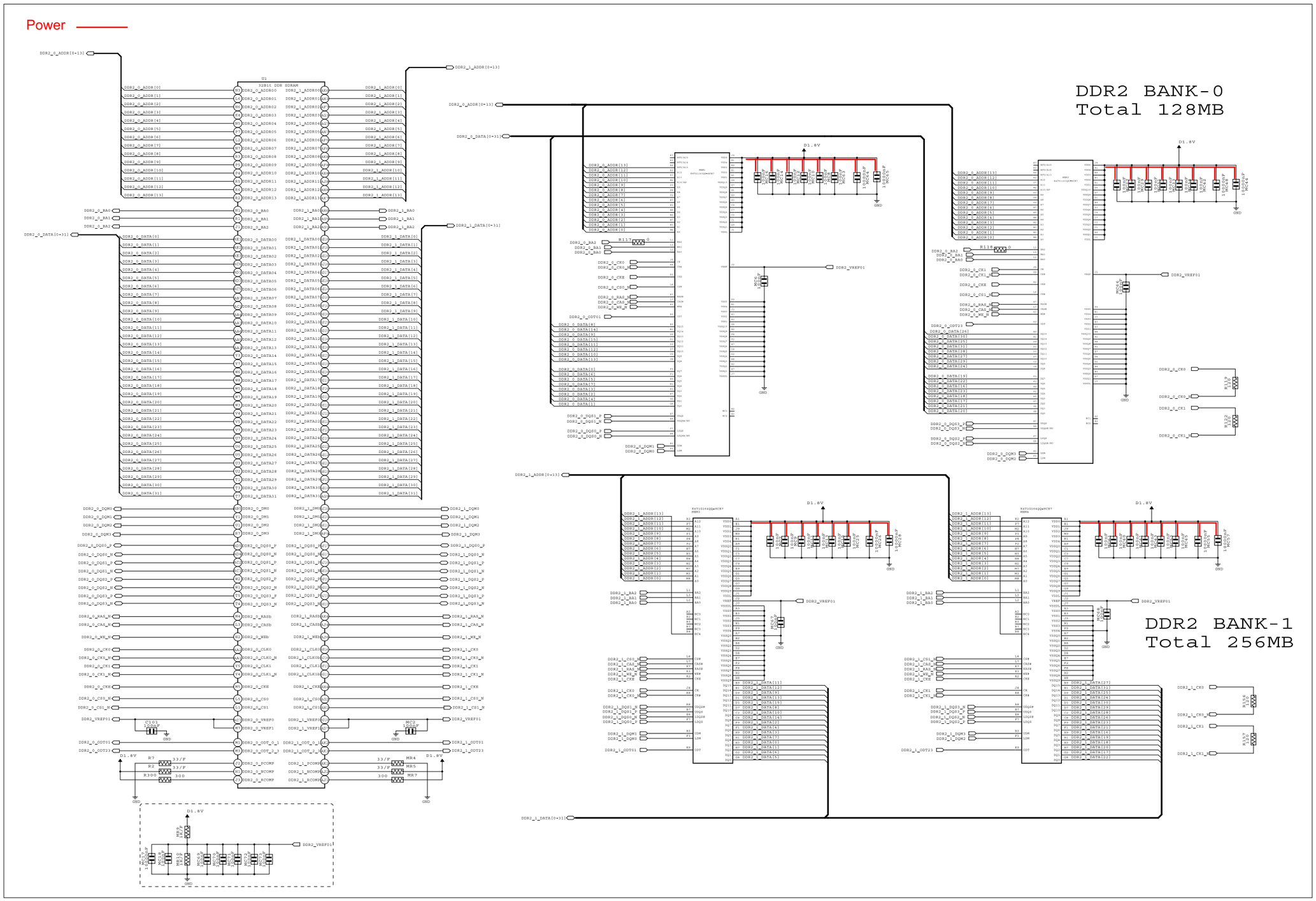
7-9 7440 Clocks, BBS (Main PCB)



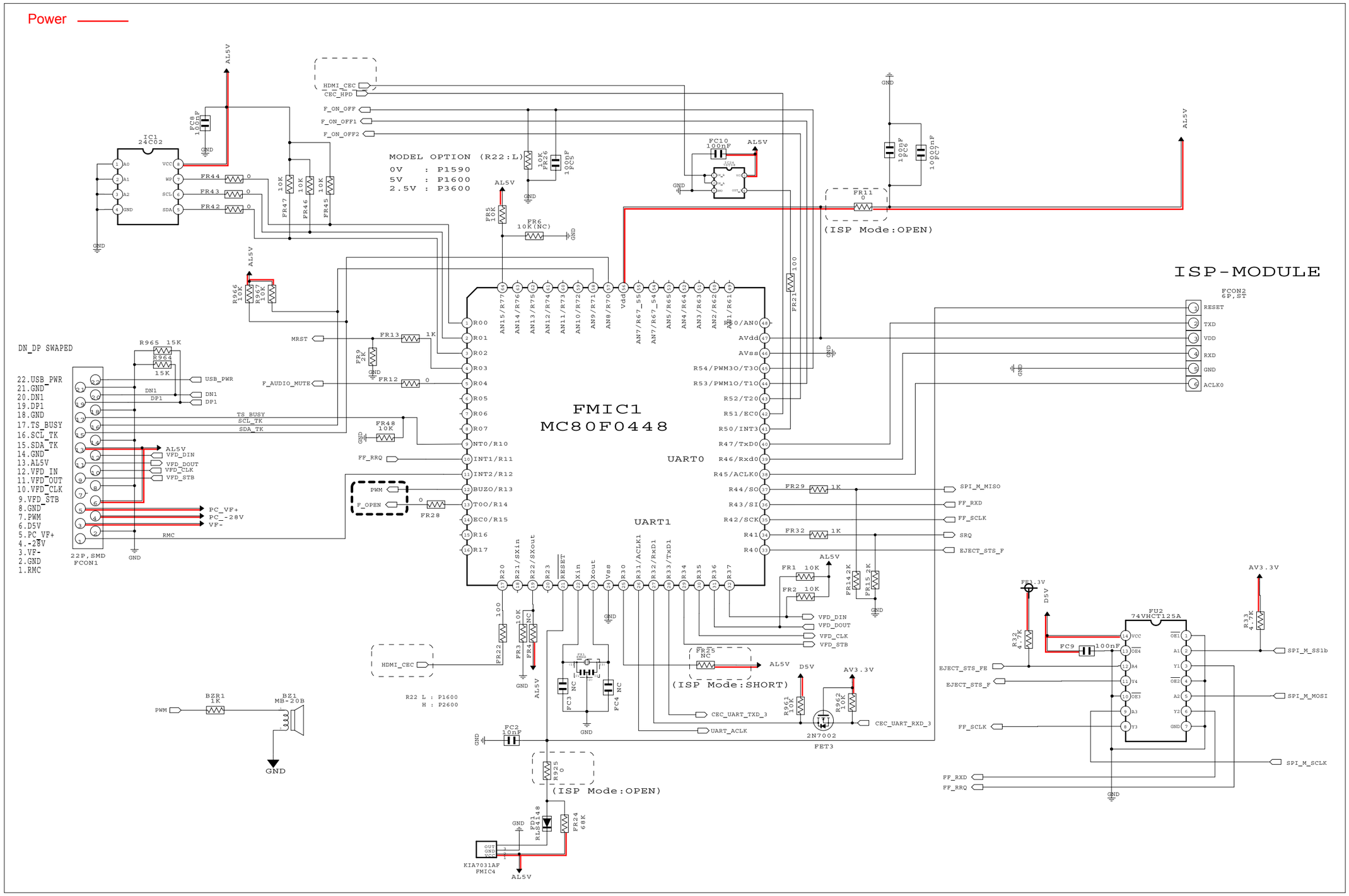
7-10 7440 Power, Decoupling (Main PCB)



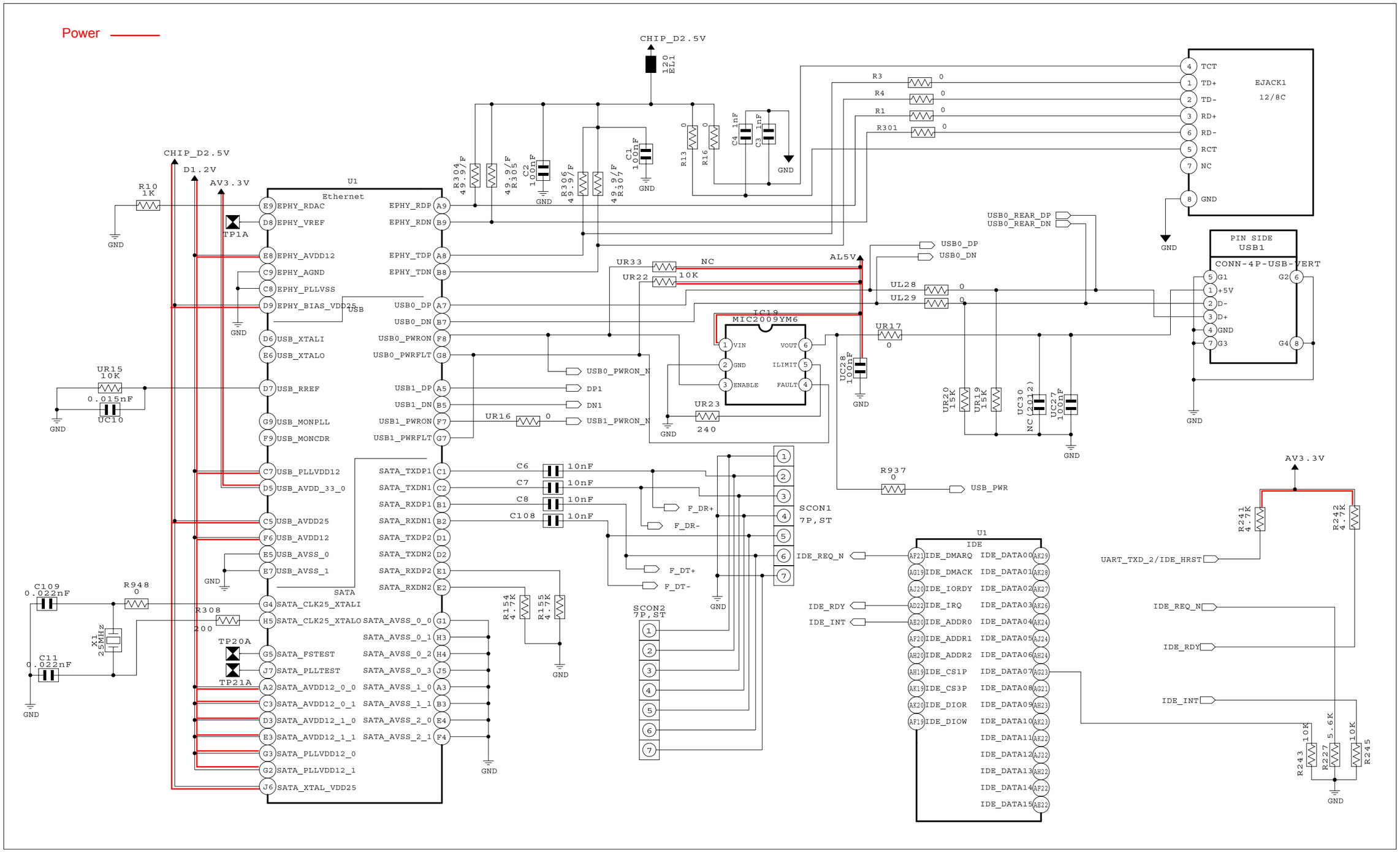
7-11 DDR2 BANK0, BANK1 (Main PCB)



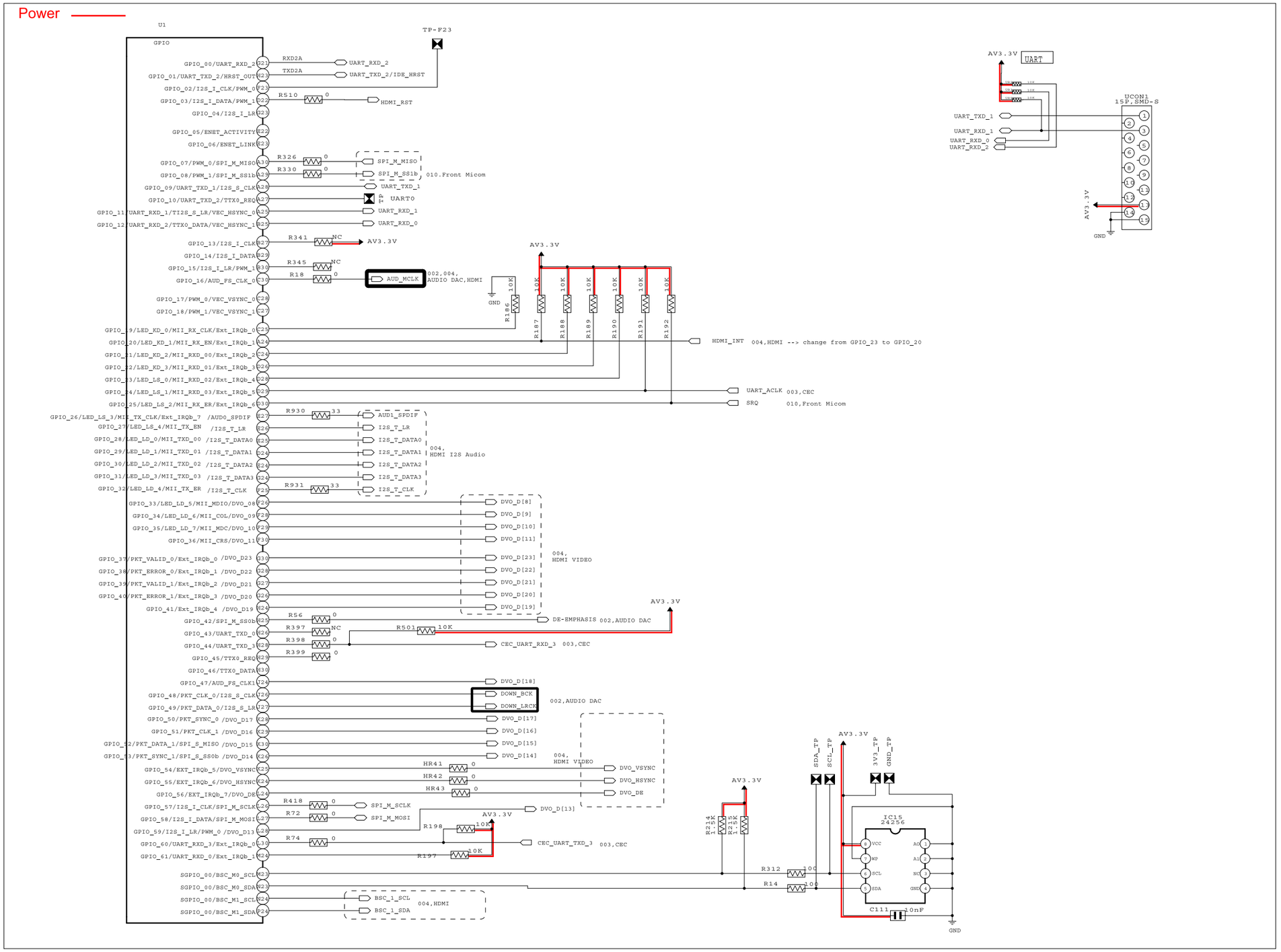
7-12 Front Micom (Main PCB)



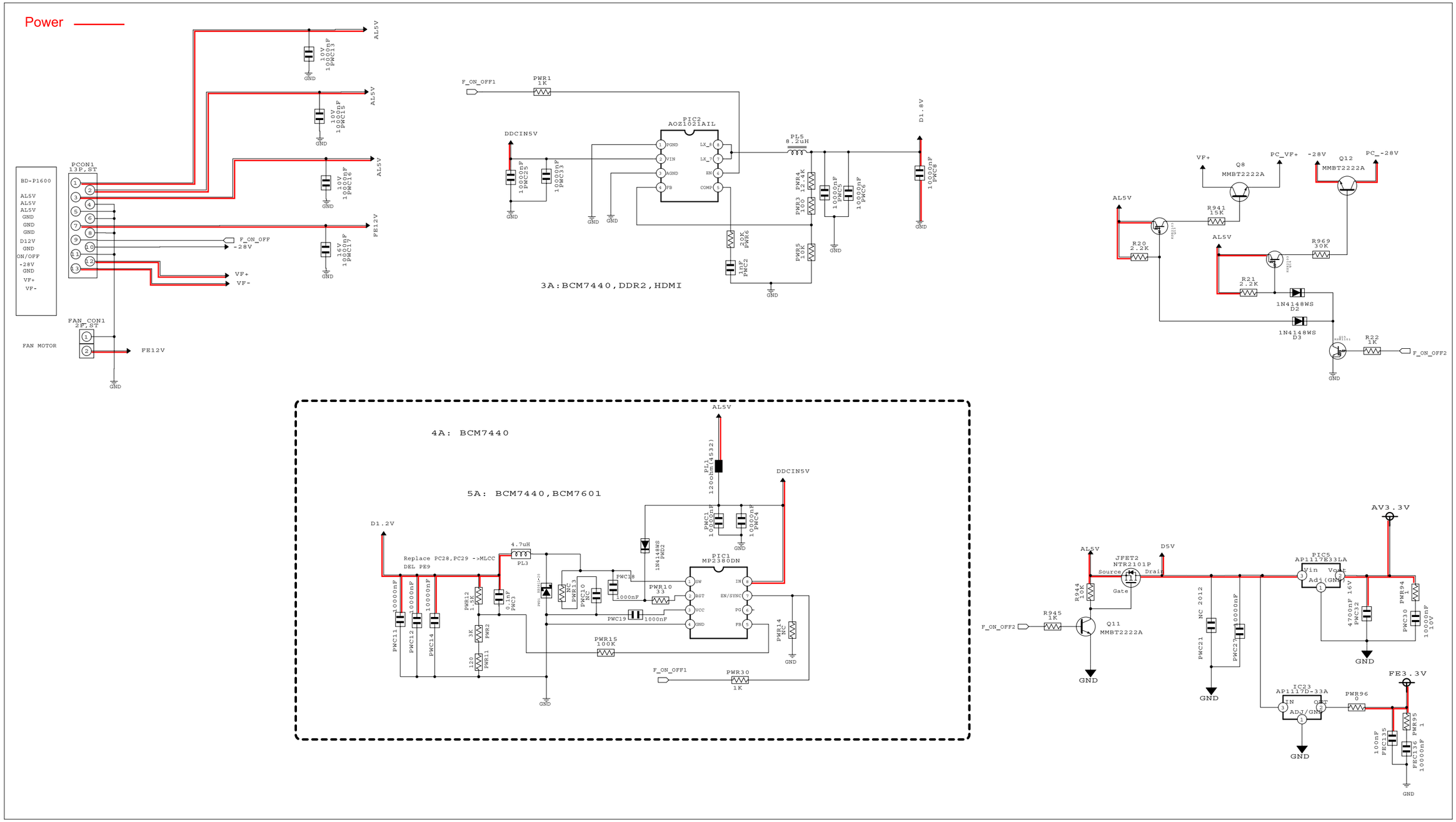
7-13 Ethernet, USB, S-ATA, P-ATA (Main PCB)



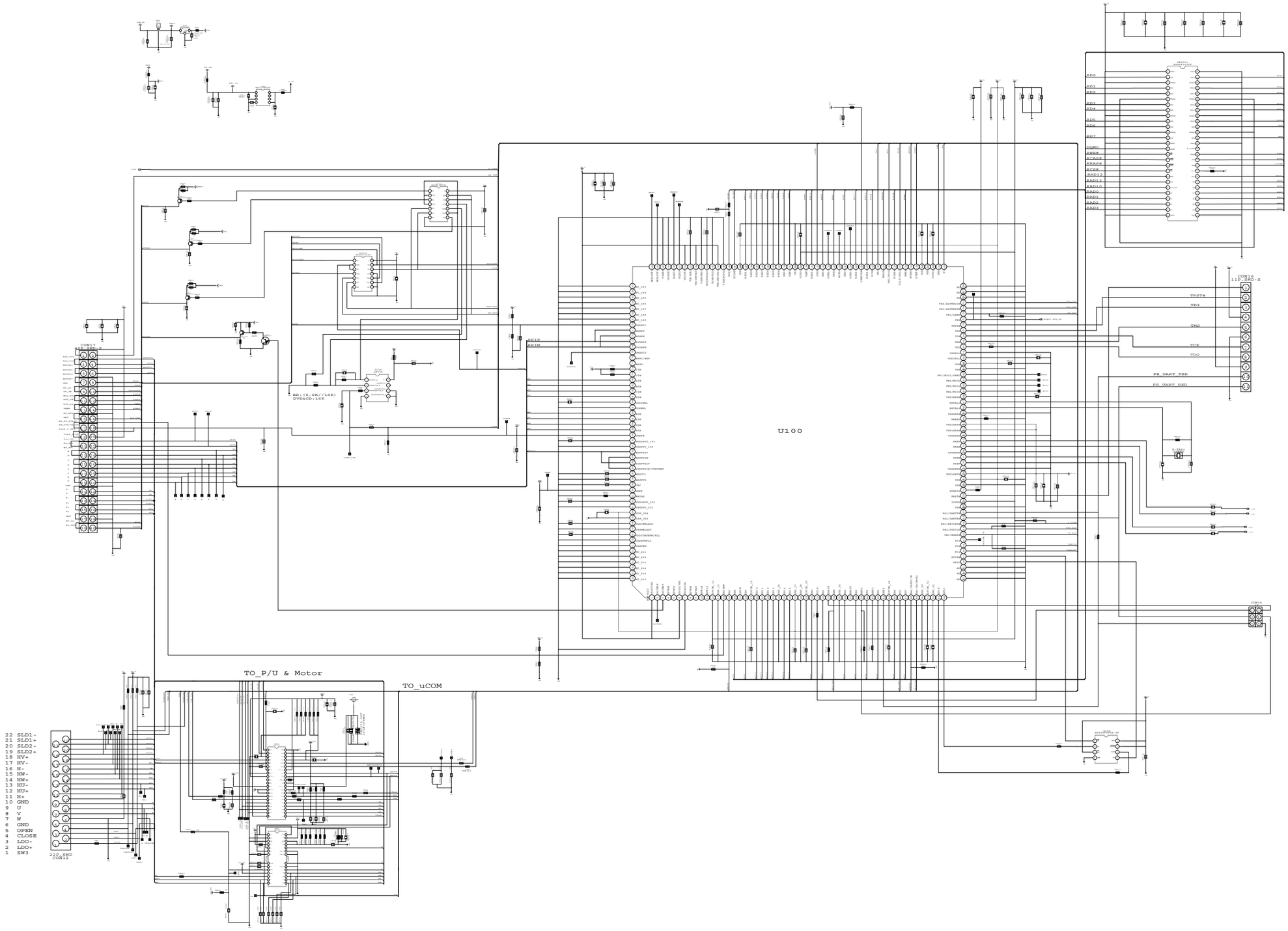
7-14 GPIO Block (Main PCB)



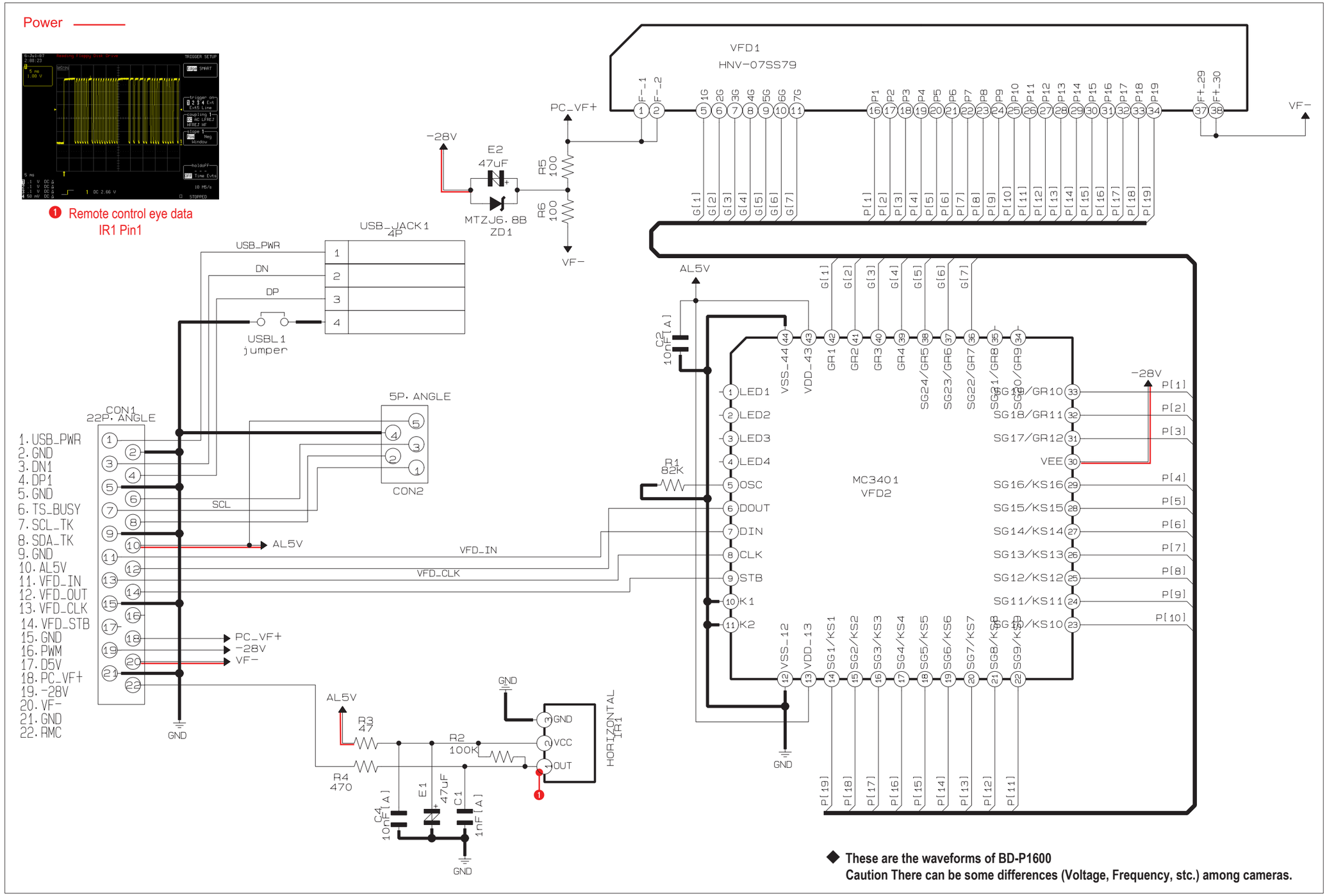
7-15 Main Power (Main PCB)



7-16 BCM7620 (F/E)(Main PCB)

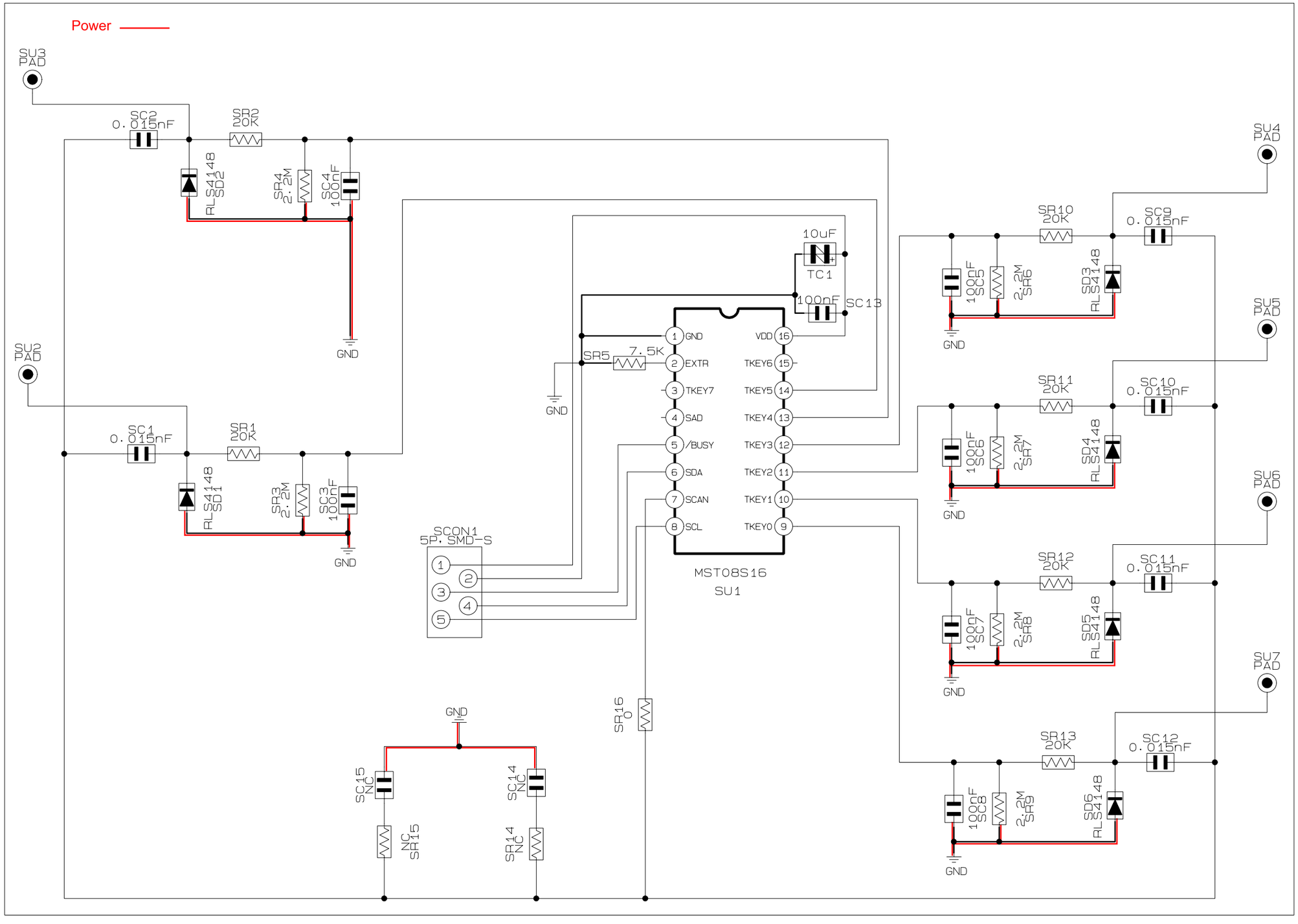


7-17 Front Key (Front PCB)



◆ **These are the waveforms of BD-P1600**
Caution There can be some differences (Voltage, Frequency, stc.) among cameras.

7-18 Touch Key PCB (Touch PCB)



MEMO